THE HOME-KEEPING BOOK

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Food Administration
SUPPLEMENT

With Sub-Supplement for the Fuel Administration

THIS SUPPLEMENT
is prepared principally

from bulletins
issued by the

U. S. Food Administration

together with bulletins
of the

Fuel Administration

Department of Agriculture

of the U. S., and of New York
and other States

The contents are of serious import as bearing on the immediate needs of our country in the War Situation

Current as of Date
July, 1918

The following pages will be changed with subsequent editions

for the purpose of adapting each edition as fully as possible to the latest current doctrines and recommendations of the **U. S. Food Administration,** the Department of Agriculture and other national and state commissions and bureaus in

> **helping the public solve the special economic problems** relating to the disturbed conditions to which the American public must now and shall be compelled to continue to **make constant readjustment.**

It is thought best that the **main body of the volume** shall not be too far amended to fit these changing conditions. The Home-Keeping Book is intended for a permanent addition to the home library. The text of the book should remain as it is compiled, to fit usual and normal times, amended only to fit changes which will or should become permanent in our manner of life.

The "home-keeper" however **positively must take into consideration and put into practice** during the national emergency the special economies, the substitutions, and the **spirit of co-operation** in the stoppage of waste and other conservation measures, as are

specially outlined in the pages of this SUPPLEMENT

The Home-Keeping Book

AUG -1'1918

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UNTIL NEXT HARVEST

UNITED STATES FOOD ADMINISTRATION — Washington, April, 1918

Now is the hour of our testing. Let us make it the hour of our victory—victory over ourselves; victory over the enemy of freedom —Home Card, 1918.

The following restrictions are a military necessity:

Cut down the consumption of wheat by at least one-half.

Households keep within a weekly allowance for each person of one and a half pounds of flour and all other wheat products.

Public eating places keep within the same allowance for every twenty-one meals served; not more than two ounces of wheat products, flour included, to be served to a guest at any one meal.

Retail purchases of flour to be limited in quantity and to be accompanied by at least equal weight of other cereals.

Bakers to keep within 70 per cent. of flour formerly used; three-quarter pound loaves to go as far as the pound loaf usually does.

No wheat to be used in manufacturing for anything but food.

Let all who can go without wheat.

THE WHEAT SHORTAGE

The wheat situation is the most serious in the food supply of the Allied World.

Our harvest was less than estimated; needs of the Allies are greater than were calculated; losses by sea and by battle have been heavier than were anticipated; less comes from the Argentine than had been hoped; tenser demands on shipping space restrict ships more than ever to the shortest haul and the tightest bulk.

We have fallen behind in our program. Because corn and oats were so tardy in coming to market, we have not been able to ship as much as we should, we have eaten further into our stock of wheat than we would.

Corn cannot be shipped now. We have sent it as fast as we could and we will again. But during the next two months, the season of germination, it will not do to ship corn—there is too much spoilage in shipment.

There is no margin anywhere. The Allies have wheat to-day but their stocks are down to the danger point. We dare not let anything stop the flow of wheat overseas. That would be disaster greater than defeat of an army.

We must send wheat—and more wheat—and more. To redeem our obligation we must cut down by half our own consumption of wheat.

WHO SHALL BEAR THE BURDEN

Going without wheat is an inconvenience—nothing worse—for homes in comfortable circumstances.

It is no hardship—no danger. Physiologists all agree that a wholesome diet need not include wheat. The South fought the Civil War three years on corn. Early New England did without wheat five years at a time with no ill effects.

Going without wheat is perhaps more expense, certainly more work. Not a hardship but a burden. Who shall bear the burden?

Shall we ask the women of France to do it? Do you know what it means to them?

The women of France are doing their own work, doing the nation's work, even doing the work of teams in the field.

The men are gone—all but the younger boys, the aged and the invalids. In almost every home is a cripple or one dying of tuberculosis—an added care.

French homes have not baked bread for hundreds of years. They have not even ovens nor baking tins in their kitchens. They rely on the bakery.

If you ask them to bake their own bread—for the bakery cannot supply quick breads—the women of France must add another hour to their long day of toil.

Will you ask **them** to do that? Or shall **our** homes carry the extra burden of doing without wheat?

WHAT TO DO WITH THE FLOUR

One and a half pounds of wheat flour goes into two and a half pounds of Victory bread. That gives just about two slices for each meal—with nothing over for cake, pastry or anything else.

One pound of wheat flour goes into one-and-three-quarter pounds of Victory bread, which

makes twenty-eight one-ounce slices, or four a day. That leaves half a pound of wheat flour for cake, pastry, macaroni, and incidental cooking.

Muffins and biscuit—medium size—made on a fifty-fifty recipe, use a quarter ounce each of wheat flour.

A fair slice of cake or a piece of one-crust pie, also on a fifty-fifty recipe, likewise takes about one-quarter ounce of wheat.

An ordinary serving of wheaten breakfast foods, or a half cup of cooked macaroni or spaghetti contains an ounce of wheat.

Wheatless meals and days kept as before, and Victory bread at the remaining ten meals, will use about twelve ounces of wheat.

Going without wheat at other meals—or at all meals—let potatoes, rice, hominy and other cereals take the place of bread, or bread may be eaten that contains no wheat.

Food Will Win the War! Food to-day means first of all Wheat.

DOING WITHOUT WHEAT

Bread and milk make a meal; so wil lmush and milk.

Bread and gravy go together; potatoes and gravy are just as nourishing.

Toast and fruit are fine for breakfast; but any other cereal with fruit will stay the stomach as effectively.

Griddle cakes, muffins, all sort of quick breads, can be filling and appetizing without any wheat.

After all, what we have to do is eat less bread. Often we eat it to convey other food: we even use bread to push mouthfuls upon the fork.

There is one test. Wherever bread is used for convenience, that is the place to leave it out.

Habit tells us to use bread; the body's needs tell us only to provide sufficient nourishment. We must learn to think in terms of nourishment and net let habit hinder us.

Changing our habits is none too easy. But it is no easy task to win the war.

Going without wheat wherever we can is one thing we can do to win the war—perhaps the largest contribution we can make.

LET ALL WHO CAN DO MORE

The best we can do, it will not be enough to meet all needs. We cannot make up the submarine losses, nor replace the spent reserves.

Doing our utmost, not everyone in this country can keep within the allowance. Masses in crowded cities, with no proper kitchen outfits, depend on bakery bread and ready cooked food. Their habits are controlled by their circumstances.

Those who can must do more to maintain the margin.

Some wheat in any case must be brought from Argentine, the less the better. For every voyage to the Argentine is the same as taking two vessels from the short Atlantic ferry. Every vessel taken from that traffic keeps a regiment from the front.

Going without wheat adds directly to our forces in battle. Going without wheat loosens the shipping tension which limits our armed strength.

A splendid response comes instantly. Hundreds of hotels have pledged themselves to go without wheat until harvest. Households, communities, countries all over the land have cut down wheat to the limit or given it up altogether.

But the best we can do is too little. Let all keep within the allowance; let all who can, do more.

WHEAT IS THE TEST

Germany's war of starvation is a challenge most of all to America.

Against Germany's lust for dominion, America's purpose is to establish the society of nations. Against destruction, America's aim is healing. Against mastery, America's ideal is service.

We cannot surpass the steadfastness of Britain, the courage of taly, the exaltation of France.

We cannot excell the Allies in heroism, in endurance, in fortitude. Our force in battle—though it may be decisive—will not be as great as theirs.

We can hope to contribute most to the common cause from our larger resources. To relieve desperate privation, America can supply food.

Giving up wheat is a little thing compared to their death struggle—in which our soldiers are splendidly sharing.

A little thing—yet we can do it with greatness of spirit. Supporting our army and adding wholehearted service to humanity, it is in America's power to defeat forever the passion of conquest.

Now is the hour of our testing. Wheat is the Test.

WAYS IN WHICH WOMEN CAN HELP WITH THE LOCAL MARKETING PROBLEM

1. Study existing local conditions—not for the purpose merely of criticizing, but rather for the purpose of trying to improve marketing facilities.

(a) Study the general system used in handling foodstuffs locally.

(b) Learn the various agencies engaged in the business and the services performed, as well as the costs assessed by each.

2. Co-operate intelligently with dealers, in endeavoring to improve marketing conditions, and be willing to do your share to effect betterments. Consumers are largely responsible for expensive and wasteful retail marketing practices, and they must help if such practices are to be eliminated.

3. Concentrate attention on the elimination of waste in home marketing.

(a) Curtail ordering by telephone so far as possible.

(b) Never ask unnecessary credit or delivery service.

(c) Encourage local grocers to adopt a system whereby a low cash price is placed on goods at the store and fair charges made for credit and delivery. This places the cost of credit and delivery on those who use it and gives the housewife who pays cash and carries her packages home a price concession for so doing.

(d) Develop the marketing habit—personally superintend the buying of foodstuffs.

(e) Study comparative food values and food substitutes.

(f) Do not get into the habit of asking for the "best" of everything. Usually one can find perfectly satisfactory goods among the less expensive grades after a little experiment.

(g) Check up weights and measures of all purchases.

(h) Study the comparative advantages of "bulk vs. package goods," and when bulk goods of satisfactory quality offer a saving insist on your dealer carrying them in stock.

4. Work through your organizations to interest your newspapers in furnishing reliable, non-technical market news and market hints for housewives.

Such a service should keep you informed in regard to the supplies of products entering the market and the prices which your dealers pay, and offer suggestions as to the best time to can, preserve or store for winter use. In this service, special effort should be made to inform consumers ahead of time of impending gluts of certain products, so that plans can be made for utilizing them.

If such an arrangement cannot be made through newspapers, try to arrange a substitute service whereby committees of organizations will co-operate with local produce dealers and public market officials, in securing and disseminating such information periodically.

U. S. FOOD ADMINISTRATION.

I ASK that every woman fill in this blank, detach it, and send it to the **Federal Food Administrator** of her **Home State.**

Herbert Hoover

APPLICATION FOR MEMBERSHIP
U. S. FOOD ADMINISTRATION

Date.....1917.

FEDERAL FOOD ADMINISTRATOR,

State of .....★

Address .....

I am glad to join you in the service of food conservation for our Nation, and I hereby accept membership in the United States Food Administration, pledging myself to carry out the directions and advice of the Food Administration in the conduct of my household, in so far as my circumstances permit.

Name .....

Address .....

City or Town .....

Number of persons in family.....

No Fees or Dues are to be paid

★ See NEXT PAGE for Name and Address of Federal Food Administrator for Your State, and **send this form to him.**

Typical manner of addressing letters:

Richard M. Hobbie, Esq.,
Federal Food Administrator,
Bell Building,
Montgomery, Ala.

Typical manner of addressing telegrams:

Hobbie—Food Administrator, Montgomery, Ala.

THE HOME-KEEPING BOOK,
New York

Tear off here; Use this Sheet for Application Form

FEDERAL FOOD ADMINISTRATORS FOR EACH STATE

May 22, 1918

Do not write to Washington, on Food Administration matters. Address the Federal Food Administrator for **your State,** as below:

State	Name	Address	
ALABAMA	Richard M. Hobbie	Bell Building	Montgomery, Ala.
ALASKA	Royal A. Gunnison		Juneau, Alaska
ARIZONA	Timothy A. Riodan		Flagstaff, Ariz.
ARKANSAS	Hon. Hamp Williams	Old State Capitol Building	Little Rock, Ark.
CALIFORNIA	Ralph P. Merritt	617 First National Bank Building	San Francisco, Cal.
COLORADO	Thos. B. Stearns	State House	Denver, Colo.
CONNECTICUT	Robert Scoville	36 Pearl Street	Hartford, Conn.
DELAWARE	Edmund Mitchell	704 Equitable Building	Wilmington, Del.
DIST. COLUMBIA	Clarence R. Wilson	901 16th Street	Washington, D. C.
FLORIDA	Braxton Beacham		Orlando, Fla.
GEORGIA	Dr. Andrew M. Soule	State Agriculture College	Athens, Ga.
HAWAII	J. F. Child		Honolulu, Hawaii
IDAHO	R. F. Bicknell		Boise, Idaho
ILLINOIS	Harry A. Wheeler	Conway Building, 11 W. Washington St.	Chicago, Ill.
INDIANA	Dr. Harry E. Barnard	Indiana State Board of Health	Indianapolis, Ind.
IOWA	J. F. Deems		Burlington, Iowa
KENTUCKY	Fred M. Sackett	315 Guthrie Street	Louisville, Ky.
KANSAS	Walter P. Innes		Wichita, Kans.
LOUISIANA	Jno. M. Parker	Tulane—Newcomb Building	New Orleans, La.
MAINE	Dr. Leon S. Merrill	University of Maine	Orono, Maine
MARYLAND	Edwin G. Baetjer	Equitable Building	Baltimore, Md.
MASSACHUSETTS	Henry B. Endicott	Mass. Com. on Public Safety, State House	Boston, Mass.
MICHIGAN	George A. Prescott	State House	Lansing, Mich.
MINNESOTA	A. D. Wilson	University Farm	St. Paul, Minn.
MISSISSIPPI	P. M. Harding		Vicksburg, Miss.
MISSOURI	Frederick B. Mumford		Columbia, Mo.
MONTANA	Prof. Alfred Atkinson	Agriculture Experiment Station	Bozeman, Mont.
NEBRASKA	Gurdon W. Wattles		Omaha, Nebr.
NEVADA	H. A. Lemmon		Reno, Nevada
NEW HAMPSHIRE	Huntley N. Spaulding	State House	Concord, N. H.
NEW JERSEY	William S. Tyler	601 Broad Street	Newark, N. J.
NEW MEXICO	Ralph C. Ely		Albuquerque, N. M.
NEW YORK FEDERAL FOOD BOARD	John Mitchell, Chairm Jacob G. Schurmann. Charles A. Wieting.. Arthur Williams	220 W. 57th Street	New York City
NEW YORK STATE	(Charles E. Treman)		Ithaca, N. Y.
NORTH CAROLINA	Henry A. Page		Raleigh, N. C.
NORTH DAKOTA	Dr. Edwin F. Ladd	Agricultural College	Fargo, N. D.
OHIO	Fred C. Croxton	State House	Columbus, Ohio
OKLAHOMA	Charles B. Ames	Capitol Building	Oklahoma City,Okla.
OREGON	W. B. Ayer	401 Northwestern Bank Building	Portland, Ore.
PENNSYLVANIA	Howard Heinz	Fifth Floor, Bulletin Building	Philadelphia, Pa.
PORTO RICO	Albert E. Lee		San Juan, Porto Rico
RHODE ISLAND	Alfred M. Coats	State House	Providence, R. I.
SOUTH CAROLINA	William Elliott	Arcade Building	Columbia, S. C.
SOUTH DAKOTA	Hon. Chas. N. Herreid		Aberdeen, S. D.
TENNESSEE	Prof. H. A. Morgan	State Capitol	Nashville, Tenn.
TEXAS	E. A. Peden	Room 1109, Scanlon Building	Houston, Texas
UTAH	W. W. Armstrong	Box No. 1788	Salt Lake City, Utah
VERMONT	Frank H. Brooks	State Capitol	Montpelier, Vermont
VIRGINIA	Hugh B. Sproul	Chamber of Commerce Building	Richmond, Va.
WASHINGTON	Charles Hebberd		Spokane, Wash.
WEST VIRGINIA	Earl W. Oglebay		Wheeling, W. Va.
WISCONSIN	Magnus Swenson	State Capitol	Madison, Wis.
WYOMING	Theodore C. Diers		Sheridan, Wyo.

HOME CARD

UNITED STATES DEPARTMENT OF AGRICULTURE

STATES RELATIONS SERVICE

A GUIDE IN BAKING

SAVE WHEAT — USE WHEAT SUBSTITUTES

MEASUREMENTS OF SUBSTITUTES EQUAL TO ONE CUP OF FLOUR

These weights and measures were tested in the Experimental Kitchen of the U. S. Food Administration, Home Conservation Division, and of the U. S. Department of Agriculture, Office of Home Economics.

In substituting for one cup of flour use the following measurements. Each is equal in weight to a cup of flour.

Barley . . . . . 1 3/8 cups	Potato flour . . . . . 3/4 cup
Buckwheat . . . . . 7/8 cup	Rice flour . . . . . 7/8 cup
Corn flour . . . . . 1 cup (scant)	Rolled oats . . . . . 1 1/2 cups
Corn meal (coarse) . . . . . 7/8 cup	Rolled oats (ground in meat choper) . . . . . 1 1/8 cups
Corn meal (fine) . . . . 1 cup (scant)	Soy-bean flour . . . . . 7/8 cup
Cornstarch . . . . . 3/4 cup	Sweet potato flour . . . . . 1 1/8 cups
Peanut flour . . . . . 1 cup (scant)	

This table will help you to make good griddle cakes, muffins, cakes, cookies, drop biscuits, and nut or raisin bread without using any wheat flour.

You will not need new recipes. Just use the ones your family has always liked, but for each cup of flour use the amount of substitute given in the table. You can change your muffin recipe like this:

Old Recipe	New Recipe
2 cups wheat flour	1 3/8 cups barley flour
4 teaspoons baking powder	1 cup (scant) corn flour
1/4 teaspoon salt	4 teaspoons baking powder
1 tablespoon sugar	1/4 teaspoon salt
1 cup milk	1 tablespoon sugar
1 egg	1 cup milk
1 tablespoon fat.	1 egg
	1 tablespoon fat

The only difference is the substitution for the wheat flour. Everything else remains the same. You can change all of your recipes in a similar way.

GOOD COMBINATIONS OF SUBSTITUTES

You will get better results if you mix two substitutes than if you use just one alone. Some good combinations are—

Rolled oats (ground) or Barley flour or Buckwheat flour or Peanut flour or Soy-bean flour	and	Corn flour or Rice flour or Potato flour or Sweet potato flour or Corn meal

CAUTIONS

1. All measurements should be accurate. A standard measuring cup is equal to a half pint.
2. The batter often looks too thick, and sometimes too thin, but you will find that if you have measured as given in the table the result will be good after baking.
3. Bake all substitute mixtures more slowly and longer.
4. Drop biscuits are better than the rolled biscuits, when substitutes are used.
5. Pie crusts often do not roll well and have to be patted on to the pan. They do not need chilling before baking.

FIFTY-FIFTY

SPEAKERS' BULLETIN No. 6

UNITED STATES FOOD ADMINISTRATION

Washington, February, 1918.

By order of the U. S. Food Administration:

With every pound of flour sold at retail, there must be sold an equal weight of corn, oats, rice, barley, or other cereal, one or any assortment.

This rule applies to every one alike. Exception has been made only where other cereals were not to be had—only till the shortage could be overcome—and only by order of the Federal Food Administrator

The situation has become critical. There is simply not enough food in Europe. Yet the soldiers of the Allies must be maintained in full strength; their wives and children at home must not face famine; the friendly neutrals must not be starved; and, finally, our own army in France must never lack a needed ounce of food.—Herbert Hoover, 1918 Home-Card.

Unless you are able to send the Allies at least 75,000,000 bushels of wheat over and above what you have exported up to January 1st, and in addition to the total exportable surplus from Canada, I cannot take the responsibility of assuring our people that there will be food enough to win the war.—Lord Rhondda, British Food Controller, cable, January, 1918.

Whether it suits us or not,
whether we like it or not,
whether it costs more or less,
we shall eat of our other cereals
measure for measure with wheat.

To create a supply of wheat
the Nation draws on its other grains.
The fifty-fifty rule,
binding on everyone everywhere,
makes all share and share alike.

THEIR NEED IS DESPERATE

The Allies need from 75,000,000 to 90,000,000 bushels more of American wheat. We have already exported the theoretical surplus of last harvest. We have saved from 25,000,000 to 50,000,000 bushels during the last five months, which we are now exporting.

We cannot and will not export more than our savings. The Allies have sharply reduced their bread ration to their own people, and if this lowered ration is to be maintained we must save more than hitherto.

Every grain of wheat and every ounce of flour and bread saved now is exactly that amount supplied to some man, woman, or child among the Allies.

UNITED STATES FOOD ADMINISTRATION
January 11, 1918

OUR DUTY IS IMPERATIVE

The Allies find their supply of breadstuffs running low.

It is imperative that we send them an increased amount of flour to strengthen the fighting lines and keep alive the men and women of France and England, Italy and Belgium, who for more than three years have had to bear the terrible privations of war.

More flour is also needed by our soldiers abroad.

To send them and the Allies the flour required bakers and housewives must loyally join in using larger quantities of wheat-flour substitutes.

UNITED STATES FOOD ADMINISTRATION
January 31, 1918

PRESIDENT WILSON'S APPEAL

Many causes have contributed to create the necessity for a more intensive effort on the part of our people to save food in order that we may supply our associates in the war with the sustenance vitally necessary to them in these days of privation and stress.

The reduced productivity of Europe because of the large diversion of man power to the war, the partial failure of harvests, and the elimination of more distant markets for foodstuffs through the destruction of shipping, places the burden of their subsistence very largely on our shoulders.

The maintenance of the health and strength of our own people is vitally necessary at this time, and there should be no dangerous restriction of the food supply; but the elimination of every sort of waste and the substitution of other commodities of which we have more abundant supplies for those which we need to save will in no way impair the strength of our people and will enable us to meet one of the most pressing burdens of the war.

—By the President, January 18, 1918

IN THE GRIP OF NECESSITY

Americans have done a wonderful thing by voluntary saving. The like was never done before by any people. But we have not done enough. Necessity tightens its grip. The crisis grows more tense. We must do more—and more—and more—or we are undone.

At the first it was reckoned that saving one slice of bread in five would make plenty. Millions began saving. But not enough. Some could not, some would not, some cared not. Europe's needs rose; the submarine toll increased; trade circuits shortened; losses were to be made up; new drafts were to be met.

By November it was known that we must set our tables with more of corn and oats and other grains. But they had not come to market. Until they reached the stores, we had to eat further into our stock of wheat, expecting to lean more heavily on other cereals when they were delivered.

DRAWING ON RESERVES

By December we had shipped all the normal surplus of wheat. The fall's saving would carry us part way; for the rest we had to create a new surplus by drawing on the reserves of other grain.

A new assessment of our obligation was made. It was announced: Our object is that we should reduce by one-third our consumption of wheat. To fulfill that purpose a schedule of wheatless days and meals was promulgated.

Still the markets offered no substitutes. Railroads were strangled by terminal blockades and smothered in cold and snow. Masses of foodstuffs, inert in granaries and corncribs, might as well have been in Tibet for all the help they gave the day's needs—the warehouse was choke-full; there was no flow to market. Not till near the end of February was a current stock of one or another substitute assured for every region.

ALL CEREALS A SINGLE RESOURCE

It was high time. The Food Administration dared put off no longer the protection of our wheat reserves. In our half of the world, all grain is virtually a common stock. The Allies have their barley and rice, and without much difficulty we are making up their shortage of coarse grains. We have plenty of cereals all told; we must make up the wheat deficit of our associates by drawing on our reserves of coarse grains.

At last we have in every market in the United States enough of one or more substitutes to go with the wheat.

To meet the situation, then, the Victory bread regulation has been adopted and the fifty-fifty rule.

Whoever bakes bread, pastry, or other wheat products must mingle with the wheat flour at least one-fifth of other cereal or potatoes. This is Victory bread.

Whoever sells wheat flour or other wheat products must sell with it an equal weight of other cereals. This is the fifty-fifty rule.

FIFTY-FIFTY IN THE HOME

This is no radical change in diet; only a modification. Cereals are part of our ordinary fare. Many families begin the day with oatmeal or corn flakes. In the South corn bread is as common as wheat. In the Southwest feterita flour, elsewhere unknown, has become a staple. On the Pacific coast they have rice. Fifty-fifty is to be compared with customary buying of, say, thirty to sixty.

One calculation shows an average consumption in American homes of two-thirds wheat and one-third other cereals. Another reckoning accounts for sales running 8,000,000 barrels of flour to 6,000,000 barrels of other sorts.

Briefly, the housewife who has been doing with two-thirds wheat and one-third other cereals must absorb equal quantities,' which means changing from white bread to Victory breads and serving more frequently the quick breads, muffins, breakfast foods, porridges, and the like.

SHIFTING THE PROPORTIONS

Each housewife must work out her problem by her own ingenuity and skill, as hardly two families have the same habits and tastes. Those learned in domestic economy can tell what other adjustments must be made as the bread quotas are shifted. But, roughly, this is the problem:

Given a family using 66 pounds of wheat and 33 of other cereals: To change to fifty-fifty. Change white bread to Victory bread, mixing at least one-fifth meal with the flour. That reduces the white flour from 66 to 53 pounds and uses up 13 pounds

of the assorted cereals. To cut down white flour another 3 or 4 pounds to an even 50, to raise the other cereals another 3 or 4 pounds also to an even 50, the family must eat muffins or Indian puddings often enough to absorb the difference.

Or eat cereals as usual and cut the purchase of flour in half, make up the difference by eating potatoes. Folks who rely on potatoes instead of white bread are a long way from starvation.

Those are two out of two million possible combinations.

THIS WE MUST DO

This is no if-you-please affair. We have to. Unless we do this we are done for. We shall whether we like it or not. Every good American will shape his habits to the fifty-fifty rule because he is a good American. Any other sort will take the fifty-fifty rations because that is all he will get.

There will be no famine. The Government, which has absolute control of exports, will not let the land go hungry. We could not send that much food abroad if we tried—there are not ships enough.

We may have to get along with less wheat in our bread—and we can. We may have to get along with less bread in our diet—and we can. To-day the rule is fifty-fifty; next month it may be sixty and forty. If we drew down the proportion of wheat to one in ten we would still be well nourished. Though there is no sign of that extremity, we shall certainly depend more and more on our reserves of other food to maintain the flow of necessary foodstuffs to Europe. Unless we do that we are done for.

All that we have belongs to the Nation—
A Nation that sets its face against privilege,
A Nation that despises profit from war,
A Nation that believes in equality of burden,
A Nation committed to universal service,
A Nation living by the rule of equal sacrifice.
The fifty-fifty rule treats everyone alike.

THE WHEAT SITUATION

UNITED STATES FOOD ADMINISTRATION

Every aspect of the wheat situation, both present and prospective, intensifies the need for the greatest possible limitation in the American consumption of wheat and wheat products. If present restrictions should be in the slightest degree relaxed it would result in serious want for the people of Europe before the new crop can reach the market.

The Food Administration's estimate of the position on the first of June indicates a total available supply until the new harvest, including the grain which will be available from the farms, in country and terminal elevators, and mill elevators, of about 56,000,000 bushels. Of this 30,000,000 bushels must be exported before new wheat is available for export if we are to maintain the absolutely necessary shipments to our Army and the Allies. That leaves about 26,000,000 bushels for domestic consumption for the next two months.

Normal American consumption is something over 40,000,000 bushels a month, so that the most liberal consumption at home would be only one-third of normal.

In addition to the wheat on the farms and in elevators there is always an indeterminate further amount in transit and in dealers' hands, and this can never be reckoned in with the flour available for use for export and at home. As a matter of fact, this stock is not actually available, since these supplies must remain constantly in flow; they remain a permanent stock, the removal of which would later cause a period of acute shortage in distribution before new wheat would be available. There is further an inclination to include new crop prospects with present conditions, which has led to confusion. The harvest will not be generally available in flour until the middle of August or early September, although in the extreme South it will be somewhat earlier. At a meeting of the Federal Food Administration in Washington yesterday, representing all 48 States, it was the unanimous

view that even if the harvest does prove abundant it will be the first duty of the American people to place every grain they can save into storage against possible bad years ahead. In consequence there should be no anticipation of unlimited wheat bread until the war is over.

Some of the most inconvenient restrictions can no doubt be modified with the arrival of a large harvest, but if we are honest with ourselves we will maintain restrictions requiring the use of some substitutes, both domestic and commercial; we will continue the requirement of high milling extraction and the elimination of the non-essential use of and waste of flour and bread.

It is worth remembering that the famine in Egypt eight thousand years ago was saved by a little governmental foresight, and it does not require any illuminating dream to anticipate that so long as the war lasts, with its increasing drafts for soldiers and munition workers, the world will steadily produce less food. If we are wise, a great harvest will mean the willing building up of great national reserves.

CHOOSE YOUR FOOD WISELY

(United States Food Leaflet No. 4)

STUDY THESE FIVE FOOD GROUPS

Every food you eat may be put into one of these groups. Each group serves a special purpose in nourishing your body. You should choose some food from each group daily.

1. VEGETABLES AND FRUITS.
2. MILK, EGGS, FISH, MEAT, CHEESE, BEANS, PEAS, PEANUTS.
3. CEREALS—CORN MEAL, OATMEAL, RICE, BREAD, ETC.
4. SUGAR, SYRUPS, JELLY, HONEY, ETC.
5. FATS—BUTTER, MARGARINE, COTTONSEED OIL, OLIVE OIL, DRIPPINGS, SUET.

You can exchange one food for another **in the same group.** For example, oatmeal may be used instead of wheat, and eggs, or sometimes beans, instead of meat; but oatmeal cannot be used instead of milk. Use both oatmeal and milk.

The sugar group, while very useful to the body, is not so necessary as the others to keep us in health. It helps make our food taste good, however.

It is interesting to count up how much of each group you use daily. Here are the amounts that a man doing moderate work could well use. A woman, being smaller, would use about four-fifths the amount, and children still less, but be sure that each child has at least a pint, or better, a quart of milk each day.

A HEALTHFUL AND PALATABLE DIET CONTAINS FOODS FROM EACH OF FIVE GROUPS

Food Groups.	Purposes.	Amount Needed Daily by a Man at Moderate Muscular Work.
No. 1. Fruits and vegetables.	To give bulk and to insure mineral and body-regulating materials.	1½ to 3 pounds.
No. 2. Medium-fat meats, eggs, cheese, dried legumes, and similar foods; milk.	To insure enough protein.	8 to 16 ounces (4 ounces of milk counting as 1 ounce).
No. 3 .Wheat, corn, oats, rye, rice, and other cereals.	To supply starch, a cheap fuel, and to supplement the protein from Group 2.	8 to 16 ounces (increasing as foods from Group 2 decrease).
No. 4. Sugar, honey, syrup, and other foods consisting chiefly of sugar.	To supply sugar, a quickly absorbed fuel, useful for flavor.	1½ to 3 ounces.
No. 5. Butter, oil, and other foods consisting chiefly of fat.	To insure fat, a fuel which gives richness.	1½ to 3 ounces.

Count up what you are eating. Learn whether you are using economical and patriotic amounts. Make your housekeeping more accurate and more interesting.

REMEMBER THE FIVE GROUPS

Fruits and Vegetables furnish some of the material from which the body is made and keep its many parts working smoothly. They help prevent constipation which gives you headaches and makes you stupid. The kinds you choose depend upon the season, but remember that the cheaper ones are often as valuable as the more expensive.

Milk, Eggs, Fish, Meat, Peas, Beans—These help build up the growing body and renew used-up parts. That is their main business. Dried peas and beans make good dishes to use in place of meat part of the time, but don't leave out the other foods entirely. Milk is the most important. Buy at least a pint a day for every member of your family. No other food can take its place for children. Save on meat if you must, but don't skimp on milk.

Cereals—Bread and breakfast foods. These foods act as fuel to let you do your work, much as the gasoline burning in an automobile engine makes the car go. This you can think of as their chief business. And they are usually your cheapest fuel. Besides, they give your body some building material.

Don't think that wheat bread is the only kind of cereal food. The Government asks us to save wheat to send abroad to our soldiers and the Allies. Let the North try the Southern corn bread and the South the oatmeal of the North. Half the fun in cooking is in trying new things. An oatmeal pudding is delicious. See Leaflet No. 6 for the recipe.

Sugar and Syrups are fuel, too, and they give flavor to other foods. They are valuable food, but many people eat more of them than they need. Sweet fruits, of course, contain much sugar and are better for the children than candy.

Fat is fuel—Some is needed especially by hard-working people. Remember that expensive fats are no better fuel than cheap ones. Use drippings. Don't let your butcher keep the trimmings from your meat. They belong to you. Children need some butter fat. Give it to them in plenty of whole milk or in butter.

HOUSEHOLD CONSERVATION—FOOD

(Iowa State College of Agriculture)

GUARD THE FOOD SUPPLY

Food is now the world's greatest need. The fields of Europe are devastated, crops are short in the southern hemisphere and some of our own farmers must enlist for military service. Our food reserves are limited and we must not only feed our soldiers at the front but also the army that remains at home to fight for the world's sustenance.

We must keep **only what we need** and send **all we can spare** to help feed our hungry neighbors.

A slice of bread saved every day seems a mere trifle, but it means two dozen loaves of bread in a year. Will you save the trifle?

SAVE FOOD IN THE FOLLOWING WAYS

By careful buying.
By careful storing and handling.
By proper cooking and serving.
By sane eating.
By eliminating waste.
By substituting cheaper foods for more expensive.

FOOD MONEY IS WASTED

By ordering by telephone.
By ordering indefinitely, by price rather than by weight.
By buying perishable foods in too large quantities.
By buying "out of season" foods (strawberries in December).
By buying ready to eat foods (breakfast foods, canned soups).
By buying foods high in price, and low in food value (asparagus tips, oysters, pimentos and mushrooms).
By "living out of paper bags."
By buying staple foods in small packages (cornmeal, rice).
By buying for wants rather than for needs.

BREADSTUFFS ARE WASTED

By careless storing of cereals (flour, meal, admitting insects).
By leaving flour and dough adhering to bread bowl and board.
By bread failures due to wrong handling and baking.
By discarding left overs, biscuits, muffins, ends of loaves. (Bread crumbs may be used in numerous ways.)
By underbaking, resulting in souring when few days old.
By improper storing of bread, resulting in souring and molding.

MEATS ARE WASTED

By careless storing.
By leaving trimmings at market—fat and bones.
By discarding excess fat—all fat is usable.
By discarding bones—useful in soups. (Remove surplus fat and bone before cooking.)
By wrong cooking.
By discarding left overs.
By discarding juices and broths.
By providing too much in the diet.
By overeating on part of individuals. (One meatless day each week will help to conserve the supply of meat and to improve health.)

VEGETABLES ARE WASTED

By careless storing.
By taking thick parings, sometimes 20 per cent. of edible portion. Save food by cooking in jackets.
By discarding small-sized vegetables.
By discarding water in which vegetables are cooked. Steaming saves food material.
By discarding leaves and stem (beet tops, turnip tops, outer stalks and leaves of celery).
By overcooking.
By undercooking
By cooking larger quantity than is needed.
By discarding left overs.

MILK IS WASTED

By careless handling.
By discarding buttermilk (use for cookery and beverages).
By discarding separated milk (use for cheese and cookery).
By discarding skim milk (use for cheese and cookery).
By discarding sour milk (use for cheese and cookery).
By discarding whey (use in bread making).

FUEL IS WASTED

By cooking a few dishes at a time. (Heat cook stove less often and cook more dishes at a time. Have oven full of baking.)

By turning gas or kerosene flame higher than necessary. (No time is saved by boiling the kettle over.)

By leaving gas turned on to save re-lighting.

By the use of poor stoves—ovens particularly. (Much fuel may be saved by the use of the fireless cooker.)

SOME EXPENSIVE MISTAKES IN SERVING

In the Home

Too large quantities placed on individual plates.

The same amounts served to each, regardless of appetite.

The same foods served to each, regardless of taste.

Elaborate menus for entertaining.

In Boarding House, Restaurant and Hotel

Same foods served to each individual; no choice offered.

Same-sized portions served to all alike (choice of half portions should be offered).

Too great a variety offered at each meal (means greater waste).

At School Functions

Menus much too elaborate. (Simpler menu serves purpose of sociability and saves food.)

SOME EXPENSIVE MISTAKES IN EATING

By eating more than is needed.

By eating foods in wrong proportions.

By eating too rapidly; less food is required if eaten slowly and chewed thoroughly.

By serving one's self more food that is wanted (butter, bread, etc.).

By eating crusts and discarding soft portion, and vice versa.

By placing excess of sugar in tea and coffee. (Undissolved sugar in cup is wasted.)

SOME WAYS OF REDUCING FOOD EXPENSE

Use MILK in all forms and in all possible ways. Buttermilk and separated milk have good food value.

Use corn products—meal, grits and hominy. These should be used largely to save wheat products.

Use oatmeal and rice. Broken rice costs less than the whole rice.

Use more of the cheaper vegetables, as "greens," carrots, turnips, parsnips, and rutabagas. Such vegetables are necessary when substituting rice and corn products for potatoes.

Use some **dried fruits**—apples, peaches, apricots, prunes, raisins, or figs.

Use cheaper cuts of meat. Bacon ends are sold at reduction.

Use some nuts instead of meat. Peanuts are cheapest.

Use some cheese instead of meat. There is less waste in cheese.

Use some dried fish and salt fish.

Use less tea and coffee.

Pay cash.

Satisfy body needs rather than **vagaries of appetite.**

FOOD PREJUDICES

All food material that is clean and wholesome is fit to be eaten. **Overcome food prejudices,** they are no more reasonable than other prejudices.

FOOD EXHIBITS

No perishable food exhibits should be held at fairs, farmers' institutes and other such meetings while the shortage lasts.

WHY WE MUST SEND WHEAT

UNITED STATES FOOD ADMINISTRATION

Supplying Wheat for the Armies and the Allies Is a Military Necessity and an Act of National Defense, the Redemption of a National Obligation to Which Our National Honor Is Pledged

Washington, May, 1918

The Allies ask America for wheat, rye, corn, barley, and oats, and we are sending them in large amounts. They ask us especially, however, for wheat. They ask it as the necessary basis for their necessary loaf. They must have bread, and they must have bread which will keep sweet and palatable for several days.

Wheat is the basis for the durable raised bread loaf.

Troops must have bread carried to the front from bakeries behind the lines; it must be a durable raised loaf.

Workers in the war factories must have bread from commercial bakeries. The women in the factories cannot be bakers also. Their bread must be the durable raised loaf.

All France depends on the bakeries for its bread. The people do not know how to bake in the home. They have no ovens for baking, nor could they afford fuel for them if they had.

All the bread of France and England and Italy to-day is war bread. It is made of gray wheat flour, milled at a high extraction rate; that is, a larger proportion of the wheat grain is now put into the flour than formerly was the case. Their flour now contains more of the outer parts of the wheat grain, parts which formerly were separated from the flour and used as feed for animals. This flour is then mixed with as large a percentage—usually 25 per cent—of flour made from other cereals as can be used and still permit the making of the raised loaf.

In England this war bread cannot be sold until it is 12 hours old, so that the people won't be tempted to eat too much fresh bread. In France and Italy the bread is rationed according to the age and occupation of each person. A child has less than an adult; a light worker less than one who does heavy labor.

France has always lived on bread. Of the average Frenchman's normal diet 52 per cent is composed of bread and but 48 per cent of other foods. France has just put her whole people on a rigorous bread ration, which limits them to only two-thirds of the amount they have been accustomed to. In all the Allied countries they are using as little wheat as will give them bread at all, and as little of this bread as is possible to keep them in health and strength.

The people of Belgium are living on a relief ration. Over 1,000,000 of them get their daily bread and soup by standing in line long hours before the relief kitchens. They have stood in these long soup lines every day for three and one-half years. But they do not complain. They only ask that the soup and bread be there every day. They depend upon America.

We are, as we have said, sending corn and other cereals to England, France, Italy and Belgium. These cereals are shipped as fast as they can be used. But the people cannot live on them alone. They do not know how. They are unable to cook them properly. They must have wheat to mix with them and with potatoes to make their bread. We are now sending wheat to the limit of our cargo space, and yet we are only meeting the minimum requirements of these people. In order to continue doing this, our people must share their present wheat supply.

We are dividing our wheat evenly to-day between ourselves and the Allies. We must not use before the next harves more than one-half of the wheat we have. Even with one-half of our wheat the loaf of the Allies is small. It cannot be made smaller without undermining their strength and morale. Is there any doubt what we shall do in this emergency? We have just one thing to do, and that is to save wheat and send wheat.

IS WHEAT INDISPENSABLE IN OUR DIET?

The question naturally arises, however: To what extent can the wheat to which we are now accustomed in our diet be reduced without injury to the health of the individuals of the Nation? This question was put by the Food Administration to a committee of experts recently assembled in Washington to consider the special physiological problems involved in the general problem of wheat conservation.

Dr. R. H. Chittenden, Professor of Physiological Chemistry and Dean of Sheffield Scientific School, Yale.
Dr. Graham Lusk, Professor of Physiology, Cornell University.
Dr. E. V. McCollum, Professor of Bio-Chemistry, Johns Hopkins University.
Dr. L. B. Mendel, Professor of Physiological Chemistry, Yale University.
C. L. Alsberg, Chief of the Bureau of Chemistry, U. S. Department of Agriculture.
Dr. F. C. Langworthy, Chief, Home Economics Office, States Relations Service, U. S. Department of Agriculture.
Dr. Alonzo E. Taylor, Professor of Physiological Chemistry, University of Pennsylvania.
Prof. Vernon Kellogg, Stanford University.
Dr. Raymond Pearl, School of Hygiene, Johns Hopkins University.
Dr. Ray Lyman Wilbur, formerly Dean of the Stanford University Medical School; now President of Stanford University.

The committee, as may be seen, was composed of the highest physiological authorities in the country. Their answer to the question was direct and unequivocal.

It is the scientific opinion of the committee that in a mixed diet wheat may be entirely replaced, without harm, by other available cereals, namely, rice, barley, oats, and corn. However, we should not recommend this except as an emergency measure.

The committee's particular reason for not recommending this, apart from the fact that wheat is perhaps the most convenient cereal for use because of its special qualities connected with the making of bread in loaves that will stand up and remain sweet and palatable for several days, is that going without wheat would be a psychological though not a physiological deprivation. We are accustomed as a nation, just as most of the nations of Europe are, to the use of wheat bread, and a sudden break in our custom would have for some people a psychological significance more or less disturbing.

However, if these people could well understand the emergency leading to the change, and then could recognize that they are aiding their country in the great emergency by making the change, this psychological disturbance would be much reduced.

Exactly this condition of a great national emergency, to meet which the loyal and patriotic efforts of all the people are needed, is the condition to-day. It is only because of this great national emergency that the Food Administration makes use of this deliberate judgment of the physiological experts called in for advice.

Even under these circumstances, it is recognized that because of economic and commercial reasons, not all of the people of America can go without bread based on wheat, but it is certain that a great many people in this country can easily do so. It is the belief of the Food Administration that, for the sake of maintaining the wheat-bread supply for the armies and civilians of our fighting associates in the war, as well as our own soldiers in France, **every patriotic American who can possibly do so will be glad to dispense entirely with wheat from now until the next harvest.**

WAR ECONOMY IN FOOD

SUBSTITUTIONS IN THE PLANNING OF MEALS
SUGGESTIONS and RECIPES

HUMAN FOODSTUFFS COMPRISE THREE PRINCIPAL ELEMENTS

Protein—Mainly present in meat, beans, fish, poultry, milk, and to some extent in grains.

Fats—That is, butter, cream, lard, bacon, margarine, cooking fats, beans, cottonseed oil, and other vegetable oils.

Carbohydrates—Grains, sugar, potatoes and other vegetables.

As a nation we eat and waste 80 per cent more protein than we require to maintain health. Therefore, we can reduce the amount of meat we eat without harm.

We eat and waste 240 per cent more fat than is necessary.

Of the carbohydrates we can just as well consume corn, oats and other cereals as wheat, and we have abundant supplies of potatoes and vegetables.

Do not limit your supplies of milk and table butter, but consume it all. Don't waste any.

You can reduce the consumption of fats by reducing pastry and fried foods.

Remember the gospel of the clean plate, the serving of small portions, the purchase of less supplies.

Hoarding—Any person in the United States who buys more foodstuffs than he customarily keeps at home in peace times is defeating the Food Administration in its purpose to secure a just distribution of food and in its great endeavors to reduce prices. The hoarding of food in households is not only unnecessary, as the Government is protecting the food supply of our people, but it is selfish and is a cause of high prices.

Such actions, multiplied by thousands, increase the demands upon our railways for cars and already, because of our military demands, it is with extreme difficulty we can now move the vitally necessary food to markets.

There is much insidious propaganda in the country against conservation and increased production. All opposition to these services is direct assistance to the enemy.

SUGGESTIONS FOR SUBSTITUTIONS IN PLANNING MEALS

The question of planning meals grows daily more important, because it is more evident that food is to win or lose the war.

The housewife is in an especially trying position. The needs of her family and the requests of the Food Administration seem at first glance at variance. The word "save" has been over-emphasized in the public mind and the word "substitute" overlooked. A closer study reveals the fact that what the Food Administration really wishes, and our Allies really need is that we restrict ourselves in the use of a few staples and encourage the wise use of many. From that viewpoint the housewife has left a large and varied supply of food from which to select nourishment adapted to the wishes and needs of her family and to the condition of her pocketbook.

LET US REMEMBER

Let us remember that every flag that flies opposite the enemy's is by proxy the American flag, and that the armies fighting in our defense under these flags cannot be maintained through this winter unless there is food enough for them and for the women and children at home. There can be food enough only if America provides it. And America can provide it only by the personal service and patriotic co-operation of all of us.

AT HOME AND ABROAD

The Soldiers Need	The Folks at Home Can Use
Wheat	Corn
	Oats
	Barley
Sugar	Molasses
	Honey
	Syrups
Bacon	Chicken
Beef	Eggs
	Cottage Cheese
Pork	Fish
	Nuts
	Peas
	Beans

MEAL PLANS

Study your meals. Plan them for at least three days in advance. This helps you to buy to better advantage, gives variety in material and preparation.

Ask yourself the following questions about your meal:

Does this plan mean—

1. The use of home grown products and thus allow the railroads to be hauling supplies for the army instead of food for my family?

2. The exchange of milk, cheese, eggs, fish, game, beans, nuts and peas for **beef, mutton, pork?**

3. The use of barley, buckwheat, corn, oats, and potatoes instead of **wheat?**

4. Plenty of **whole milk** for the children?

5. Twelve ounces of **fat** per adult per week and 6 ounces per child per week? The substitution of the **vegetable fats** wherever possible?

6. The substitution of **honey**, molasses, corn syrup or other syrup for sugar, so as to reduce the amount of sugar used to 3 pounds or less per person per month?

7. Meals adapted to the season and pocketbook? Have they character, color, flavor?

8. Meals which include at least one food from each of the following classes, except III?

FOOD CLASSES

Group I.	**Protein**—Dried beans, eggs, meat, milk, peas, bread.
Group II.	**Starch**—Cereals, potatoes, tapioca.
Group III.	**Sugar**—Desserts, honey, jellies, dried fruits.
Group IV.	**Fats**—Butter, cream, corn, peanut, and cottonseed oil, oleomargarine.
Group V.	**Regulators, Mineral Salts and Acids**—Fruits, vegetables, milk.

HELP IN PLANNING MEALS

CHOOSE WISELY **COOK CAREFULLY** **SERVE NICELY**

Following are sample menus illustrating the proper selection of food from the five principal classes:

Protein	Starches	*Sugars	Fats	Minerals and Cellulose
		BREAKFAST		
Whole milk	Oatmeal with dates Barley toast		Oleomargarine	Stewed prunes
		DINNER		
Bean and nut loaf	Hot cornbread Brown potatoes	Syrup	Oleomargarine	Stewed tomatoes
		SUPPER		
Cream of pea soup	Baked potatoes Oatmeal bread	Oatmeal cookies	Oleomargarine	Celery Baked apples
		BREAKFAST		
Whole milk	Hominy grits Oatmeal muffins	Syrup	Nut butterine	Orange
		DINNER		
Rice and tomato with a little Hamburg steak	Stuffed potatoes	Gingerbread (cornmeal)	Nut butterine	Cold slaw
		SUPPER		
Cottage cheese salad	Scalloped corn Oatmeal bread Rice flour bread Cornmeal wafers		Nut butterine	Oatmeal brown betty
		BREAKFAST		
Whole milk	Buckwheat cakes Barley bread	Syrup	Butter	Stewed apricots
		DINNER		
Fish chowder	Cornmeal batter bread		Butter	Beets, boiled Fruit salad
		SUPPER		
Baked hominy and cheese	Oatmeal yeast bread	Cornmeal gingerbread	Butter	Boiled oninos

SUGGESTIONS FOR CONSERVATION

COURSE DINNERS AND LUNCHEONS

DINNERS

Soups

Oyster. Lobster. *Cream of vegetable. Clam.

*Use skim milk and corn starch.

Entrees

Omelets. Any fish—with lemon or tomato sauce. Shell fish. Mushrooms.

Meats

Chicken. Fish. Duck. Goose. Pheasant. Rabbit. Squab. Turkey. Venison.

Salads

*Cottage Cheese. Fish. Fruits and cheese. Vegetables. Nuts.

*Served with boiled dressing or vegetable oil or fruit juice and honey.

*The needs for this class can be met largely by substitutes.

Desserts

Gelatin jellies with fruits and nuts.

Cereals molded with dates and raisins; whipped cream if desired.

Fresh or stewed dried fruits.

Blanc manges.

Tapioca creams with fruits.

Ices sweetened with maple syrup or honey.

Date and fig puddings, using oatmeal or barley flour.

Buckwheat shortcake with fruit.

War cake (boiled raisin cake).

Spiced oatmeal cakes.

Cornmeal cookies.

Tarts—crust of cornmeal or oatmeal.

Oatmeal macaroons.

Pies

Mock mince—green tomatoes.

Pumpkin or cream with cornmeal crust.

Custard. Raisin.

Serve no bread containing wheat with dinner.

Use no toast as garnish.

Use no croutons.

Use no bacon for trimming.

Use left-over meats, minced or in stews.

Use vegetables in omelets.

Use potatoes in many forms—stuffed, puffed, scalloped with cheese.

LUNCHEON

Any of the foods suggested above, using as the main dish such meat-saving dishes as the following:

Bean loaf. Nut loaf.

Nut and cottage-cheese loaf.

Baked hominy and cheese.

Baked rice and cheese (adding tomato, pimento or any vegetable desired for flavor).

Eggs with mushrooms.

Eggs scrambled with vegetables.

Fish chowder.

Wheat-saving breads as—Quick breads, muffins, etc., using cornmeal, buckwheat, potato flour, oatmeal and dried fruits if desired.

Yeast bread, using any of the cereals mentioned above and no fat.

MODIFY YOUR OWN RECIPES

If you have good recipes for bread of any kind make them conform to food conservation by omitting sugar and fat and by using substitutes in place of wheat. Try recipes for yourself with your own substitutions.

YEAST

Because of the high price of yeast it may be economical when bread is made frequently or in large quantities to prepare liquid yeast. In making the bread the amount of yeast used, of whatever kind, will depend upon the time in which the process is to be carried through.

Liquid Yeast—Four medium-sized potatoes, 1 quart hot water, 1 teaspoonful salt, 1 cake dry yeast, softened in ¼ cup of warm water, or 1 cake compressed yeast, ¼ cup sugar.

Wash pare and cook the potatoes in the water. Drain, mash and return to the water. Make up to 1 quart. Add the sugar and salt and allow the mixture to cool. When lukewarm add the yeast. Keep at room temperature (65° to 70° F.) for 24 hours before using. If kept for a longer time it should be poured into a sterilized jar and put in a dark, cool place.

Each of these recipes make one loaf. The weight of the different breads will vary from 18 ounces to 23 ounces.

WHEAT SAVING PROGRAM FOR THE HOUSEHOLD

UNITED STATES FOOD ADMINISTRATION

Washington, April, 1918

We have got to reach the place—each one of us—where we define every decision in our lives as an act of War Policy. Everything that we do—plan—eat—wear—must be analyzed and measured from one single point of view: Will it contribute to the carrying on of the war or will it contribute to its prolongation? There is no other thing in the world for us to do but to define everything in our lives as acts of military necessity or policy.

The first necessity for us is to get a clear conception of the relation of wheat in the human diet and to divest ourselves of all preconceptions that are bred in us by generations of ease, indolence and luxury.

WHEAT SAVING PROGRAM FOR THE HOUSEHOLD

Until harvest the American people must reduce their consumption of wheat by one-half.

The leading hotels of the country have pledged themselves to do without wheat until the pressure is eased. Many households are pledging themselves to the same measure of devotion to the national cause—no wheat until harvest.

This is the "no-wheat" program:

- Use no breakfast cereal containing wheat.
- Use no wheat flour to "bind" cornmeal or other cereals in muffins or quick breads.
- Use barley flour, corn flour, or cornstarch for thickening soups and gravies—no wheat at all.
- Use no bread containing wheat flour.

This is the "less-wheat" program:

- Use no breakfast cereal containing wheat.
- Use no wheat flour to "bind" cornmeal or other cereals in muffins or quick breads.
- Use no wheat flour for thickening soups or gravies.
- Use wheatless breads as far as possible, making exception where necessary for children, aged people, and invalids.
- If bread must be bought, use Victory bread, but as far as possible let potatoes, rice, hominy, or other cereals—not including wheat or rye—take the place of bread.

WHEAT-SAVING SCHEDULES

In those households where it is not possible to give up wheat entirely, the choice lies between cutting the use of wheat as far as possible below 1½ pounds per person; or using the pound and a half partly in bread and partly in other ways; or using the pound and a half wholly in bread.

I. WITHIN THE ALLOWANCE

No wheat on wheatless meals and days, using instead muffins, griddle cakes, and other hot breads with 100 per cent. substitutes, or using potatoes, rice, and hominy instead of bread. That is, 11 meals in the week with no wheat.

Bread allowance: At the 10 remaining meals in the week allow two 1-ounce slices of Victory bread (equal to 20 ounces of bread) consuming 11½ ounces of wheat flour.

Other wheat products: Choose from the list showing wheat flour in average servings of food those which contain the least proportion of wheat flour, and serve those as seldom as may be.

Omit entirely wheat products, such as wheat breakfast cereals, in which the proportion of wheat is large.

II. FULL ALLOWANCE WITH VARIETY

The full allowance of wheat flour is 1½ pounds per person per week, including wheat flour in Victory bread and all other wheat products in any form.

This may include 1¾ pounds of Victory bread, which uses one pound of wheat flour, leaving one-half pound a week of other wheat products, to be eaten as macaroni or breakfast food, or used in making pastry, cake, and incidental cooking.

Victory bread must contain at least 25 per cent. of wheat substitutes, but the housewife can use 50 per cent. successfully.

SCHEDULE OF PORTIONS

(These amounts represent average servings per person)

Bread allowance:
- 1¾ pounds Victory bread—1 pound of wheat flour.

This amount is equal to ¼ pound or four 1-ounce slices per day.

Breakfast cereals:
- One to be cooked, One ready to serve } 2 servings per week —2 ounces wheat flour.

Other wheat products:
- Macaroni or Spaghetti } 1 serving per week —1 ounce wheat flour.
- Crackers (2 saltines), 1 serving per week—¼ ounce wheat flour.

Soups (thickened cream soups), two servings per week—½ ounce wheat flour.

Sauces and gravies used once each day—1 ounce wheat flour.

Muffins, 2 servings per week (50-50 recipe) (2 as a serving, ½ ounce white flour)—1 ounce wheat flour.

Biscuits (50-50 recipe) 2 servings per week (2 as a serving, ½ ounce flour)—1 ounce wheat flour.

Cakes (50-50 recipe), 3 servings per week—¾ ounce wheat flour.

Pie (one crust 50-50 recipe), 2 servings per week —½ ounce wheat flour.

Total, 1 pound, 8 ounces wheat flour.

III. WHERE BREAD IS THE MAINSTAY

Total allowance in a few cases may be used wholly as Victory bread.

Two and one-half pounds Victory bread—two 1-ounce slices per meal—1½ pounds wheat flour.

No flour to be used for cooking or as macaroni, crackers, pastry, cakes, as wheat breakfast cereals or to thicken soups, sauces, and gravies.

AMOUNT OF WHEAT FLOUR IN AVERAGE SERVINGS

Breakfast Cereals

Ready to serve:
- Rolled flakes (1½ cups—2 servings)—1 ounce wheat.
- Shredded wheat biscuit (1)—1 ounce wheat.
- Granular (Grapenuts, ¼ cup)—1 ounce wheat.

To be cooked:
- Rolled flakes (½ cup cooked)—1/3 cup uncooked—1 ounce wheat.
- Granular (½ cup cooked)—¼ cup uncooked, e. g., Cream of Wheat, Farina, etc.—1 ounce wheat.

Macaroni or spaghetti: ½ cup cooked—¼ cup uncooked—1 ounce wheat flour.

Noodles: 1 tablespoon—¼ ounce wheat flour.

Victory bread: 1 ounce slice (3 by 3 by ½)—½ ounce wheat flour.

Crackers: (All wheat) 2 saltines—¼ ounce wheat flour.

Biscuit: (50-50 recipe; 6 from 1 cup flour), one medium biscuit—¼ ounce wheat flour.

Muffins: (50-50 recipe; 6 from 1 cup flour), one muffin—¼ ounce wheat flour.

Cake: (50-50 recipe; 24 servings from 3 cups flour), one medium serving—¼ ounce wheat flour.

Pie, one crust: (50-50 recipe;; 6 servings from ¾ cup), one serving—¼ ounce wheat flour.

Soups (thickened): 1 cup serving—1 tablespoon flour—¼ ounce wheat flour.

Sauces (in creamed and scalloped vegetables and meats, croquettes, etc.): ¼ cup serving—½ tablespoon flour—⅛ ounce wheat flour.

VICTORY BREADS

This name may be given to any bread which contains at least 25 per cent* of some wheat flour substitute. Satisfactory and palatable yeast breads may be made containing 50 per cent substitutes. Whenever this can be increased it should be done. Since 100 per cent substitutes may be used for quick breads, these should largely replace yeast breads while the shortage of wheat continues.

In making bread such substitutes should be chosen as are most available in the particuler locality. If yeast bread is to be made, a bread recipe in common use, and the kind of yeast that is familiar, should be chosen.

Each locality has different substitutes for wheat. At least part of the substitutes used should be cereals that are easily available, though it is sometimes worth while to use one to help create a demand even though it cannot be had in abundance at the time.

In general, wheat flour may be replaced by an equal weight of any substitute flour. The comparative weights of several such flours are given.

COMPARATIVE WEIGHT AND MEASURE

1 cup Wheat flour (bread) (113 grams)—approximately 4 oz.
1 cup Wheat flour (pastry) (100 grams)—approximately 3½ oz.
1 cup Barley flour (76 grams)—approximately 2 2/3 oz.
1 cup Buckwheat flour (133 grams)—approximately 4 2/3 oz.
1 cup Corn flour (109 grams)—approximately 4 oz.
1 cup Cornmeal (coarse) (130 grams)—approximately 4 2/3 oz.
1 cup Cornmeal (fine) (125 grams)—approximately 4½ oz.
1 cup Oats, rolled (75 grams)—approximately 3 oz.
1 cup Fine granulated or ground rolled oats (98 grams)—approximately 3½ oz.
1 cup Rice flour (131 grams)—approximately 4 2/3 oz.

*This amount of substitution was required on April 14, 1918. It may be increased later.

RECIPES

YEAST BREADS

50% Wheat flour
38% Wheat flour substitute } by weight
12% Potato (1:4 basis)

From various experiments it was at first thought that in yeast breads not more than one-quarter of the wheat flour could be satisfactorily replaced by substitute flours without materially changing the lightness and palatability of the loaf. Work in the experimental kitchen of the Home Conservation Division of the Food Administration has shown that a 50% substitution may be made if the method is slightly modified, or perhaps a still greater one.

1. Potato ils used as one-quarter of the substitute on the 1 to 4 basis (i. e. three-quarter of the weight of the potato is reckoned as water).
2. A sponge is made of the substitute flour instead of the white flour.
3. The dough is made much stiffer than ordinary bread dough.

The recipe given will make an 18 to 19 oz. loaf.

GROUND ROLLED OAT BREAD

½ cup liquid
½ cake compressed yeast
¾ cup (6 oz.) mashed potato
1 tablespoon syrup
1 teaspoon salt
1 teaspoon fat
1 cup (4¾ oz.) ground oats
1½ cups (6 oz.) wheat flour

Directions: Make a sponge of the liquid, yeast, syrup, mashed potato and enough of the ground oats to make a batter. Allow to rise until light (about one hour) and then add the salt, fat and remainder of the oats and the flour. The dough must be much stiffer than ordinary bread dough.

Knead thoroughly and allow to rinse until double in bulk. Knead, mold into a loaf, and when double in bulk, bake 50 minutes to one hour. Begin in a moderately hot oven (400° F.). After 15 to 20 minutes, lower the temperature slightly (to 390° F.) and finish baking.

2. If dry yeast is used make the sponge with

1/8 to 1/4 cake and allow it to rise over night. If liquid yeast is preferred, substitute 1/4 cup for 1/2 cake of the compressed yeast and reduce the liquid in recipe to 1/4 cup.

CORNMEAL BREAD

1/2 cup liquid
1/2 cake compressed yeast
1 tablespoon syrup
3/4 cup (6 oz.) mashed potato
1 teaspoon salt
1 teaspoon fat
1 cup (5 oz.) cornmeal
1 3/4 cups (7 oz.) wheat flour

SUBSTITUTIONS

Follow the directions for Rolled Oats Bread.

Rice Flour Bread may be made by using 1 cup (4 3/4 oz.) of rice flour and 1 1/2 cups (6 oz.) of wheat flour. Buckwheat bread will use 1 cup (5 oz.) of buckwheat and 1 3/4 cups (7 oz.) of wheat flour. Barley bread will need 1 2/3 cups (4 3/4 oz.) of barley flour and 1 1/2 cups (6 oz.) of wheat flour. Corn flour bread may be made with 1 1/4 cups (4 oz.) corn flour and 1 2/3 cups (6 3/4 oz.) of wheat flour. In each case all the other ingredients are the same, and the same method is used as for Rolled Oat Bread.

BAKING POWDER LOAF BREADS

BARLEY AND OAT BREAD

50% Barley Flour
50% Ground Rolled Oats } by weight
1 cup liquid
4 tablespoons fat
4 tablespoons syrup
2 eggs
6 teaspoons baking powder
1 teaspoon salt
2 cups (5 oz.) barley flour
1 cup (5 oz.) ground rolled oats

Directions: Mix the liquid, melted fat, syrup and egg. Combine the liquid and well mixed dry ingredients. Bake immediately as a loaf in a moderately hot oven (400° F.) for one hour or until thoroughly baked.

Nuts, raisins or dates may be added if desired.

CORN FLOUR AND BUCKWHEAT BREAD

50% Buckwheat
50% Corn Flour } by weight
1 cup liquid
4 tablespoons fat
4 tablespoons syrup
2 eggs
6 teaspoons baking powder
1 teaspoon salt
1 1/3 cups (5 oz.) corn flour
1 cup (5 oz.) buckwheat

Follow the directions under Barley and Oat Bread.

To Make Oat and Corn Flour Bread, substitute 1 1/3 cups (5 oz.) of corn flour for the barley flour in Barley and Oat Bread. This bread is particularly good with the addition of raisins and nuts, since it is somewhat dry. For Rice and Barley Bread use 1 cup (5 oz.) of rice flour in place of the ground rolled oats in the Barley and Oat Bread.

WHEAT FOR LIBERTY

UNITED STATES FOOD ADMINISTRATION

The only question for every true-hearted American to-day is: "What can I do to help win the war?" The only answer—"Give instantly the service needed."

"That service now is until the next harvest for you to share your wheat with your comrades across the sea—for you who can afford it to give your whole share to them."

WHEAT IS NOW A LUXURY FOR INVALIDS, BABIES AND THE VERY POOR

It Is Not Now Fit Food for Strong Men and Women

Autocracy compels, and gives no reasons.
Democracy requests, and gives reasons.
Are you ready for Democracy?

The allied countries of Europe lack wheat because: **Belgium,** formerly strong, splendid and **free,** has America only to look to for daily bread; **England** formerly imported her wheat from South America and Australia as well as from North America; **France** and **Italy** have lost to the army the majority of their farmers; their women are needed in munition factories and in other civil occupations. Fertilizers and farming tools are lacking.

The allied countries of Europe need wheat because: Bread has been one of the chief sources of nourishment. Bakeries cannot make raised bread without wheat flour—French homes in particular depend on bakeries; fuel and time are lacking. One bakery can supply hundreds of families and so release hundreds of pounds of coal, hundreds of hours of time. If we insist upon eating wheat needed abroad, Liberty's armies and Liberty's civil population will collapse as Russia collapsed, because the food supplies of her armies and her civil population failed.

Citizens of America, it is bad enough to have those countries across the seas bear the brunt of all the fighting. It is impossible to believe that with the facts before us, there is a living man or woman who will permit those countries to starve for us also. In old times the Prophets would have cursed the bread so eaten. It needs no Prophet now to say that there is a curse for anyone who in mere gratification of appetite eats wheaten bread, and that curse proclaims him a traitor to himself and to his country.

Enough has been said and written. The one who does not now understand the situation is an ignoramus or a slacker; the ignoramus can't and the slacker won't understand. The real pure-bred American from now on needs only the briefest message from one whom he trusts.

BROTHER, YOUR COMRADES NEED WHEAT

The Food Administrator for America has said, "My message is small and concrete, the service that we ask of you, that we ask of every well-to-do, every independent person in the United States to-day is that he shall abstain from the use of wheat in any form until the next harvest."

CEREALS AND CEREAL SUBSTITUTES

1. Banana flour.
2. Barley meal and flour.
3. Buckwheat meal and flour.
4. Corn grits.
5. Corn meal.
6. Corn flour.
7. Cornstarch.
8. Cottonseed flour and meal.
9. Feterita flour and meal.
10. Kafir meal and flour.
11. Milo maize.
12. Oat meal and flour.
13. Oats—rolled.
14. Oats—granulated.
15. Peanut flour and meal.
16. Potato flour and starch.
17. Rice and rice flour.
18. Rice—polished or unpolished.
19. Soya-bean meal.
20. Sweet potato flour.

Housewives of America! Don't wait for the latest tested recipes from the Food Administration. Take down your old cook book and paste this in it (with cornstarch paste):

APPROXIMATE EQUIVALENTS (BY WEIGHT) TO ONE CUP WHEAT FLOUR

	Cup		Cup
Buckwheat flour	7/8	Rice flour	7/8
Corn meal	7/8	Barley flour	1½
Corn flour	1	Hominy grits	4/5
Rolled oats ground in food chopper			1⅛

The above measures are for average flours and meals. If your material is very fine, use a little more than the above measure; if very coarse, a little less.

If you have scales, use them. The following weights are the average of three weighings of one standard cup of sifted flour or meal filled lightly, without packing:

A. MEALS AND FLOURS

	Ounces		Ounces
Barley flour, approximately	3	Rice flour, approximately	5
Buckwheat flour, approximately	5	Wheat flour, approximately	4
Corn flour, approximately			4

B. UNCOOKED CEREALS

	Ounces		Ounces
Corn meal, approximately	5	Oats, rolled, approximately	3
Hominy grits, approximately	5	Oats, rolled (ground), approximately	5

TESTED WHEATLESS RECIPES

CARRY-ONS

1¼ cups liquid; 4 cups barley flour; 3 tablespoons fat; 6 teaspoons baking powder; 1 teaspoon salt.

OVER THE TOPS

1 cup liquid; 2 2/3 cups corn flour; 3 tablespoons fat; 6 teaspoons baking powder, 1 teaspoon salt.

RICEOAT DEFENDERS

1 cup milk; 1 tablespoon fat; 2 tablespoons syrup; 2 eggs; 4 teaspoons baking powder; 1 teaspoon salt; 1/3 cup rice flour (2 ounces); 1¼ cups ground rolled oats (6 ounces).

OATCORN CONQUERORS

1 cup liquid; 1 tablespoon fat; 2 tablespoons syrup; 1 or 2 eggs; 4 teaspoons baking powder; 1 teaspoon salt; ¾ cup ground rolled oats (4 ounces); 1 cup corn flour (4 ounces).

CHOCOLATE CAKE

Half cup fat; 2/3 cup sugar (about 4¼ ounces); 1 cup syrup (about 11½ ounces); 3 eggs; ¾ cup milk; 1 teaspoon salt; 1⅛ cups rice flour (5 ounces); 1⅞ cups barley flour (5 ounces) or rolled oats, ground; 6 teaspoons baking powder; 1 teaspoon cinnamon; 1 teaspoon vanilla; 2 squares chocolate.

Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid and the dry ingredients sifted together. Add flavoring and melted chocolate. Fold in well-beaten egg white. Bake about one hour, starting in a moderate oven, 350° F.—177° C. After 20 minutes raise to 400° F.—205° C.

CHOCOLATE CAKE

Half cup fat; 2/3 cup sugar (4¼ ounces); 1 cup syrup (11½ ounces); 3 eggs; ¼ cup milk; 1 teaspoon salt; 1 2/3 cups buckwheat flour (8 ounces); ½ cup ground rolled oats (2 ounces); 6 teaspoons baking powder; 1 teaspoon cinnamon; 2 squares chocolate; 1 teaspoon vanilla.

Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid, and the dry ingredients sifted together. Add flavoring and melted chocolate. Fold in well-beaten egg whites. Bake about one hour, starting in a moderate oven, 350° F.—177° C. After 20 minutes raise to 400° F.—205° C.

WHEATLESS BREADS AND CAKES

UNITED STATES FOOD LEAFLET NO. 20

SAVE THE WHEAT FOR VICTORY

Our soldiers and those of the Allies who are fighting in France must have bread. America must send them wheat. Every American has a chance to help. We must use one-half or even less of the usual amount of wheat if our soldiers are to have the bread they need.

To Save the Wheat Use the Wheat Substitutes. Corn meal, rolled oats, rice, and buckwheat—these are usually found everywhere. Besides you can now get barley flour, ground oats, corn flour, rice flour, and potato flour in many markets. In some places peanut flour, sweet potato meal, soy bean flour, kaffir, milo, and feterita meal can be obtained for use. Choose the ones easiest to get in your neighborhood and use them in place of wheat.

Whole wheat and graham flour, macaroni, and the wheat breakfast foods should be saved just the same as white flour. We are also asked to save rye.

Use Quick Breads. American people have always used and liked quick breads. Try the wheat substitutes for making them. They are delicious and they can save a great deal of wheat for our soldiers.

Corn meal is one of the best of the wheat substitutes. For its use see U. S. Food Leaflet No. 2.

QUICK BREADS REQUIRING NO WHEAT

Barley Biscuits

Have you ever made barley biscuits? They are worth trying.

2 cups barley flour; 2 tablespoons fat; ½ teaspoon salt; 4 teaspoons baking powder; 2/3 cup milk.

Sift the dry ingredients together, mix in the fat, and add the liquid until a soft dough is formed. Roll to about three-fourths inch thick, cut with a cooky cutter, and bake in a hot oven.

This makes a very good dough for shortcake also.

Buckwheat Breakfast Cake

This is good, if served hot.

2 cups buckwheat flour; ¼ cup shortening; 2 cups sour milk; 1 teaspoon soda; ½ teaspoon salt.

Mix and bake in a flat pan so that the cake is about 1½ inches thick when done. Cut in squares and serve hot like corn bread.

Waffles or Griddle Cakes

1½ cups milk; 2 eggs; 2 tablespoons fat; 2 cups barley flour; 3 teaspoons baking powder; 1 teaspoon salt.

Corn flour or half corn flour and half peanut flour may be used instead of barley flour.

Sift the dry ingredients together and add slowly the milk, beaten egg yolk, and melted fat. Beat thoroughly for a minute and fold in stiffly beaten whites. Cook in hot well-greased waffle iron or as griddle cakes on a hot well-greased griddle.

Oats are good for quick breads. Rolled oats may be ground through a food chopper and used in this form in quick breads or cakes, or ground oats may be bought as such.

Try these oatmeal and corn-flour muffins:

Oatmeal (Ground Oats) and Corn-Flour Muffins

1 cup milk; 2 eggs; 1 tablespoon melted fat; 1 cup oatmeal; 1 cup corn flour; 4 teaspoons baking powder; 1 teaspoon salt.

Sift the dry ingredients together and add to the liquid. Stir in the melted fat. Bake in well-greased muffin molds for 25 minutes.

For Scotch Oat Wafers see U. S. Food Leaflet No. 6.

These quick breads must take the place of much of the yeast bread we are accustomed to using. The yeast bread we do use should be Victory bread. The bakers of this country are now making this Victory bread which contains 25 per cent. of wheat substitutes, just as the bakers in France and England are using wheat substitutes in their yeast bread. Waste none of the bread, for all products containing wheat are precious.

Loaf bread that can be sliced and served cold or toasted is often wanted. Try this conservation loaf.

Oat and Corn-Flour Bread

Two cups rolled oats (ground); 2/3 cup corn flour; 4 teaspoons baking powder; 1 teaspoon salt; ¾ cup milk; 2 eggs; 4 tablespoons corn syrup; 2 tablespoons melted fat.

Mix the melted fat, liquid, syrup and egg. Add the well-mixed dry ingredients. Bake as a loaf in a moderately hot oven for one hour or longer. Nuts or raisins may be added, if desired.

Quick Breads for Americans. Victory bread saves wheat flour, but we can save more by making quick breads, which require no wheat. Let Americans use them now for the Cause of Liberty. We cannot ask the women of France, many of whom are working twelve or fourteen hours a day in the field or factory, to make these breads. They are not accustomed to them and have no ovens in their homes for baking. Even in the little country towns they buy all their bread from the baker, and the bakeries are not equipped to make such breads. We cannot ask the men in the trenches to use the quick breads either, for all their bread must be baked by army bakers in the bakeries back of the lines.

It is our duty to use quick breads here in America, where we know how to make them and have facilities for baking them. Remember when you take the extra trouble to make a quick bread for a meal you help to make it possible for the soldier in the trench or the French woman who is doing a man's work "over there" to have a loaf of bread.

WHEATLESS CAKE AND PASTRY

Very good cake and pastry can be made from the wheat substitutes.

Pastry

2 cups barley flour; 1/3 cup fat; 1 teaspoon salt; Water to make a stiff dough.

Combine as for other pastry.

Chocolate Cake

This is a true conservation cake, for it saves sugar as well as wheat.

¼ cup fat; 3 tablespoons brown sugar; 2 eggs; 1 cup corn syrup; 2 squares chocolate (melted); ½ cup milk; 2 cups barley flour; 4 teaspoons baking powder; ¼ teaspoon salt; 1 teaspoon vanilla.

Cream the fat and sugar, add the egg yolks, syrup, and melted chocolate, and beat well. Sift the dry ingredients together and add alternately with the milk. Add vanilla and fold in the stiffly beaten whites. Bake in loaf or layers in a moderate oven.

OTHER WAYS TO SAVE WHEAT

Cut your loaf at the table slice by slice as needed. Waste not a crumb.

Waste no flour on the bread board when you make bread.

For thickening—Use cornstarch or the substitute flours. Fine corn meal is good for dredging meats. Every little bit of flour saved counts.

Have breadless meals—Eat potatoes or cooked cereals to take the place of bread. When you have potatoes, rice, or hominy served with meat, or for breakfast a large bowl of cereal, you do not need bread.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

SAVE SUGAR

UNITED STATES FOOD LEAFLET NO. 15

USE OTHER SWEETS

The Allies need sugar. The battle lines and enemy territory now include much of their sugar land, so that more and more they are turning to us and our sources of supply. We must give them what they need.

To help them we must cut down our own consumption, otherwise there will not be enough sugar for us all. We, in the past, have used more than any other people. The French and Italians allow themselves only one-fourth pound a week. . We eat at least one pound—four times as much.

To divide the world's sugar more evenly is a world problem that all of us can help solve. Let us do our part. We are asked merely to cut down our sugar from one pound to three-fourths of a pound. By this saving we can help win the war.

HOW TO SAVE SUGAR

Eat less sweet food. Put less sugar in tea and coffee and dissolve completely what you do use. Use less on cereals. Do not frost cakes. Eat less candy.

Instead of sugar use—Cane, corn, and maple syrups, honey, molasses, and fruit syrups. To sweeten your cereals serve them with syrup or with sweet fruits. Use them to make delicious desserts —honey or corn syrup for a delicate flavor, and molasses or sorghum for a stronger one. Try molasses or syrup in Indian Pudding and Brown Pudding. (See Leaflets 2 and 6.)

DATE PUDDING

A sugarless pudding which uses both syrup and sweet fruit

2 cups milk; ½ cup corn or malpe syrup; 12 seeded dates cut up small; 3 tablespoons cornstarch; ½ teaspoon salt; 1 teaspoon vanilla.

Mix the cornstarch with ¼ cup milk. Heat the remaining milk in a double boiler. Add the cornstarch, syrup, dates, and salt, and stir until thick, cover and cook for 20 minutes. Add the vanilla and pour into a dish to cool. Serves five people. Prunes are good instead of dates.

GINGERBREAD

Always liked and inexpensive

1 cup cornmeal; 1 cup wheat flour; 2 teaspoons cinnamon; 2 teaspoons ginger; ½ teaspoon salt; 1 teaspoon baking powder; 1 teaspoon baking soda; 1 cup molasses; 1 cup sour milk or buttermilk; 2 tablespoons fat.

Sift the dry ingredients and add molasses, milk, and fat. Beat well and pour into a greased pan. Bake 25 minutes. Notice that this recipe uses cornmeal for half the wheat flour ordinarily used.

CAKE WITHOUT SUGAR

An excellent cake, though not quite so sweet as with sugar

¼ cup butter, oleomargarine or other fat; 2 cups corn syrup; 2 eggs; 3 cups flour; 1½ tablespoons baking powder; ¼ teaspoon salt; 1 cup milk.

Cream the shortening, add the syrup and the egg, and mix well. Add the milk. Sift the baking powder and flour together, add it slowly to the mixture and beat. Bake in a moderate oven as a loaf or layer cake or small drop cakes. One-fourth cup of raisins added to the batter gives more flavor and sweetness.

POPCORN

A splendid substitute for sugar sweets

Pop the dried corn in a regular popper or a covered iron frying pan, shaking vigorously and taking care not to let it burn. A cup of dried corn will make 3 quarts when popped. It is good mixed with a little salt or melted butter and salt.

To make a sweet of it, combine with syrup. Boil together 1 cup corn syrup and 1 tablespoon vinegar until a few drops harden in water. Pour over the popped corn while the syrup is hot. This amount of syrup will cover 3 quarts of popped corn. As soon as the mass is cool enough to handle, grease the hands well and form into balls.

STUFFED PRUNES AND DATES

Delicious confections to use instead of candy

Soak the prunes overnight, dry, and stuff with chopped nuts, raisins, or apricots. Wash the dates, dry them, and stuff the same as prunes. These and the Parisian Sweets are good to eat and good for you.

PARISIAN SWEETS

Another sweet which is very good

Use equal quantities of figs, dates and nuts. The nuts may be omitted and prunes or raisins added. Put through a food chopper. Mix well and roll in a little powdered sugar or grated cocoanut.

FRUIT FOR DESSERT

Raw, stewed, or baked fruits, dried or fresh, and dried sweet fruits like dates, figs, and raisins. By using fruit for dessert instead of rich pies and puddings you will conserve wheat flour and fats as well as sugar. Besides, the fruits are more wholesome and often less expensive. Bake or stew your fruit with corn syrup instead of sugar. The result is very good. For stewing use ½ cup of syrup to 1 pound of fruit. When dried fruit is used, soak it first in water overnight and cook for 10 minutes.

IS YOUR FAMILY SAVING ITS SHARE OF SUGAR?

Plan saving for your household. Use no more than three-fourths pounds a week for each member. Multiply three-fourths pound by the number of people in your family and put that quantity aside for the week's use. That should include all the sugar you use in cookery and on the table. Eat less candy. Follow these suggestions and recipes and help the Allies in their great need.

DID YOU SIGN THE FOOD PLEDGE?

The United States Food Leaflets Will Help You to Keep It

To help to save wheat:

No. 2. Do You Know Corn Meal?
No. 6. Do You Know Oatmeal?
No. 9. Vegetables for Winter.
No. 10 Plenty of Potatoes.

To help you save fat:

No. 16. Use Fat Carefully.

To help you save meat:

No. 3. A Whole Dinner in One Dish.
No. 5. Make a Little Meat Go a Long Way.
No. 8. Instead of Meat.
No. 11. Milk—The Best Food We Have.
No. 14. Dried Beans and Peas.
No. 17. Use More Fish.

To help you plan meals:

No. 1. Start the Day Right with a Good Breakfast.
No. 4. Choose Your Food Wisely.
No. 7. Food for Your Children.

To help you save fuel:

No. 12. Save Fuel When You Cook.
No. 13. Let the Fireless Cooker Help You Cook.

SAVE MEAT

MAKE A LITTLE MEAT GO A LONG WAY

UNITED STATES FOOD LEAFLET NO. 5

USE SAVORY STEWS AND MEAT PIES

Do you know how good they are? They may be so varied that you can have a different one every day in the week, and all of them delicious. It needs only a small piece of meat to give flavor to a hearty dish.

Don't think that you must eat a lot of meat to be strong. Meat is good to help build up the body, but so are many other foods.

In these dishes part of your building material comes from the more expensive meat and part from the cheaper peas, beans, hominy, and barley. The little meat with the vegetables and cereals will give the body what it needs.

SAVORY STEWS

Try them. They can be a whole meal and a nutritious one. These recipes serve five people.

Here is an English stew that is especially good:

HOT POT OF MUTTON AND BARLEY

1 pound mutton; ½ cup pearled barley; 1 tablespoon salt; 4 potatoes; 3 onions; Celery tops or other seasoning herbs.

Cut the mutton in small pieces, and brown with the onion in fat cut from meat. This will help make the meat tender and improves the flavor. Pour this into a covered saucepan. Add 2 quarts water and the barley. Simmer for 1½ hours. Then add the potatoes cut in quarters, seasoning herbs, and seasoning, and cook one-half hour longer.

SAVORY STEWS AND MEAT PIES

BEEF STEW

1 pound beef; 4 potatoes cut in quarters; ¼ peck peas or 1 can; 1 cup carrots cut up small; 1 teaspoon salt.

Cut the meat in small pieces and brown in the fat from the meat. Simmer in 2 quarts of water for 1 hour. Add the peas and carrots and cook for one-half hour, then add the potatoes. If canned peas are used, add them 10 minutes before serving. Serve when potatoes are done.

DIFFERENT STEWS

Here is the way you can change the stews to make them different and to suit the season:

1. The meat.—This may be any kind and more or less than a pound may be used. Use the cheap cuts, the flank, rump, neck, or brisket. The long, slow cooking makes them tender. Game and poultry are good.

2. Potatoes and barley may be used or barley alone, or rice, hominy, or macaroni.

3. Vegetables.—Carrots, turnips, onions, peas, beans, cabbage, tomatoes are good, canned or fresh. Use one or more of these, as you wish.

4. Parsley, celery tops, onion tops, seasoning herbs, or chopped sweet peppers add to the flavor.

5. Many left-overs may be used—not only meat and vegetables, but rice or hominy.

HOW TO COOK THE STEWS

All kinds of stews are cooked in just about the same way. Here are directions which will serve for making almost any kind.

Cut the meat in small pieces and brown with the onion in the fat cut from the meat. Add the salt and pepper, seasoning vegetables (onion, celery tops, etc.), 2 quarts of water, and the rice, or other cereal, if it is to be used. Cook for an hour, then add the vegetables except potatoes. Cook the stew for half an hour, add the potatoes cut in quarters, cook for another half an hour, and serve.

The fireless cooker may well be used, the meat and the vegetables being put in at the same time.

Left-overs or canned vegetables need only to be heated through. Add them 15 minutes before serving.

Dried peas or beans should be soaked over night and cooked for 3 hours before adding to the stew; or, better, cook them over night in a fireless cooker.

THE BEST WAY TO MAKE A LITTLE MEAT GO A LONG WAY

MEAT PIES

Another good way to use a little meat. Have you ever used rice, corn meal mush, or hominy for a crust? This is less work than a pastry crust and saves wheat.

4 cups cooked corn meal, rice, or hominy; 1 onion; 2 cups tomato; ⅛ teaspoon pepper; 1 tablespoon fat; 1 pound raw meat or left-over meat cut up small; ½ teaspoon salt.

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

SHEPHERD'S PIE

This is the name of a meat pie with a mashed-potato crust browned in the oven.

Try These Recipes and Cut Down Your Meat Bills

(Paste or Write Here Scraps or Memos. of Your Own)

THE FISH SITUATION

UNITED STATES FOOD ADMINISTRATION

May 11, 1918.

Extreme shortage in supplies of salt water fish on the Atlantic seaboard during the winter and early spring months has largely been remedied, the United States Food Administration has announced. The shortage has been due to the necessary taking over of trawlers for naval purposes and the recruiting of deep-sea fishermen by the Navy. The trawler production of deep-sea fish has now been materially increased by free admission of Canadian trawlers and new construction. Beyond this, certain State restrictions on littoral fishing have been lifted.

Supplies are being rapidly augmented. While the runs of migratory shore fish did not begin until late in the Fall and maximum catches of the different varieties was not felt until the latter part of May, wholesale prices quite generally are already down to relatively low levels, and should remain on this basis except when storms and climatic changes in the various districts bring about temporary shortages.

On every day in each week and continuously during the present season from May to December, some of the many varieties of salt water fish will be available and sold in the wholesale markets along the Atlantic Coast at prices ranging from four to six cents per pound. In view of these conditions, all retailers in the large cities along the Atlantic Coast and in the towns and cities of the interior, within reachable transportation distance from the Atlantic seaboard, will be able to sell every weekday at least one variety of fish at a retail price to consumers of ten cents per pound or under. Any retail dealer who does not conform to these conditions and offer at least one kind of fish to the public at the maximum retail price mentioned is not patriotically co-operating with the Food Administration and his customers.

The particular variety sold by the retailer on this ten-cent basis must necessarily vary from day to day with the available supplies. Fish now available on the low-priced basis include market cod, scrod cod, scrod haddock, haddock, medium hake, skate wings, grayfish, ling, flounders, shad herring, herring, whiting, croakers, butterfish (small), spotted trout (small), weakfish (small), small shad (known as jacks or skips), tinker mackerel, squid, small Boston mackerel, drum, menhaden, shark, sea robins, spots. Others will be added as the runs of the shore varieties strike on through the different Atlantic Coast districts in heavier volumes.

The country was threatened with what amounted to a practical fish famine during the winter. The shortage arose fundamentally from the necessities of the Navy in requisitioning deep-sea trawlers and other fishing vessels and in recruiting fishermen for naval service. How important this has been may be seen from the fact that the trawler capacity supplying the New England districts was decreased last summer from an annual capacity of approximately sixty million pounds to thirty-five million pounds.

A substantial number of new trawlers are now on the ways and approaching completion. Owing to the action of Secretary Redfield in opening up our fishing ports to Canadian vessels, several Canadian trawlers are now fishing to our markets. There is every prospect of acquiring trawlers from the Scandinavian fisheries for use in this country. In the meantime, the relaxation of State regulations that have been effected by the Food Administration should tend to increase greatly the production of the shore fisheries, and its reflex will be steadily shown in the wholesale prices of fish as the season progresses.

With the approach of next winter, the Food Administration is confident the deep-sea fishing and the winter production of ground fish through the various sources indicated should be restored to normal.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

WHEATLESS RECIPES

UNITED STATES FOOD ADMINISTRATION

Tested in the Experimental Kitchen of the Food Administration (Conservation Division) and the Department of Agriculture

Washington, April, 1918.

BAKING POWDER LOAF BREADS

(Using no Wheat)

All Measurements Are Level.—In the following recipes the weights given are accurate. The measurements are approximate; that is, they are given in the nearest fraction of a cup which a housewife ordinarily uses. It is convenient to remember in measuring unusual fractions that two level tablespoons are one-eighth cup.

METHOD

Mix the melted fat, liquid, syrup, and egg. Combine the liquid and well mixed dry ingredients. Bake as a loaf in a moderately hot oven (205° C. or 400° F.) for one hour or until thoroughly baked.

Nuts, raisins, or dates may be added, making the breads more nutritious and very palatable.

LOAF BREADS

OAT AND CORN FLOUR BREAD

50 Per Cent Ground Rolled Oats
50 Per Cent Corn Flour

One cup liquid, 2 to 4 tablespoons fat, 4 tablespoons syrup, 2 eggs, 6 teaspoons baking powder, 1 teaspoon salt, 1¼ cups (5 ounces) corn flour, 1½ cups (5 ounces) ground rolled oats.

CORN FLOUR AND BUCKWHEAT BREAD

50 Per Cent Corn Flour
50 Per Cent Buckwheat

One cup liquid, 2 to 4 tablespoons fat, 4 tablespoons syrup, 2 eggs, 6 teaspoons baking powder, 1 teaspoon salt, 1¼ cups (5 ounces) corn flour, 1 cup (5 ounces) buckwheat.

RICE AND BARLEY BREAD

50 Per Cent Rice Flour
50 Per Cent Barley Flour

One cup liquid, 2 to 4 tablespoons fat, 4 tablespoons syrup, 2 eggs, 6 teaspoons baking powder, 1 teaspoon salt, 1⅛ cups (5 ounces) rice flour, 1⅞ cups (5 ounces) barley flour.

BARLEY AND OAT BREAD

50 Per Cent Barley Flour
50 Per Cent Ground Rolled Oats

One cup liquid, 2 to 4 tablespoons fat, 4 tablespoons syrup, 2 eggs, 6 teaspoons baking powder, 1 teaspoon salt, 1⅞ cups (5 ounces) barley flour, 1½ cups (5 ounces) ground rolled oats.

COMBINATION MUFFINS

(Using no Wheat)

METHOD OF MIXING

Add to the cup of milk the melted fat, syrup, and slightly beaten egg; sift the salt, baking powder and flour together. Use a coarse sieve so that no part of the flour is wasted. Combine the two mixtures, stirring lightly without beating. Bake in a hot oven (427° F. or 225° C.) for 20 to 30 minutes, depending upon the size of the muffins.

These recipes make 24 small muffins (3 of which make a 2-ounce serving) or 8 very large muffins.

The ground rolled oats are the same as rolled oats ground in a food chopper. When using oats, mix them with the other sifted dry ingredients.

When cornmeal is used, mix—do not sift—the ingredients.

Suggestions.—The wheat substitute recipes given below show that a wide variety of combinations is possible even when limited to the use of a few substitutes.

All of the combinations are good. In nearly all cases a combination of substitutes makes a better product than the use of only one substitute.

Muffins containing oats have a particularly pleasant flavor.

Other substitutes used with buckwheat will modify the color and improve the flavor of the product. The use of molasses will also do this.

1. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Barley
50 Per Cent Oats

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1½ cups barley flour (4 ounces), 1⅛ cups ground rolled oats (4 ounces).

2. COMBINATION SUBSTITUTE MUFFINS
75 Per Cent Barley
25 Per Cent Oats

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 2¼ cups barley (6 ounces), ½ cup ground rolled oats (2 ounces).

3. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Buckwheat
50 Per Cent Oats

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ¾ cup buckwheat (4 ounces), 1⅛ cups oats, ground (4 ounces).

4. COMBINATION SUBSTITUTE MUFFINS
75 Per Cent Buckwheat
25 Per Cent Oats

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1¼ cups buckwheat (6 ounces), ½ cup ground oats (2 ounces).

5. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Buckwheat
50 Per Cent Corn Flour

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ¾ cup buckwheat (4 ounces), 1 cup corn flour (4 ounces).

6. COMBINATION SUBSTITUTE MUFFINS
75 Per Cent Barley
25 Per Cent Corn Flour

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 2¼ cups barley flour (6 ounces), ½ cup corn flour (2 ounces).

7. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Ground Rolled Oats
50 Per Cent Corn Flour

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1⅛ cups ground rolled oats (4 ounces), 1 cup corn flour (4 ounces).

8. COMBINATION SUBSTITUTE MUFFINS
25 Per Cent Ground Rolled Oats
75 Per Cent Corn Flour

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ½ cup rolled oats, ground (2 ounces), 1½ cups corn flour (6 ounces).

9. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Buckwheat
50 Per Cent Barley

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ¾ cup buckwheat (4 ounces), 1½ cups barley flour (4 ounces).

10. COMBINATION SUBSTITUTE MUFFINS
25 Per Cent Buckwheat
75 Per Cent Barley

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ⅜ cup buckwheat (2 ounces), 2¼ cups barley flour (6 ounces).

11. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Rice Flour
50 Per Cent Buckwheat

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ⅞ cup rice flour (4 ounces), ¾ cup buckwheat (4 ounces).

12. COMBINATION SUBSTITUTE MUFFINS
75 Per Cent Rice Flour
25 Per Cent Buckwheat

One cup liquid, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1 1 3 cups rice flour (6 ounces), ⅜ cup buckwheat (2 ounces).

13. COMBINATION SUBSTITUTE MUFFINS
25 Per Cent Rice Flour
75 Per Cent Buckwheat

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ⅜ cup rice flour (2 ounces), 1¼ cups buckwheat (6 ounces).

14. COMBINATION SUBSTITUTE MUFFINS
25 Per Cent Rice Flour
75 Per Cent Ground Rolled Oats

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ⅜ cup rice flour (2 ounces), 1¾ cups ground rolled oats (6 ounces.

15. COMBINATION SUBSTITUTE MUFFINS
50 Per Cent Rice Flour
50 Per Cent Ground Rolled Oats

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, ⅞ cup rice flour (4 ounces), 1⅛ cups ground rolled oats (4 ounces).

16. COMBINATION SUBSTITUTE MUFFINS

25 Per Cent Rice Flour
75 Per Cent Barley Flour

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 3/8 cup rice flour (2 ounces), 2 1/4 cups barley flour (6 ounces).

17. COMBINATION SUBSTITUTE MUFFINS

50 Per Cent Rice Flour
50 Per Cent Barley Flour

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 7/8 cup rice flour (4 ounces), 1 1/2 cups barley flour (4 ounces).

18. COMBINATION SUBSTITUTE MUFFINS

25 Per Cent Buckwheat
75 Per Cent Corn Flour

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 3/8 cup buckwheat (2 ounces), 1 1/2 cups corn flour (6 ounces).

19. COMBINATION SUBSTITUTE MUFFINS

25 Per Cent Buckwheat
75 Per Cent Ground Rolled Oats

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 3/8 cup buckwheat (2 ounces), 1 3/4 cups ground rolled oats (6 ounces).

20. COMBINATION SUBSTITUTE MUFFINS

75 Per Cent Corn Flour
25 Per Cent Buckwheat

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1 1/2 cups corn flour (6 ounces), 1/3 cup buckwheat (2 ounces).

21. COMBINATION SUBSTITUTE MUFFINS

50 Per Cent Corn Flour
50 Per Cent Barley Flour

One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 or 2 eggs, 4 teaspoons baking powder, 1 teaspoon salt, 1 1/2 cups barley flour (4 ounces), 1 cup corn flour (4 ounces).

BISCUIT

(Using no Wheat)

METHOD

Sift dry materials together. Work in fat well. Combine liquid and dry materials, handling lightly. Roll or pat 1/2 inch thick and cut as biscuits. Bake in a hot oven.

Use a coarse sifter or mix instead of sifting if the flours are coarse, so that none is wasted.

Biscuits made of the substitutes are less like the normal wheat flour product, particularly in texture, than are the muffins, loaf breads, and cakes.

If one-fourth more liquid is used, a drop biscuit having better texture is the result.

1. BARLEY BISCUIT

One and one-quarter cups liquid, 4 cups barley flour, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt.

Appearance, light, well risen, good shape.
Texture, good.
Color, somewhat dark, but typical of barley.
Flavor, typical of barley; good.

Comment: These biscuits do not get light and fluffy as wheat biscuits, but are still a desirable and edible product.

2. CORN FLOUR BISCUIT

One cup liquid, 2 2/3 cups corn flour, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt.

Appearance, good.
Texture, very dry and close.
Color, white.
Flavor, corn flavor.

3. BUCKWHEAT-CORN FLOUR BISCUIT

50 Per Cent Buckwheat
50 Per Cent Corn Flour

One cup liquid, 1 1/4 cups buckwheat, 1 1/3 cups corn flour, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt.

Appearance, dark, but good shape.
Texture, good; similar to wheat.
Color, light chocolate color.
Flavor, typical buckwheat.
Comment: Dough very soft, almost consistency of a drop biscuit.

4. CORN FLOUR-ROLLED OAT BISCUIT

50 Per Cent Ground Rolled Oats
50 Per Cent Corn Flour

One cup liquid, 1 1/3 cups corn flour, 1 cup ground oats, 3 tablespoons fat, 6 teaspoons baking powder, 1 teaspoon salt.

Appearance, rough, but appetizing.
Texture, light.
Flavor, very good.
Color, slightly dark; attractive.

CAKES

(Cakes made with wheat flour substitutes containing no wheat flour)

SPONGE CAKES, SPICE CAKES, AND CHOCOLATE CAKES

BARLEY SPONGE CAKE

One and one-third cups barley flour (3½ ounces), 1 cup sugar (7 ounces), 4 eggs (7 ounces), 1 tablespoon lemon juice, ⅛ teaspoon salt.

CORN (FLOUR) SPONGE CAKE

Seven-eighths cup corn flour (3½ ounces), 1 cup sugar (7 ounces), 4 eggs (7 ounces), 2 tablespoons lemon juice, ⅛ teaspoon salt.

OAT SPONGE CAKE

One-half cup oat flour (2 2/3 ounces), ¼ cup corn flour (1 ounce), 1 cup sugar (7 ounces), 4 eggs (7 ounces), 1 tablespoon lemon juice, ⅛ teaspoon salt.

RICE SPONGE CAKE

Three-quarters cup rice flour (3½ ounces), 1 cup sugar (7 ounces), 4 eggs (7 ounces), 2 tablespoons lemon juice, ⅛ teaspoon salt.

Methods of Mixing Sponge Cakes—Separate whites and yolks. Beat the yolks until thick and light lemon color. Beat sugar into the stiffened yolks and add the lemon juice. Fold in alternately the stiffly beaten whites and flour. Bake in an ungreased pan for 35 to 40 minutes. Start in a moderate oven (365° F. or 185° C.), and when about half done raise the temperature to that of a hot oven (400° F. or 205° C.).

Results of Sponge Cakes—These cakes are all very nice and light, texture and color good. Barley has characteristic flavor. Corn cake is especially tender, and all are good textured. The extra lemon juice used with rice and corn seems necessary to improve the flavor.

SPICE CAKE

100 Per Cent Barley Flour

One-half cup fat, 2/3 cup sugar (4¾ ounces), 1 cup syrup (11½ ounces), 3 eggs, ¾ cup milk, 1 teaspoon vanilla, 1 teaspoon salt, 6 teaspoons baking powder, ½ teaspoon ginger, 1 teaspoon cinnamon, ½ teaspoon cloves, 1 teaspoon allspice, 3¾ cups barley flour (10 ounces), 1 cup raisins.

Method—Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid and the dry ingredients sifted together. Add the raisins and fold in the well-beaten egg whites. Bake as a loaf for one hour in a moderate oven (350° F. or 170° C.). After 20 minutes raise the temperature to 400° F. or 205° C.

SPICE CAKE

50 Per Cent Rice Flour

50 Per Cent Buckwheat

One-half cup fat, 2/3 cup sugar (4¾ ounces), 1 cup syrup (11½ ounces), 3 eggs, ¾ cup milk (6 ounces), 1 teaspoon vanilla, 1 teaspoon salt, 6 teaspoons baking powder, ½ teaspoon ginger, 1 teaspoon cinnamon, ½ teaspoon cloves, 1 teaspoon allspice, 1⅛ cups rice flour (5 ounces), 1 cup buckwheat (5 ounces).

Method—Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid and the dry ingredients sifted together. Add the flavoring and fold in the well beaten egg whites. Bake as a loaf for one hour in a moderate oven 350° F. (170° C.). After 20 minutes raise the temperature to 400° F. (205° C.)

CHOCOLATE CAKE

50 Per Cent Ground Rolled Oats

50 Per Cent Barley Flour

One-half cup fat, 2/3 cup sugar (4¾ ounces), 1 cup syrup (11½ ounces), 3 eggs, ¾ cup milk, 1 teaspoon salt, 6 teaspoons baking powder, 1 teaspoon cinnamon, 2 squares chocolate 1 teaspoon vanilla, 1½ cups ground rolled oats (5 ounces), 1⅞ cups barley flour (5 ounces).

Method—Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid and the dry ingredients sifted together. Add flavoring and melted chocolate. Fold in well beaten egg white. Bake as a loaf about one hour, starting in a moderate oven 350° F. (177° C.). After 20 minutes raise to 400° F. (205° C.).

CHOCOLATE CAKE

75 Per Cent Corn Flour

25 Per Cent Ground Rolled Oats

One-half cup fat, 2/3 cup sugar, (4¾ ounces), 1 cup syrup (11½ ounces), 3 eggs, ¾ cup milk, 1 teaspoon salt, 6 teaspoons baking powder, 1 teaspoon cinnamon, 2 squares chocolate, 1 teaspoon vanilla, 2 cups corn flour (8 ounces), ½ cup ground rolled oats (2 ounces).

Method—Cream the fat, sugar, and egg yolk. Add the syrup and mix well. Add alternately the liquid and the dry ingredients sifted together. Add flavoring and melted chocolate. Fold in well beaten egg whites. Bake as a loaf about one hour, starting in a moderate oven 350° F. (177° C.) After 20 minutes raise to 400° F. (205° C.).

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

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USE BARLEY SAVE WHEAT

UNITED STATES DEPARTMENT OF AGRICULTURE
THE STATES RELATIONS SERVICE

Washington, April 18, 1918.

Barley is grown in large quantities in the United States and it is now being ground into flour, though until lately it was more generally used for other purposes. It is a palatable, wholesome grain which has long been used in infant feeding and, to some extent, for general cookery, and which can now be used in quantity to save wheat. You will find barley flour one of the best of the wheat substitutes. Delicious breads and cakes can be made by using it to replace all or part of the wheat flour.

The use of barley flour for such purposes, though new to most of us, is not new to some people. Not many years ago barley was used more extensively than wheat for bread making in many of the European countries. Let us revive the art of barley cookery and, by so doing, "stretch" our supply of wheat flour so that it may go farther to meet the needs of our Allies. We can easily do this and at the same time serve our families with delicious bread, muffins, biscuit, and pastry.

USE BARLEY—SAVE WHEAT

Hundreds of millions of bushels of barley are raised yearly in the United States. This supply, heretofore, has been used chiefly for stock feed or for malting, but under present conditions the greater part of the crop is being milled into flour, which, since it is both palatable and nutritious, may well be used to meet the increasing demand for wheat substitutes. This flour is now on the market, and it is our patriotic duty to use it to save the wheat flour.

Give barley flour a trial—you will wonder why we did not use it more before the war.

Barley flour does not keep so well as wheat flour, so it is best to buy it in small quantities, even for home consumption.

The recipes which follow have been tested in the experimental kitchen of the Office of Home Economics.

Note—All measures are level.

HOT BREADS

Barley flour is very satisfactory for hot breads.

BARLEY QUICK BISCUITS

Two cups barley flour, ½ teaspoon salt, 2 tablespoons fat, 4 teaspoons baking powder, 2/3 cup milk.

BARLEY DROP BISCUITS

Two cups barley flour, ½ teaspoon salt, 4 tablespoons fat, 6 teaspoons baking powder, 1 cup milk.

Baked in a sheet this makes a good shortcake buttered and served with fresh crushed berries or other fruit.

BARLEY WAFFLES

Two cups barley flour, 1 teaspoon salt, 3 teaspoons baking powder, 1½ cups milk, 2 eggs, 3 tablespoons melted fat.

Sift the dry ingredients together and add slowly the milk, beaten egg yolk, and melted fat. Fold in stiffly beaten whites. Beat thoroughly and cook in hot, well-greased waffle irons.

BARLEY MUFFINS

Two and three-quarter cups barley flour, 1 cup milk, 2 tablespoons corn syrup, 4 teaspoons baking powder, 1 tablespoon fat, 1 egg, ¼ teaspoon salt.

BARLEY SPOON BREAD

One cup barley flour, 1 cup hot boiled hominy grits, 3 tablespoons fat, 1 teaspoon salt, 2 cups milk, 2 eggs, 2 teaspoons baking powder.

BARLEY YEAST BREAD

If you use you own bread recipe and replace one-fourth of the wheat flour with barley flour, you will be able to make a very good bread. With the present need of saving flour, it will be desirable for the housekeeper to make less yeast bread than usual, as one cannot use so large a percentage of wheat substitute in making yeast breads as in quick breads.

BARLEY PASTRY

Very good pie crust can be made with all-barley flour or by using one-half barley and one-half wheat flour. The first recipe is especially good for a one-crust pie.

PIE CRUST

One cup barley flour, 2 2/3 tablespoons fat, 1/8 teaspoon salt, cold water.

CAKES AND COOKIES

It is not necessary to go without cake when such delicious products can be made that use no wheat flour and little sugar. In these recipes the housekeeper, if she prefers, can use cream of tartar with baking soda in the usual proportions in place of baking powder.

CHOCOLATE CAKE

Two cups barley flour, 1/4 cup fat, 1/4 teaspoon salt, 2 squares chocolate, 1/2 cup milk, 4 teaspoons baking powder, 3 tablespoons brown sugar, 1 cup corn syrup, 2 eggs, whites and yolks, beaten separately, 1 teaspoon vanilla.

SPONGE CAKE

One and one-half cups barley flour, 4 eggs, 1 tablespoon lemon juice, 1 1/2 cups corn syrup, 1/4 teaspoon salt, 2 teaspoons baking powder.

FRUIT CAKE

Two and one-quarter cups barley flour, 1/4 cup fat, 3 tablespoons molasses, 1/2 cup chopped raisins, 1/4 teaspoon cinnamon, 1/2 cup chopped nuts, 1/2 cup corn syrup, 1/4 teaspoon soda, 1 teaspoon baking powder, 1/4 teaspoon allspice, 1/4 teaspoon cloves, 1/8 cup citron.

Bake 1 hour and 10 minutes. Keep moist and very good.

GINGERBREAD

One and one-half cups barley flour, 1/2 cup molasses, 1/2 cup milk, 2 teaspoons baking powder, 1/4 teaspoon soda, 1 teaspoon ginger, 1 teaspoon cinnamon, 1/8 teaspoon salt, 2 tablespoons fat.

Bake about 30 minutes in moderate oven. Good texture and flavor.

HERMITS

Two cups barley flour, 2 tablespoons fat, 1 egg, 1/2 teaspoon ginger, 1/4 cup chopped raisins, 1 teaspoon baking powder, 1/2 cup corn syrup, 1/4 teaspoon salt, 1/2 teaspoon cinnamon, 1/4 cup nuts, 1 tablespoon milk.

Honey, maple sugar, or maple, beet, apple, or sorghum syrup, which can be made at home, can be used in the same way as corn syrup in the above recipes to save sugar.

SUGAR SAVING

Because of the present shortage of sugar it is necessary for each person to reduce his consumption of sugar to 3/4 pound per week. There are so many sweet foods that may be used in place of sugar that this should be no hardship.

Cut out candy.

Use less sugar in tea and coffee and substitute other sweetening wherever possible.

Try cooking breakfast cereals with chopped figs, dates or raisins. You will not need to add any sugar at the table.

Use molasses, honey, corn or other syrups for sweetening.

*Apple syrup and concentrated cider.

Get Government pamphlet giving directions for making syrup from apples and other fruits. Try some of these.

Use fresh fruits for desserts in place of rich pastries and sweet puddings.

Bake apples or pears with a little water for several hours until a rich syrup forms.

If more sweetening is desired add a little honey or molasses.

Stew dried prunes in the water in which they were soaked until the liquid is almost all boiled away. If more juice is wanted add water to the syrup. The long, slow cooking is necessary to develop a rich flavor.

Cut down the use of cake.

Do not use frosting unless you can make it without sugar.

Either honey or maple syrup can be substituted for sugar in a boiled frosting.

When cake is made it should be not only wheat-saving, but sugar-saving and fat-saving. Try making cakes in which cornmeal, corn flour, rye flour, potato flour, rice flour or cornstarch is substituted for part of the wheat flour.

Use corn syrup, molasses, honey and other syrups for part or all of the sugar.

A good working rule in making such substitution is to use 1 cupful of syrup as equivalent to 1 cupful of sugar and 1/4 cup of liquid. Corn syrup does not sweeten as much as molasses or honey.

CONSERVATION PIE CRUSTS

CORNMEAL CRUST

Grease a pie plate well. Cover with raw cornmeal, giving the plate a rotating motion so that an even layer of the meal will stick to the plate about 1/16 of an inch in thickness. Fill the plate with pumpkin pie mixture. Bake in a hot oven.

OATMEAL CRUST

Two cupfuls finely ground oatmeal, 1 cupful boiling water, 1 teaspoonful fat.

Scald the oatmeal with the water. Add fat and mix thoroughly. Roll very thin and line small pie or tart tins with the mixture. Bake in a hot oven. Fill with apricot marmalade or other thick mixture. If desired, spread a meringue on top and brown in the oven.

*Department of Agriculture Yearbook Separate 639.

CONSERVATION SWEETS

CORNMEAL COOKIES

Half a cup melted fat, ½ cup molasses, ½ cup corn syrup, 1 egg, 6 tablespoonfuls sour milk, ½ teaspoon soda, 2 cupfuls cornmeal, 1 cupful wheat flour.

Combine the melted fat, molasses, syrup, beaten egg and milk. Sift the dry ingredients and combine with the liquid. Drop from a teaspoon onto a greased pan and bake in a moderate oven for 15 minutes. This makes 55 to 60 cookies about 2 inches in diameter.

OATMEAL MACAROONS

One tablespoonful fat, ⅜ cup corn syrup, 2 tablespoonfuls sugar, 1 egg, 2 teaspoonfuls almond extract if desired, 1½ cupfuls ground oatmeal, ¼ teaspoon salt, ½ teaspoon baking powder.

Combine the melted fat and the sugar and syrup, add the beaten egg and stir in the other ingredients. Drop from a teaspoon onto greased baking sheets or pans and bake in a moderate oven about 15 minutes.

This makes 25 to 28 cookies about 2 inches in diameter.

CORNMEAL GINGERBREAD

One cupful cornmeal, 1 cupful barley flour, 1 teaspoonful soda, ¾ teaspoonful salt, 2 teaspoonfuls ginger, 1 egg,* 1 teaspoonful cinnamon, ½ teaspoon cloves, 1 cupful sour milk, 1 cupful molasses, 2 tablespoonfuls shortening.

Sift together the dry ingredients. Combine the milk, molasses, melted shortening and beaten egg. Add the liquid ingredients to the dry. Stir well. Bake in moderate oven.

Variation

Two cupfuls of buckwheat flour may be substituted for the cornmeal and flour in the above recipe. This will have the characteristic flavor of buckwheat. If it is too strong use only 1 cupful of buckwheat and 1⅛ cupfuls of white flour. Two and a half cupfuls of rye flour may also be substituted.

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*Omitted if desired.

MEAT SAVING

Meat saving is to be accomplished in various ways:

1. By doing without pork and beef.
2. By using meat less frequently.
3. By serving smaller portions.
4. By using meat extenders, such as a dish of rice, tomatoes and a little meat.
5. By using substitutes, such as cheese, eggs, fish, game, poultry, dried beans and peas.

MEAT EXTENDERS

TAMALE PIE (Serves 6)

Two cupfuls cornmeal, 2½ teaspoonfuls salt, 6 cupfuls boiling water, 1 onion, 1 tablespoonful fat, 1 pound Hamburger steak, 2 cupfuls tomatoes, ½ teaspoon cayenne pepper or 1 small chopped sweet pepper, 1 teaspoonful salt.

Make a mush by stirring the cornmeal and 1½ teaspoonfuls salt into boiling water. Cook in a double boiler or over water for 45 minutes. Brown the onion in the fat, add the Hamburger steak and stir until the red color disappears. Add the tomato, pepper and salt. Grease a baking dish, put in a layer of cornmeal mush, add the seasoned meat, and cover with mush. Bake 30 minutes.

BEEF STEW

One pound beef, 4 potatoes cut in quarters, ¼ peck green peas or 1 can, 1 cupful carrots cut up small, 1 teaspoonful salt.

Cut meat in small pieces and brown in the fat from the meat. Simmer in 2 quarts of water for 1 hour. Add the peas and carrots and cook for half an hour, then add the potatoes. If canned peas are used, add them 10 minutes before serving. Serve when potatoes are done.

Variations

1. The Meat—This may be any kind and more or less than a pound may be used. Use the cheap cuts, the flank, rump, neck or brisket. The long, slow cooking makes them tender. Game and poultry are good.
2. Potatoes and barley may be used or barley alone, or rice, hominy or macaroni.
3. Vegetables—Carrots, turnips, onions, peas, beans, cabbage, tomatoes are good, canned or fresh. Use one or more of these, as you wish.
4. Parsley, celery tops, onion tops, seasoning herbs, or chopped sweet peppers add to the flavor.
5. Many left-overs may be used—not only meat and vegetables, but rice and hominy.

SUBSTITUTES

FISH CHOWDER

A 3-pound fish, 4 tablespoonfuls drippings, 1 medium-sized onion chopped fine, 1 quart sliced potatoes, 3 cups hot milk.

Skin and bone the fish, and cut into inch cubes. Cover the bone and trimmings with cold water and let simmer for half an hour. Cook the onion in the fat for 5 minutes, then pour into a stew pan.

Parboil the sliced potatoes for 5 minutes, then drain and add layers of fish and potatoes to the fat and onion in the stew pan. Season each layer with salt and pepper.

Strain the liquor in which the fish bones have been cooking over all, and cook about 20 minutes until fish and potatoes are tender. Then add the scalded milk. If desired thicker, sprinkle a little cornmeal between each layer of fish and potatoes.

BAKED SALT FISH

Two cupfuls salt fish (flaked), 2 cupfuls cold mashed potatoes, 1 pint milk, 2 eggs, 2 to 3 tablespoonfuls of drippings.

Soak the flaked fish in cold water over night or freshen the fish by boiling up several times in fresh water (usually three times is sufficient). Then simmer until tender. Drain off the water. Mix the potatoes with the milk, eggs, fat and seasoning. Add the fish, turn into a greased baking dish and bake half an hour.

BROILED SALT MACKEREL

Freshen the fish by soaking 10 or 12 hours with the skin side up. Change the water several times. Simmer until tender (15 or 20 minutes) in water to which 1 teaspoonful of vinegar, a bay leaf, 1 slice of onion and a sprig of parsley have been added. Drain, rub the fish with a little salt and margarine or other fat. Grease the hot broiler and lay the fish on it. Brown on both sides quickly. Garnish with slices of lemon and parsley.

JELLIED FISH

One and a half cupfuls cold flaked fish, 2 tablespoonfuls chopped capers, 1 tablespoonful granulated gelatin, 1 cupful boiling water, 2 tablespoonfuls lemon juice, ¼ teaspoon salt, 2 tablespoonfuls cold water.

Mix the fish and capers. Arrange in a mold. Soak the gelatine in 2 tablespoonfuls of cold water. Add the boiling water and stir until the gelatine dissolves, then add the lemon juice and salt. Pour this jelly carefully over the fish and set in a cool place to harden. Cut into portions and serve on lettuce with salad dressing. If desired, celery or hard-boiled eggs cut in slices may be added to the fish.

RABBIT IN CASSEROLE

One rabbit, ¼ cup drippings or other fat, 1 cupful hot water, 2 cupfuls meat stock or thickened gravy, 1 tablespoonful lemon juice, bit of bay leaf.

Dress the rabbit and separate into pieces at the joints. Season with paprika and salt. Cook in the fat until a golden brown. Transfer the meat to a casserole with 1 cupful of hot water and cover. Bake in a moderate oven about half an hour, then add the stock or gravy, lemon juice and bay leaf. Continue cooking in the oven about 3 hours.

BAKED HOMINY AND CHEESE

One tablespoonful of oleomargarine or drippings, 1 tablespoonful cornstarch or ½ teaspoon paprika, ½ to 1 cupful cheese, grated or cut fine, 2 tablespoonfuls flour, 1 cupful milk, 2 cupfuls of cooked hominy, ¼ cupful breadcrumbs, 1 teaspoonful salt.

Make a sauce of the fat, cornstarch, salt and milk. Add the cheese and paprika to the sauce, arrange the hominy in baking dish and pour the sauce over it. Cover with crumbs and bake 20 minutes in a moderate oven.

The hominy and cheese may be arranged in layers and the white sauce poured over it if preferred.

COTTAGE CHEESE AND NUT LOAF

One cupful cottage cheese, 1 cupful nut meats (use those locally grown), 1 cupful stale wheatless bread crumbs, juice of ½ lemon, 1 teaspoonful salt, ¼ teaspoon pepper, 2 tablespoonfuls chopped onion, 1 tablespoonful oleomargarine, meat drippings or vegetable oils.

Mix the cheese, ground nuts, crumbs, lemon juice, salt and pepper. Cook the onion in the fat and a little water until tender. Add to the first mixture the onion and sufficient water or meat stock to moisten. Mix well, pour into a baking dish and brown in the oven.

Variations

Two cupfuls of cooked oatmeal may be substituted for the cheese and the bread crumbs.

One pound of beans, cooked and put through a sieve may be substituted for the nuts.

American cheese, grated or cut fine, may be used in place of cottage cheese.

The amount of liquid added will vary in each case. The seasoning may be varied to suit the case.

SAUCES

Especial attention must be given to seasoning of dishes which have as their foundation beans, rice or other foods having little flavor of their own.

Use peppers, onions, garlic, leek, celery, catsup, Worcestershire sauce, etc., for increasing flavor. Bean and nut loaves should be served with highly seasoned sauces.

ITALIAN TOMATO SAUCE

Two cupfuls cooked tomatoes, ½ cup finely cut onion, ½ cup grated or cut turnip, ½ cup grated or cut carrot, 2 teaspoonfuls salt, 1 cup cut green peppers, 4 tablespoonfuls butter substitute or vegetable drippings, 2 tablespoonfuls rice flour.

Cook vegetables (except tomato) in the fat until tender. Add tomato and salt, cook 5 minutes. Put through strainer, return to fire, add flour mixed with 2 tablespoonfuls cold water, boil 5 minutes.

PIMENTO SAUCE

Force canned pimento through a strainer. Add ½ cup of this puree to 1 cupful of white sauce.

BROWN NUT SAUCE

Two tablespoonfuls drippings or vegetable oil, 2 tablespoonfuls peanut butter, 3½ tablespoonfuls flour, 1½ cupfuls meat or vegetable stock or milk, ½ teaspoon salt, few grains of pepper.

Brown the fat, add peanut butter, and when well mixed add flour and continue browning. Pour in the stock gradually, stirring constantly. Bring to the boiling point and add salt and pepper.

(Paste or Write Here Scraps or Memos. of Your Own)

FAT SAVING

We use twice as much fat as some of our Allies.

The amount used here should be not more than ¾ pound per person per week and 6 ounces for children under ten.

Butter may be used freely on the table.

Peanut butter, jellies, or a nut and fig paste are excellent substitutes.

Use little pastry.

When you do make pies, use one crust instead of two.

Try the New England deep apple pie, with only a top crust.

Vegetable fats may be used in making the pastry.

If vegetable oils are used, the quantity of fat may be reduced by one-third; that is, 2¾ tablespoonfuls of oil to 1 cupful of flour is sufficient. The oil itself helps to moisten the flour, so that very little water is necessary. The dough should be made as dry as possible to make a tender pastry.

Do not fry in deep fat.

Bake croquettes in the oven.

Make meat-loaf instead of meat croquettes.

Either do not use recipes calling for a large quantity of fat or try reducing the amount.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

VARIATIONS IN WEIGHTS AND MEASURES

WHEATLESS RECIPES

UNITED STATES FOOD ADMINISTRATION

May 9, 1918.

EQUIVALENT WEIGHTS AND MEASURES

Unit	Wheat Flour		Substitutes				
	Bread	Pastry	Barley	Ground Rolled Oat	Corn Flour	Oat Flour and Fine Cornmeal	Rice Flour Buckwheat and Coarse Cornmeal
1 Cup	4 ozs. 113 gr.	3½ ozs. 100 gr.	2 2/3 ozs. 76 gr.	3½ ozs. 98 gr.	4 ozs. 109 gr.	4½ ozs. 125 gr.	4 2/3 ozs. 133 gr.
Ozs.	Cup	Cup	Cup	Cup	Cup	Cup	Cup
1	¼	¼ (+)	⅜	¼ (+)	¼	¼ (—)	¼ (—)
2	½	½ (+)	¾	½ (+)	½	½ (—)	⅜ (+)
3	¾	⅞ (—)	1⅛	⅞ (—)	¾	¾ (—)	⅝
9	⅞	1	1 1/3	1	⅞	⅞ (—)	¾
4	1	1⅛	1½	1⅛	1	1 (—)	⅞ (+)
5	1¼	1⅜ (+)	1⅞	1⅜ (+)	1¼	1⅛	1⅛ (—)
6	1½	1⅝ (+)	2¼	1⅝ (+)	1½	1⅜ (+)	1⅜
8	2	2¼	3	2¼	2	1⅞	1¾ (+)
10	2½	2⅞	3¾	2⅞	2½	2¼ (+)	2¼ (—)

(+) Indicates generous measure. (—) Indicates a scant measure.

PRINCIPLE OF SUBSTITUTING WEIGHT FOR WEIGHT

The recipes which have been worked out on the principle that a given weight of wheat flour may be replaced by an equal weight of substitute have been repeated a number of times by the laboratory workers in the experimental laboratory kitchen, and have also been tried out by a number of different people—housekeepers, children in cooking schools and others—who have found that they worked very satisfactorily. There is no question that the weight for weight substitution produces good results; this does not mean that other methods of substitution may not be satisfactory. Some of the flours in equal weights may absorb more water than others; but whatever other proportions work, these certainly have been proved.

BASIS FOR PRESENT STANDARD OF WEIGHTS AND MEASURES

The measures have been calculated on the basis of repeated weighings in the experimental kitchen in co-operation with the Office of Home Economics of the Department of Agriculture, using the flours available on the local market. It has been found that samples bought at different times have often been of different weights. The rolled oats has been a good example. The first purchased was ground and weighed 136 grams per cup—the last which we ground ourselves weighed 98 grams per cup.

In different parts of the country, also, the weights of these flours seem to differ. Requests have been sent to a number of co-operating Home Economics Departments asking for a report of the weight of a standard cup of the materials used in their laboratories. When this data has been received and studied some different figures may be adopted to represent a general average.

For the present, we have adopted the modication of weights and measures given in the accompanying table, which will be used hereafter in order to avoid any confusion or inconsistency. For the benefit of those working with them, plus and minus signs are used to show that the measures are not exact; 8/9 of a cup, for instance, must be translated either into 1 cup or 7/8 of a cup, and the

sign shows which has been done. There is, however, so much variation in the size of the measuring cup, and also so much difference in the ways of measuring, that there is no greater error in this translation from one fraction to another than is bound to occur in any use of measures.

It must be remembered that measures are not accurate, and that more uniform results may be secured by weighing.

These recipes have been submitted as a report of progress and to fill the immediate need rather than as final statements.

WEIGHTS AND MEASURES COMPARED

Yet another method of studying food values is to be found in a consideration of weight, cost and measure. This has been used by wise housekeepers for some time, but some women have been so impressed with the importance of buying by weight that they have almost lost sight of the expression of this weight in terms of measure. Such a common commodity as potatoes, of course, is often purchased by weight, but it is very important to realize that there are 15 pounds of potatoes in a peck, and that this same 15 pounds also represents about 50 medium-sized potatoes. In other words, if a housekeeper buys a pound of potatoes, she will get three medium-sized potatoes and a little one thrown in for full weight. A pound of prunes may be ordered without any special interest by the woman buyer, and she may get either large or small prunes, depending upon the grocer's wishes, while a wise buyer would stipulate the size wanted, because she would know that in a pound of small prunes she would get about 40 prunes, while if they were large there would be about 28.

The following table shows the relation of weight and measure, and also brings about the difference in the weight of contents of the cans of different sizes. In the case of canned pork and beans, the No. 1 can, cost 15 cents, weighs 11 ounces, while the No. 2 can, cost 20 cents, weighs 21 ounces. In the latter can, the cost of the additional 10 ounces is 5 cents. If the housekeeper uses condensed milk in quantity, it is better for her to buy the 16-ounce can, as the cost per ounce is much less than if she purchases the 6-ounce can. Of course, it may be better economy for the woman to buy the No. 2 can of vegetables, but this is true only when the No. 2 can gives her exactly enough for one meal for her family. If there is a serving left over, it is evidently wiser for her to buy the No. 3 can, because then she has enough for two meals, and, with different methods of preparation, will run no risk of monotony.

It seems clear, then, that several elements enter into the wise buying of food. One who enlists in that service ought to have a clear conception of the relation of these units of weights, cost and measures.

Material	Weight	Measure
Apricots	1 lb.	75 pieces
Bananas	1 lb.	3 large
Beans, Navy	1 lb.	2 1/3 cups
Beans, canned		
String No. 2	1 lb. 2 oz.	1 2/3 cups } drained
Lima No. 2	1 lb. 4 oz.	1 2/3 cups } drained
Bread		
Graham	12 oz.	14 ½-in. slices
Rye, Ward's	1 lb.	21 ½-in. slices
White, Ward's	1 lb. 2 oz.	16 ½-in. slices
Whole wheat, Ward's	1 lb. 4 oz.	15 ½-in. slices
Butter	1 lb.	48 squares
Milk, condensed	6 oz.	2/3 cup
	16 oz.	1 7/9 cups
Molasses No. 2½	2 lbs. 6 oz.	2 3/4 cups
Pineapple		
No. 1 flat	9 oz.	5 slices
No. 2 tall	1 lb. 3 oz.	10 slices
Prunes		
Small	1 lb.	40 prunes
Large	1 lb.	28-30 prunes
Tapioca		
Instant	10 oz.	1 3/7 cups
Minute	10 oz.	1 3/7 cups
Pearl	1 lb.	2 1/7 cups

1 ounce of sugar measures 2 level tablespoonfuls.

1/3 ounce of butter measures 2 level teaspoonfuls.

2 ounces of flour measures ½ cupful.

**(Paste or Write Here
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HOME AND CLUB STUDY
ON FOOD CONSERVATION

The U. S. Food Administration published, during 1917, a booklet, entitled:

TEN LESSONS ON FOOD CONSERVATION
Arranged for School and Club Study

The booklet is now out of print; but a special edition was run off for Libraries, and a copy is **on file in every public library,** at the present time, available for reference use.

The Food Administration has since published a new booklet (June, 1918), entitled:

NINE LESSONS ON "FOOD IN WAR AND PEACE"
Arranged for Home Study and for School and Club Use

This is more applicable to present conditions, as well as more suitable to the needs of the individual housewife and the purposes of the **small Local Club,** while it contains much of the more academic matter that appeared in the **Ten Lessons.**

The Publishers of **The Home Keeping Book** urge all home-keepers to send to the Federal Food Administrators of their **Home States** (see Names and Addresses on page 9 of this Supplement) for copies of the **Nine Lessons on Food in War and Peace.**

We urge all **Local Clubs** to secure copies of the **Nine Lessons;** also to **appoint a Committee** to go to the nearest local **Public Library,** read the **Ten Lessons** (out of print as above) and **copy such matter as will be of interest** to the Club, as does not appear covered in a better manner for the Club's use in the **Nine Lessons.**

We will give herewith only the Titles of the **Nine Lessons,** together with **Miss Tarbell's most excellent Introduction,** as the booklet itself is too comprehensive for us to attempt to include it here in full, and too valuable and important to be injured by rehashing in excerpt form. **Get the book itself, for your own use.**

We will give some of the more important paragraphs, and more detail as to contents, on the **Ten Lessons,** which are out of print.

"FOOD IN WAR AND PEACE"

This is a comprehensive study of the **entire question** of food economics, planned and arranged for **Home Study Clubs,** and of almost inestimable value to the home-keeper, both in her own home and for use in Home Study Clubs and Societies.

It is a booklet of considerable size, a complete text-book in itself.

Write to the Federal Food Administrator for **your State,** and obtain a copy.

The following are the Titles to **Food in War and Peace:**

LESSON I.—Food and the War. Herbert Hoover.

LESSON II.—Food for a Day. Graham Lusk.

LESSON III.—Wheat. Why to Save It—How to Use It. Dr. Alonzo Taylor.

LESSON IV.—Conservation of Fats and Sugar. Dr. E. V. McCollum.

LESSON V.—Meat and Meat Substitutes in War Time. Dr. C. F. Langworthy.

LESSON VI.—Milk and Its Products. Dr. Lafayette Mendel.

LESSON VII.—How to Use Fruits and Vegetables. Caroline L. Hunt.

LESSON VIII.—Using Local Products and Developing a Near-by Food Supply. Charles J. Brand.

LESSON IX.—The Children's Food. Dr. Ruth Wheeler.

"FOOD IN WAR AND PEACE"

The United States Food Administration, in co-operation with the Department of Agriculture and the Woman's Committee of the Council of National Defense, has issued the above pamphlet containing a series of lessons for the special use of clubs and neighborhood groups, showing what the nation is asked to do about the food supply, and why. The lessons have been prepared in response to many requests for a simple and brief statement of the kind and quantity of food needed for health, and of the ways in which changes may safely be made so that the requests of the Food Administration for saving, substituting, and using the various foods may be intelligently, rather than arbitrarily, obeyed.

Each lesson has been prepared by a specialist whose authority is unquestioned. U. S. Food Administrator Hoover has explained the present situation in his discussion of "Food and the War"; Dr. Graham Lusk, of the Advisory Committee on Food Utilization of the Food Administration, has told us what food we should use in a day, and has explained "calories" and other puzzling terms; Dr. Alonzo E. Taylor, who is associated with the Food Administration and with the War Trade Board, and who has spent much time abroad since the war began, has told us about wheat, why we should save it, and how to use it. Other lessons have been written by Dr. C. F. Langworthy and Miss Caroline Hunt of the Office of Home Economics, and Dr. Charles J. Brand of the U. S. Office of Markets, Department of Agriculture; by Dr. E. V. McCollum, of Johns Hopkins; Dr. Lafayette B. Mendel, of Yale; and Dr. Ruth Wheeler, of the University of Illinois. Miss Ida M. Tarbell has written the introduction to the lessons.

A number of practical suggestions and some recipes have been added by the editors to each of these papers, as well as a few references, and a list of lantern slides.

The lessons may be obtained in each State from the Federal Food Administrator. A limited free edition has been issued. Arrangements may also be made with the Illustration Division, U. S. Food Administration, for the use of the lantern slides.

INTRODUCTION

By IDA M. TARBELL

Woman's Committee, Council of National Defense

No finer piece of practical work was ever put up to the American woman than that assigned her in the National Campaign for Food Control. There are no two questions about the necessity for scientific handling of our food supply. All that is needed to prove the point is to apply the multiplication table. We must so use our food that we keep all of our people abundantly nourished. At the same time, we must release for our Allies sufficient quantities of those foods which are necessary for their health and which can only be obtained through us. The multiplication table shows that it can be done. But to do it means not only resolution —it means knowledge. Nothing is more needed at the moment than a clear understanding by all women of just how their part in this tremendous task is to be carried out.

It is not easy for the busy woman who is not in direct touch with the sources of scientific information on the subject of food to learn just what she ought to do and how to do it. She knows that she is not doing her part unless in place of those things that she gives up for the sake of our Allies, she provides her family with others which are equally nutritious. But where can she learn how to do this?

This set of lessons has been prepared for her. Their intelligent use will teach her how to readjust the family meals to meet the national needs.

The lessons have been planned and edited, at the request of the Woman's Committee of the Council of National Defense, by experts from the U. S. Department of Agriculture and from the U. S. Food Administration. A glance at the list of names attached to these different lessons will show that the editors have been able to rally to their help some of the best known specialists in the country. It is only another of the many proofs that we are having that there is no talent so superior that it does not gladly turn all that it has to the use of the country.

It is believed that these lessons, with their lists of references and of carefully selected lantern slides, by which they may be illustrated, will be of enormous educational value. What is taught here is not only good for war times; it is equally a contribution to peace. To learn to do every common thing in life in the most scientific manner is one of our high duties at the present moment, but learning to meet our great need now will do much to help us as a nation in the future to do these common things in a finer and more comprehending way.

Write to the Federal Food Administrator of your State for "Food in War and Peace"

TEN LESSONS ON FOOD CONSERVATION

(Outlines and Extracts from Bulletins)

UNITED STATES FOOD ADMINISTRATION

This booklet is out of print; copies are on file and available in public libraries.

The purpose of the course is threefold. The first aim is to acquaint students in the country with the world situation. Food shortage, which is so serious as to necessitate the creation of machinery for food administration, is especially emphasized. Tentative plans for the organization of this department are given. Lesson I covers this ground.

Second, the course is designed to tell students definite and immediate things to do, and wherever possible show how to do them. This work is already well under way in many States, so that Lessons II to IX, inclusive, reinforce and reiterate what in many cases the local people are already doing.

These lessons are given in outline form, and are meant to be suggestive only. In many instances they will have to be changed, rearranged, and regrouped to meet local conditions.

The third and last aspect of the course, as stated in Lesson X, deals with the use to which this material is to be put. Each person who takes this course on food conservation should be requested to acquaint the family with the urgency of the situation, and to ask them to carry out the suggestions made by the food conservation department through whatever local arrangements have been made. As these will vary greatly, this office can only suggest possible types of local organization.

TEN LESSONS ON FOOD CONSERVATION

LESSON I.

Part 1

FOOD THE DECIDING FACTOR

Part 2

PLAN OF UNITED STATES FOOD ADMINISTRATION

LESSON II.

Outline

FOOD CONSERVATION MEASURES

I. **Use Local Foodstuffs.**

(**Note**—Study your local conditions and select groups for illustrative material.)

Reason—Reduce congestion of transportation. (Insert data on difficulties in transportation.)

II. **Use Perishables to Conserve Staples:**

Garden Products—Can safely double amount ordinarily used.

Orchard Products—Use large amounts of fruits, fresh and preserved.

Dairy Products—Use more whole milk, skim milk, buttermilk, cottage cheese. Milk is a cheap source of superior protein, therefore it is best for growth and repair.

Poultry Products—Use eggs as far as possible. Preserve eggs and can cockerels and fowls for future use.

III. Eliminate Waste:

(1) Define waste as failure to use food materials to the best advantage.

(2) (a) Transportation. Hence use local supply.
(b) Improper handling in home.
(c) Poor meal planning.
(d) Preparation.
(e) Cooking.
(f) Careless service—i. e., individual plate waste.

IV. Wheat Conservation:

(1) Need to reduce by 25 per cent. our present consumption of wheat.

(a) Method—Stretch the wheat supply from 10 per cent. to 25 per cent. in bread making through use of corn meal and other cereals with wheat flour.

(b) Method—Use other cereal products in place of wheat products.
(1) Breakfast foods.
(2) Quick breads and cakes.
(3) Soups and made dishes.
(4) Desserts.

(c) Method—Increase use of vegetables and fruits to reduce use of bread.

V. Food Preservation: Conserve perishable fruits and vegetables to prevent waste, lessen use of staples, and increase variety in diet.

VI. An Adequate Diet and Its Importance.

VII. Working Program.

LESSONS III AND IV.

WHEAT CONSERVATION *

Outline

THE WHEAT SUPPLY OF THE WORLD

United States Must Conserve Wheat

Eliminating Waste of Bread

Increase the Proportion of Vegetables in the Diet

Save One-fourth Our Wheat

Use Local Cereal Products

DEMONSTRATIONS OF EMERGENCY BREADS

1. Save the Wheat—Use Corn and Oats

II. Use Corn and Oats in Bread Making
Demonstration of Cornmeal and Oatmeal Yeast Breads

III. Use Barley, Rye, Boiled Rice, and Boiled Potato in Bread Making
Cottonseed Flour—Demonstration of Barley, Rye, Rice, or Potato Flour Yeast Breads

*May be either a talk and one demonstration or two demonstrations.

LESSON V.

CONSERVATION OF MEAT

Outline

State world supply. (See tables attached.)

State United States supply. (Either tables or per cent. increase of meat vs. per cent. increase of population.)

General habit of meat consumption in United States. (See 61 Cong. Report (British Com.).

Need of tissue-building foods in diet. (Give list of foods high in tissue-building power.)

Discuss meat substitutes as adequate combinations: Fish, eggs, milk, and milk products as cheese, peanuts, or soy beans, cereals plus beans or milk, wheat plus gelatin dishes.

Safe standard to follow: Give subsistence diet; give workingman's diet.

Working Program—Recommended Procedure

1. Use of larger local supply of animal foods:
(a) Poultry and eggs.
(b) Game in season.
(c) Fish, including little used varieties.
(d) Skim milk.
(e) Milk and cottage cheese.

2. Vegetable foods:
(a) Legumes (peas, beans, peanuts, lentils, cow peas, and soy beans).
(b) Cereals—oats, rye, barley.
(c) Nuts—local supply.

3. Use left-over meats as flavors:
(a) In soups.
(b) With cereals (corn).
(c) With legumes.
(d) With green or starchy vegetables.

LESSON VI.

Outline

SUGAR

Introduction—Relative importance of fats and sugars.

General per capita consumption in the United States.

Experience of Europe (English rules—no cake to contain over 15 per cent. sugar): (a) reduction in use; (b) substitution in use of dried fruits with foods.

Importance of sugars in diet: (a) Flavor; (b) readiness of assimilation; (c) tolerance.

Kinds and food value and use: (a) Adult; (b) youth; (c) infant.

Safe standard to follow: Three ounces per day per person.

Working Program

1. Method of eliminating waste. (Use less sugar on breakfast cereals and in drinks.)

2. Use desserts which do not require sugar, as fresh fruit. Select breads, cakes, desserts, etc., which call for less sugar than usual. Omit frosting. Use less sugar in form of candies and in soft drinks.

3. Use syrups in developing flavors. Use syrups in candy making. Use syrups in cake making. (Illustrate with products made from syrups rather than granulated sugars.)

4. Use fruits (fresh and dried.)

FATS

Approximate fat consumption by nations: Give limitation on local supply. (This must be a State situation.)

General United States habit in fat consumption: Ninety-six grams per individual per day. (This includes all fat waste.)

Kinds of fats—Food value and uses: (a) adult; (b) growing youth; (c) growing child; (d) infant.

Safe standard to follow.

Working Program—Recommended Procedure

I. Use of larger variety of fats.

(a) Illustrate with samples of all types of fats which may be used as food; (b) Illustrate with food products made through use of different sorts of fat, unrendered (suet or chopped pork), solid (as lard), liquid (as cottonseed or other vegetable oil).

II. Methods of eliminating waste: (a) Discuss methods of fat saving. (1) Clarifying fats; (2) reducing use of cream by using top milk; (3) serving moderate portions of butter with second helpings when wanted, and so reduce plate waste; (4) train children to eat fats in meats, so it will not be left on plates; (5) give preference to recipes and methods of cookery calling for small quantities of fat.

Reference: United States Department of Agriculture, Bulletin No. 469, Economical Use of Fat in the Home.

LIST OF FOODS RICH IN FATS

100 Per Cent. Fat

Commercial shortening or cooking fats.
Cottonseed oil.
Peanut oil.
Olive oil.
Corn oil.
Sesame oil.

80 to 100 Per Cent. Fat

Lard, 92 to 100 per cent.
Fat salt pork, 86 per cent.
Butter, 85 per cent.
Oleomargarine, 83 per cent.
Suet, 81 per cent.
Drippings, goose oil, chicken fat, per cent. depends on methods of clarifying.

40 to 70 Per Cent. Fat

Nuts (meats), 70 to 54 per cent.
Bacon, 64 to 59 per cent.
Cocoanut, 57 per cent.
Chocolate, 48 per cent.
Whipping cream, 40 per cent.

20 to 40 Per Cent. Fat

American cheese, 36 per cent.
Cream cheese, 33 per cent.
Egg yolk, 33 per cent.
Cocoa, 28 per cent.
Olives, 20 per cent.

LESSONS VII. AND VIII.
PRESERVING FOOD IN THE HOME

Outline

I. Necessity for preserving foods.

II. Consideration of various means of preservation.

III. Canning of fruits and vegetables.

IV. Drying of fruits and vegetables.

V. Preservation of fruits and vegetables by fermenting, salting and vinegar pickling.

LESSON IX
FUNDAMENTALS OF AN ADEQUATE DIET

LESSON X.
GENERAL

I. The program of the National Food Administration is centralized Nationally for making plans, but decentralized into State organizations for carrying out the plans.

II. State organization.

III. The plans of the co-operative extension system of the United States Department of Agriculture, and the State agricultural college, for working with the Food Administration on food conservation.

IV. Local action with local organization, under general control of the organized forces within the State, wherever feasible, is desired in every community, so that every housekeeper in America shall co-operate.

V. Some practical measures to be taken in the local community.

VI. Sources of information for use of local organizations.

The publications of the departments of the General Government which will be of especial help in food conservation work are listed hereafter.

PUBLICATIONS OF VITAL INTEREST

THE FOOD CONSERVATION PROGRAM

The education of 100,000,000 people in new habits of eating is one of the great problems resulting from the war.

With the shortage of food abroad, with the partial failure of transportation, the shortage of labor, and the resulting world conditions, each one of us has a new responsibility. We must conserve and protect the food supply now in existence or soon to be harvested, so that it will supply the population of this country and of our European allies.

We can do this if we save and if we do not waste. It will require our careful thought three times a day. Not only must we eat carefully the products of the day, but we must store carefully the perishable vegetables and fruits that are abundant.

The home should be the center for the production and storing of canned fruits and vegetables, jellies and preserves. It should have its bags and boxes of dried fruits, vegetables and cereals. By the use of sugar in preserving fruits and fruit juices we can save materially on butter.

We must begin a systematic campaign against gophers, rats, mice, and destructive insects, as they take an immediate toll out of our growing crops and our stored foods.

There are a large number of available bulletins on food and its preservation. The state schools of Agriculture have, many of them, series of excellent publications and are in position to give the best of advice.

The Department of Agriculture in Washington has issued a list of bulletins which can be obtained by addressing the Secretary of Agriculture, Washington, D. C. A list of the most desirable is appended below. Write for those which will be of the most use to you.

REFERENCE LIST OF BULLETINS

HOW TO SELECT FOODS

What the Body Needs. Bulletin 808.

1. Cereals. Bulletin 817.
2. Protein. Bulletin 824; in press.
3. Fruits and Vegetables; in preparation.
4. Fats and Sugars. In preparation.
5. Condiments and Foods. In preparation.
6. Food Selection and Household Budget. In preparation.

Bread and Bread-Making in the Home. Bulletin 807.

Cornmeal as a Food and Ways to Use It. Bulletin 505; in press revised.

Care of Food in the Home. Bulletin 375.

MEAT AND MEAT SUBSTITUTES

Food Value and Uses of Poultry. Bulletin 167; price 5 cents.

Economical Use of Meat in the Home; Bulletin 391.

Mutton and Its Value in the Diet; Bulletin 526.

Cheese and Its Economical Use in the Diet; Bulletin 487.

Care of Milk and Its Use in the Home; Bulletin 413.

Beans, Peas and Other Legumes as Food; Bulletin 121.

FATS

Fats and Their Economical Use in the Home; Bulletin 469; price 5 cents.

DIET

Food for the Young Child; Bulletin 717.

Principles of Nutrition and Nutritive Value of Foods; Bulletin 142; price 5 cents.

Use of Fish as Food; Bulletin 85.

PRESERVATION:

Canned Fruits, Preserves and Jellies, Bulletin 203.

Home Canning by the One-Period Cold-Pack Method; Bulletin 839.

Home Canning of Fruits and Vegetables; Bulletin 153.

Canning of Soups and Meats. Form MR—26. Office of Extension Work, Washington, D. C. Limited Edition.

Dried Fruits and Vegetables; Bulletin 841.

DEPARTMENT OF AGRICULTURE

SPECIAL BULLETINS

1. Farmers' Bulletins of the United States Department of Agriculture, Washington, D. C.

Bulletins in this list will be sent free, so long as the supply lasts, on application to any Senator, Representative, or Delegate in Congress, or to the Secretary of Agriculture, Washington, D. C.

34. Meats: Composition and Cooking.
121. Beans, Peas, etc., as Food.
139. Emmer: Grain for Semiarid Regions.
142. Principles of Nutrition and Nutritive Value of Food.
203. Canned Fruits, Preserves, and Jellies.
232. Okra: Its Culture and Uses.
256. Preparation of Vegetables for the Table.
270. Conveniences for the Farm Home.
293. Use of Fruit as Food.
295. Potatoes and Other Root Crops as Food.
298. Food Value of Corn and Corn Products.
375. Care of Food in the Home.
391. Economical Use of Meat in the Home.
413. Care of Milk and Its Use in the Home.
110. Use Peanut Flour to Save Wheat.
111. Use Barley—Save Wheat.
113. Use Soy-bean Flour to Save Wheat, Meat and Fat.
414. Corn Cultivation.
487. Cheese: Economical Uses in the Diet.
526. Mutton and Its Value in the Diet.
535. Sugar and Its Value as Food.
559. Use of Corn, Kafir, and Cowpeas in the Home.
565. Corn Meal as a Food: Ways of Using It.
607. The Farm Kitchen as a Workshop.
653. Honey and Its Use in the Home.
712. School Lunches.
717. Food for Young Children.
771. Homemade Fireless Cookers and Their Use.
807. Bread and Bread Making.
808. How to Select Foods. I. What the Body Needs.
817. How to Select Food. II. Cereal Foods.
837. How to Select Food. III. Protein (in press).
841. Drying Fruits and Vegetables in the Home.
853. Home Canning of Fruits and Vegetables. (Southern States.)
955. Use of Wheat Flour Substitutes in Baking.

KITCHEN CARD—Save Wheat. Use Wheat Substitutes.

Send to U. S. Dept. of Agriculture

U. S. Food Leaflets

No. 26. Wheatless Breads and Cakes.
No. 2. Do You Known Corn Meal?
No. 6. Do You Know Oatmeal?
No. 18. Rice.
No. 19. Hominy.
No. 17. Use More Fish.
No. 10. Plenty of Potatoes.
No. 16. Fresh Vegetables.

U. S. Farmers' Bulletins

No. 705. Suggestions for Parcels Post Marketing.
No. 630. Marketing Eggs by Parcel Post.
No. 636. Retail Public Markets.
No. 6. Distribution and Utilization of the Garden Surplus.

Order from the Department of Agriculture, Washington, D. C.

These publications give brief and simple discussions of the subjects, usually including practical suggestions. Other valuable articlaes, which will be found in most well-equipped libraries are the Report of the Mayor's Market Commission of New York City, 1913, "Reducing the Cost of Food Distribution" in Vol. 50, and "Production and Marketing Plans for Next Year" in Vol 74 of the Annals of the American Academy of Political and Social Science. The "Annals" may be purchased for $1.00 a volume from the American Academy of Political and Social Science, West Philadelphia Station, Philadelphia, Pa.

II. Professional Papers, United States Department of Agriculture, Washington, D. C.

The following bulletins may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., hy remitting the sum mentioned below. Money should be sent in the form of a postal order.

200. Office of Experiment Stations Bulletin, Course in Cereal Foods and Their Preparation. Price, 10 cents a copy.
123. U. S. Dept. Agr. Extension Course in Vegetable Foods. Price, 10 cents a copy.
467. U. S. Dept. Agr. The Food Value and Uses of Poultry. Price, 5 cents per copy.
468. U. S. Dept. Agr. Potatoes, Sweet Potatoes, and Other Starchy Roots as Food. Price, 5 cents per copy.
469. U. S. Dept. Agr. Fats and Their Economical Use in the Home. Price, 5 cents per copy.
471. U. S. Dept. Agr. Eggs and Their Value as Food. Price, 5 cents per copy.
503. U. S. Dept. Agr. Turnips, Beets, and Other Succulent Roots, and Their Use as Food. Price, 5 cents per copy.

III. United States Department of Agriculture Food and Diet Charts

Set of 15 charts, $1, which may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C.

IV. United States Department of Agriculture Yearbook Separates

639. Apple Syrup and Concentrated Cider. May be procured from the Superintendent of Documents, Washington, D. C. Price, 5 cents per copy.

646. Selection of Household Equipment. May be procured from the Division of Publications, United States Department of Agriculture, Washington, D. C.

V. United States Department of Agriculture Circulars of Extension Work, North and West. Free

Ext. N. R-17. Corn Club Breakfast Food.
Ext. N. K-9. Water Glass Eggs.
Ext. N.—— Making Jelly with Commercial Pectin.

Lists of commercial firms which sell the following: Home and Club Corporation Canning Outfits and Devices; Home Evaporators and Driers; Mechanical Seals and Sealers for Tin and Glass; Steamers; Heating Devices, Lifting Crates, etc.; 4-H Brand Labels; Tin Cans, Glass Jars, Earthenware Jars and Rubber Rings; Delivery Containers for Eggs, Vegetables, Dried Food Products, etc.; Parcel Post Egg Containers; Miscellaneous Corrugated Board Containers; Paper Bottles.

United States Department of Agriculture Circulars of Extension Work, South. Free

A-81. Canning, Preserving, Pickling.
A-82. Canning Club and Home Demonstration Work (each State has a bulletin on organization.)
A-84. Peppers.
A-88. Drying of Vegetables and Fruits for Home Use.
A-89. Jelly Making.
A-90. Preserving Vegetables by Fermentation.
746. Winter Gardens.
775. Use of Vegetables from Winter Gardens.
777. Use of Poultry Club Products.
785. Bread Making with Wheat Flour Substitutes.
1101. New Fall Vegetables.

List of companies from which canning goods, labels, emblems, and fruit jars can be purchased. (Southern States.)

VI. United States Children's Bureau, Department of Labor, Washington, D. C.

I. Bulletins in "Care of Children Series," (sent on request).
1. Prenatal care.
2. Infant care.
3. Child care (in preparation).

II. Press series—Brief Articles for Newspaper Publicity (sent on application).
1. Care of Young Children—six articles, three of them on the feeding of children.
2. Children in War Time.

VII. United States Bureau of Education, Department of the Interior, Washington, D. C.

The following will be sent on request:

Circular: "Suggestions for the Conduct of Educational Institutions During the War."

"Home Economics Letters." These were prepared for home economics teachers especially, but they have suggestions also for others.

No. 19. What the Home Economics Teacher Can Do.

No. 20. Economy in Food Courses.

No. 21. High School Food Economics in Practice.

No. 22. A Brief Course in Food Economy for Colleges and Normal Schools.

No. 23. School Sewing for the Red Cross.

No. 24. A Course in Food Economics for the Housekeeper.

No. 25. Service to be Rendered by College and University Home Economics Departments.

VIII. United States Bureau of Fisheries, Department of Commerce, Washington, D. C.

The following will be sent on request:
Economic Circular No. 10; The Tilefish.
Economic Circular No. 11; Canned Salmon.
Economic Circular No. 12; Sea Mussels.
Economic Circular No. 13; Commercial Possibilities of the Goosefish.
Economic Circular No. 18; Oysters.

IX. United States Bureau of Standards, Department of Commerce, Washington, D. C.

Economic Circular No. 55; Measurements for the Household (15 cents, from Superintendent of Documents, Government Printing Office, Washington, D. C.).

Circular No. 70; Materials for the Household (25 cents).
Circular No. 75; Safety for the Household (15 cents).

SPECIAL LIST OF BULLETINS

Of Particular Interest to the Home-Keeper of Intelligence and Frugality

Free Bulletins

Canning Vegetables in the Home; Farmers' Bulletin 359.
Canning Peaches on the Farm; Farmers' Bulletin 426.
Canning Tomatoes at Home and in Club Work; Farmers' Bulletin 521.
Manufacture and Use of Unfermented Grape Juice; Farmers' Bulletin 644.
Meats: Composition and Cooking; Farmers' Bulletin 34.
Use of Milk as Food; Farmers' Bulletin 363.
Mutton and Its Value in the Diet; Farmers' Bulletin 526.
Use of Corn, Kaffir and Cowpeas in the Home; Farmers' Bulletin 559.
School Lunches; Farmers' Bulletin 712.
Home-Made Fireless Cookers and Their Use; Farmers' Bulletin 771.

For Sale by the Superintendent of Documents, Government Printing Office, Washington, D. C.

Bread and Bread Making; Farmers' Bulletin 389; price, 5 cents.
The Chemical Composition of American Food Materials; Office of Experiment Stations, Bulletin 28; price, 10 cents.
Iron in Food and Its Functions in Nutrition; Office of Experiment Stations, Bulletin 185; price, 10 cents.
Calcium, Magnesium and Phosphorus in Food and Nutrition; Office of Experiment Stations, Bulletin 227; price, 10 cents.
Composition of Food Materials; Office of Experiment Stations, Bulletin Food and Diet Charts 15; price, per set, $1.00.
Eggs and Their Value as Food; Department Bulletin 471; price, 5 cents.
Potatoes, Sweet Potatoes and Other Starchy Roots as Food; Department Bulletin 468; price, 5 cents.

Other Free Bulletins—General

Cereal Breakfast Foods; Farmers' Bulletin 249.
Preparation of Vegetables for the Table; Farmers' Bulletin 256.
Use of Fruit as Food; Farmers' Bulletin 293.
Food Value of Corn and Corn Products; Farmers' Bulletin 298.
Use of Milk as Food; Farmers' Buletin 363.
Sugar and Its Value as Food; Farmers' Bulletin 535.
Honey and Its Uses in the Home; Farmers' Bulletin 653.

Write to Washington for such of the above Bulletins as will be of use to you.

HOME ECONOMICS

The following list of reliable publications is reprint of a list recommended by the

IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS

Agricultural Extension Department—Home Economics, Ames, Iowa

R. K. Bliss, Director

ADVANCED STUDY

The Fundamental Basis of Nutrition—Graham Lusk. Yale University Press, New Haven, Conn.

Changes in the Food Supply and Their Relation to Nutrition—Lafayette B. Mendel. Yale University Press, New Haven, Conn.

The Principles of Human Nutrition—Jordan. The Macmillan Company, New York.

Chemistry of Food and Nutrition—Sherman. The Macmillian Company, New York.

Text Book of Physiology—Wm. H. Howells. W. B. Sanders Company, Philadelphia.

Elements of the Science of Nutrition—Graham Lusk. Whitcomb & Barrows, Huntington Chambers, Boston.

Laboratory Manual of Dietetics—Mary Swartz Rose. The Macmillan Company, New York.

Physiological Chemistry — Olaf Hammersten. John Wiley & Sons, New York.

Feeding the Family—Mary Swartz Rose, Ph. D. The MacMillan Company, New York.

HOME MANAGEMENT

The Modern Household—Talbot & Breckenridge. Whitcomb & Barrows, Huntington Chambers, Boston.

The Healthful Farmhouse—Dodd. Whitcomb & Barrows, Huntington Chambers, Boston.

The Art of Right Living—Ellen H. Richards. Whitcomb & Barrows, Huntington Chambers, Boston.

Sanitation in Daily Life—Ellen H. Richards. Whitcomb & Barrows, Huntington Chambers, Boston.

Household Chemistry—Vulte. Chemical Publishing Company, Easton, Pa.

Cost of Living—Ellen H. Richards. John Wiley & Sons, New York.

Primer of Sanitation—John Ritchie. World Book Company, Yonkers-on-Hudson, New York.

Economical Disposal of Town's Refuse—Goodrich. John Wiley & Sons, New York.

House Flies and How They Spread Disease—Hewitt. Cambridge University Press, Boston.

Insects Injurious to Household—Glen Herrick. The Macmillan Company, New York.

Bacteria, Yeasts and Molds—H. W. Conn. Ginn and Company, New York.

Laundry Work—Balderston & Limerick. Boston Cooking School Magazine Company, Boston.

Household Bacteriology—Buchanan. The Macmillan Company, New York.

House Sanitation—Marion Talbot. Whitcomb & Barrows, Huntington Chambers, Boston.

Shelter and Clothing—Kinne and Cooley. The Macmillan Company, New York.

Government Bulletins, Department of Agriculture, Washington, D. C.

How Insects Affect Health in Rural Districts—Farmers' Bulletin No. 155.

Some Common Disinfectants—Farmers' Bulletin No. 345.

Farm—Home Grounds, Farmers' Institute Lecture—No. 14.

Harmfulness of Headache Mixtures—Farmers' Bulletin No. 377.

Cockroaches—Circular 51, Bureau of Entomology.

The Carpet Beetle—Circular 5, Bureau of Entomology.

The True Clothes Moths—Farmers' Bulletin No. 659.

The Farm Kitchen as a Work Shop—Farmers' Bulletin No. 607.

COOK BOOKS

A New Book of Cookery—Fannie Merritt Farmer. Little, Brown & Company, Boston.

Cooking for Two—Janet M. Hill. Whitcomb & Barrows, Huntington Chambers, Boston.

The Fireless Cook Book—Margaret J. Mitchell, Whitcomb & Barrows, Huntington Chambers, Boston.

Boston Cooking School Cook Book—Fannie Merritt Farmer. Whitcomb & Barrows, Huntington Chambers, Boston.

Salads, Sandwiches and Chafing Dish Dainties—Janet M. Hill. Whitcomb & Barrows, Huntington Chambers, Boston.

Science in the Kitchen—Ella Eaton Kellogg. Good Health Publishing Company, Battle Creek, Michigan.

Home Science Cook Book—Barrows and Lincoln. Whitcomb & Barrows, Huntington Chambers, Boston.

HOME NURSING

Practical Points in Nursing—Emily A. M. Stoney. W. B. Sanders Company, Philadelphia, Pa.

Red Cross Text Book—Major Charles Lynch.

P. Blakiston's Sons and Co., Philadelphia, Pa.

Food and Cookery for the Sick and Convalescent —Fannie M. Farmer. Whitcomb & Barrows, Huntington Chambers, Boston.

Mothers' Guide—Tweddell. Dougherty Publishing Company, New York.

Practical Dietetics with Reference to Diet in Disease, 9th Edition, Alida F. Pattee—Whitcomb and Barrows, Huntington Chambers, Boston.

Diet in Health and Disease—Friedenwald and Ruhrah. W. B. Sanders Company, Philadelphia, Pa.

Dietetics for Nurses—Friedenwald and Ruhrah. W. B. Sanders Company—Philadelphia, Pa.

Reference Handbook for Nurses—Amanda K. Beck. W. B. Sanders Company, Philadelphia, Pa.

Home Nurses Hand Book—Charlotte Aikens. W. B. Sanders Company, Philadelphia, Pa.

Lessons in Cooking for the Sick and Convalescent. Government Printing Office, Washington, D. C.

Harvard Health Talks—Baker and Company, Publishers, New York.

Care and Feeding of Children—John Lovett Morse.

Chemicals in Foods: Their Use and Abuse—Otto Folin.

The care of the Skin—Charles James White.

The Care of the Sick Room—Eldridge Gerry Cutler.

The Care of the Teeth—Charles Albert Bracket.

TEXTILES AND SEWING

Textiles—Woolman and McGowan. The Macmillan Company, New York.

Color Harmony in Dress—G. A. Audsley. McBride, Nast and Company, New York.

The Dressmaker. Butterick Publishing Company, New York.

Lace: Its Origin and History. S. L. Goldenburg, Publishers, Brenton, New York.

Household Sewing—B. Banner. Longmans-Greene, New York.

Household Chemistry—Vulte. Chemical Publishing Company, Easton, Pa.

Household Textiles—Charlotte M. Gibbs. Whitcomb & Barrows, Huntington Chambers, Boston.

CARE OF CHILDREN

Disease of Nutrition and Infant Feeding—Morse and Talbot. The Macmillan Company, New York.

The Nervous System of the Child—Warner. The Macmillan Company, New York.

The Diseases of Infancy and Childhood—L. Emmet Holt. Appleton & Co., Chicago.

Care and Feeding of Children—Dr. L. E. Holt. McClurg & Co., Chicago.

Theory and Practice of Infant Feeding—Henry Dwight Chapin. Wm. Wood & Company, New York.

Problems of Babyhood; Building a Constitution; Forming a Character—Fitz. Henry Holt & Company, New York.

Children in Health and Disease—Forsyth. P. Blakiston's Sons & Co., Philadelphia, Pa.

The Development of the Child—Oppenheim. The Macmillan Company, New York.

Aspects of Child Life and Education—G. Stanley Hall. Ginn & Co., Chicago.

The Century of the Child—Eilen Key. G. P. Putnam's Sons, New York.

Hygiene of the Nursery—Louis Starr, M. D. P. Blakiston's Sons and Co,. Philadelphia, Pa.

Infant Feeding—C. J. Grulee. W. B. Sanders Co., Philadelphia, Pa.

The Human Plant—Luther H. Burbank. Century Company, New York.

Bulletins

What Children Should Eat. Human Welfare Publication Co., Southwest Harbor, Maine.

The Feeding of Young Children—Mary Swartz Rose. Teachers' College, Columbia University, 525 West 120th St., New York.

The Daily Meals of School Children—Caroline Hunt. Bureau of Education, Washington, D. C.

Pre-natal Care—Mrs. Max West.

Care of Children—Mrs. Max West. Children's Bureau, Series No. 2, Washington, D. C.

Save the Babies. American Medical Association, Dearborn Street, Chicago, Ill.

INSPIRATION

Euhenics—Ellen H. Richards. Whitsomb & Barrows, Huntington Chambers, Boston.

The Home Builder—Lyman Abbot. Houghton Co., Chicago.

The Efficient Life—Luther H. Gulick. Doubleday, Page & Co., Boston, Mass.

The American Woman and Her Home—Mrs. N. D. Millis. Fleming H. Revell Co., New York.

The Spirit of Youth in the City Streets—Jane Addams. The Macmillan Company, New York.

The Human Plant—Luther H. Burbank. Century Company, New York.

Power Through Repose—Annie Payson Call. Little, Brown & Co., Boston, Mass.

What Men Live By—Richard C. Cabot. Houghton-Mifflin Co., Boston, Mass.

HOME DECORATION

Furnishing a Modest Home—Fred H. Daniels. Whitcomb & Barrows, Huntington Chambers, Boston.

Principles of Home Decoration—Candace Wheeler. Doubleday, Page & Co., Boston, Mass.

How to Study Pictures—Charles Caffin. Century Company, New York.

The Meaning of Pictures—John C. VanDyke. Chas. Scribners' Sons, New York.

A Practical Book of Period Furniture—Harold Sullivan. J. B. Lippincott & Co., Philadelphia, Pa.

The Honest House. Century Company, New York.

The House in Good Taste. Century Company, New York.

A Book of Woven Coverlets—Eliza Calvert Hall. Little, Brown & Company, Boston.

Your Home and Its Decoration. Sherwin-Williams Company, 696 Canal Road, Cleveland, Ohio.

Old Masters and New—Kenyon Cox. Duffields & Company, New York.

Book of House Building and Decoration—Collier H. Brown. Doubleday, Page & Co., New York City.

Studies in Pictures—John C. VanDyke. Chas. Scribners' Sons, New York.

Color Notation—A. H. Munsell. Geo. H. Ellis Co., Boston.

How to Enjoy Pictures—M. S. Emery. The Prang Educational Co., Chicago.

Homes and Their Decoration—L. H. French. Whitcomb & Barrows, Huntington Chambers, Boston.

Home Furnishing—George L. Hunter. John Lane Co., New York.

PICTURE CATALOGUES

The Rhine Prints. Atkinson, Mentzer & Co., 318 West Washington St., Chicago.

Copley Prints. Cameron & Curtis, Pierce Building, Boston, Mass.

University Art Shop, 1606 Chicago Ave., Evanston, Ill.

Maison Ad-Braum & Co., 13 West 46th St., New York.

Geo. P. Brown & Co., 38 Lovett St., Beverly, Mass.

The Perry Picture Company, Malden, Mass.

Art Exhibit Catalogue, Horace Turner Co., 214 Clarendon St., Boston, Mass.

MAGAZINES

American Cookery. Boston Cooking School Magazine Co., Boston, Mass.

Good Housekeeping Magazine. Good Housekeeping Magazine Co., New York City.

Fine Arts Journal—I. J. Campbell, Publisher. Record Herald Building, 154 Washington St., Chicago.

House Beautiful—315 Fourth Ave., New York City.

Housewives Magazine—31 E. 27th St., New York City.

Club Federation Magazine. Federation Bulletin Pub. Co., Trinity Court, Boston, Mass.

Journal of Home Economics—1211 Cathedral Ave., Baltimore, Md.

Keramic Studio, Syracuse, N. Y.

Manuel Arts Press, Peoria, Ill.

Manual Training Magazine.

Vocational Education. Manual Arts Press, Peoria, Ill.

The Art World, West 45th St., New York.

Mentor—Mentor Association, 4th Ave. and 19th St., New York City.

Craftsman Furnishing for the Home—Gustav Stickley, 29 W. 34th St., New York.

Domestic Art Review, Teachers' College, Columbia University, New York City.

Art and Industry in Education. Teachers' College, Columbia University, New York City.

The Survey—105 E. 22d St., New York City.

American Motherhood. Crist, Scott & Parshall, Cooperstown, N. Y.

Something to Do—120 Boylston Street, Boston.

HIGH SCHOOL TEXTS

Foods and Household Management—Kinne and Cooley. The Macmillan Company, New York.

Shelter and Clothing—Kinne and Cooley. The Macmillan Company, New York.

Foods and Sanitation—Forster and Weigley. Row, Peterson and Company, New York.

Text Book of Cooking—Carlotta C. Greer. Allyn and Bacon, New York.

Domestic Science, Principles and Application—Pearl Bailey. Webb Publishing Company, St. Paul, Minn.

A Study of Foods—Wardall and White. Ginn and Company, New York.

Domestic Science—Austin Series. Lyons and Carnahan, Chicago.

(For Teachers) Equipment for Teaching Domestic Science—Kinne. Whitcomb & Barrows, Huntington Chambers, Boston.

Elements of Theory and Practice of Cookery, Revised Edition—Williams & Fisher—The Macmillan Co., New York.

SUGGESTED LIBRARY FOR HOMEMAKERS' USE

Food and Dietetics

Foods and Household Management—Kinne and Cooley. The Macmillan Company, New York.

Food Products—Sherman. The Macmillan Company, New York.

Boston Cooking School Cook Book—Fannie Merritt Farmer. Whitcomb & Barrows, Huntington Chambers, Boston.

Nutrition and Diet—Emma Conley. American Book Company, Chicago.

How the World is Fed—Carpenter. American Book Company, Chicago.

Feeding the Family—Marty Swartz Rose, Ph. D. The Macmillan Company, New York.

Food and Health—Kinne and Cooley. The Macmillan Company, New York.

Home Management

Shelter and Clothing—Kinne and Cooley. The Macmillan Company, New York.

The Art of Right Living—Ellen H. Richards.

Whitcomb & Barrows, Huntington Chambers, Boston.

House Sanitation—Marion Talbot. Whitcomb & Barrows, Huntington Chambers, Boston.

Bacteria, Yeasts and Molds—H. W. Conn. Ginn and Company, New York.

Home and the Family—Kinne and Cooley. The Macmillan Company, New York.

Laundry Work—Balderston and Limerick. Avil Printing Company, Philadelphia, Pa.

Table Service—Lucy G. Allen. Little, Brown and Company, Boston.

Home Nursing

Home Nurse's Hand Book—Charlotte Aikens. W. B. Sanders Co., Philadelphia, Pa.

Harvard Health Talks, Harvard University Press, Cambridge, Mass. Care and Feeding of Children —John Lovett Morse. Chemicals in Foods, Their Use and Abuse—Otto Folin. The Care of the Skin—Charles James White. The Care of the Sick Room—Eldridge Gerry Cutler. The Care of the Teeth—Charles Albert Brackett.

Mothers' Guide—Tweddell. Dougherty Publishing Company, New York.

Reference Handbook for Nurses—Amanda K. Beck. W. B. Sanders Company, Philadelphia, Pa.

Textiles and Sewing

Domestic Art in Women's Education—Anna M. Cooley. The Macmillan Company, New York.

Textiles—Woolman and McGowan. The Macmillan Company, New York.

The Dressmaker. Butterick Publishing Company, New York.

The Magic of Dress—G. M. Gould. Doubleday, Page & Co., Garden City, N. Y.

Clothing and Health—Kinne and Cooley. The Macmillan Company, New York.

Clothing for Women—L. Baldt. J. B. Lippincott & Co., Philadelphia, Pa.

Care of Children

Care and Feeding of Children—Dr. L. E. Holt. McClurg and Co., Chicago, Ill.

Infant Feeding—C. J. Grulee. W. B. Sanders Co., Philadelphia, Pa.

Diseases of Nutrition and Infant Feeding—Morse and Talbot. The Macmillan Company, New York.

Pre-natal Care, Bulletin—Mrs. Max West.

Care of Children, Bulletin—Mrs. Max West.

Inspiration

Euthenics—Ellen H. Richards. Whitcomb & Barrows, Huntington Chambers, Boston, Mass.

What Men Live By—Richard C. Cabot. Houghton-Mifflin Co., Boston, Mass.

Home Decoration

Furnishing a Modest Home—Fred H. Daniels, Whitcomb & Barrows, Huntington Chambers, Boston, Mass.

How to Study Pictures—Charles Chaffin, Century Company, New York.

THE CORNELL READING COURSE FOR THE HOME

This course was instituted so that the problems especially of the farm home could be studied in the same scientific way as are those of the farm. The lessons are on such household subjects as relate to food, shelter and clothing, and are accompanied by discussion papers. The discussion papers contain questions that bring out the point of view of the practical housekeeper. As a result there has been a large personal correspondence with the women of the State of New York, who are at liberty to ask questions at any time relating to their home problems.

The Reading Course is free to residents of New York State. A lesson is issued each month.

The Lessons available in the Reading Course are as follows:

11 The Laundry.
13 Cornell Study Clubs.
15 Principles of Jelly Making.
17 The Preservation of Food in the Home—Part I.
18 The Preservation of Food in the Home—Part II.
21 The Preservation of Food in the Home—Part III.
23 Rules for Cleaning.
25 Saving Strength.
27 Choice and Care of Utensils.
29 Cost of Food.
31 Household Bacteriology.
33 Vegetable Gardening.
35 The Flower Garden.
37 Home Economics at the New York State College of Agriculture.
39 The Farmhouse.
41 Rules for Planning the Family Dietary.
43 The Box Luncheon.
45 Hints on Choosing Textiles.
47 A Canning Business for the Farm House.
49 Household Insects and Methods of Control.
51 A Story of Certain Table Furnishings.
53 The Christmas Festival.
55 Rice and Rice Cookery.
57 A Syllabus of Lessons for Extension Schools in Home Economics.
59 Sewage Disposal for Country Homes.
61 Attic Dust and Treasures.
63 The Young Woman on the Farm.
65 Farmhouse Amusements for Girls and Boys.
67 Canning Clubs in New York State—Part I. Organization.
69 Canning Clubs in New York State—Part II. Principles and Methods of Canning.
71 Canning Clubs in New York State—Part III. Canning Equipment.
73 Making Cake—Part I.
75 Making Cake—Part II.
77 Songs That Live.
79 Programs for Use in Study Clubs.
81 Potatoes in the Dietary.
83 Raising Vegetables for Canning.
85 The Arrangement of Household Furnishings.
87 The Decorative Use of Flowers.
89 Beans and Similar Vegetables as Food.
91 The Life of Primitive Woman.
97 Keeping Christmas.
99 Programs for Study Clubs in Home Economics.
101 Waste of Meat in the Home—Part I.
109 Waste of Meat in the Home—Part II.
103 Suggestions for the Health of Children.
107 Ways of Using Rhubarb.
108 Planning the Home Kitchen.
110 Household Accounts.
111 Milk: A Cheap Food.

ADDITIONAL CORNELL BULLETINS

Food Preservation; A National Challenge; Bulletin 113.
The Laundry; Farm Home Series, No. 3.
Rules for Cleaning; Farm Home Series, No. 4.
Choice and Care of Utensils; Farm Home Series, No. 5.
Arrangement of Household Furniture; Farm Home Series, No. 7.
Decorative Use of Flowers; Farm Home Series, No. 8.

For such of the above Bulletins as will be of use to you (Free to residents of New York State), write to the

DEPARTMENT OF HOME ECONOMICS
COLLEGE OF AGRICULTURE
ITHACA, N. Y.

OTHER SPECIAL MATTER ON
CONSERVATION AND ECONOMY
and
FOOD ADMINISTRATION RECIPES

From Bulletins of U. S. Food Administration
U. S. Department of Agriculture
N. Y. State College of Agriculture
Iowa State College of Agriculture
etc., etc.

Will be found within these pages on the **following subjects:**

Canning, Preserving, Drying and Storing of Foods:

SEE KITCHEN and COOKERY, Part 2; COOKING and RECIPES, Class 31.

Making Bread; also

Bread in Combinations with cornmeal rice, oatmeal, rye, potatoes, etc.

Cereal Foods and Use of Grain Foods; also

Corn Meal Recipes, and

Cereal Recipes:

SEE Class 20, BREADS, in KITCHEN and COOKERY, Part 2.
SEE also FOOD ADMINISTRATION SUPPLEMENT

Fresh Fruits and Vegetables as Conservers of Staple Foods; also
MILK, A Cheap Food; SUGAR, A Valuable Food;
FATS and Their Use:

SEE Part 1, in KITCHEN and COOKERY

Economical Use of Meat in the Home:

SEE MEATS, in Part 2, in KITCHEN and COOKERY

The Kitchen Garden:

All About the Small Garden at Home: SEE Section XI.

Other Food Administration and Government Recipes under various Sections in the recipes columns, with headings indicating their sources.

FUEL ADMINISTRATION
SUB-SUPPLEMENT

At the last moment—indeed, while this work is on the press—we have been requested to include a few pages on the urgent need of our country to SAVE FUEL—and to PROVIDE NOW for the COMING WINTER'S NEEDS—for each and all of us to do our part to assist the Fuel Administration in its work—as gravely important in many ways as the saving of food.

No such fuel shortage as occurred last winter must be permitted again—with the tie-up in transportation, the congestion of manufactures, and the positive human suffering that were endured. It is the duty of every man and every woman to do his and her full part to prevent ever again even an approach to such conditions.

It is our pleasure to add these pages in the form of this SUB-SUPPLEMENT for the U. S. FUEL ADMINISTRATION.

—THE PUBLISHERS.

The following pages are current up to date, June 30, 1918

EARLY BUYING
and
CONSERVATION OF COAL

UNITED STATES FUEL ADMINISTRATION

Speakers' Series No. 1

About 2,000 years ago five foolish young women were barred from a wedding because they had neglected to buy any oil for their lamps. There were five others who had plenty of oil. They were the early buyers. (Matthew, xxv.)

The United States Fuel Administration is urging every consumer in the country to follow the example of the wise virgins. As a stimulus to cooperation in this matter, the price of anthracite coal has been reduced 30c. a ton from April 1 to September 1.

There are two powerful reasons for early buying. One is selfish. The other is patriotic.

You will not only save money by buying early, but you will guard yourself and your family from a repetition of the hardships of last winter.

If you don't want heatless days next winter, order your coal now. The Fuel Administration is doing its utmost to insure increased production of coal. The Director General of Railroads is working to increase the transportation facilities of the Nation. Their combined efforts, however, may be defeated by the recurrence of such weather as prevailed last winter. They will certainly be defeated unless a large majority of the domestic consumers cooperate with them by buying early.

If you order your coal immediately, you will be certain to get your winter supply. **If you do not buy now, you may not get it,** and you certainly will not get any sympathy from your neighbors if you shiver.

Foresight now means anthracite next winter.

There is something much more important than your personal comfort, however, involved in this campaign for early buying.

One hundred million people must be kept warm next winter. Hundreds of thousands of factories, upon which the United States and the entire civilized world depend for the successful prosecution of the war against Prussian autocracy, must be supplied with coal.

The industrial activity of the Nation has resulted in production in excess of our transportation facilities—in other words, we are manufacturing more goods than the railroads can carry.

There is only one way to meet the situation. Less freight is moved during the summer months than at any other time. **The coal must be moved in summer.**

Just because you are warm now don't forget you were cold last winter. If you neglect to buy your winter supply now, you will put an unnecessary burden on the railroads.

Don't say to yourself, "It can't possibly make any difference if I don't buy now. Suppose every one of the 100,000,000 people of the country took that position. What chance do you suppose you would have of getting in your winter's coal? What right have you to assume others will buy early? Are they more provident than you? Are they more patriotic?

You CAN borrow money. You CAN'T borrow coal. Do you get it? If money is not as plentiful as it might be, do without a few of the summer clothes you are planning to buy—cut down your summer trip—borrow money if necessary—do something—anything that will enable you to buy your coal now.

There will be an increasing demand for coal cars as the season advances. The United States has taken over nearly 700,000 tons of Dutch shipping. Before the summer is over many ships will be launched by the Shipping Board and added to the merchant marine of the United States.

CONSERVATION OF COAL

Conservation is another name for economy, and economy has been defined facetiously by some one who name is not important as "doing without something you want in order to buy something you don't want." That definition, however, does not fit the kind of economy you are urged to use in cooperating with the United States Fuel Administration.

You wanted coal last winter. You will want it just as much next winter. Just think how badly you will want it if you haven't got it.

You have no right to talk about inefficiency in others until you have bought your winter's supply of coal and thus helped lift the burden from the railroads. The United States has entered the war, and every factory has increased its demand for coal. This year there will be more factories. **There will be more demand.** Every war industry will be working at top speed turning out materials for ships and airplanes, and in making munitions and supplies of all kinds.

Two things must be done to avert a greater shortage this year than occurred last year.

More coal must be taken out of the mines, and less coal put into household furnaces.

Increase in production will be difficult under any circumstances. It will be impossible unless you cooperate by ordering your coal now. This is not exaggeration. It is a cold fact.

In London and Paris they hide in the coal cellars from the air raids. You may have to do the same thing if you don't fill your cellar with coal now. Coal cannot be stored at the mines, and when there are no orders to be filled the mines close down. Your order will help to keep them busy during the summer. This is the only way production can be increased.

That extra shovelful of coal you save will send a troopship faster through the danger zone. The Fuel Administration cannot regulate the amount of coal you shall burn each day. It has regulated, however, the amount you will be allowed to buy. Your retail dealers know how much you have been accustomed to use, or should use, and they have been warned by the Fuel Administration not to sell you more than your normal supply.

If you waste that supply and run short before the winter is over, it will be your own fault. It is up to you to save it in every possible way.

When you try to borrow coal next winter you'll only borrow trouble. Buy yours now while the price is reduced. "Over there," when the men go into the trenches, each one has the same quantity of water in his canteen; just enough to last him until he gets back—if he does get back—to camp. He knows exactly how many swallows of water there are in that canteen, and that if he does not save it he will suffer, because it is a **point of honor with him not to take water from another's canteen,** even though suffering the tortures of the damned. Will you—can you—fail to practice as much self-control in the saving of coal as that boy does in the saving of water?

Economical use of your coal, however, is not the only way you can help the Fuel Administration in its campaign for conservation.

That campaign will include every possible means for saving coal. Many of the methods used will cause you annoyance, inconvenience, sacrifice of pleasure, perhaps even loss of income. There is not one of you who would hesitate to make heroic sacrifices. Will you refuse, then, to make those small sacrifices without which America cannot win this war? **Will you jeopardize the lives of those boys** who are fighting for you by refusing to save coal, when every shovelful you save means a shovelful for the factories that are making the munitions, the food, and the clothing for them?

A cold citizen doesn't make a warm patriot. Go to the telephone and order your winter's coal now. Does your blood boil when you read and hear of Prussian atrocities? Do you see red when you read of the air raids on defenseless towns, the bombardment of Paris, the murder of women and children? Do you want to get into the fight?

You can fight Germany by heeding the Fuel Administration's appeals.

EARLY PURCHASE OF COAL URGENT

Dr. Harry A. Garfield, United States Fuel Administrator, made the following statement in regard to the importance of buying coal early:

"Place your orders at once. If domestic consumers have not sufficient storage space for the coal they will need, they should enlarge their bins. If public utilities and industries engaged upon Government work have not sufficient storage space they should at once provide it."

The householder in Germany can get only one-third of the coal he wants. You can get all you need if you buy now. "The production of coal in this country is fundamentally a transportation problem. There are enough coal cars and enough locomotives to transport the necessary quantity of coal only if every car and every locomotive is used to its maximum capacity every day in the year. There are enough operatives in the mine to get the coal from the ground if those operatives can work every day in the year and if the coal cars and locomotives are available every day. If the coal cars are idle for a week or a month the result is a loss of a week's or a month's possible coal production. There is no way to make up this loss. The country needs the greatest utiliza-

tion of the coal-carrying facilities every week and every month. It has no surplus cars and no surplus locomotives to carry more coal in a succeeding week or in a succeeding month to make up for the failure to use the existing cars and locomotives in a preceding month."

The coal operators cannot store coal when it comes from the mine. You can. Make space for the coal you will use next winter—then fill it. "There is plenty of coal in the ground to meet every need. This coal can be taken from the ground only in consequence of orders placed with the operators. If those orders are delayed, the coal remains where nature has put it. Coal operators have no other storage space for their coal. Unless the operators have orders for their coal they cannot load the coal cars, nor will the coal cars be placed at their mines. Without orders for coal the operators cannot ship it, for they can give no directions where it should be taken."

One of the worst forms of slacking is putting off doing your duty. Order your supply of coal at once. "Inconvenience of paying for coal in the spring or summer, when it will not be needed until autumn or winter, should not influence any consumer to delay placing his order and securing his supply. It is far wiser to borrow money in the spring to pay for one's coal than to wait until autumn or winter, when, if the coal has not been mined and shipped, money cannot procure it."

"The Fuel Administration, through the State fuel administrators and local committees, is prepared in every reasonable way to aid public utilities, essential industries, retail dealers, and domestic consumers in placing their orders and in securing assurance of a sufficient supply of fuel. All these Governmental agencies, however, are powerless if the consumers themselves fail to act. Again, therefore, the Fuel Administration urges every consumer to place his orders immediately. This should ordinarily be done through the medium of supply upon which the consumer has relied in the past. If this course is followed, it may be hoped that the suffering and loss of the past winter will not be repeated. If it is not done, consumers will have themselves to blame."

HOW COAL USERS CAN HELP WIN THE WAR

If you take care of the shovelful, the coal mines will take care of the rest. The following statement was made by Dr. Garfield as to the necessity for cooperation on the part of consumers, and the steps that have been taken by the United States Fuel Administration to improve the quality and facilitate the distribution of coal:

"The Fuel Administration must have the support and the active cooperation, not only of those who are engaged in production and distribution of fuel, but of every coal user in the country. Each must bear his share of the patriotic sacrifice which must be made if the coal supply is to be properly increased and adequately distributed."

You can afford to borrow money to lay in your supply of anthracite now. The 30 cents a ton reduction in price will pay the interest on what you borrow. "An adequate coal supply is vital to the winning of the war. Without it we cannot make munitions or other war supplies or build the ships which must carry men and materials to the battle front. Without it industries will be stopped, labor thrown out of employment, and the homes of the people will be cold."

"By carefully drawn regulations the Fuel Administration has insured the shipment of 'clean coal' from the mines. Coal containing an undue amount of foreign matter will be penalized in price, and producers who take extraordinary measures in the preparation of their coal will be recompensed. These measures will keep off the railroads and out of the bins of the consumers a large amount of unburnable material which was included in last year's coal production."

There are a hundred ways to economize in the use of coal. Practice some of them. "The Fuel Administration expects the coal consumers, continuing their patriotic cooperation with the Government in all its war measures, to maintain a steady and constant demand for coal in order to attain this result."

Uncle Sam can't send supplies to the boys over there without coal. Save some to help your boy and your neighbor's boy. "To safeguard the consumer, the Fuel Administration has prescribed regulations to prevent profiteering and to govern the distribution of coal by licensed jobbers and by retailers. Each domestic consumer will be permitted to secure a full normal supply of coal, but no more."

"Every ton of coal that is hoarded against future needs and is not used during the winter is actual waste. The labor and transportation used to bring the coal to the consumer and the actual energy of the coal itself are withheld from doing their part toward speedy victory. Consumers should secure just a little less coal than they believe they need and should make every shovelful give its full value in heat and power. Every shovelful saved means help for the industries in turning out supplies for our troops abroad, help for the ships that must bridge the 3,000-mile gap between our shores and the battle front, and help toward ultimate victory."

EMERGENCY FUEL FROM THE FARM WOODLAND

Circular 79, Office of the Secretary
United States Department of Agriculture

By A. F. HAWES
Extension Specialist

Forest Service and States Relations Service

Because of the heavy demand for coal, both for commercial as well as domestic use, and because of the great burden laid upon the Nation's transportation facilities and the possible shortage of coal in certain sections of the country, the demand should be relieved wherever feasible. Farmers frequently are situated so they can profitably supply fuel from their woodlands and thus relieve, to a considerable extent, the demand for coal.

Manufacturers, of course, cannot substitute wood for coal; neither can city people, because this would result in even greater railroad congestion. Nor is it likely that in either the South or the West the use of wood for fuel can be greatly increased. But it ought to be entirely practicable in many cases to replace coal with wood for fuel. If, by substituting wood, one-quarter of the coal burned by farmers and one-tenth of the coal burned in villages could be saved, the total saving would amount to between 65,000 and 70,000 carloads.

It is where team-hauled wood can be used in place of railroad-hauled coal that the change should be made. Farmers who own woodlands and people in villages who can purchase wood from nearby farms are the ones in the best position to reduce their consumption of coal. For heating many kinds of buildings wood is the more convenient and cheaper fuel. This is particularly true in the case of churches, halls, summer cottages, and other buildings for which heat is required only occasionally; but is then wanted in large volume at short notice.

Furnaces are built especially for burning wood in 3 or 4-foot lengths. Short lengths, of course, can readily be burned in an ordinary coal furnace or in a box stove, though this is rather wasteful of fuel. Many furnace manufacturers, however, make a special wood grate for use in their furnaces. One advantage in burning wood is that on moderately cool days the furnace can be run at a lower ebb than when coal is used, consuming only enough fuel to remove the chill. When wood is used in a round pot furnace, care should be taken to have each piece lie flat.

If a stove grate is too coarse for wood, a sheet iron cover over a good part of the surface will make it suitable, or a few fire bricks can be used. Wood grates are sold which are made in two pieces and which can be inserted through the fire door and placed on top of the regular grate.

RELATIVE HEATING VALUE OF WOOD AND COAL

In the matter of heating value, one standard cord of well-seasoned hickory, oak, beech, birch, hard maple, ash, elm, locust, or cherry is approximately equal to one ton (2,000 pounds) of anthracite coal. It takes a cord and a half of soft maple and two cords of cedar, poplar, or basswood, however, to give the same amount of heat.

One cord of mixed wood, well seasoned, equals in heating value at least one ton (2,000 pounds) of average-grade bituminous coal.

Table 1 shows the price which the consumer can afford to pay for a cord of wood as the equivalent of anthracite coal at various prices.

Table 1.—Prices which the consumer can afford to pay for wood as a substitute for coal.

Price of Coal delivered.	Equivalent price for wood delivered in stove lengths.			
	Hickory, oak, beech, hard maple, ash, elm, locust, cherry		Soft maple, cedar poplar, basswood	
Per ton.	Per cord	Per run.	Per cord	Per run.
$5.00	$5.00	$1.66	$2.50	$0.83
6.00	6.00	2.00	3.00	1.00
7.00	7.00	2.33	3.50	1.16
8.00	8.00	2.66	4.00	1.33
9.00	9.00	3.00	4.50	1.50
10.00	10.00	3.33	5.00	1.66
11.00	11.00	3.66	5.50	1.83
12.00	12.00	4.00	6.00	2.00

If the consumer can buy coal at $8 a ton, it would hardly be worth his while to burn first-class wood at $8 a cord, except in an open fireplace, because coal is a more convenient fuel. If, however, coal becomes so scarce that it cannot be secured in sufficient quantities, the consumer will, in some cases, have to burn wood at $10 or even $15 a cord.

WOOD A PROFITABLE FARM CROP.

Firewood ought to bring a better profit this year than ever before, on account of the higher prices which are likely to prevail. Wood is a much less perishable crop than many which the farmer raises. When properly piled, the better kinds of wood will last from two to three years, though it steadily deteriorates after the first year. To have the best heating value, as well as to reduce the cost of hauling, wood should be thoroughly seasoned, which means air-drying it, from six to eight months. When piled so as to get a good circulation of air, however, 50 per cent of the moisture may be removed in three months. Wood cut in October and November, therefore, may be burned the latter part of the winter.

OPPORTUNITY TO IMPROVE THE WOODLAND

The prices which cordwood will likely bring this year offer an opportunity for the farmer to improve his woodland. Improving the woodland means weeding out the poorer trees. In the past this has seldom been practicable, for the inferior wood was not marketable. With wood bringing only from $4 to $5 a cord, there is very little opportunity to secure a profit of even $1 a cord. But with the prices indicated for the coming winter, thinnings become practicable over a wide range of country in the vicinity of good markets.

Some of the things to remember when cutting in the woodland are:

1. Dead or dying trees should be removed. This not only utilizes material which is fairly dry, and which would otherwise be wasted, but lessens the danger of fire.

2. Good, sound, straight logs ordinarily should not be used for fuel, since they are more valuable for lumber. There is a great difference between the prices paid for logs of different grades, even of the same kind of wood. Branches, crooked and decayed logs, trunks broken in felling or otherwise defective, should be used for firewood.

3. Trees likely to be attacked by insects or fungi should be removed to safeguard those which remain. In eastern New England, for example, the gipsy moth is a serious enemy of many woods. Several of these are of little value and can well be removed, thus reducing the food available for the insects. Where the chestnut blight is serious, the chestnut should be largely cut.

4. No portion of the woodland should be cut clean unless the owner has carefully considered the matter and decided that that particular part is best adapted for farm purposes, or that he will replant it with forest trees. Old trees, where they predominate, should be gradually removed, since they are not increasing in value. The next generation of trees will be largely determined by those which are left for seed. The successful woodland owner will study the growth and uses of the different kinds of trees. He will then cut out those of little value and slow growth and keep for seed purposes those which will product valuable lumber in a relatively short time. Table 2 classifies in a general way the trees which should be favored and those which should be removed for fuel. Inferior individuals of the better species, e. g., those which are diseased or which are likely to be blown over, should, of course, be cut.

Table 2.—Trees to leave in the woodland and those to remove for fuel.

Region	Species to be favored for lumber. Other things being equal, these should be left	Species of less value for lumber, or slow growing. These should be cut
New England and North Atlantic States.	White pine, red spruce, balsam, chestnut, white and red oak, hard maple, yellow birch, tulip poplar, white ash, hickory, basswood.	Hemlock, arborvitae, black and scarlet oak, red maple, beech, gum, elm, gray birch, ironwood.
Ohio, Indiana, Illinois, and Southeast Missouri.	Yellow poplar, black walnut, red gum, white and red oak, cottonwood, hickory, white ash, hard maple, basswood.	Black oak, red elm, beech, red maple.
Northern Michigan, Wisconsin, Minnesota.	White and red pine, aspen, yellow birch, basswood, red oak, white ash, hard maple.	Jack pine, hemlock, scarlet and black oak, elm, beech.
Southern Michigan, Wisconsin, Minnesota.	White and red oak, white ash, basswood, hickory, hard maple.	Black oak, red elm, beech.

To secure a second growth of better trees, several things must be borne in mind: (a) Too large openings should not be made, because the ground will dry out and weeds, like berry bushes, will come in and crowd out the young trees. For this reason it is often a good plan to leave some of the inferior trees for shade. (b) Some trees, like the oaks, hickories, and beech, have heavy seeds or nuts which cannot be transported any distance except by animals or birds, while others, like the

birch, maple, ash, and basswood, have light seeds which are carried long distances by the wind. For this reason more frequent seed trees of the nut varieties are necessary to get a good stocking of young trees.

5. Woodlands made up of a nearly even-aged stand of second growth are more comparable to the garden than to the dairy. Here the problem is to remove the weeds as a means of getting a quicker yield of timber. The small stunted trees are the weeds, since they can never make a normal growth. The large healthy trees should be favored, because they will grow rapidly to maturity. They are not to be confused with the mature trees in the old woodland, though in general the same species will be favored in both cases.

OWNER SHOULD SECURE EXPERT ADVICE

The foregoing suggestions regarding methods of cutting should be taken simply as suggestions. The woodland owner who wishes to avail himself of the opportunity to improve his woodland, which the high price of wood makes possible, should secure specific information from some reliable forester. In States having a State forester, application should be made to him. In others, application should be made to the county agent, the State agricultural college, or to the United States Forest Service, Washington, D. C.

COMMUNITY ACTION REGARDING WOOD SUPPLY

Communities which feel they are threatened with a serious fuel shortage will do well to take measures to stimulate the cutting of wood. Farmers may hesitate because of the high cost of labor to invest money in this way. If, however, a minimum price sufficient to allow them a fair profit could be guaranteed by the consumer, they would cut all that was needed for the community. Such contracts should be placed as early as possible, so that the wood may be properly seasoned.

Since few farmers get out enough wood to require a stovewood mill as part of their equipment, it is suggested that a group of farmers operate such a mill cooperatively. In many localities, the farmers' club would be an admirable organization for such an undertaking.

FIVE WAYS OF SAVING FUEL
IN HEATING HOUSES

(From Technical Paper 199, Dept. of Interior)

By HENRY KREISINGER

INTRODUCTION

This country faces a shortage of coal, and it is the patriotic duty of every citizen to save coal in heating his home. If everybody "does his bit," a ton of coal at each home can be saved easily during the winter. For the entire country, this saving would amount to 20,000,000 tons of coal, which is nearly as much as all the coal mined in France during the present year. Five ways in which coal can be saved are as follows:

1. Of the coals available in your market select the one that requires the least attention in burning.
2. Use an economical method of burning your coal.
3. Keep your house temperature 62 to 65 degrees F., instead of 72 to 75 degrees.
4. Heat as few rooms as the comfort of your family will permit.
5. Shorten the heating season as much as possible.

1. SELECTION OF COALS

In house-heating equipment the fires can be given very little attention; therefore fuels that require little attention in burning are the most economical and give the best satisfaction. In time of war less desirable coal may have to be used, in order to simplify transportation problems, but the fact remains that some coals are more efficient than others when the same attention is given the fire. Usually the man of the house can attend to the furnace early in the morning and again in the evening. In some houses the furnace is attended only when the house becomes either too hot or too cold, and thus the fire is allowed to run from one extreme to the other, conditions which are very unfavorable to saving of fuel.

In order that a fuel may be burned economically in a house-heating furnace, the fuel used should be of such kind that the fire requires little attention. The following fuels, in the order named, are the best fuels for house-heating purposes:

Anthracite coal in sizes from ½ inch to egg size.

Gas-retort or metallurgical coke in pieces ½ inch to 3 inches across.

Coal briquets 2 to 3 inches in diameter.

Screened Pocahontas (semi-bituminous) coal over ¼ inch and through 3 or 4 inch screen.

Sized bituminous coal in pieces ½ to 3 inches across.

If these fuels can be bought, fine sizes or slack coal or other fuels requiring frequent attention when burning should be left for power plants, where the firemen can and should give the fires frequent attention.

2. USE AN ECONOMICAL METHOD OF BURNING YOUR COAL

The conditions under which house-heating apparatus is used are difficult to meet. The temperature of the house is to be kept uniform, with the firings far apart and with little attention given to the fires. The questions for each household to decide are: How much variation in the house temperature can be tolerated, and how much attention can be given to the furnace. The kind of heating apparatus has a great deal to do with the uniformity of the house temperature and the amount of attention that must be given to the fire. Hot-water systems will give much more uniform temperature with less attention to the fires than hot-air systems. No one set of rules will work satisfactorily in all cases.

FIRING ANTHRACITE

When firing anthracite, the best results are obtained by spreading the coal evenly over the entire fuel bed. The fire should not be allowed to become too low before putting on a fresh firing. A fuel bed 5 to 10 inches thick gives good results. The fire should be disturbed as little as possible.

FIRING BRIQUETS

Briquets, when properly made, are very good fuel for house-heating purposes. However, the supply is decidedly limited. When burning briquets the fuel bed should be kept 8 to 12 inches thick. The fresh charges should be spread evenly over the grate area. The fire must not be disturbed. Poking breaks the briquets and spoils the fire.

FIRING SEMI-BITUMINOUS COALS

The semi-bituminous coals of the Pocahontas

type are good fuel for heating a house. They are nearly smokeless and make but little soot. For regular firing the coal can be spread evenly over the entire fuel bed; or, it can be fired like bituminous coal, the fresh charges being placed alternately on one side of the grate and part of the surface of the fuel bed left uncovered. The alternate method should be used if the firings are heavy. The fire keeps better overnight if the last firing is heaped to one side of the grate. Good results are obtained with fires 8 to 10 inches thick.

FIRING BITUMINOUS COALS

The bituminous, or soft coals, are smoky and cover the flue surfaces with a large amount of soot and tar, which reduces the transfer of heat and impairs the draft. Bituminous coal should be fired by placing the fresh charge on one side of the grate only, leaving part of the surface of the fuel bed uncovered. The volatile matter rising from the freshly fired coal is ignited by the red-hot coal of the uncovered part of the fire and a large part of it burns.

If the entire surface of the fuel bed is covered with a heavy charge, the volatile matter from the fired coal does not ignite for a considerable length of time after firing and passes away unburned as tarry, greenish-yellow smoke. The furnace and the flues become filled with the smoke and when the fire finally works its way through the fresh layer of coal the smoke and the gases may ignite with an explosion violent enough to blow the pipes down and fill the house with smoke. These explosions are particularly apt to happen if the coal contains much slack; therefore, with such coal particular care should be taken that part of the bright fire remains uncovered. This method of firing reduces the amount of soot deposited in the flues, so that less frequent cleaning is necessary; it also reduces the heat losses from incomplete combustion, thus directly effecting a saving of coal.

DRAFT REGULATION

Draft regulation is perhaps the most important factor in burning coal efficiently in house-heating furnaces. The draft is regulated mainly with three dampers; one of these is on the ash-pit doors, one on the firing door, and one in the pipe connecting the furnace with the chimney. For many furnaces the damper in the flue pipe is an opening covered with a hinged lid A, in Fig. 1. When this lid is closed the full chimney draft is effective in the furnace. When the lid is lifted, the chimney draws air from the cellar instead of drawing the gases out of the furnace, and the draft in the furnace is reduced almost to nothing. Between the two extremes any draft can be obtained by proper adjustment of the lid.

The damper B on the ash-pit door regulates the flow of air through the fire, and the amount of air flowing through the fire determines the rate of combustion, or the amount of coal that the furnace can burn in an hour. Therefore, to control the rate of combustion and thereby regulate the amount of heat the furnace delivers to the house, the furnace attendant adjusts the damper in the ash-pit door and the damper to the chimney.

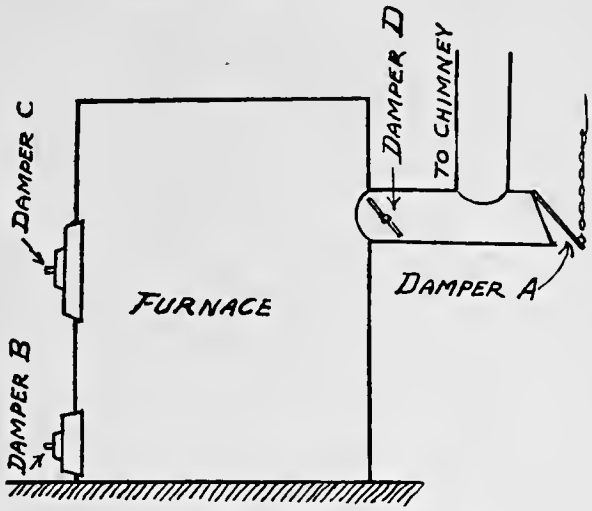


FIG. 1

Fig. 1.—Position of dampers in a house-heating furnace. Damper A regulates the draft in the furnace and should be used with Dampers B and C. Damper B regulates the supply of air through the grate and the rate at which the coal burns. Damper C regulates the supply of air over the fire and the completeness of combustion. Damper D controls the draft and should be used with Damper A.

The Damper C in the firing door supplies air over fire needed to burn the gases rising from the fuel bed; therefore, its regulation controls the completeness of combustion of these gases. When soft coal is burned, a large volume of combustible gases rises from the fuel bed immediately after the firing; therefore, the damper in the fire door must be opened enough to allow the air necessary for burning the gases to enter the furnace. After the smoky gases cease to rise from the freshly fired coal, the quantity of air supplied over the fuel bed can be reduced by partly closing the damper in the firing door. There should be a damper, D, in the smoke pipe; this damper can be used in addition to Damper A to control the draft.

No rule can be given for the exact adjustment of the dampers. The proper adjustment must be ascertained by trial; with a little care and some patience the proper adjustment of the dampers of any furnace can be determined. In general, to make the fire burn faster, close the lid A (Fig. 1) in the pipe leading to the chimney and open the

Damper B (Fig. 1) in the ash-pit door. To make the fire burn slower, raise somewhat the lid in the check draft A and partly close the Damper B in the ash-pit door. The Damper C in the firing door is more difficult to adjust because there is no way to determine the completeness of combustion. In burning soft coal, this damper should be slightly open all the time. In burning hard coal or coke enough air for complete combustion may enter the furnace through various leaks, even when the damper is completely closed.

3. KEEPING THE HOUSE TEMPERATURE LOWER

In heating houses considerable fuel can be saved by keeping the temperature in the house 5° to 10° F. lower than is customary; instead of the temperature being between 70° and 74° F., it can be kept between 62° and 68° F. without any discomfort or any danger to health. In fact, some medical authorities ascribe the "colds" common in winter to living in too warm houses. Thus Dr. William Brady writes:

"Air need never be heated above 65° F. for comfort. Anything above that point represents waste and extravagance. It simply runs up a big coal bill and opens various doors to the coming of the doctor. The onset of cough in winter is almost a sure sign of such extravagance."

Those interested in saving the country's fuel and lowering their own coal bills will be glad to know that keeping the house at 65° instead of 72° F., means a saving of 15 to 20 per cent of their fuel. It may also mean a saving on the doctor's bill.

4. HEATING FEWER ROOMS

Another easy saving of fuel can be effected by heating fewer rooms in the house. In many houses the family can get along comfortably by keeping warm three or four rooms instead of heating six or seven rooms. And this can be done without any real hardship on the family. Really, only the three rooms in which the family lives need be heated at all. If consumptives can get well by sleeping outdoors, why could not well people keep well by sleeping in unheated bedrooms with the windows wide open?

5. SHORTENING THE HEATING SEASON

In some homes the furnace is started too early in the fall and is run too late in the spring. The chimneys of these homes are belching smoke and spreading soot over their neighborhood, while the neighbors keep windows and doors open to the outside air and even sit on the front porches. These faint-hearted people, in their fear of catching cold, heat their houses unnecessarily; thus they waste the country's coal, increase their coal bills, invite sickness into their homes, and make life unpleasant to their neighbors. When mornings and evenings are chilly, a grate fire for a short time in one or two rooms will make the house comfortable.

CONCLUSION

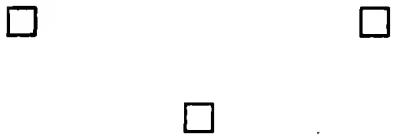
Every householder, by endeavoring to save coal in the ways suggested, can render his country valuable service, and he will not be doing his full duty toward his country unless he renders such service as he can. In addition, he should remember that besides helping his country he will help to shorten the misery and the horror of the great war.

SAVE FUEL IN THE COOK STOVE

See Section IV—Part I.
THE HOME-KEEPING BOOK
TALKS ON FOODS
Pages 77-83

The Use of the Oven
Save Fuel When You Cook
Use Your Dampers the Right Way
Ways to Save Gas and Oil
The Fireless Cooker

The Home-Keeping Book



THE HOME-KEEPING BOOK

A Compendium

The best thought and information on
all questions related to,
a home study and
reference work

on

"Home-Keeping"

in all its
BRANCHES

Classified into Sections and Departments
and Indexed for ready conveniences

with spaces for
scrap-pasting of
additional matter

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□

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□

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of

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(Alphabetical)

SEE BACK OF BOOK

HELP US IMPROVE FUTURE EDITIONS

of

THE HOME-KEEPING BOOK

To the "Home-Keeper":

This book is arranged so that it is of equal value to the "beginner at home-making" and the well advised home-keeper of long experience.

Patterns and instructions to serve as guide and mentor to the beginner will be found provided in terms and arrangement of the easiest simplicity. Scientific studies which can be mastered only by those of long practice and much experience are provided for the latter. Outlines for independent study are presented for both, as well as suggestions for class and club work, and lists of reference books and pamphlets for home economic education to almost any degree.

But in the main the book is intended for an everyday practical reference-work for the average home-keeper in the average home; it is simple in its terms; its guideposts, for finding one's way about, are clear, concise, and planned for the quick finding of what is wanted at the time when it is wanted.

The woman who has managed a household for some years will have, in a miscellaneous collection of magazines, recipe books and clippings, the most of the matter contained herein, and because of her familiarity with the assortment may be able to find, occasionally, what she wants at the time wanted.

The book claims usefulness mainly in the fact that its contents are collected into the covers of one binding, arranged, classified, indexed, forming a convenient, compact, attractive and interesting **reference work** in all departments of "home-keeping." The matter itself is distinctly **not original**—it is time-tried and tested, the last word of the best and most experienced practical authorities in each case.

—The Publishers.

To Those to Whom These Presents Shall Come—

Greeting:

The Publishers will deeply appreciate it if you will send us, frequently, special scraps or memoranda of your own—in as great abundance as you may be willing to write them out for us.

When you have something **tried and proven,** which you do not find included in this Book, or which improves on what is herein published, either in efficacy, convenience or economy, we will most sincerely welcome its receipt in every instance. This most especially applies to the various sections other than Cookery and Kitchen Recipes. In helping us in this manner you are helping other "home-keepers"—future owners of future editions of the Book, and present owners who receive the Supplement Service.

There is no such other work published as **The Home-Keeping Book,** procurable either in the general book market or otherwise. Commend it to your friends.

The Home-Keeping Book is in every way, in fact as well as in spirit, intended and published with our sincere wish and aspiration to all "home-keepers" of

"A Long, a Happy and a
Prosperous Home-Keeping."

—THE HOME-KEEPING PRESS

"CONSERVATION" DOES NOT MEAN "PRICES"

It is difficult for the most of us to appreciate the meaning of the term "conservation." To us all, at first thought, the entire program seems futile if it does not effect, and effect at once a "reduced cost of living" in our own homes. "What does it all amount to," we ask, "if meat and grocery bills continue higher week by week?"

Conservation cannot be expressed only in dollars and cents. The saving of money is not necessarily synonymous with economy.

If there were exactly ten barrels of wheat flour in the world, and twenty people each wanted a barrel, they might bid up the price until the ten least able to pay the advancing bids retired from the competition and the flour went to those who were left. Some of the successful ten, however, might have decided to use less than a barrel; some of the others would thus have had a chance. But irrespective of how the prices went, the same ten barrels would be booked for consumption. Although individuals had effected a certain "economy" in this case in not bidding—waiting instead for relinquishment of a part of the stock at a lower price—there has been no conservation in the total stock. The action may have been commendable, in resulting in forcing prices lower, especially provided those who sold the flour had been cornering or controlling the market by holding up the total stock, or otherwise were undeserving of the prices they were obtaining. But that is not conservation.

If people pay high prices it means merely that some are distributing to others a surplus of money which they possess, or feel that they possess. It changes the total supply neither of money nor of merchandise; it tends only to equalize or scatter the supply.

If, however, someone notices that there are only ten barrels of flour in the world, that there are two million bushels of corn, that much of this corn is going to waste because the farmers cannot get it to market, learns that this corn meal can be mixed with wheat flour to make as palatable and wholesome bread as wheat flour alone—and proceeds to buy corn meal to use along with the flour—**that is conservation.** Such person has "saved" or "conserved" some actual food stuff; the total food stuff of the nations is increased by the amount of corn meal which one certain family has consumed—corn otherwise wasted has gone into the human stomach for sustenance. If one million families have multiplied this act into one million acts, the total food stores of the world have been pronouncedly increased.

The proportionate increase is in the single act—though less apparent. The individual may or may not save money in the process, but that in no way affects the conservation that is involved.

One may, with intelligence, effect the personal economy and the conservation together. He does this if the corn is cheaper than the flour as well as being a product that is rotting in the bins. If one eats fruit from his own orchard or vegetables from his own garden under conditions where he would otherwise have to see them wasted or ship them to a market where some of them will rot, if he buys them from his neighbor who cannot ship them to advantage, or if he preserves, dries or cans them for winter use, he is conserving and at the same time saving his own

pocketbook. All perishable goods consumed near point of production tend to conservation, for of such goods shipped to market a certain portion will eventually spoil and never be consumed at any price.

If one changes from flour to potatoes, granting that no potatoes are rotting in the market but merely that they are cheaper at the time than the flour, he is saving money for himself but he is not conserving; he is adding nothing to the total stock unless some of the potato stock of that season's crop is going to waste. In this particular instance, however, at this particular time, he **is** conserving for the benefit of the war conditions of the Allies—for the Allies can use and must have flour, and we cannot send them potatoes.

When one eats fish in place of meat he conserves food. Cattle, sheep and hogs represent a limited and reducing supply; besides, corn or other grain stuffs have to be fed to stock to produce stock. But millions of fish infest the waters of the sea; they die; alive or dead other fish consume them. Many varieties live off of sea vegetation. None of them are fed on what would else be human food. The cost of fish represents no cost of production, no diminuation in total food but in each case a one hundred per cent. increase. The cost is strictly the labor of taking them and marketing them. The eating of fish represents a net gain and is conservation in its widest sense.

Conservation of food means making less food accomplish the same sustenance, or the same food more sustenance, using waste foods in the stead of foods of which little or none is wasted, providing food by tilling soil, by seining the sea, or otherwise making food where food did not exist before.

Bear these principles in mind and follow them and you are "doing your bit" in the food conservation program which must help keep the world alive during this period of shortage of food which must continue and must become yet more and more pronounced inevitably until this war for the world's democracy and liberty is won.

A WORD FROM PRESIDENT WILSON

This is the Time for America to Correct Her Unpardonable Fault of Wastefulness and Extravagance.

In no direction can they (the women of America) so greatly assist as by enlisting in the service of the Food Administration and cheerfully accepting its direction and advice. By so doing they will increase the surplus of food available for our own army and for export to the Allies. To provide adequate supplies for the coming year is of absolutely vital importance to the conduct of the war, and without a very conscientious elimination of waste and very strict economy in our food consumption we cannot hope to fulfill this primary duty.

Woodrow Wilson

THE HOME-KEEPING BOOK

and

COLLEGE AND GOVERNMENT BULLETINS

Practically all of the States issue bulletins of great value to the student of Home and Food Economics. We cannot incorporate in this work even an approximation to the wealth of this material. It is not the intention of The "Home-Keeping" Book to cover the exhaustive scientific studies which the States, and the Government, with their hundreds of trained experts, cover far more thoroughly—nor to merely "copy" or "repeat" from their bulletins.

This work is intended as a concise reference book, not a full scientific treatise. We try to gather together under headings the more important recommendations and conclusions reached by experts, so that a woman in her home may get the information she wants, quickly, when she wants it, rather than be compelled to look through many bulletins, or to study those bulletins until she knows much of them by heart.

We commend mastery. We urge all women to by all means send for Government and State bulletins, study them, master as many of them as possible, and know her subjects thoroughly.

But even after this is done she will find constant use for The Home-Keeping Book for quick reference purposes, for refreshing the memory on details, for exact recipes and on subjects she has not seen fit, because not frequently needed, to burden her mind with mastering.

The State Colleges, as a rule, furnish free to residents of their own States, the bulletins they publish. To non-residents they usually charge a few cents to cover cost. The Government bulletins are mostly free to all; on some there is a small charge.

We are heavily indebted to Government bulletins, and to those of our own State (New York) for much information, and for matter copied bodily in this book. We have drawn heavily, also, on the bulletins of the Iowa State College, which publishes certain bulletin work in a form peculiarly adaptable to our use as well as peculiarly good. We have used to a less degree bulletin matter from a number of the other States. We have drawn strongly on the better class of magazines and the best of a large number of books published on the various subjects embraced in this work.

These magazines and special book publications are of great value to the home-keeper, and she should by no means overlook the Government and State bulletins, but should accumulate a good reference library of such publications.

This is particularly true at this moment, when it is the absolute duty of every woman to "help win the war" by studying particularly the bulletins of the U. S. Food Administration and the U. S. Department of Agriculture, and generally all publications that will instruct and aid her in practical home conservation and economics.

—THE PUBLISHERS.

WE MAKE NO GUARANTEES

This book is a compilation. The matter contained in its pages has been secured, in all items, from **the best sources.** The most reliable authorities have been consulted. We are indebted to many U. S. Government Bulletins and State and College Bulletins, as well as to numerous women's periodicals and reliable books published touching on the subjects treated. We have used no matter for which it was not stated in connection with the promulgation through the above sources that the suggestions or the recipes involved had been thoroughly and reliably **tried and tested.**

At the same time, errors and mistakes are possible on matter even from the best authorities. If such are found, we can only indulge the request that our attention be called to the same in order that we may make corrections for the benefit of others in the future, as they in turn become owners of copies of future editions of **The Home-Keeping Book.**

—THE PUBLISHERS.

A Little Sharp Talk to the Woman Straight from the Shoulder About the Way a Woman Buys

You go into a grocery store and buy a can of coffee. You see it displayed there—or perhaps the grocer mentions it—and you have heard of it before, and so, unless you came after some other brand you had been using and liked, you buy it.

If you don't like it, you don't buy it next time. You try something else you have heard of.

If you do like it, however, and think it good value, **you ask for it next time.** And you keep on asking for it, **time after time.** Why do you do this?

Because you like it—and the price suits you. And you learn that each time it is the **same** coffee, and tastes the same and makes the same number of cups at the same strength, and—well, you simply feel that you know and sort of value it like an old friend.

If the grocer asks you to try something else, you ask, "Why?" You say, "I like this and **don't want** to change." If he urges you, you think he is doing so (and he probably is) because he makes more profit on the other. And that isn't to **your** interest.

It's perfectly true that he **may** have something of as good value, that he can sell you at less price, but you have never heard of it before—anyhow you like what you have and don't **care** to change.

He might have it in a bin—bulk goods—or he might label it his "A-1 Grade." And you might try it once and like it—but somehow imagine it seemed to taste different **the next time.**

Whereupon you would think that perhaps he had changed the mixture in that bin, a little bit—the price of one of his blends might have gone up on him—or he might have been unable to get exactly what he wanted and had to change. But as it was still his "A-1 Grade" he **didn't change the label.**

And so you **continue to buy package goods**—the ones that "make good" with you the "first time"—because you find that a given brand sold you back of a given label will be always **the same as before all the way through.**

But here's something you didn't know:

It cost the **manufacturer** of that coffee **several times the entire price** of that **first can you bought** to **get you to buy it.**

He had been spending advertising money for months, or perhaps years, getting the name of that brand so frequently before you in various ways, that when you saw it at your grocer's at a time when you were thinking of changing—when some other coffee had disappointed you—you promptly **recognized** that brand as "widely advertised"—and decided to try it.

The total amount he spends for advertising divided by the number of new sales made to new customers, would leave the manufacturer several times the price "in the hole"—**if** those customers didn't come back **time after time.** And that's why you find this coffee **always the same.**

The manufacturer couldn't begin to afford to vary it by the flavor of **one berry.** You might stop "coming back"—as you did with some other man's when you first tried this one's. And when it costs him the price of three or four cans to "get you started" he can't afford **that.**

That's the **reason** why you can **depend** on **advertised goods.** That's why you get the "package goods habit." Because it pays everybody concerned, including most essentially **you,** on whose satisfaction the whole structure depends.

The Oft-Propounded Query, "Who Pays for the Advertising?"

Advertising is part of **selling cost.** It is strictly a **proportionate charge.** If it costs thirty dollars to sell ten sewing machines, the cost on each is three dollars; but if it costs fifteen thousand dollars to sell ten thousand machines the cost is one dollar and a half on each. If the advertising is successful it sells such a large number at once that it not only reduces the selling cost but the manufacturing cost, all through the purchase of material, the making and every other factor.

The query is often heard, regarding some widely advertised goods, and especially if they are successfully advertised goods, "Who pays for the advertising?"

The question is foolish. **You** pay for it, if you buy the goods, but—you pay **less for the goods than if they were not advertised.**

If a taxicab charges forty cents a mile for one passenger, or three dollars for three passengers for a five-mile trip, do you ask, "Who pays the three dollars?" The three passengers chip in, glad to save a dollar apiece.

That is what happens in successful advertising. You can rest assured that if a manufacturer advertises continuously on a large scale it **is** successful, or he couldn't keep it up, and the goods **do** give the purchaser good value or the advertising would **not** be successful and would **not** be continued.

Successful advertising enables a manufacturer to offer better goods at reduced cost of production and reduced cost of selling, and prosper on a small profit. It **enables you** to know what you are getting and that you secure good value and uniform quality for **your money.**

This is the magic of it and your reason for buying **advertised goods.**

ON FURNITURE AND DECORATION

To the Home-Maker:

Permit us to say here, briefly, that you should if possible start your "home-making," by all means, with a comfortably furnished place. This is **investment,** not expense. Insofar as your purse permits **fix your quarters up.** Make no hesitation to patronize, if need be, the "installment house" of reliability. It is easier to pay a small sum, weekly or monthly, on goods bought and in use, rendering your life more comfortable and economical, than to try to "board" and at the same time set aside those same funds into a sum with which to "set up later."

Strain a point and attain this if you can. It saves money, nerves, health in the end, and yields comfort and content at once.

Importance of Studying Household Questions

(From Selection of Household Equipment, Year Book of Department of Agriculture)

A generation ago such a subject might have been thought beneath the dignity of scientific investigation, but the last few years have seen a great change in this respect. The way in which our homes are run, or, in more technical terms, the science of home economics, is now in much the position that scientific agriculture was in twenty or thirty years ago. The leaders had then shown that science can improve crops, and some of the more progressive farmers were giving the new ideas a practical test, but many of the rank and file were still doubtful whether it was worth while. Few farmers of today, however, would care to go back to the days before experiment stations and fertilizer control. The fact that the problem of making the home as efficient as possible includes so many different kinds of questions will make necessary a great deal of study along many different lines, just as agriculture has included problems as different as those of insect pests and cheese-making. In solving these, every intelligent farmer, who has studied them on his own farm, has done his part as well as the special investigators in the laboratories. In the same way every intelligent housekeeper who studies the household problems of cooking, cleaning and furnishing and tries to solve them with the help of both practical experience and scientific information hastens the day when household management can be as accurately planned as that of the factory and the farm.

Planning and equipping a home in an accurate and systematic way does not mean that it should not have any individuality. On the contrary, while the principles which govern a wide choice of furnishings are the same for all kinds and conditions of houses and families, the articles actually chosen in accordance with these principles would vary just as much as the house and the families for which they are intended. Whether one's house is large or small, things should be chosen to fit actual needs, and to fill them in the way most economical of money, labor and materials, and as far as possible, to give pleasure as well. If the house or the family is large, different things will seem necessary, convenient, economical and suitable, from those which would answer the requirements if there were less space or fewer persons to be provided for. The size of the income also influences choice, but the fact that one cannot pay high prices does not mean that one must always put up with inconvenient and unattractive things. A table of easy-working height prob-

ably costs no more than one too high or too low, nor would making wooden blocks to set under the legs of a low one be an impossible expense; yet a difference of a few inches may mean the difference between working easily and getting tired every day. Increasing the convenience of working by such simple means as moving a table or stove or rearranging the kitchen cupboards or kitchen cabinet may make a noticeable difference in the number of movements necessary for the daily work, and this saving of energy not only lessens the labor but also prevents the irritation which an intelligent person naturally feels at wasting effort.

As far as the element of pleasure or beauty is concerned it is the necessary things rather than special ornaments which make the greatest difference in the attractiveness of the home. Comfortable furniture of good, plain design and harmonious colors on the walls and floors are more necessary to make a home restful and pleasant than many pictures and much bric-a-brac. Fortunately it need not cost any more to get these necessary things in satisfactory forms than in poor ones, though it may mean choosing more slowly and carefully.

If the best equipped house is the one in which all its features and furnishings are most completely suited to the needs of the occupants, the standard for every family must be adapted to such individual peculiarities as the location of the house, the amount of the family income, the size of the family, and their different occupations and interests. Judged by this standard, a woman who with limited means has made a convenient, comfortable and attractive home out of an unpromising, inconvenient farmhouse has shown greater ability than one who with the help of an expensive decorator has obtained a good effect in a house equipped with all modern improvements.

Modern Housekeeping Appliances and Labor Savers.

Indulge as liberally as you can in practical modern devices. Strain several points to include these in your equipment. They are doubly "investment." We cannot urge you too strongly to go in at once for many of the modern electric, gas (or oil) devices, vacuum or other cleaners—good ones—fireless and other special cookers and cooking utensils and kitchen and laundry and bath articles of merit.

They save **labor and time**—which means that they add to your (or your employe's) actual money value—and to your own nerve and health value as a wife and companion, or mother.

SELECTION OF HOUSEHOLD EQUIPMENT

(Extracts from Bulletin of above title from
Year Book of Department of Agriculture for 1914)

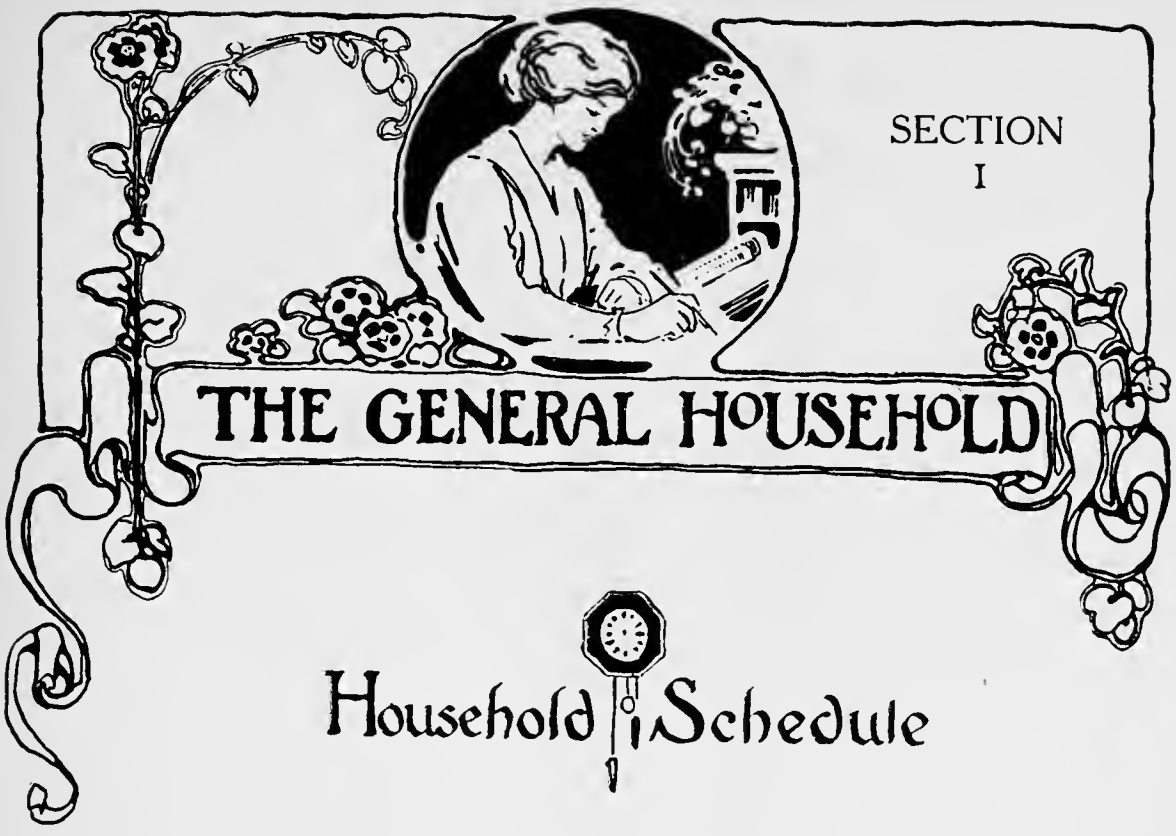
In equipping her home, the housekeeper should be guided by the same principles that would be followed in the selection of equipment for any other workshop, and should choose furnishings and tools which will make it possible for her to carry on her various household tasks with the least waste of time, work and materials. A house should be equipped for efficiency in housework just as carefully as a modern shoe factory is equipped for making shoes. In such a factory lighting, heating, ventilation, sanitation, etc., are as carefully considered as the machinery, and these matters of hygiene are even more important in the home, which is not merely a workshop but also a place in which to rest and recuperate. Since a home is even more than that, and serves also as the material setting for the life of the family, other points must be considered which have little or nothing to do with efficiency in a factory. It is certainly as important in a home to provide for comfort and wholesome enjoyment as for cooking and cleaning, eating and sleeping.

Planning before Buying.

Haphazard buying is always extravagant and nowhere more so than in connection with house furnishings. There is such a bewildering variety of things to be used in a house that, unless the housekeeper keeps a clear idea of what she wishes most and plans her buying carefully, she will find herself getting things which, though useful, are not the most useful, or are not the best adapted to her particular needs.

In order to buy in accordance with a definite plan she must often steel herself against the allurements of bargain counters or of beguiling salesmen, not because the wares they offer are not intrinsically good or cheap, but because they may not be what she really needs most. In choosing labor-saving devices it is a good rule to give the preference to those which save heavy work and which lighten tasks most frequently performed. A machine for washing clothes saves more bodily energy than a patent roasting pan, and a meat chopper is used more often than a device for stoning cherries.

But if a family really wishes its home to be something more than a place to eat and sleep in, it ought to plan as deliberately for increasing the production of comfortable and profitable leisure, pleasant social intercourse and an intelligent interest in things outside of its material needs as for mere food, clothing and shelter. Since we must have dishes to eat from, we might as well have them in attractive shapes and patterns and color, especially as good-looking ones do not necessarily cost more than others. The more any article that is used in the home includes all three elements of **necessity, convenience and beauty,** the more efficiently will it serve its purpose.



Have a weekly program. Systematize your time, follow the system, and get more done in less time, and have your leisure together instead of in snatches. Lay out an outline for the week—to suit your own needs and conditions—write it down. Lay out each day, so far as you can, in the same manner as the week. Do it mentally, if not on paper—but you follow it better if on paper. Adopt **system.**

HOUSEHOLD ACCOUNTS

Every housekeeper should "keep books." There is no better aid to thrift and economy than an absolute knowledge of what money goes for. It enables one to readjust, from month to month, cutting down on the less needful to supply the more essential without discomfort or real deprivation. Here is a simple and effective household accounting system, with a page to illustrate it.

Get a loose-leaf journal, or what is known as a "trial balance" book (six or more columns for figures), or use any blank book, ruling the columns yourself. Write in the headings for the departments for the expenses of which you want to keep separate account, and make your entries daily in the "cash" columns. Once a week carry out the totals, or the separate items of the amounts, into the distribution columns, that is, the department columns to which they belong. Once a month close the account and carry down your totals. You can see at a glance the cost of each housekeeping department. This enables you to compare the totals from month to month and the more intelligently rearrange your expenditures.

MONTHLY SUMMARY SHEET FOR HOUSEHOLD ACCOUNTS AS SUGGESTED IN "HOME MANAGEMENT" BULLETIN PUBLISHED BY IOWA STATE COLLEGE OF AGRICULTURE, AMES, IOWA

A SIMPLE SYSTEM OF HOUSEHOLD ACCOUNTS

Year 19	Receipts	Expenditures																	
Months		Rent Taxes	Groceries	Meat	Clothing	Fuel	Light and Gas	Water and Ice	Labor	Sickness	Furniture	Magazines Books	R. R. and Car Fare	Church and Charities	Insurance Interest	Laundry	Amusements	Sundries	Savings
January																			
February																			
March																			
April																			
May																			
June																			
July																			
August																			
September																			
October																			
November																			
December																			
Totals																			
*Should spend																			

* According to budget percentages.

SAMPLE MONTHLY ACCOUNT

Month of *January* 1918		HOUSEHOLD ACCOUNTS																	
		CASH				Distribution of Disbursements													
Date	Item	Received		Paid out		Rent, etc.		Food, etc.		Apparel		Furnishings		Laundry and Help		Emergency		Miscellaneous	
Jan.																			
1	Cash left from December	32	.80																
	January Allowance	200	.00																
	Paid Rent January			42	.50	42	.50												
	December Gas and Light bill			4	.20	4	.20												
8	1 pair shoes Self			5	.00					5	.00								
	Weekly Grocer bill			7	.50			7	.50										
	Weekly Butcher bill			3	.40			3	.40										
	Weekly Milk and Butter				.95				.95										
9	Table for Kitchen			2	.50							2	.50						
	Bed Linens			6	.25							6	.25						
	Maid's wages			8	.00									8	.00				
	Husband's laundry			1	.20									1	.20				
12	Doctor, Dentist and Druggist bills			12	.00											12	.00		
	Put in Savings Bank			15	.00													15	.00
	Theatre and Cab			6	.00													6	.00
	2 Tons Coal			12	.50	12	.50												
14	Week's grocery, meat, etc.			12	.10			12	.10										
	Paid Taxes			20	.00													20	.00
	etc., etc.																		
31	Totals	232	.80	159	.10	59	.20	23	.95	5	.00	8	.75	9	.20	12	.00	41	.00
	Cash on hand			73	.70														
		232	.80	232	.80														
Feb.																			
1	Cash balance forward	73	.70																

HOME MANAGEMENT

(From Bulletin under the above title issued by Iowa State College of Agriculture)

DIVISION OF INCOME

A. It has been estimated that from one-fourth to one-third of the income may be saved by scientific management. Bullock has estimated that at least one-fifth of money spent for food is actually wasted.
   1. By buying needlessly expensive materials.
   2. By careless storing of goods.
   3. By failure to select according to season.
   4. By waste.
   5. By poor preparation of food.
   6. By badly constructed ovens.

B. If the home maker would conduct her business along the lines suggested, by careful study of good business principles, she would probably find that she was running her home in a better way at less cost.

C. Suggestions for division of income.

   1. Knowledge of Amount of Income.
      a. Salary.
      b. Average income when not salary.

   2. Use of Budget.

"A budget is a detailed plan of anticipated income and expenditures for some definite future period of time, as a week, month or year; it is intended to control expenditures during that period."

"A budget is a finacial plan for the future."

   3. Factors which will influence budget.
      a. Size of income.
      b. Size of family.
      c. Locality of home.

   4. Suggested Division (for average income)
      a. Food (25%).
      b. Clothing (20%).
      c. Rent or taxes and repairs (15%).
      d. Operating expenses (15%)
         Renewal of equipment
         Emergencies
         Help
      e. Higher Life (15%)
         Education
         Religion
         Recreation
      f. Saving (10%)
         Money in Bank
         Investments
         Life Insurance

The division just suggested will be fairly satisfactory for the family having an income of from $1,000 to $1,200 a year. As the income increases or decreases, the proportions spent in these various ways will be changed.

   5. Success in Division of Income Depends upon:
      a. Knowledge of textiles.
      b. Ability to make and repair garments.
      c. Good taste concerning color, design and material for dress and home decoration.
      d. Knowledge of laundry work.
      e. Knowledge of food values.
      f. Knowledge of food preparation.
      g. Ability to plan meals.
      h. A thorough knowledge of personal hygiene.
      i. Understanding of symptoms of disease and knowledge of home nursing.
      j. Knowledge of disinfectants and cleansers.
         (1) In care of sick.
         (2) In disease.
         (3) In care of bathroom fixtures.
         (4) In care of vaults and earth closets.
         (5) In care of closets.
         (6) In care of cellar.
         (7) In care of refrigerator.
         (8) In care of food materials.
      k. Knowledge of wood finish and care of equipment.
      l. Good taste concerning pictures.
      m. Good taste and good judgment concerning furniture.
      n. Good judgment concerning choice of books and magazines.

A study of these fourteen elements of success indicates that the home-maker who hopes to make a genuine success of her business must have a thorough working knowledge of:

Food	Home Decoration
Personal Hygiene	Home Art
Care of Children	Good Pictures
Home Nursing	Good Literature
Textiles	Good Music
Laundry Work	

The quality of the home depends not so much upon the amount of money spent as upon the good taste and good judgment that prompt the spending.

D. Laws of Expenditure—Ernst Engel.

"1. The lower the income, the larger the proportion claimed by sustenance.

"2. Lodging, heating and lighting absorb an invariable proportion, whatever the income.

"3. Clothing claims a constant proportion.

"4. The larger the income, the greater the proportion allotted to well-being."

(Paste or Write Here Scraps or Memos. of Your Own)

I.	Income $750 Per Cent.	Amount
Food	35	$262.50
Clothing	15	112.50
Rent or Taxes and Repairs	15	112.50
Operating Expenses	15	112.50
Higher Life	10	75.00
Saving	10	75.00

II.	Income $1200 Per Cent.	Amount
Food	25	$300.00
Clothing	20	240.00
Rent or Taxes and Repairs	15	180.00
Operating Expenses	15	180.00
Higher Life	15	180.00
Saving	10	120.00

HOUSEHOLD HELPS

Information and Suggestions in Convenient Reference Form

CARE OF FURNITURE

To Polish Furniture—(Cornell Reading Course)—Apparatus: a bottle of furniture polish, a small handful of cotton waste, and one or two flannelette dusters or old soft cloths.

Take a piece of the cotton waste or an old soft cloth, put some polish on it and rub it on the wood. Use as little polish as possible, but rub hard to remove dirt and scratches. Rub with the grain of the wood.

Take the rest of the cotton waste and rub as much of the polish as possible off the piece of furniture.

Polish finally with the flannelette, rubbing briskly but lightly until the surface is bright and there is no appearance of oiliness. Be especially careful to rub out corners.

Burn all the cotton waste. Be careful about this because oily cotton has often caused a fire through its spontaneous combustion.

Put away the polish bottle, wiping the outside carefully. Wash the dusters and hang them up to dry.

Recipe for Furniture Polish—(Cornell Reading Course)—Take 8 oz. linseed oil, ½ pint vinegar, ½ oz. alcohol, ½ oz. butter of antimony, ½ oz. muriatic acid. Mix the ingredients thoroughly, and keep in a closely corked bottle. This polish should not be used on pianos.

Other Simple Ways to Polish Furniture—Home-made polishes may be made to work wonders, even when the wood has been without attention for a long time.

Only the thinnest kind of polishes should be used on highly varnished surfaces; the object is only to clean, without injuring, what is almost an enamel.

There are times when soap and water should be used, but before these are put on, polish or its oils should be rubbed in so the water will not dull the surface; otherwise washing may permanently damage the surface.

Olive oil is less likely to be sticky, hence, should waxing prove too difficult, it may be substituted.

An excellent furniture polish is made of equal parts of boiled linseed oil, vinegar and methylated spirits.

A combination of beer and beeswax is recommended by an English authority, who says that first the wood must be washed and dried, then there should be ready a quart of beer in which has been boiled long enough to blend a piece of beeswax the size of a pigeon's egg and tablespoonful of sugar, this mixture being allowed to cook but not to get cold before being put on with a soft furniture brush. The liquid dries on and is then polished off with a soft cloth.

It is useless to merely polish over dirt or grease; when these are present use soap and water.

There is no simpler way of treating varnished mahogany, oak or walnut, than with vinegar and oil, the vinegar being the cleanser. The ingredients may be used in one of two ways: by mixing the two in the proportion of one-third vinegar and two-thirds olive oil or linseed oil, shaking vigorously and rubbing on with a soft cloth, afterwards polishing with a dry rag; or by using the vinegar first and later the oil clear, applying each with a different cloth.

Waxing—Mahogany or old walnut has a "soft" or wax finish and should always be kept in a state of luster. For a smooth surface, such as a table top, white wax is best, but it takes time and muscle to put on. The top should be made quite clean and then shaved wax rubbed in with the palm of the hand until all has disappeared and the top has an even and high finish. This is the most difficult of all polishing that can be done at home, but pays in the end, for the surface keeps better, requires scrubbing less often and always looks bright. Every few days, after being wiped over with a soft cloth, it should be rubbed again with the hand to polish. Wax need not be put on oftener than once in three weeks after the luster has been attained. At first once a week will not be too often.

To use oil as a polish for a dining table is a mistake, for no matter how carefully the unguent is rubbed in some will remain on the surface, and this will eventually stain the linen.

Scratches on Varnished Furniture—Remove from varnished surfaces by going over carefully with a camel's hair brush that has been dipped in shellac varnish until they disappear. Nothing should touch the places until they are quite dry.

Bruises on Furniture—Soak a large piece of brown paper in cold water for a few seconds; have ready some very hot irons. Place the folded paper over the bruised place in the wood and then iron over it. Repeat this process until the wood is swollen. Let the wood dry for an hour or so and then polish in the usual manner.

To Clean a Piano Case—(Cornell Reading Course)—Apparatus: a bottle of olive oil, some new or perfectly clean canton flannel, a perfectly clean chamois leather and a basin of water.

Wet a small piece of the flannel and drop on it a few drops of oil.

Rub, with the wet flannel, a small section of the case at a time, and immediately rub it thoroughly with a dry piece of the flannel before proceeding to a fresh section.

Polish finally with the chamois or a fresh piece of the flannel. Rub with the grain of the wood and breathe on it occasionally to help remove the oiliness, if any may remain. A very little flour rubbed with the grain of the wood will also help to remove oiliness, but its use should not be necessary.

Wash the piano keys with a corner of the flannel wet with alcohol. Be careful, however, to avoid touching the wood with the alcohol, as it will ruin the varnish.

Piano Keys—When yellow, clean piano keys, as well as all ivory articles, with alcohol, rubbed on with muslin. If very yellow, use flannel moistened with cologne water.

To Mend Leaking Vase—Melt some paraffine and run it over the defective portion or side. As hot water, which would melt the paraffine, is not used in a vase for flowers, this remedy is perfectly satisfactory.

Gilt Frames—Wipe the frames gently with a piece of sponge dampened with spirits of wine or oil of turpentine, and allow them to dry of themselves. If white of egg is applied with a small camel's hair brush to fly specks on gilt frames, then rubbing gently with a soft cloth, the specks will disappear.

Marble—To clean marble, take two parts common soda, one part pumice stone, and one part finely powdered salt. Sift the mixture through a fine sieve and mix it with water, then rub it well over the marble and stains will be removed. Rub then with salt and water. Wash off and wipe dry.

To polish black marble rub over with olive oil and finish with a clean chamois leather.

Or: Clean Marble with slices of lemon dipped in salt; leave for an hour, then wash off with soft cloth and tepid water.

Sagged Cane Chairs—Cane seated chairs that have sagged can be tightened in the following manner. Wash them in hot water and soap and rinse in clear water. Dry in the open air.

Leather Furniture—Chairs and couches upholstered in leather will last much longer if the following mixture is applied once a month: One part good vinegar, two parts boiled linseed oil. Shake thoroughly together. Apply a little on a soft rag and polish with a silk duster or piece of chamois. This cleanses and softens the leather; it is also a good polish for the wood if applied thereto as well.

Another good method: Wet the leather first with a little hot milk. Then after melting some beeswax in hot water add to it enough turpentine to give it the consistency of a thin cream. Put this mixture on the leather covers and then polish them with a soft cloth. Sometimes milk alone is sufficient. Dust the leather thoroughly, first.

Brass Polish—This is quite easy to make at home. Put 1 ounce soft soap, 1 ounce ammonia, 1 ounce rottenstone, in a jug. Pour on one pint boiling water and mix thoroughly. Some prefer the juice of a lemon instead of ammonia. Bottle when cold and keep tightly corked.

A brilliant polish may be given to door fixtures, ornaments, etc., by washing them in alum and lye. Make a solution by boiling an ounce of alum in a pint of lye and wash the article in it. Sweet oil and powdered rottenstone vigorously applied with a piece of soft flannel will clean brass ornamented pieces.

To Clean Nickel—(Cornell Reading Course)—Apparatus: a bottle of ammonia, a tablespoonful of whiting in a small bowl, a small woolen cloth, and a larger woolen cloth or flannelette duster.

Stir enough household ammonia into the whiting to make a thin paste, as thick as milk. Rub the paste over the nickel, rubbing it well into crevices. When dry, rub the whiting off and polish with the dry woolen cloth. If stains still remain, it will be necessary to scour them off with sapolio or something similar.

Note:—When nickel on a stove has been neglected and is very dirty, it is often easier to clean the pieces after they have been unscrewed and taken off; but it is necessary to look after all the bolts and screws carefully and see that all are put back in their proper places.

Nickel Polish—Equal parts ammonia and whiting make an excellent mixture for cleaning nickel furniture and ornaments. It should be applied to the nickel with a cloth and will produce a good luster.

Cleaning Copper—Mix half a cup of flour, half a cup of vinegar and two tablespoons salt. It is a little harmful to the hands, but you can avoid dipping your fingers into it by using a big sponge, dipping only a corner of the sponge, leaving the rest dry, or by using a rag in the same manner. Rub lightly if you would have the best results. Be sure to dip the article into cold water quickly and dry thoroughly, otherwise it will become green.

Cleaning Gold—Gold and gilt articles may be effectively cleaned by washing them in ordinary soap and water, and while wet transferring them to a bag containing some clean, fresh bran or sawdust, shaking well for a few minutes.

To Fasten Loose Chair Rung—Split the end of the rung slightly and insert the end of a small wooden wedge, then press the rung tightly in place. The harder you press the more the wedge spreads the end of the rung until it becomes impossible to remove it.

Pianos Catch Cold—exactly as we do. They get hoarse or have a cough or stiff note or some other similar complaint which cannot be cured by home remedies but require tedious and expensive doctoring. In order to prevent these avoidable ailments a piano should be kept in a moderately warm room where the temperature is even—say, sixty or seventy degrees, the year round, not cold one day and hot the next The instrument should not, however, be too near the source of heat. It should be kept closed and covered with a felt cloth when not in use for some time, particularly in frosty weather. Always place the piano close to but not **against** an inside wall.

A Little Duster—It is difficult to keep wicker furniture and certain other furniture properly dusted. Buy a five-cent dish-washing mop, saturate it with crude oil or cedar oil and allow it to dry. The result is a dustless duster that gets into every crevice, is useful for many kinds of dusting and does not soil the hands.

(Paste or Write Here Scraps or Memos. of Your Own)

FLOORS AND FLOOR COVERINGS

To Dust Hardwood Floors—(Cornell Reading Course)—Apparatus: a string mop. A dustless mop may be used.

Dampen the string mop if the floor is not a waxed one. It may be sprinkled as clothes are for ironing, or may be held in the steam of a tea kettle, but it must not be damp enough to show wet on the floor.

Go over the floor assigned, being careful that every board is rubbed. It is probably better to rub along the boards than across them.

Take especial care to go under tables, desks and like furniture, moving them when necessary.

Wash out the mop with soap and water when necessary. Rinse thoroughly, wring dry, and shake out well to make it as fluffy as possible. Hang to dry in the fresh air, or in a warm place, with the head up.

To Mop a Floor—(Cornell Reading Course)—Apparatus: mopping pail, mop, mop wringer, soap solution and hot water.

Fill the pail three-quarters full of hot water, add one-half cup of soap solution, and carry it to the room assigned.

Clear the floor of the room as far as possible.

Dip the mop in the pail, drain without wringing, wet one section of the floor, and rub it clean. Rinse the mop in the pail, wring it tightly, and dry the wet section thoroughly before proceeding to wet another. It may be necessary to rinse the mop several times.

Begin at one corner of the room and work toward the door. Change the water when necessary.

Wash and rinse the mop, wring it tightly, and hang it head up to dry in the fresh air if possible.

Empty the pail, rinse pail and wringer before putting them away, and leave the tub clean.

To Wax a Floor—(Cornell Reading Course)—Apparatus: the can of floor wax, a waxing flannel, a half yard of heavy flannel or a piece of old brussels carpet, and a weighted brush.

The floor must be clean and free from dust.

If necessary, stand the wax dish or can in a dish of hot water in order to soften the wax.

Rub the waxing flannel on the wax and put on a very thin, even layer of wax to the floor. Start at the corner farthest from the door and do not step on the waxed part.

Put away the wax and flannel, and keep off the floor for at least three hours. The polishing can be done after standing an hour, but is more work.

Fold the piece of heavy flannel twice, making four layers, put it down on the floor, put the weighted brush on it, and rub each board, with the grain, until it shines. The piece of carpet makes an excellent substitute for the flannel. The polishing can be done on the hands and knees without a weighted brush, but is much harder work.

To Keep Carpets Bright—Sweep occasionally with a broom dipped in water to which a little turpentine has been added. Carpets will stay bright and moths will not infest them.

To Clean a Carpet—Mix together in a bottle equal quantity of turpentine and ammonia. Put two tablespoonfuls of this into a quart of water, and with this sponge the carpet, after carefully brushing it. Only wash a small piece of the carpet at a time; do not wet it too much; rub it dry with a cloth.

To Avoid Moths—If powdered borax is put around the edge of a carpet it will keep away moths.

To Prevent Carpet Bugs—Fill a sewing machine oil can or bulb spray with turpentine. Scatter the turpentine freely by means of this in the closets, the corners and places where these pests are likely to be found.

To Mend Rugs—To patch a hole in a rug, lay a piece of woolen under it as a patch, and with a large embroidery needle darn cotton in harmonizing colors over the woolen. It is often possible thus to cover a large hole so it will not show. Threads drawn from an old brussels carpet can be used for mending a woolen rug.

When Rugs Slip—Sew a strip of rubber on the underside at each end to grip the polished floor.

Rug Beater—A discarded tennis racquet may be put to use, being light and strong and so constructed that it does not destroy the goods. Remove all the cords, keeping only the frame.

To Sweep Matting—Sprinkle the matting with Indian meal and then sweep it thoroughly, sweeping out the meal and the dirt with it.

To Clean Matting—The matting should be beaten to remove all dust. Take it out of doors and scrub it well with bran water, or with water to which a small quantity of salt has been added. Soap has a tendency to turn matting yellow, so should not be used. Rinse with cold water, rub dry as possible with a clean cloth, and hang on a line to complete drying.

Linoleum—The following polish gives a good gloss without making linoleum the least bit slippery: One gill methylated spirit, one pound shellac; mix together, and when the shellac is thoroughly dissolved apply to linoleum with a soft flannel and the gloss will remain even after the linoleum is washed. When linoleum begins to show wear,

paint the surface with good quality floor varnish and allow it a longer time to dry than would be necessary for a wood floor.

Inexpensive Floor Polish—Take one sperm candle and melt, remove from stove and add one pint coal oil. Use with a flannel rag. This makes a good floor polish and answers the same purpose as many bought polishes. Equal parts of coal oil (kerosene) and linseed oil warmed and used to rub on hardwood floors will make them look like new.

A Cheap Floor Stain—Dissolve two ounces of permanganate of potash in two quarts boiling water; if too dark add more water until desired shade is obtained. Apply with a flat brush; let dry over night and rub with boiled linseed oil or varnish.

Grease Spots on Floors—Do not put hot water on new grease spots on floors; the water makes the grease "set in." Use cold water and soap or soap-powder.

To Polish Floors and Woodwork with Kerosene —(Cornell Reading Course)—Apparatus: The kerosene can, the kerosene plate, a kerosene mitt, a handful cotton waste or an old soft cloth, and a soft woolen or flannelette cloth.

Put a very thin layer of kerosene in the plate and dip the mitt into it.

Rub a portion of the wood hard with the mitt, being careful to clean out the corners thoroughly. Immediately rub as much kerosene off the section as possible with the cotton waste or old cloth. Then proceed to clean the next section.

When all the wood has been cleaned and the first section has stood for an hour, polish it finally with the woolen cloth. It will be all the better to stand three or four hours before the polishing.

Put away the kerosene, mitt, plate and can, and burn the waste.

Wash the polishing cloth in strong soapsuds, rinse carefully, and hang it to dry.

(Paste or Write Here Scraps or Memos. of Your Own)

Note—In all wood polishing, rub with the grain of the wood.

To Clean Woodwork—(Cornell Reading Course) —Apparatus: A fiber tub, two flannelette dusters, borax, and warm water.

Put a level teaspoonful of borax into the tub and fill the tub with warm water. The water should be comfortably warm.

Wash a section of the woodwork with one duster, and immediately rub dry with the other duster before proceeding to the next section.

When two do this work together, better progress is made when one washes and the other dries the wood. A step-ladder is necessary for high woodwork.

When all the wood is cleaned, wash out the dusters carefully and hang them up to dry.

Note—A steel wire brush, such as is used by painters, will expedite the cleaning out of corners and angles when the woodwork has been badly neglected.

To Dust Woodwork—(Cornell Reading Course) —Apparatus: One or more damp flannelette dusters.

Begin at one corner of the room and dust the baseboard of wainscoting. Do the doors and windows as they come.

Use the dusters to wipe up the dust and do not shake them about. When one duster becomes dusty enough to be dirty, take another. Go over every board of the woodwork, and be careful not to slur over the corners but to take all the dust out of them.

When dusting stairways it may be necessary to use a long-handled cornice brush in order to reach all parts.

Woodwork with many panels is easily dusted with a woolly stove-mitt, which is kept for the purpose.

Wash out the dusters with soap and water and hang them up to dry.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

WALLS AND WALL-PAPER

Cleaning Walls—(Cornell Reading Course)—Apparatus: A cornice brush.

Close all the doors of the room, and cover pictures and other articles.

If the room has a cornice, brush the dust out carefully.

Brush first the ceiling, then the walls. Brush gently so as to gather the dust on the brush rather than to scatter it.

Shake the brush well, and then put it away.

Remove the covers from the pictures and the other articles gently, carry the covers outside to shake, and fold them before putting away.

Enameled Walls—Wring out a soft flannel in tepid water to which has been added a little kerosene. Wipe the enameled surface with this quickly, exchanging the cloth for a clean one often. Do not scrub; wipe lightly. You will be amazed at the quantity of dirt that will come off on the flannel. Do not smear the wood. Work one direction all the time, changing water as it gets dirty.

Soda for Cleaning Walls—Use two pails tepid water. Wet a cloth and sprinkle a little baking soda on it, wash a space that can be easily reached. Rinse with clear water and wipe dry. Use the soda sparingly.

Smoked Wall—Go over wall first with lime water before putting on a coat of paint. One coat will be sufficient with this treatment: five cents of lime dissolved in a pail of water and put on quickly with a whitewash brush.

Putty—When using putty for filling in very wide cracks, the inexperienced person finds it very difficult to spread it evenly. To prevent it from crumbling, dip the knife in coal oil.

To Drive a Nail in Plaster—Put the nail in very hot water until it is thoroughly heated. Leave it wet, and you can drive it in clean without breaking or chipping the plaster.

Holes in Walls—Holes in walls can be stopped with plaster of paris, but mix this with vinegar instead of water, or it will harden so quickly it will be difficult to manipulate.

(Paste or Write Here Scraps or Memos. of Your Own)

To Tighten Picture Nails—Saturate a bit of wadding with a thick glue, wrap as much as possible around the nail, and reinsert the latter in the hole, pressing it home as strongly as possible. The nail will be held firmly in its place.

Scratches on Wall-Paper — If wall-paper is scratched or rubbed, moisten a scrap of the paper that is saved, carefully scrape off the coloring matter with thin knife-blade; apply this to spot. When dry the spot will be hid. You could never match up other coloring matter so well.

To Mend Crack in Wall-Paper—Tear out by hand a piece of paper like that on the wall, a little larger than the hole or crack, and starch well. Use a caster to roll the edges. Be sure to tear out patch by hand; with knife or scissors the patch will show, but put on in this way the patch cannot be detected.

Varnished Wall-Paper — Varnished wall-paper may be wiped with a mixture of paraffin and warm water. Half-pint paraffin to a bucket of water. Use a soft flannel cloth, wrung fairly dry, and polish with a piece of cheesecloth.

Grease Stains on Wall-Paper—To remove, mix pipe-clay with water to the consistency of cream, spread over the marks, allow to remain for two days, then remove with a stiff brush and the stains will have disappeared.

Ordinarily wall-papers may be cleaned with dough, or rubbed with a dry cloth only.

To Remove Wall-Paper from Walls—Use a whitewash brush and a pail of warm water and get a paper scraper, which can be purchased at five-and-ten-cent stores. Dip tip of brush in water and go over wall quickly so as to keep water as much as possible from running to floor. Get over the entire side of wall with wet brush, let paper stand a few minutes, then go over it again and scrape with scraper. Sometimes after paper is thoroughly soaked you can take hold and strip the most of it off. If papers are pulpy you have to scrape them all off. When one side is partly off wet another, keeping it well soaked ahead of you.

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of Your Own)**

CURTAINS, SHADES, CUSHIONS

Window Curtains—It is never a mistake to select neat lawn, scrim, net, muslin or linen for window curtains. They should come to the sill and may be any length hanging from the top, from the middle sash, a quarter from the top, anywhere deemed best.

If the casing is very narrow, the rod on which they are hung should be placed below the brackets for the shades, so that the shades can be pulled over the curtains to the room side. The curtains can be shirred on a rod with or without a ruffle above.

They may hang straight, as at casements always, or they may be held in place at the bottom by a similar rod, as on French windows.

A Short-Cut in Curtains—So many housekeepers use dotted Swiss for sash curtains that this plan for saving some yards of Swiss will be welcomed:

The average window requires two yards of Swiss one yard wide. One and a half yards used with selvage top and bottom instead of at the sides saves half a yard on each window. Besides this, not only is the money saved but time is saved in making.

Turn a hem at the top that is just large enough to cover the rod and make as large a hem at the bottom as the window will allow; the curtains, also, always hang straight.

To Keep Curtains Clean—In bedrooms where the curtains hang straight from the poles and where the windows are open at night, sew a brass ring on the side of each curtain and put a screw eye up high enough on the side of the casing so by looping up the curtains they are kept cleaner and are less mussed, also let in more air. Take off the rings when the curtains are washed.

To Clean Tapestry Curtains—Take the curtains down, brush them well and then rub all spots and soiled parts with magnesia. Hang these out on a line on a fine, windy day; finally shake them.

Cleaning Window Shades—After the summer light-colored window shades are usually soiled and often fly-specked. Remove the latter by rubbing lightly with the very finest sandpaper. Then clean by rubbing very gently with a soft cloth wrung out of a mixture of one pint hot water and three tablespoonfuls of benzine (keeping the benzine away from the fire). Dry by wiping with a clean, soft cloth.

To Dust Window Shades—(Cornell Reading Course)—Apparatus: A step-ladder and a flannelette duster.

Place the ladder firmly so that it is easy to reach the spring end of the roller.

Roll the shade up as far as possible and take it down from the window. If it will not roll all the way up before you take it down, roll it up before coming down from the ladder; otherwise the shade is likely to wrinkle and be damaged.

Unroll carefully over a table or out on the floor. Great care must be taken to prevent the shade from wrinkling.

Roll up slowly, dusting each side as it is rolled.

Replace the shade on the window, and test to see whether it rolls up and down properly. If it does not roll quickly to the middle of the window, take it off again and roll it up before replacing. If it will not pull down to the bottom, pull it down as far as possible, take it off again, and unroll it to the length of the window before replacing.

Dust the middle ledge of the window before taking away the step-ladder.

To Renew Window Shades—Old window shades may be painted and will look like new. Lay them on the floor on newspaper and paint one side. When dry, paint the other. They may be painted white on the outside and green on the inside. The paint covers all cracks and worn places.

Sofa Cushions—Cut a roll of cotton in small squares and heat in a pan in the oven, leaving it there for half an hour. Do not let the cotton scorch. Every square will swell to twice its size and will be light and fluffy for filling for cushions.

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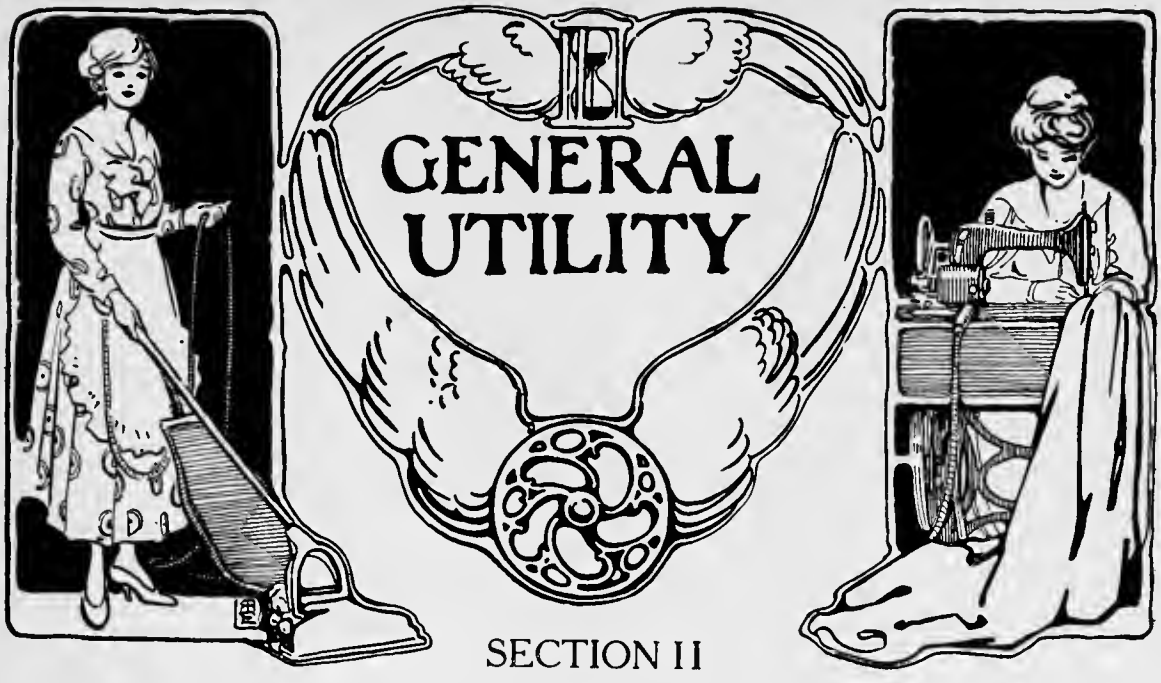

Simple Terms In Electricity

Electrical terms have puzzled many housekeepers since the use of the current has become common for cooking as well as cleaning and lighting.

Electric current is like a stream of water. The size of the steam may vary as do water pipes, and the word used to designate the size of an electric stream is **ampere.** Thus, an electric iron requires a large stream, five amperes; a vacuum cleaner a smaller stream, one ampere; while a large range with all the switches on will require a still larger stream and may take from fifteen to twenty amperes. Thus, only the devices requiring five amperes and under are safe to use on the lighting circuit, which carries only that comparatively small-sized stream.

Another common term is the **volt.** This means the pressure of the stream of electricity. With the water supply we speak of the pressure at the faucets as thirty pounds or sixty pounds, etc. With electricity we speak of the pressure as 110 volts or 120 volts, etc. Thus the voltage or pressure is determined by your local electric company, while the manufacturer decides the size of the stream or amperage required for his device.

The **volt** is the actual amount of electricity used. It is measured by gallons or cubic feet in the case of water. Thus we would say that the faucet runs fifty gallons an hour, while with electricity we would say the iron consumes five hundred watts an hour. Because the watt is so small a quantity, all electric lighting companies use one thousand watts or the **kilowatt** as their basis of measurement, and the cost of electricity is therefore so many cents for a kilowatt used one hour.

Once these terms are understood it will be a simple matter for any housekeeper to determine the exact cost of using any one of her electrical appliances. This method is correct for the less common direct current (D.C.) and approximately correct for the oftener used alternating current (A.C.). Multiply the pressure or voltage, by the size of the stream, or the amperage, and you have the amount of electricity used, or the watts. Thus an iron stating on the name-plate "110 volts, 5 amperes," uses 550 watts and costs at a ten cents a kilowatt-hour rate just five and one-half cents an hour to run it. At a five cent rate it costs

approximately three cents for the same service. On all electric appliances you will find the volts and amperes plainly stated.

Most household users of electricity have an unreasoning fear of "blown fuse" when really they should consider the fuse in an electrical system like the safety valve in the steam boiler. If anything goes wrong the fuse "blows" automatically turning off the current. This is accomplished by means of a small wire within the fuse which melts with some slight noise which is called "blowing." When you have blown a fuse, do not be frightened, for the safety-valve has worked and no harm has been done. Notify the company and a new fuse will be put in. Find out the cause of the trouble. Remember that a fuse must be large enough to carry the largest stream of electricity that you expect to use at one time, and state very clearly to the repair man sent to you all the electric devices you were using at the time the fuse blew. Thus, if the toaster and percolator, each consuming five amperes, together with the dining-room lights, were all in operation and the chafing-dish consuming another five amperes was then started, a blown fuse would immediately result provided the fuse was a fifteen ampere one, because the stream of electricity would be too large and the safety-valve would "blow," while if the fuse had been a twenty-five ampere one, there would have been no necessity for the safety-valve to operate. Be very sure, however, that the fuse is not larger than the stream of electricity the wiring can carry safely.

THE CARE OF LINENS

It pays to have more bed linen than just enough for a change. Your linens will stay in good condition longer and you will enjoy the pleasure of using well-aired, sweet sheets and pillow cases from your linen closet, instead of having to put on your bed those just returned from the laundry with more or less of a laundry odor.

There must be extra linens, too, for guests or sickness; but without order in the closet there will be little satisfaction in the good supply. To prevent the wear and tear being too great on certain pieces, use the pieces from the top of the piles, slipping those just returned from the laundry to the bottom of the piles.

To keep tab on your laundry supply tack up in your closet a list of what you have and what you send out each week. The articles being arranged in neat piles can be counted almost at a glance when the laundry is returned. In a large establishment the supply for each room or floor must be kept on separate shelves or in separate closets.

Scent for Linens.—English lavender is the only proper scent for bed linens, as it is soothing to the sleeper as well as sweet smelling and delicious to the nostrils. It is not appropriate for any than bed linens, however.

THE DAILY DUSTING

(Cornell Reading Course)

Apparatus: a cheesecloth duster, a slightly damp flannelette duster, a string mop, and (if the room has a rug or carpet) the carpet sweeper.

Air the room, if necessary.

Sweep the rug or carpet with the sweeper.

Dust any bare floor with the string mop.

Dust the window glass, window ledges, and all outstanding of wainscoting, cupboards, and the like, with the flannelette duster, and the chairs, tables and smaller articles with the finer one.

Use the dusters to wipe up the dust, and do not shake them about. When one duster becomes dirty, take another.

Wipe finger marks from electric-light button plates.

When dusting stairways it may be necessary to use the long-handled cornice brush.

Avoid letting soiled dusters rest on beds, upholstered furniture, or on brass or metal parts, and like places.

Be careful to replace desk papers exactly as they were found.

Arrange the window shades before leaving the room.

Empty dust, and put away the carpet sweeper. Put away the string mop, washing it if necessary. Wash the dusters and hang them up to dry.

Dustless dusters and mops may be used instead of dampened ones.

THE CUPBOARD OR CLOSET

Cleaning (Cornell Reading Course).—Apparatus; a dishpan, a scrub cloth, a clean duster and a dry sink towel.

Fill the pan half full of soapy water, comfortably warm.

Clean the top shelf. Dust each article and place on a lower shelf or other convenient place. Wash the shelf and wipe dry with the sink towel. Replace each article belonging to the shelf.

Clean the remaining shelves, cleaning the bottom one last.

Closet Hanging Space.—A small closet will hold twice as much clothing without crushing if a small pole is fastened from end to end and a few inches below shelf, along which you may slip a number of hangers upon which suits and dresses may be neatly hung. Many more hangers may be suspended from the pole than could be crowded on hooks; besides you still have the hook space at back and ends if the closet is not too close; the clothing on the hangers does not get so crushed.

BED AND BEDROOM SUGGESTIONS

Dresser Drawers that stick need paraffin or soap on the sliding parts. Paraffin will rub off less; it works into the wood and keeps it smooth.

Never Sun Feather Beds or Pillows. Air them thoroughly on a windy day in a cool place. Sun draws the oil and gives feathers a rancid odor.

All Mattresses, used either by children or adults, should be well brushed once a fortnight. Put in the sun by open windows when possible. In this way the white dust which comes from the body is disposed of and mattress disinfected.

Or, better still, make a covering as you would for a pillow case out of heavy unbleached sheeting, to fit mattress; close the end by sewing buttons and buttonholes. This covering can be removed from time to time and laundered; it should be starched stiff to prevent dust from sifting through. It will keep the mattress nice and new. Mattresses, at that, should be brushed and aired when the cover is removed.

Cleaning Brass Beds—Wring out a bit of flannel almost dry in sewing machine oil and go over the bedstead daintly. It will not dull the lustre, and it will remove flyspecks.

Never touch the brass without having a cloth between your hands and the polished brass; the perspiration of the hand will tarnish it and form verdigris.

Never hang clothing you have taken from your body across the brass rails. Dust all parts of the bedstead once or twice a week at least.

To renovate a shabby brass bedstead, or one of iron and brass, wash it with soap and water, and when it is quite dry, clean the brass parts with metal polish, polishing them well with a soft velvet duster. Now varnish all over, both iron and brass, with a transparent varnish.

Such a varnish may be made as follows: Put six ounces bleached shellac and one pint methylated spirit in a bottle, and stand it to one side for a day or two until it is dissolved, shaking it occasionally. Cork tightly. Keep away from fire. Apply with a soft brush.

CLEANING THE BATHROOM

Cleaning Bathroom—(Cornell Reading Course)—Apparatus: Closet brush, scrub cloth, dry flannelette duster and string mop.

Clean the bathtub. Let in a little very hot water, rub soap on the scrub brush, and wash all scum deposits from the tub. Rinse out the tub and wash the taps. See that the outside is clean, and wipe everything dry with the duster.

Clean the closet. Raise the cover and the wooden seat. Wash the bowl thoroughly with the closet brush. If necessary scrub above the water line with soap, and see that the outside is clean. Flush the bowl. Wash the seat inside and out, also the inside of the cover. If necessary, wash the floor-slab. Wipe everything dry with the duster.

Dust the floor with the string mop. Take pains to get the dust out of the corners and from under the tub. Dust the chair and the woodwork.

Wash the closet brush with soap in the wash-basin, rinse, shake thoroughly and hang up (this brush is usually kept in an inconspicuous corner of the bathroom).

Wash and wipe the basin taps. Wipe off all pipes below the basin with the duster. If necessary, scrub the basin.

Wash and rinse the scrub cloth and the duster in the basin and wring as dry as possible. Rinse out the basin and wipe with the duster. Hang up the cloths to dry. If tubs and other appliances have been neglected and are very dirty, it may be necessary to scrub them with kerosene.

CLEANING THE FIRE-PLACE

Cleaning Fire-Place—(Cornell Reading Course)—Apparatus: a stove apron, newspaper, dustpan, whisk, the blackleading implements and a duster.

Spread the newspaper to protect the hearth.

Brush the ashes from the fire basket or andirons, and move the basket or irons out on the newspaper.

Brush the ashes down the ash-hole; or take them out, if no ash-hole.

Blacken the fire basket or andirons, and replace them.

Lay a fresh fire ready to light, using the newspaper from the hearth.

Brush up the hearth, dust the mantel and fire-irons.

Put away the blackleading implements, dustpan and other apparatus, and get a basin of warm water, a small scrub brush and some soap.

Wash the hearthstone, and if necessary the fire-irons.

A fireplace with red bricks may have the bricks reddened with the following reddening mixture:

1 oz. common glue, 1 tablesp. alum, ½ lb. Venetian red, 1 lb. Spanish brown, 1 gallon water.

Dissolve the glue in the water over the fire. While hot, add the alum. Add the Venetian red and Spanish brown. If too light, add more red and brown; if too dark, add water, a little at a time, until right. Mix well. Keep in a closely corked bottle. Apply with a paint brush.

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Scraps or Memos.
of Your Own)**

HOUSEHOLD MISCELLANY

HOME-MADE CEDAR CHEST

Get a large pine packing box, hinge on the lid and putty up the cracks, if any, unless you can get a box without cracks made of tongue and groove lumber.

Buy a large bottle of cedar oil from a druggist and paint the interior of the box thoroughly with the oil. Use it generously, let the oil soak well into the wood and all crevices. When perfectly dry, line the box with cambric and cover the outside with any preferred material, using ornamental brass-head tacks.

The cedar oil will retain the strong odor for a long time and it is as moth-proof as the cedar wood itself. But if you want the job even more permanent you can obtain "cedar-paper" (paper treated with cedar oil and also waxed) with which you can line the box before putting in the cambric lining.

Cleaning Lamps—(Cornell Reading Course)—Apparatus: an old newspaper, the kerosene can, a damp flannelette duster, lamp scissors and a dry towel.

Carry the lamps to a sink, or to a table convenient to the sink. Spread the paper and place everything on it.

Wash and dry the lamp chimneys as if they were tumblers, set them aside and put away the towel.

Open up the lamp burner, screw up the wick, trim off the char with the scissors, and screw down the wick a quarter of an inch below the brass. Be careful not to drop the char around. Round wicks must have the char rubbed off with the duster.

Soap one corner of the duster and rub carefully every part of the brass burner; if necessary, polish as directed for polishing brass.

Fill each lamp nearly full of kerosene. See that the burner is properly screwed on, and wipe the body of the lamp carefully.

Put on the chimneys and set the lamps in their places.

Wash the scissors and duster and hang the duster to dry. Gather all trimmings and burn both trimmings and paper. They are not safe to leave around.

Odorless Lamps and Oil Stoves—The most frequent cause of the disagreeable odor from lamps, oil heaters, stoves and so on, is the evaporation of a bit of oil left on the outside.

If lamps or heaters remain a day or two unlighted the oil will often soak through the pores, or will "climb" the wick and spread outside; they should always be carefully wiped off before using, as well as just after filling.

Lamp Cleaning—Take lamp wicks when new and soak them in good apple vinegar. Do not wring them out but hang near a stove or lay on a plate until dry. This treatment will double the lighting power of your lamps or lanterns; also with wicks prepared this way only one cleaning each week is necessary, for the wick will not smoke and the chimney and globe will not blacken around the top.

To Save Gas Globes—To avoid the flare, when lighting gas, from cracking globe, simply keep a small hairpin slipped over the edge of the globe. It is not clear just why, but the little wire hairpin does the work.

Picture Stick—Have a smooth, strong stick about 40 inches long, with a deep notch in one end. With this, pictures may be lifted from the wall and brushed and replaced without your climbing up and down.

To Remove Staple—Run a nail through it and catch a claw hammer under nail.

Disinfect the Telephone—The telephone should be washed and wiped out every few days, both ear and mouthpiece.

To Renovate Sweeper—The sweeper brush bristles become soft from long use and do not sweep up pieces as well as when new and stiff. Put a little common baking soda in some hot water, take the brush out of the sweeper and dip it up and down in this. Let it dry in the sun and it will be like new. Hair bristles of any brush can be treated in the same way with the best of results.

At least once a week the sweeper should be thoroughly cleaned and the brush freed from hair and threads. The bearing should be frequently oiled—the smallest amount being used; a feather will be easy for applying the oil.

Creaking Hinges—should be rubbed with a piece of soap; oil spoils looks of the paint.

Care of Woodwork—Tea water is found an excellent cleanser for varnished woodwork. To obtain this pour water on used tea leaves and strain through a cloth or muslin. The tea water removes the dirt quite easily.

White paint should be cleansed with warm water, using a trifle whiting on the cloth, then rinsing with clear water.

Clean flannel dipped in paraffin oil will satisfactorily remove finger marks on polished or painted wood if rubbed on for a few minutes. Wipe with a clean cloth wrung from hot water to remove the odor.

To Clean Windows—(Cornell Reading Course)—Apparatus: a high stepladder, fiber tub, damp flannelette duster, scrub cloth, soft linen towel, chamois leather, ammonia, and warm water.

Fill the tub half full of warm water and add a tablespoonful of ammonia or a few drops of kerosene.

Carry the ladder to the window, roll up the shade and take it down. Unroll it on the floor or over a table, then roll it up, dusting both sides as it rolls. (See Cleaning Shades, previous Section.) Stand it aside, marking to which window it belongs if more than one is being cleaned.

Dust the window, especially the surrounding woodwork, with the damp flannelette duster.

Wash the glass, especially corners, and dry with the linen towel. Polish with the chamois leather.

Replace the shade, testing carefully, and make sure the spring works properly.

Wash out the tub, towel, cloth and duster. Hang the cloths to dry and put everything else away.

If chamois leather is not available use crumpled newspaper or tissue; toilet paper is good.

The following mixture may be used instead of ammonia and water, but the resulting white dust must be carefully wiped up: 1 tablespoonful precipitated whiting; 2 tablespoonfuls household ammonia.

Care of Windows—Instead of cleaning the windows with soap and water try rubbing them with a cloth dipped in a mixture of ammonia and whiting and then polish with a clean chamois. This makes them much brighter than soap and water.

To keep windows clean rub with a cloth slightly moistened with paraffin or kerosene, afterwards polishing with a dry soft duster or chamois leather; this prevents flies settling and making marks on the glass.

A cheese cloth dampened with kerosene will clean windows quickly when water cannot be applied to the glass without freezing.

To Remove Rust—from curtain rings or other small articles, put them in cloudy ammonia for half hour and stir them around. If rusted points of pins will not push easily through curtains or other fabrics, stick them in a bar of soap and they will slip easily.

To Mend a Wire Screen—Take a piece of screening large enough for a patch; ravel the edge of this patch by taking off several wires on each side leaving a fringe of wire points an inch or more long. Bend this fringe down at right angles, put the patch in position and push the bent fringe through. Bend the fringe in and put it against a flat board and hammer it gently. The patch will hold and insects cannot get through at the edges.

Cleaning Globes—Globes that have become discolored from smoke or otherwise may be cleaned in the following manner: Soak the globes for about an hour in warm water with soda or borax in it; then add fresh warm water with a few drops of ammonia and wash well with a soaked linen rag. This is better than flannel as there are generally loose hairs left by flannel unless it is very fine. Polish with soft linen rag.

To Waterproof Matches—Dip them in melted paraffin. They strike as well as ever and are not ruined by dampness.

Wobbly Candles in Holder—If ends of candles are placed for a moment in hot water, then pressed into sockets, they will mold to size and shape and thereafter sit snug in the holders.

Candles Will Last Longer—if given a coat of colorless varnish; the wax will not run down through—which is an item of appearance as well as economy.

Bayberry Candles—To make bayberry candles melt the berries for a day, let stand 24 hours, strain, then melt a little and pour into candle molds, running a wick through each candle. If they do not harden perfectly, melt and strain again. It requires a great many berries to make a few candles. The wicking can be had at any hardware store; it comes in a ball-like twine.

Scald New Brooms in hot suds before using; this will toughen the fibre. Always stand new brooms with the brush end up and the weight off the fibre.

Cotton Gloves for Cleaning—Cotton gloves to wear during housework are cooler and better in every way than old kid gloves, although the latter are serviceable with the fingers cut off. If bought especially for this purpose get a size larger than usually worn.

Pockets in Aprons—Have two enormous pockets in work apron. They will save many steps. In one room will be many things to be carried into another, which put in one pocket. Use the other for trash or things to be thrown away. The hands are free for the cleaning up that is being done.

List of Cleaning Materials to Have Handy Always—(Cornell Reading Course)—Alcohol, alum, ammonia, bath brick, black lead, borax, furniture polish, kerosene, methylated spirit, olive oil, paraffin, rottenstone, salt, separator oil, soap, turpentine, vinegar, washing soda, wax (floor), whiting.

Cleaning Articles—(Cornell Reading Course)—Apron, stove; carpet, piece old brussels; chamois skin or leather, cheesecloth; cloth, scrub; cloth, soft; flannel, canton; flannel, heavy; flannel, waxing; flannelette for dusters; gloves, rubber; mitt, for kerosene; waste, cotton (bought at any hardware store).

Cleaning Utensils—(Cornell Reading Course)—Boiler, for clothes; brush, closet; brush, cornice; brush, scrub; brush, soft; brush, trap; brush, weighted; brush, wire, for sink; carpet sweeper; dauber, dishpans, funnels, ironing tables, etc., irons, monkey wrench; mop, cloth; mop, string; saucepans, old; scissors for lamp, stepladder, tub, fibre tub, washboard, whisk broom, wringer.

(Paste or Write Here Scraps or Memos. of Your Own)

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WEARING APPAREL

TEXTILES—THEIR CARE AND USE

(Extracts from Bulletin Under Above Heading, Iowa State College of Agriculture)

TESTING MATERIALS

If one is to buy intelligently, there must be some knowledge of method of judging materials. Chemical and microscopic tests determine accurately the content and value of materials, but they are not feasible for the average housewife. There are many simple tests, however, which can be depended upon to give fairly accurate information of standard materials, and with some of these every buyer should be somewhat familiar if she is to buy wisely. She should make herself familiar with the look and feel and weight of standard materials, and although there will be variations, if she has learned to judge the quality of some reliable materials, she will be able to grade others from those which she knows.

All textile fabrics are made with two sets of threads. The lengthwise threads are known as the warp and crosswise threads as the woof.

A good way to test the endurance of any material is to take the cloth firmly and stretch quickly first warp way and then filling way. If the material tears or frays in either direction it shows a lack of strength.

The strength may also be tested by pushing the warp and woof threads back and forth to see if they move easily. If they can be pushed without difficulty and are soft and brittle the material will not be strong, and when strain is applied (as in seams) it will fray.

I. COTTON

The characteristics of cotton are:

1. Strong and elastic.
2. Launders easily.
3. Not easily affected by heat or alkali. (Strong washing powders injure the fiber.)
4. Dyes easily.
5. Inexpensive.
6. Easily affected by acid.
7. A good conductor of heat.
8. Does not absorb moisture readily and gives it up slowly.
9. Burns easily with light yellow flashes and leaves a fine ashy powder.

Shrinking Cottons and Setting Their Color

To shrink wash materials, put them direct into a tub of hot water. Squeeze the water out gently instead of wringing it out. Hang the material by the selvedge to dry. Place the clothes pins close together so the cloth will not stretch. Turn the cloth occasionally from one selvedge to the other so it will dry evenly. Before it is quite dry, iron it on the wrong side. If you let it get too dry to iron nicely, press it under a damp cloth. Do not sprinkle it, for that gives it a rough, dry look.

A quick method to shrink very thin fabrics is to roll the wet material between several thicknesses of Turkish toweling, wring as dry as possible, and press immediately.

Delicately colored fabrics often fade when washed. It is always advisable to test the color with a small piece of fabric before washing. Various formulas are used to set colors and some of the common household tests are as follows:

Salt (1 cupful in 1 gallon of water).

Vinegar (½ cupful in 1 gallon water).

Sugar of lead (1 teaspoonful in 1 gallon of water). (Poison.)

Alum (1 tablespoonful in 1 gallon water).

As dye materials are made of a great variety of chemicals, it is always advisable to test them by soaking small pieces of cloth in the above solutions.

To insure a perfect color test, the pieces of cloth should be left in the various solutions several hours or even over night, then dried and the color compared with the original color of the fabric.

Sizing of Cotton

Cotton being the cheapest of materials, cotton cloth is not adulterated with any of the other common fibers, but it can be made to appear heavier by the addition of mixtures called sizing. Starches, gums, dextrine, glue and china-clay, as well as other ingredients in varying proportions, constitute this sizing, which may add a large per cent. to the weight of the cloth. The spaces between the threads are filled up and a good finish is given to the cloth, although the wearing quality is not increased. If present in large quantities the cloth is greatly reduced in weight and firmness after the first washing. Adulterations of this kind can be detected by the feeling, a large quantity imparting a harshness to the material. In very thin fabrics the sizing may often be detected by holding the cloth to the light, when its starch shows between the threads.

Mercerized Cotton

Cotton is mercerized by treating ordinary cotton with strong sodium hydroxide solution with a simultaneous stretching of the fibers. It is then washed in water and dilute acid.

After mercerization the yarn is stronger and heavier and it takes dye very readily, but a fiber mercerized for the second time shows no further affinity for dye stuffs.

It costs more than twice as much to produce mercerized yarn as ordinary yarn. Mercerized cotton is characterized by a high luster almost like silk.

Cotton may be made to look like mercerized cotton by passing the cloth under pressure under engraved rollers. This is a means of adulteration.

Cotton is probably used more than any other material for underclothing. It is a good conductor of heat and is desirable for summer wear. But when it is loosely woven or a pile left on the surface as in canton flannel or outing flannel, it is a poor conductor of heat and is desirable for the winter months. The still air in the meshes is a poor conductor of heat and the material feels warmer because a loosely woven garment holds more air.

II. LINEN

The characteristics of linen are:

1. Snowy white when bleached.
2. Strong and durable.
3. Smooth and glossy when laundered.
4. Good conductor of heat.
5. Wrinkles easily.
6. Water is readily absorbed and evaporated.
7. It does not retain stains as persistently as cotton.
8. It does not leave lint.
9. Not easily affected by acids.
10. Washes easily.

Aids in Recognition of Linen

1. Wash linen and soak in glycerine. Transparent if linen, opaque if cotton.

2. Soak so-called linen material in sulphuric acid. The cotton may be washed out, leaving the linen fibers.

3. Wash thoroughly sample of so-called linen material in hot soap suds and rinse in hot soft water to remove the finishing material. Dry thoroughly and place in hot muriatic acid one minute. Transfer quickly to fresh water. If fabric is all cotton, the sample will drop into minute pieces, while if it is linen the shape will remain unchanged.

4. Tear linen quickly. The threads should be smooth along torn edges. Cotton threads curl.

5. Linen does not burn quite as readily as cotton. It leaves a small amount of ash.

6. Wash cloth to remove dressing, dry in fresh air. Immerse for two or three minutes in a concentrated solution of sulphuric acid. Cotton under this treatment will dissolve almost completely; linen remains nearly unaffected.

7. Equally thick linen and cotton goods exhibit considerable difference in weight. Linen goods of equal volume are about 17 per cent. heavier.

8. Cotton materials feel warmer than linen. Cotton by its peculiar structure makes the circulation of air difficult and holds the heat more than linen goods of the same thickness. (From 15 to 30 per cent. more.)

Absorption Test

9. Wash a small piece of fringed material from dressing. Place it in a 10 per cent. solution of copper sulphate and allow it to remain ten minutes. Wash thoroughly to remove the adhering surplus of copper salt. When thoroughly washed, place the material in a 10 per cent. solution of potassium ferro cyanide. "If the material is half linen there appears in the part which consists of flax fiber (warp or woof) a striking copper-red color, due to the separation of ferro cyanide of copper; while the cotton fibers remain uncolored."

Oil Test

10. Linen, if freed from dressing, becomes translucent when treated with olive oil; cotton remains opaque.

"The linen fiber, because of its thick cell wall, assumes a transparent appearance. It appears clear against the light, and dark when light falls upon it. The opposite effect is noticed in cotton."

III. WOOL

The characteristics of wool are:

1. Not a good conductor of heat.
2. Readily affected by heat and sudden changes in temperature.
3. Difficult to launder.
4. Readily affected by friction.
5. Very elastic.
6. Absorbs a large amount of moisture; 12 to 17 per cent. of its own weight under ordinary condition and 30 to 50 per cent. in very damp weather.

Wool is very curly, and possesses a scaly structure in a much more marked degree than hair, in which the external scales lie flat. The scales on wool fiber stand up when moist and warm like the scales on a pine cone, and when cold and dry or cold and moist, lie flat like the scales on a fish.

The scales are of a gelatinous material and become soft under heat and moisture, and if pressure is applied the scales lock permanently together and the cloth is reduced in length and width and is shrunken.

A seventy-two-inch material may be shrunken or felted to fifty-four inches, and there may be in a closely felted wool fiber three thousand scales to the inch.

Sponging and Shrinking

All woolen materials should be sponged either at the shop or at home before they are made up. Sponging not only prevents the garment from spotting, but keeps it from shrinking unevenly in wet weather.

For sponging, the selvedges should be cut off or the edges clipped to prevent their drawing when the material shrinks. The ironing board should be covered smoothly with two or three thicknesses of blanket and two of cotton sheeting. Lay the material face downward, or if it is a double width fabric, it may be folded in the center, right side in.

Take a piece of sheeting a little longer than the width of the material and three-quarters of a yard wide, wet it, wring it dry and lay it smoothly over the suiting. Press several times with a hot iron, remove the damp cloth and substitute a dry one, pressing it until the suiting is dry. Never use a coarse fabric for pressing, as it will leave the imprint of the weave upon the material. Keep the iron moving or it will leave its mark. Do not press hard. This will push the material in folds in front of the iron and will stretch the cloth.

Adulteration of Wool

The demand for woolen cloth far exceeds the supply of new wool and it is necessary to resort to various measures to increase the supply of cloth.

In adulterating a material the manufacturer seeks a material cheaper than the fiber he wishes to adulterate, one which can be concealed readily. Wool when combined with cheaper cotton fibre makes a material which wears well, but does not keep its shape as well as all-wool cloth. Because of the felting property of wool it is quite possible to conceal a good deal of cotton.

Shoddy

Wool is used over and over again. The best all-wool rags are selected to produce fibers, which are respun and again woven either separately if of very good quality, or mixed with new wool or cotton. Such a material is warm, looks well for a time and has a place, but must not be bought for new wool or demand the price of good woolen cloth.

One class of shoddy consists of very short fibers, clippings from the mills, which are worked into the surface of a felted cloth after it is woven. These clippings after a time work out and are found in the bottom of coats, inside linings, etc., leaving the surface of the cloth threadbare.

Woolen and Worsteds

"Various distinctions are given between these two yarns; viz., that woolen is made from short wool and worsted from long wool, and that woolen is carded and worsted combed. While both of these statements are to a certain extent true, the real distinction lies in the fact that woolen thread has its fibers running in many directions, more or less tangled, while worsted thread has its fibers quite parallel. Since woolen cloths are quite largely felted, this crisscrossing in every direction leaves many loose ends of fibers exposed on its surface to mat together and form a compact material. Worsted, on the other hand, usually shows the threads of the weave, and therefore needs to have the ends of the threads held in place, so as not to produce a felted or rough surface. The short fibers seem best suited for woolen and the long fibers for worsted. The processes used to bring about these two results are quite different."

Charlotte M. Gibbs, A.M.

Woolen and Worsted Materials

Woolen	Width	Worsted	Width
Broadcloth . .	50-54 in.	Crepe Cloth.	42-45 in.
Cassimeres . .	-54 in.	Henrietta . . .	38-45 in.
Cheviot	42-48 in.	Serge	42-54 in.
Homespun . .	42-50 in.	Voile	42-45 in.
Flannel	27-36 in.		
Ladies' Cloth.	44-54 in.		
Meltons	-52 in.		
Kerseys	-54 in.		

(Table compiled from "Textiles," Woolman and McGowan.)

Tests for Wool

1. Pure wool will dissolve in a solution of lye.

2. Detect wool from shoddy by means of microscope.

3. Determination of cotton in wool; boil sample in a five per cent. solution of caustic potash fifteen minutes. Wool is destroyed.

4. Funchin dye turns wool a deep pink, leaving the cotton white. (This is most effective when used on flannel having a cotton warp with a wool filling.)

IV. SILK

The characteristics of silk are:

1. Poor conductor of heat.
2. Absorbs moisture readily.
3. Friction weakens the materials.
4. Careless washing destroys the gloss.
5. It scorches easily.
6. Strong and tenacious. (Tensile strength "64,000 lbs. per square inch.")
7. Pure silk wears well.
8. Silk is soft and light in weight.
9. A good generator, but a poor conductor of electricity.
10. Easily dyed.
11. Fibers injured by high degree of heat or sudden changes of temperature.
12. Absorbs moisture readily.

"Silk, frequently known as the fiber of luxury." It bleaches and dyes beautifully and combines well with other fibers, both animal and vegetable. The cost of raw silk is about thirty times that of raw cotton and the waste in weaving at least five times that of cotton.

Silk has a very great ability to absorb metallic salts, and there is practically no silk on the market to-day that is entirely free from metallic salts, but there is a great difference in the amount present.

Pongee is a material made from the cocoon of the uncultivated silk worm; rajah, tussah, and other uneven, coarse materials are from the same source. These silks are very strong, but do not have a high luster.

Tests for Silk

1. Indications of adulteration:
   Pin holes in new silk; weighted with metallic salts. (One pound of raw silk will make two or three pounds of weighted silk.)
2. Test for weighing:
   Will burn easily if not weighted, will retain its shape if weighted.
3. Test for silk and cotton:
   Strong alkali will dissolve silk and will leave the cotton.

Summary of Adulteration Methods

1. By combination. Use of other fibers than the one indicated by the name of the material. Example, cotton in woolens, cotton in linens, etc.

2. By substitutions. Selling one fiber under the name of an entirely different one. Example, mercerized cotton sold for silk, or linen.

3. By increasing the weight of a material. (a) Cottons and linens with starch; (b) Silks with metallic salts and dyes.

4. By giving a finish which is deceptive. (a) Heavy pressing or calendaring an ordinary cotton to imitate mercerizing. (b) Finishing cotton to look like linen. (c) Printing paste dots on cotton to produce the effect of embroidered dotted swiss.

5. By use of made-over yarns. Example: Shoddy in woolens, also addition of short wool, felted in surface.

When women demand a better quality of materials and refuse to buy the cheap things, the manufacturers will cease to produce worthless things. Perhaps, however, before that day arrives the thoughtful workers of the land will have succeeded in passing a pure textile law, which will do for our cloth what the pure food act is doing for our food supplies.

At the present time the rush to the bargain counter, the enormous amount of cheap, poor material manufactured, the catering to fads, novelties and the great waste in dress all go to prove that there are many women who are not intelligent buyers.

THE CARE OF WOOLENS

It is a matter of economy that every householder should know how to have woolens light, soft and clean—both clothing and household furnishings. They will keep twice as long and not shrink and harden but remain as soft as when new.

We shall not touch here on the laundering of woolens, however, but refer you to **Section IX, "The Laundry,"** where the washing and caring for woolens, blankets, sweaters, etc., is thoroughly covered. Read carefully the article under that section.

CARE OF OTHER APPAREL

MISCELLANEOUS

Restoring Velvet—When you get caught in a rain shower or snowstorm with your new velvet hat on, it certainly is not pleasing to your disposition. However, if measures are taken at once no harm is done to the hat. Take several old handkerchiefs or a piece of soft cloth and pat the water out of the hat. When most of it on the outside has been gotten off in this manner rub with a dry cloth until the velvet is quite dry. Put hat where it will be thoroughly dry over night, and next morning brush it hard with a clothes brush. Finally use a hat or velvet brush and you will find that your hat looks as well as it did before it got wet.

Spotted Velvet—To restore the color of velvet that has become spotted by rain, steam the whole surface to make the shade even. Do not brush before steaming. The velvet will look darker at first but it will soon become lighter in the open air.

To Clean Furs—Furs may be cleaned by the following process; warm some bran in a saucepan, keeping it well stirred so that it does not burn. Rub this well into the fur several times until there is no dirt on the bran; then shake the fur thoroughly.

Brushing Velvets—Besides the ordinary clothes brush it is well to always keep a piece of velvet or velveteen to be used for dusting ribbons, velvets, hat trimmings and other articles of silk. It will be found far better for the purpose than any brush. For dusting velvet or velveteen an excellent brush, better than one of bristles, is made by rolling up a piece of crepe, which need not be new, into a convenient little bundle.

A Petticoat Hint—Put on a china silk dust ruffle in place of the cotton one usually found on the average priced silk petticoat. It reduces friction, makes the skirt wear longer, sheds the dust instead of holding it as the cotton ruffle does, washes nicely, and if good quality will outlast two petticoats.

To Curl Feathers—Take a round stick of any kind; hold feather close to it and carefully fold the down around the wood, not close. Slip over it a small bag made to fit loosely over the stick and feathers. Hold in steam from a kettle till well dampened; then put in a warm spot till perfectly dry; the feather will be nicely curled without damage to its texture.

To Keep Rubber Articles—Bathing caps and other rubber goods can be kept fresh and new by giving them a "bath" of talcum powder, when dry, after use.

CARE OF SHOES

When putting away shoes over season, unless properly taken care of, you will be sadly disappointed. All shoes are more or less damp with perspiration, and as they dry out the toes turn up and deep wrinkles settle across the leather. Here is the remedy: Brush well, removing every particle of dust, rub with vaseline, pack full of crushed paper, wrap with paper and pack away.

Waterproofing Shoes—The following are two home methods of waterproofing shoes and leather. Mix eight parts linseed oil, ten parts boiled oil, eight parts suet and eight of beeswax by heating them over a slow fire. Warm the leather to be treated, and with a brush apply the warm mixture to it, making sure to coat the seams carefully. Or; melt together over a slow fire one part white pine tar, one part Neat's foot oil, and one of beef tallow. Apply this mixture as above.

To Polish Damp Shoes—Mix a few drops of paraffin with the blacking and the shoes will take the polish at once.

To Polish Wet Boots—Dry the boots or shoes thoroughly, but slowly. Don't put them in an oven, unless watched closely; they will burn or warp easily. Rub the surface of the leather with a raw potato; set aside until once more dry. Then polish in usual manner.

To Clean Tan Shoes—Put them on shoe-trees and scrub them with a stiff brush with soap and water. This removes every bit of the polish, the spots with it, and when you polish them again you can hardly recognize them as not new.

Too Much Tan—A coating of thick castor oil applied with a soft flannel cloth to exaggerated colored tan shoes will tone down their vividness considerably.

To Bronze Rubbers—Black rubbers can be bronzed by simply painting with the same polish used for the brown shoes you want them to match.

A New Shoe which hurts the feet. Put on a stocking and dip foot in water. Slip on the shoe and walk in it a few moments. You will have no more trouble.

To Stop Squeaking of Shoes—Raise the inner lining of the sole and cover the sole liberally with toilet powder, then replace the lining. Repeat if required.

Squeaky Shoes—Try dipping the soles in kerosene.

White Belt—A good method to clean this is to rub powdered borax in gently with a piece of white flannel.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

THE SEWING ROOM

TO SHRINK LINENS

To shrink linens, and similar wash-goods; lay the material in folds of a yard, then baste all the selvedges together on one side, leaving other selvedges free. Then baste at each end through all the folds. Fold the goods now so it will lie smoothly in the vessel to be used, without crushing. Fill the vessel with cold water sufficiently to cover the goods and leave the material immersed for about half an hour; wringing out lightly without creasing.

Hang the basted end to a line, and pull and straighten with the hands until smooth and uniform; fold one corner crosswise to another to see if the sides register straight, slip the hands up and outward between the free selvedges until all the folds are smooth.

When almost dry remove the bastings on the ends and assist the drying by shaking and shaping. Crease the folds to show the yards lengths. When entirely dry, the material should look like new; in all likelihood no ironing will be necessary.

SEWING-ROOM HINTS

The Sewing Machine does not always need more oil when it will not work easily, it may be gummed with old oil, or may be only "cold." Place it near a fire or in a very warm room; this will melt the oil and enable you to see if gummed with old oil; if so, wipe off the gummed parts before oiling anew.

To Tighten a Belt—Instead of stopping work to take off belt and shorten it, slip a few small rubber bands over the small wheel; they will give the loose belt "purchase" until you have time for the permanent correction.

When belt first begins to loosen too much, oil the band with a little castor oil and turn the handle of the machine rapidly; this will shrink the leather and shorten the belt, and at the same time improve the leather itself.

Slipping Garments—To prevent garments slipping off the leaf of the machine while stitching heavy goods, slip an old pillow case over the leaf and pin it tight. If sewing dark material use a dark cloth if the lint off the slip adheres to the goods.

A fine steel crochet hook is most useful about a machine for removing dust, lint, threads and gummed oil in corners.

To remove machine oil from a white garment, rub with chalk as soon as possible, leave for a short time, then brush and the spot will disappear.

Home-made Bust Form—Take a well-fitted lining and stitch and press it and sew hooks and eyes down front. Bind neck with tape to prevent stretching. Take an ordinary feather bed pillow, stand on end and fit the lining around it, work the pillow into the lining until every corner is filled out. It will make a duplicate of your own form sufficient for all practical purposes for draping and fitting, pinning and sewing, and will save you many an hour of standing fatigued while some one assists you in the arduous fitting process.

When sewing braid on the bottom of a skirt, insert a small piece of cardboard between the hem, moving it along as you proceed, and you will save much time and temper.

Pearl Buttons may be fastened on a dress by pinning them on from the inside with very small safety pins; they can thus be removed for washing.

Buttonhole Hint—In making buttonholes in very soft material, rub a little flour and water paste on the underside. It will stiffen and give a firm surface, also prevent cutting the hole too large, and will not discolor the fabric.

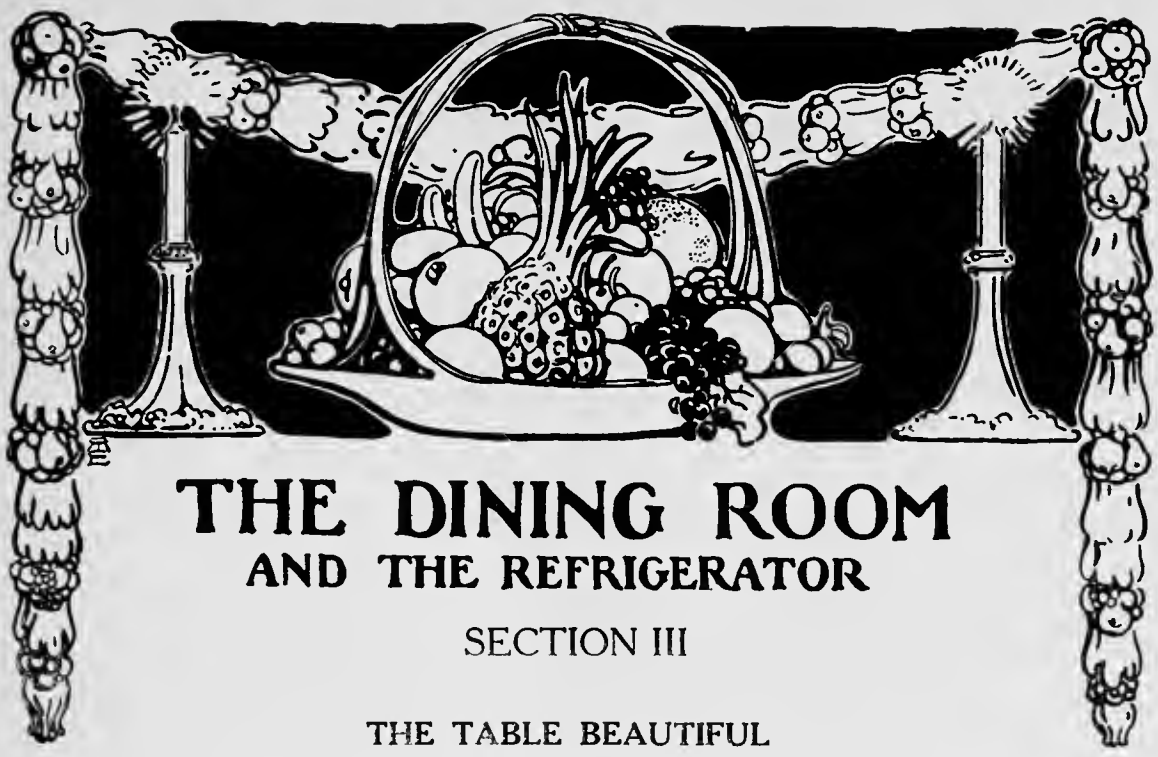
Ball and Socket Snaps—Sew the ball snap on the upper piece. The back of this is flat and will leave no mark on outside; the socket snap would leave a round mark in the centre, particularly noticeable on smooth-finished goods.

Knotting a Thread—Do you appreciate the simple fact that if you tie the knot, after threading a needle, always in the end of the thread just snipped from the spool, you will avoid that troublesome kinking you have often encountered?

In mending a rent, in a delicate muslin or other material, place the torn part, with new piece beneath, in an embroidery hoop and the darning is much easier.

(Paste or Write Here Scraps or Memos. of Your Own)

Novel Mending—Wool or silk: carefully smooth the frayed part, then moisten a piece of the material with very thin mucilage and put a heavy weight upon it until it dries; the mended place can be less easily detected than if darned or mended.



THE DINING ROOM
AND THE REFRIGERATOR

SECTION III

THE TABLE BEAUTIFUL

The woman of fine sensibilities does not need her love of beautiful table appointments stimulated. It is instinctive to desire and appreciate the "home-making" value of the crisp, fresh beauty of spotless napery and the gleam of polished glass and silver. She joys as much in the observance of the principles of decorative appearance in the furnishing, arrangement and appointment of her table as she does in that of the rest of the house.

But we have bought our table covers without regard for table china, and our table china without regard to our other implements and materials, and we use the same old things day after day with little thought of studied variety and harmonious combinations. We are usually handicapped at the outset with an ill-assorted jumble of wedding presents of no relation one to another. And we start off wrong, as a rule, from a natural pride in these gifts, by displaying the finest of them, and as many of them, as often as we can, without thought of inharmonies.

It would be a hopeless task to attempt here to tell one what is right and what is wrong. If one has no ear for music it is a long, tedious process to learn, and only the one who wants to learn can by close application master real harmony and know real beauty and perfection and produce it.

But the harmony of appearance is as essential as any other item of "home-making." Study your table. Learn what brings about the beauty of softness, simplicity and consistency. Do the best you can with your "wedding presents" by adding to them intelligently from time to time, as you find you inevitably have to add various new appointments. Withhold what you have, however beautiful in itself, until you can use it in fit surroundings in combinations that make a whole note.

And remember above all, that much "fancy stuff" is now altogether passe, and overloading is eggregious sinfulness. By staying close to simplicity many combinations become appropriate and harmonious; the elaborate or unusual will clash in almost any setting you can plan.

A few flowers, or a little living green thing, is almost without exception tasteful and quite as important as the forks and spoons. It may be a Japanese dwarf-tree or a single flower or sprig of evergreen, but if properly set it lifts the thought subtly from meat and drink and cheers the whole tone of things as unconsciously and successfully as the bit of cheerful conversation which is itself as essential a part of a meal as the buttered bread.

Thank the gods of good taste that the time has passed when we sat down to the table loaded with one glory of silverware and one glory of glassware and one glory of chinaware and one glory of linenware, and each glory out-glorifying every other in its glory. We spread now a feast of simple wholesomeness for the eye as well as for the palate, and each helps with the perfect assimilation of the other.

TABLE LINEN

(Iowa State College)

Linen is sometimes called the textile of luxury, but there is no textile so quickly cleaned, so fine, or so durable for constant service. Linen is expensive because of the slow process of manufacturing.

Within a few years the weaving of linen has increased in the United States.

Irish linen is noted for its endurance, reliable quality and snowy whiteness. It still holds a high reputation, and its manufacture dates back to the thirteenth century, and Belfast is the center of the industry. Much of the linen in Ireland is grass bleached. The designs are simple; many of the old patterns are still used.

Scotch linen is silver white in color and is grass bleached. It is moderate in price; the designs are generally more elaborate than the Irish.

French damask is noted for its exquisite and effective designs. The threads are fine and round and especial attention is given to the beauty of the finish.

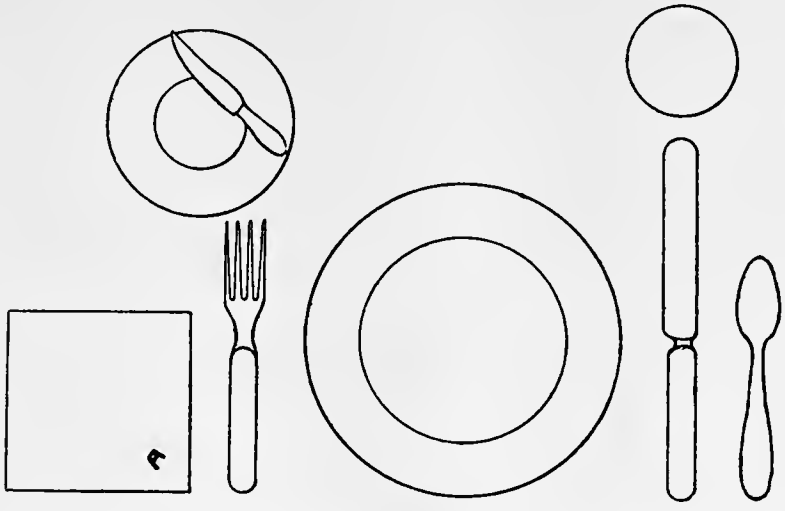
German linen is silver white and of high grade. The finest grades are not exported as much as the medium grades.

During the period of the shortage of linen and consequently high prices of table linen, it is wise to save as much as possible by the use of other materials. Many housekeepers find it an economy as well as a convenience, which saves labor in washing, to use the squares and runners of Japanese towling, which are to be had at reasonable prices and in attractive designs.

TABLE SETTING

(Iowa State College of Agriculture)

Diagram Showing Arrangement of Single Cover



Whether a meal is simple or elaborate much of its success depends on the care with which the dishes are placed on the table.

Silence Cloth—Cover the table with a silence cloth, which may consist of table padding, a thin white blanket or heavy cotton flannel.

Table Cloth—The cloth should be large enough to fall from ten to twelve inches below the edge of the table. It should be placed with the center of the cloth exactly in the center of the table.

Silver—The knife and fork for the main course mark the cover. They are placed one inch from edge of table, knife at the right with sharp edge toward the plate; fork at left, tines turned up. The other pieces of silver are parallel with these, and placed with the piece to be used first farthest from the plate. The knives and spoons are at right and the forks at the left.

Glass—The glass is placed at the tip of the knife.

The Butter Plate—The butter plate is placed at the tip of the fork, and a little to the left.

The Napkin—The napkin is placed at the left of the forks with the folds at the upper and left-hand sides.

General Rules—Serve hostess first.

Place and remove from right.

Pass to left.

Everything relating to a course should be removed at the end of that course.

Folded napkin and small tray should be used in serving.

Fill glass three-quarters full just before meal is announced.

Butter, relishes, etc., can be on the table when the guests are seated.

Soiled dishes should be removed first, then food, next clean dishes, etc.

Place all knives and spoons to the right.

Place all forks to the left with the exception of the oyster fork, which is placed at the extreme right.

The guests stand behind or beside their chairs, and are seated from the left when the hostess gives the signal.

DINING ROOM EQUIPMENT AND ITS CARE

Attractive Trays—Buy a ten-cent picture frame of depth and size desired; buy two handles and screws, and insert under the glass some pretty cretonne or chintz or a bit of lace where the picture belongs. You have a very attractive little tray for dining service; or it is suitable in smaller sizes for pin-tray on a dresser.

Napkin Rings for Guests—Take brass curtain rings and wind them with satin ribbon, in different colors, and put them away for guest use when needed. A set of small gold initials containing all letters of the alphabet in tiny paper stickers may be obtained for a small sum; you can thus decorate the guest's napkin with his or her initial, during the visit, a cheerful touch that adds much to the atmosphere of a sincere and spontaneous welcome.

Table Mats made from white pyramid rubber matting such as is made for automobiles is better than asbestos mats to protect from hot dishes and are readily cleaned and kept white with chalk. Covers of linen may be used with them if desired.

To Clean Silver—(Cornell Reading Course)—Apparatus: a bottle of silver polish, a small piece of old, soft cloth, a clean flannel or flannelette cloth, a plate brush, and a clean chamois skin.

Shake the polish bottle thoroughly, wet the old cloth with the polish, and rub all the silver all over with it. Then wash the mouth and cork of the bottle and cork the bottle tightly. When cleaning a large amount of silver pour the polish in a small saucer to use.

When the whiting is dry on the silver, rub off as much as possible with the flannel cloth.

Brush the whiting out of cracks and crevices with the plate brush.

Polish with the chamois. If necessary afterwards, wash the chamois.

Recipe for Silver Polish—(Cornell Reading Course)—Take 1 cup methylated spirit (wood alcohol), 2 tablespoonfuls household ammonia, ¼ cup precipitated whiting. Mix the ingredients and keep in a closely corked bottle. Shake thoroughly before using.

Note: The silver polish should be of the consistency of milk when used.

Cleaning Silver—If silver is never washed with soap it will retain its lustre. Hold under hot faucet and use unsoaped mop, then polish with chamois skin.

Keeping Silver—Large pieces of silver, such as urns, pitchers, baskets, fruit dishes, should be kept in canton flannel bags, nap inside, the bag closed with draw strings. Packed in dry flour, silver will not tarnish.

Another Polish—Beat the white of an egg to a stiff froth, add enough soda to make a stiff paste. Wash the silver first, and thoroughly dry it, then rub with the paste until all dark places disappear; rinse in cold water and dry with chamois.

When Cleaning Knives mix a little soda with the bathbrick for a polish.

Broken China Cement—Take 4 oz. clear gum-arabic, dissolve in 6 oz. of rain or distilled water; add 6 oz. best cane sugar and 3 oz. best white starch. Let the whole dissolve, put in a jar, stand in a pan of water and boil until the starch becomes clear; as it cools add a few drops essence of cloves. Keep tightly corked.

For mending delicate china and ornaments there is nothing better than rice-flour or ground rice mixed with cold water thoroughly and simmered over a slow fire until thickened. It can be used hot or cold, and is a most durable adhesive.

Metal and Glass Cement—Common alum melted in an iron spoon over hot coals makes a very strong cement for joining metal and glass.

Washing Glassware—Glassware should be washed only in warm water, either clean or with pure white soapsuds, using a stiff brush and clean cuttings. Never rub soap directly on glass. Rinse in clear water, and for drying use linen towels kept especially for this purpose. Glass dried by placing in clean, fine boxwood sawdust takes on a greater lustre.

To preserve lustre and to brighten dingy glass, add a little ammonia or bluing to the water in which it is washed, and after drying polish with very soft chamois or silk handkerchief.

Glass decanters may be cleaned by partly filling with warm water and fine-chopped pieces of raw potato; shake up and down for a few minutes, then rub over inside with sponge tied to end of a stick; dry with soft cloth in same manner. If decanters are very soiled the potato peelings should remain in the bottle over night before washing out. Shot is frequently poured into glass bottles to clean inside, but is apt to leave scratches.

When paint sticks to glass it can be removed with hot vinegar.

To polish cut glass wash it well with soapsuds, rinse and then after drying it with a cloth, polish it with sawdust and a leather, and the glass will be brilliant.

To Whiten Ivory Knife Handles—Cut a lemon in half, dip it into common kitchen salt and rub over the handles. This will remove the dirty yellow look and make the ivory as bright and white as new.

Cheese-Cloth "Towels" for silver and glassware will be found more desirable than crash as they are free from lint.

THE REFRIGERATOR

Care of Refrigerator—Nothing is more important in the household than keeping the refrigerator free and sweet and clean from offensive odors. There is no point in housekeeping where watchfulness and nicest care are so important. A good housekeeper will have her refrigerator cleaned at least once a week, if not more. This is best accomplished in the morning before the iceman comes. No woman should trust this matter wholly to a servant, however careful the latter may be, for the health of her family is directly involved.

To Clean Refrigerator—(Cornell Reading Course)—Apparatus: two dishpans, the trap brush, a small scrub brush, two dishcloths, a clean towel, soap, washing soda, and ammonia.

Empty the water pan below and replace it.

Fill the sink or a dishpan half full of strong, hot soapsuds. Put warm water into a dishpan to the depth of an inch and add a half tablespoonful ammonia.

Remove the ice to the other dishpan, using the dishcloths to prevent its slipping. Gather up any straws or dirt.

Remove all food. Put the ice-rack and the shelves into the soapsuds.

Wash the ice-box carefully and quickly with the ammonia water. Be sure to get all the corners clean, and scrub the waste pipe with the trap brush. Rinse it down with the ammonia water and then with a dipperful of fresh, clean water. Dry with the dishcloth wrung out of clean water.

If the waste pipe is movable, take it out of the food closet and put it in the soapsuds. Scrub the ice-rack and the shelves with the scrub brush, and the pipe with the trap brush. Let off the suds, rinse the pieces in plenty of cold water, and dry with the towel.

Replace the ice-rack and the ice, and close the ice-box doors.

Mix a fresh lot of ammonia water, and wash the walls and the floor of the food closet. Be sure the corners are clean. Dry with the towel. Be very sure that movable parts belonging to the waste pipe are taken apart, washed thoroughly, and carefully fitted back into place. Then replace the waste pipe and the shelves.

Replace the food but do not close the doors.

Wash out the pipe cap under the refrigerator most carefully with the ammonia water and soap.

Empty the water pan and wash it thoroughly, with plenty of soap in the ammonia water, before replacing it.

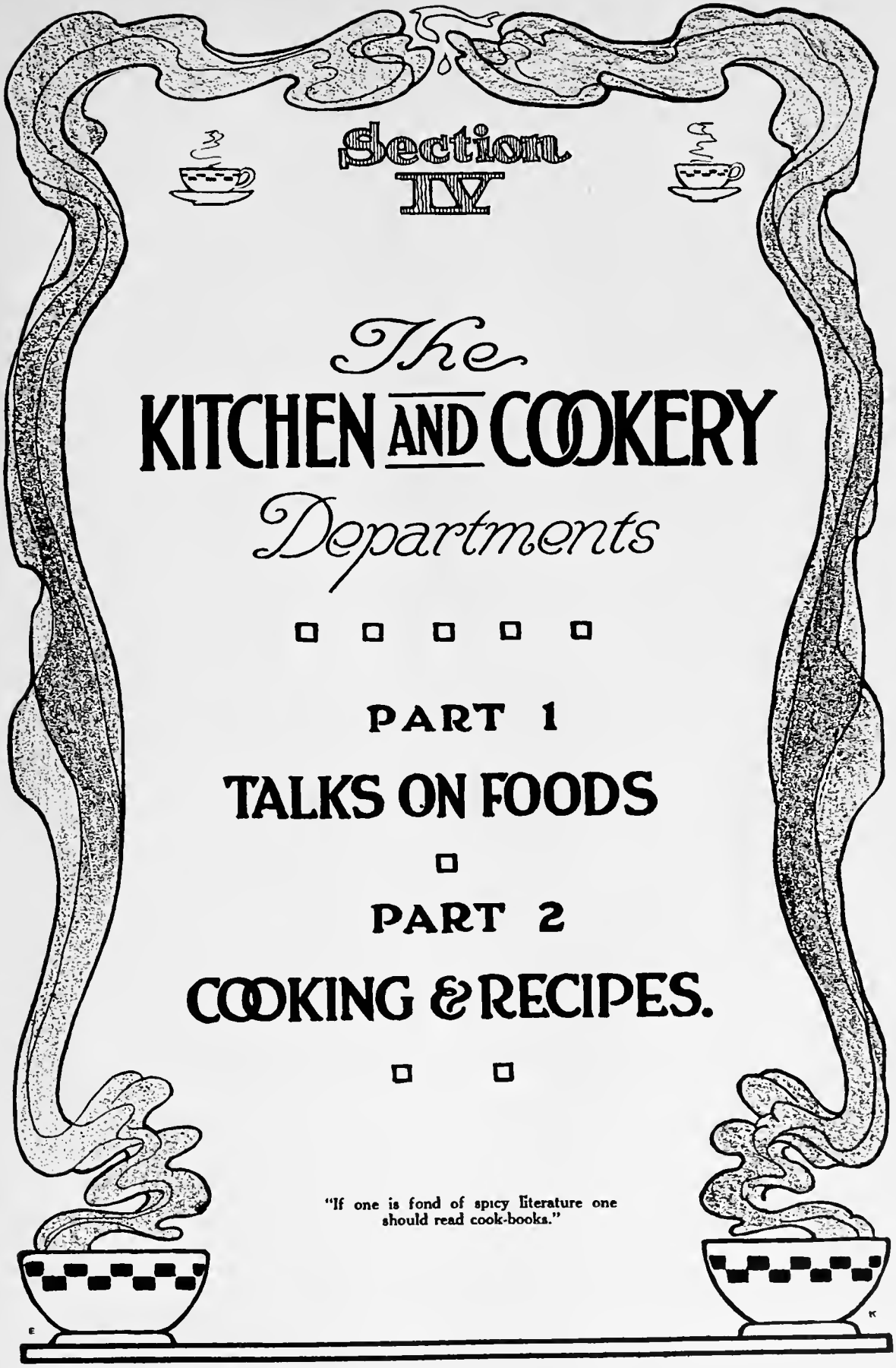
Close the refrigerator doors. Wash out and put away the dishpan, brushes and cloths.

Dangerous if Unsanitary—If the shelves and bottom of the refrigerator are wiped every day with a cloth wet in soda and water this will tend to keep it purified. The waste pipe must be kept open and clean. It should never connect with a general drain pipe; such an arrangement often results in the actual poisoning of foods in the box, in spite of water traps and other precautions. A saucer of powdered charcoal placed on the shelf or a piece of charcoal placed in the refrigerator, and renewed every three or four days, absorbs odors and keeps the air pure.

If the refrigerator is kept in the cellar, the cellar should be frequently inspected, kept clean and well-aired, and if possible white-washed once or twice a year. A musty, damp, and ill-ventilated cellar is dangerous to health in any case.

Dishes on Ice in refrigerator should have a small rubber mat under them and they will not slip as the ice melts. Preserve-jar rubber rings may be used for the purpose.

(Paste or Write Here Scraps or Memos. of Your Own)



Section IV

The KITCHEN AND COOKERY Departments

PART 1

TALKS ON FOODS

PART 2

COOKING & RECIPES.

"If one is fond of spicy literature one should read cook-books."

THE KITCHEN AND COOKERY

Part I.

TALKS ON FOODS

1. The Relative Value of Foods.
   Chemistry and Digestibility, and
   How to Select Foods.

2. Fresh Fruits and Vegetables, and
   Conservers of Staple Foods.

3. Milk: A Cheap Food.

4. Sugar: A Valuable Food.

5. Fats: Their Use in the Home.

6. Common Sense in Modern Cooking.

7. The All-Convenient Casserole, and
   The Use of the Oven.

8. The Fireless Cooker.

9. Form the Olive Oil Habit.

THE RELATIVE VALUE OF FOODS

Do you know the relative value of the foods you are feeding your family? Do you know whether the meals administered to-day yield as much nourishment as the ones of yesterday? It is a part of the education of every thorough housewife to know just how one food compares with another as to its nutritiousness. The woman who has no comprehension of this often feeds her family for one week meals with too much protein, making them feel heavy and stupid, while the whole of next week's meals may not contain as much real value as one single menu from the preceding week.

A Chart Necessary.—You should consult frequently your chart of food values, and when you go out of a morning to do your marketing consider your chart before you decide on the menus for the day, so that they will contain the proper amount of nourishment.

Fats contain more energy than any other food, but their work is slow. The fats we consume go to make up the storehouse of our physical strength. We do not feel any immediate after-effect from eating a pork chop, a few slices of bacon or a good bit of butter, but this fat enters the storehouse of our bodies and stays there until needed. It is the strength from the fatty foods that we draw upon in time of illness. When we cannot eat for any length of time the body lives upon the energy laid up in reserve from the fats we have taken into our systems.

Meats, however, contain the energy for our daily use. We need a daily amount of meats, fish or eggs, all of which hold the same kind of strength. The energy in meats lasts through one day, but needs replenishing for the next.

Vegetables are as necessary as the meats and fats. Without them our bodies would become clogged from the fats and the circulation too violent from the meats. Vegetables serve to clear the system and to calm the blood.

Mineral Salts—Such vegetables as spinach, celery, onions, carrots, etc., and such fruits as rhubarb, cranberries, etc., contain the necessary mineral salts which act as tonics and laxatives. Each one has its special office and its own particular value. Spinach, for instance, contains a great deal of iron; onions and celery are nerve foods; rhubarb takes the place of "sulphur and molasses" for clearing the blood, and cranberries are an excellent tonic.

Making Up Menus—In making up the menus, therefore, you must be careful to have them balance evenly. You should not have too much fat one day, too much starch the next. The menus for one day should hold part of each kind of food—one meat (fish or eggs), one fat, one starch, one tonic vegetable and one laxative or fruit.

MEAT EATERS OR VEGETARIANS?

For many hundreds of years the argument has been bandied back and forth as to whether we best subsist on a meat or vegetable diet. It is about as absurd as whether we should wear hats or shoes. Each has its place. It is not a matter of classification but of what the respective foods contain and how they are balanced as to their ingredients.

The most vehement partisan of the meat diet will admit that flesh is not indispensable to our existence. And it is well known that the original Indian inhabitants of this country subsisted for many months at a time, in perfect health, solely on "pemmican"—dried

buffalo meat. The Esquimaux can live entirely on whale blubber; they could not subsist on the exclusive fruit diet of the tropics. Thus climate has its influence. We of the temperate zones may well employ, on this argument, a mixed diet, of both meats and vegetables.

It is of no moment that the rabid advocate of each extreme can point to any number of exceptional cases, to prove his contentions—and to equally numerous ones of ill results from adherence to the diet the particular extremist seeks to condemn.

But it is not so much a question of whether the **source** of the food is meat or vegetables; the food **itself** is the albumen, fats, salts, etc., that are extracted in the process of digestion.

Nature has made albumen the staple of nutrition for man. Fruit albumen is somewhat more assimilible than meat albumen. Hence fruit forms nearly a perfect food, especially as it also furnishes acids and salts which are much needed, in better proportions than meats.

As to breads, a series of experiments show that in equal portions of 100 ounces more of white bread is digested than brown bread, but the proportions of proteids, which are the muscle-forming contents, 85½ ounces out of 100 is digested from white bread against 88¼ from brown bread. The brown bread is therefore more valuable in the item of digestibility of its protein contents; and it is well understood that whole-wheat and graham breads contain the intensely valuable mineral salts which are largely or wholly "refined" out of the most of our white bread in the flour-making process.

Nuts are an excellent diet if well masticated. They are highly valuable as nut butter or nut oils. They contain a large percentage of proteids as well as fats, in almost perfect purity. They are deficient in starch, but so are meats. Nuts will take the place of meats to perfection. But nuts must be masticated thoroughly—something seldom done with nuts. And they are really too concentrated to constitute an exclusive diet; they do not give the digestive functions proper exercise. Nature demands a certain amount of bulk, especially in the intestinal canal to excite peristalsis and stimulate bowel movement.

Vegetables best furnish this bulk—also the mineral salts needed for the toning up of the blood, and whole wheat bread, because of the bran, is of value in this regard—the stimulation of peristalsis.

Food Ingredients are classified in four divisions: 1, Proteins; 2, Fats; 3, Starches, or Carbohydrates; 4, Mineral Salts. The classification is more clearly and specifically subdivided as per chart on page opposite.

THE CHIEF FOOD CONSTITUENTS

NOTE: The following charts (and reading matter) are from Iowa State College Home Economics Bulletin No. 1

Chief Functions in the Body

I.	Protein	Meats, Fish, Eggs, Milk, Cheese, Peas, Beans, Gluten in Flour	Build tissues. Repair daily waste of tissue. Give heat-energy.
II.	Fats	Butter, Cream, Fat of Meats, Cheese, Oil in Nuts, Olive Oil, Egg Yolk, Corn Oil, Seed Oils	Give heat-energy. Produce fat.
III.	Carbohydrates	Sugars: Cane, Beet, Maple, Malt, Sugar of Milk, Sugar of Fruit	Give heat-energy.
		Starches: Cereals, Flours, Peas, Beans, Corn, Potatoes, And some other vegetables	Produce fat.
		Celluloses: Vegetables, Fruits	Give bulk.
IV.	Mineral Salts	Fruit Acids, Vegetables	Aid in formation of bone. Enter into composition of every living cell and body liquids. Useful in the blood (carrier of body's oxygen). Necessary to maintain osmotic pressure. Govern contraction of muscles, including those of the heart. Help to maintain neutrality of the blood (increase alkalinity). Assist in digestion. Assist in the removal of waste. Unite with harmful products found in body and render them harmless.
V.	Water	In all Vegetables, In all Animal Foods	Solvent for food. Carries food to blood. Carries off waste. Helps to regulate temperature. Aids digestion. Aids tissue building.

PROTEIN FOODS

The first class of foods, the proteins, includes those which have tissue building for their chief purpose. They are essential for maintenance and for body growth as they are the only source of nitrogen. Therefore they are necessary for the growing child and for the athlete in the development of strong, vigorous muscles. The more easily digested protein foods are advised for the tubercular patient whose muscles and tissues have become debilitated by disease.

Proteins are required by each individual but in varying amounts, to suit age, occupation, condition of system, and climate. The value of a mixed protein diet is urged by the best authorities, rather than the diet which contains but one protein food.

OVER USE OF PROTEIN FOODS

It is true that a high per cent. of illness is caused by an accumulation of wastes in the body. It is also true that protein foods leave a higher per cent. of waste material in the body than any other class of foods. It follows, then, that an over-use of protein foods overworks the excretory organs and tends to weaken them. The weakened excretory organs are unable to take care of the waste products, and as a result the system is affected by poisonous wastes which are produced by putrefaction in the intestines. A person in this condition is more liable to have rheumatism, gout, kidney and liver diseases than one in normal condition.

A SHORT STUDY OF PROTEIN FOODS

Some Common Forms	Some Sources
Albumen	Eggs
Casein	Milk
Myosin, fibrin and elastin	Meat
Gluten	Wheat
Tuberin	Potato
Legumin	Peas and beans
Excelsin	Brazil nuts
Zein	Corn

Milk contains a small amount of protein. In a glass of about 12 tablespoons of milk, there is less than 1 tablespoon of protein.

Egg contains nearly as much protein as lean meat.

Fish and meat are approximately equal so far as amount of protein and digestibility are concerned. Experiments show very little difference.

Cheese varies in protein content from 18 to 25 per cent. Cheese is a valuable food but should be used wisely. It is not the food for children or for those of delicate digestion.

Peas, dried, contain 24.6 per cent. of protein. Green peas, cooked, contain 6.7 per cent.

Lima beans, dried, contain 18.1 per cent.; green lima beans, 7.1 per cent.

Wheat contains protein in the form of gluten. Bread flour contains more of gluten than pastry flour.

IMPORTANT STEPS IN DIGESTION OF PROTEIN

Proteins.
Meta proteins.
Proteoses.
Peptones.
Peptids.
Amino-acids.

The action of digestive agents results in the final breaking down into the simple "building stones" called amino acids. They are spoken of as "building stones" because they are stored away and used in the building of new protein tissue. The digestion of proteins is a complex process and cannot be accomplished except with perfect cooperation between the digestive, circulatory, excretory, respiratory, and nervous systems.

FATS AND CARBOHYDRATES

(Chief Fuel Foods)

Under this head consideration will first be given to the class of foods spoken of in the outline as fats. These foods produce heat-energy in the body, very much as wood and coal produce heat in the stove. Fats and carbohydrates are also of value as fatty tissue builders but their chief function is the production of heat.

Energy value to the body—9 calories per gram, or 4082 calories per pound. Fats have more than twice the energy value of protein or carbohydrate. Butter, egg-fat and cod liver oil are especially valuable fats for growth because of certain elements which they contain. The amount of fat required depends upon, condition of system, amount and kind of work done, age, climatic condition and amount of carbohydrate used.

Amount Required

The good housekeeper regulates the amount of wood or coal to suit the climatic conditions. She would be considered a very unwise manager if she used wood and coal enough to keep her stove red hot in the summer time. This would be a waste of both fuel and stove. The housekeeper makes a much more serious mistake when she provides just as much fuel food in summer as in winter. This practice results in waste of food and injury to the body.

The foods classed under the head of fats are most easily digested when uncooked; for example, cream, butter, olive oil, and egg yolk. For this reason, these particular fats are advised for the person whose system has become weakened by illness or overwork. These fats are readily digested and give heat very readily.

Well cooked bacon is also a very easily digested fat.

Other foods that are important as heat producers are other forms of fat meat, nuts, and eggs. Baked beans with pork provide a kind of food which is most wisely used in cold weather by active, strong adults.

The second class of fuel foods, given in the outline, is carbohydrates. They occur in starch, sugar, and celluloses.

Proteins also furnish fuel, but their chief function is tissue building. It would be unwise to supply the fuel needs of the body with proteins because of the expense and the greater tax on the system.

The principal starchy foods are the cereals; rice, corn, wheat, oats, barley, rye. Peas, beans, and potatoes also supply starch. In the chart following it may be seen that the potato contains less starch than is ordinarily considered since about three-fourths of the potato is water.

The other vegetables that are of special value as fuel foods are sweet potatoes, parsnips, beets, carrots, and squash.

Some fruits may properly enter into this list because of the high per cent. of starch and sugars they contain. Fruits containing sugars are prunes, dates, figs, raisins, apricots. Bananas contain starch and sugars.

Over-Use of Carbohydrates

If too much sugar and starch are eaten, fermentation may take place and interfere with digestion. Too much sugar and starch overworks the liver.

Because sweet foods have the quality of satisfying the appetite very readily, they should not be taken to satisfy hunger but should rather be eaten after sufficient body building and body regulating foods have been taken to meet the body's need for such foods. The custom of serving the sweet food at the last of the meal is in harmony with this dietetic principle.

It is important that children should form sane habits of eating sweet foods. The practice of using large amounts of sugar on cereals, cooked fruits and in beverages should be discouraged.

The over-use of sugar irritates the lining of the digestive tract. This is caused by the abstraction of water from the mucuous lining. Sugar is one-sided in its value, consequently it is much wiser to obtain a high per cent. of heat from foods which serve other purposes as well.

VALUE OF FRUIT AND VEGETABLES

Vegetables contain protein, starch, sugar, cellulose, mineral matter, water and undetermined substances.

Fruits contain (chiefly) sugar, cellulose, mineral matter, and water.

Water removes wastes, lubricates tissues, aids in forming secretions, helps to equalize the temperature.

Acids help to maintain the alkalinity of the blood —stimulate the appetite.

Mineral Salts.
Build bone.
Help to make blood alkaline.
Aid in digestion.
Aid in excretion.
Build red blood cells.
Build nerve tissue.
Build cells.

Cellulose exercises muscular lining of digestive tract.

Note: Good authority makes the statement that the housekeeper is wise who pays as much for milk, vegetables, and fruit as for meat, eggs, and fish.

PROTEINS BUILD AND REPAIR TISSUE— YIELD HEAT-ENERGY

Chief Tissue-Building Vegetables

Peas, dried	24.
Beans, dried	22.5
Cowpeas, dried	21.4
Lima beans, dried	18.1

—Sherman.

Carbohydrates Give Heat-Energy

Chief heat-energy-giving vegetables, cereals, and fruits: (Per cent. in edible portion.)

Vegetable	Per Cent. Car.
Sweet potatoes	27.4
Lima beans (green)	22.
Corn (green)	19.7
Potatoes (white)	18.4
Peas (green)	16.9
Parsnips	13.5
Beets	9.7
Carrots	9.3

Grain Products	Per Cent. Car.
Rice	79.
Hominy	79.
Buckwheat flour	77.9
Pearl Barley	77.8
Spaghetti	76.3
Corn Meal (granular)	75.4
Wheat Flour (high grade)	74.9
Macaroni	74.1
Rye Meal	71.5
Oatmeal	67.5

Fruits	Per Cent. Car.
Dates (dried)	78.4
Raisins (dried)	76.1
Figs (dried)	74.2
Figs (fresh)	18.8
Prunes (dried)	73.3
Bananas (fresh)	22.0
Plums (fresh)	20.1
Grapes (fresh)	19.2
Huckleberries (fresh)	16.6
Apples (fresh)	14.2

Compiled from "Food Products."—Sherman.

CELLULOSES

Celluloses Exercise Muscles

Chief cellulose-giving foods:

	Refuse Per Cent.		Refuse Per Cent.
Corn (green)	61	Parsnips	20
Beans (Lima, fresh)	55	Potatoes	20
Beans (butter)	50	Sweet Potatoes	20
Squash	50	Cucumbers	15
Peas (green)	45	Lettuce	15
Beets (fresh)	20	Cabbage (fresh)	15
Carrots	20	Onions	10
Celery	20		

—Sherman.

IMPORTANCE OF FRUITS AND VEGETABLES

Mineral Matter

I. Iron Helps to Build Red Corpuscles and is a Part of all Active Tissues.

Chief iron-giving vegetables, arranged according to per cent. of iron, or ash constituents of foods in grams, per 100 calories of edible food material:

1. Spinach	.0133	8. Beans (dried)	.002
2. Lettuce	.005	9. Beans (lima)	.0019
3. Asparagus	.0043	10. Squash	.0017
4. Beans (string)	.0038	11. Tomatoes	.0017
5. Cabbage	.0035	12. Carrots	.0016
6. Celery	.0027	13. Turnips	.0013
7. Radishes	.002	14. Onions	.0011

II. Calcium Helps to Build Bone and is a Part of Liquids and all Active Tissues.

Chief bone-building vegetables:

1. Cauliflower	.55	11. Parsnips	.14
2. Celery	.54	12. Onions	.12
3. Spinach	.37	13. Cucumbers	.12
4. Lettuce	.26	14. Tomatoes	.087
5. Turnips	.222	15. Beans (dried)	.063
6. Cabbage	.214	16. Beets	.06
7. Beans (string)	.177	17. Peas (fresh)	.032
8. Asparagus	.17	18. Squash	.04
9. Radishes	.17	10. Beans (lima)	.028
10. Carrots	.168	20. Potatoes	.019

III. Phosphorus Helps to Build all Active Tissues and is a Part of Liquids.

Chief phosphorus-giving vegetables.

1. Spinach	.54	1. Cowpeas	.29
2. Celery	.54	12. Parsnips	.29
3. Lettuce	.47	13. String beans.	.284
4. Cucumbers	.45	14. Cabbage	.28
5. Cauliflower	.45	15. Tomatoes	.257
6. Asparagus	.39	16. Peas (dried)	.25
7. Beans (dried)	.326	17. Peas (fresh).	.24
8. Rutabagas	.31	18. Onions	.24
9. Radishes	.30	19. Carrots	.22
10. Turnips	.292	20. Potatoes	.166

—Sherman.

Note: All minerals aid in regulation of body processes.

CHOICE OF FOODS TO SUIT NEEDS OF FAMILY

In connection with the discussion of classes of foods, some suggestions have been given with regard to choice of foods to suit the needs of the family. For example, if the family includes a child of 4 years, an active boy of 12, an office girl of 20, the father, who is an active outdoor worker, and an aged person of 90, these different members of the family require different kinds of food.

Suggestions given indicate that the child of 4 and the person of 90 require more nearly the same kind and amount of food than any other two members of the family. They require simply digested food in small amounts. Both will thrive better if they have 5 very simple meals a day rather than 3 heavy ones. Five simple meals a day means a very light breakfast of perhaps some fruit and well-cooked cereal. The second meal at 10 o'clock may consist of a glass of milk with a little bread. The third meal at noon may be an egg, a baked potato, and apple sauce. The fourth meal at 3 o'clock may be something equivalent to the meal at 10 o'clock, and the fifth meal at 6 o'clock may be some bread and butter and a baked apple with a glass of milk.

If this family includes a semi-invalid, the problem will be made much more complicated. One who is weak bodily because of disease or overwork should take easily digested foods in moderate amount. Foods suitable for a person in that condition are also suitable for a child from 3 to 6 years. Such foods include milk, cream, butter, eggs, thoroughly baked bread, well cooked vegetables and cereals, fruit, crisp bacon, with chocolate or coca as a beverage occasionally. From this list, a variety of menus can be worked out. If these foods are particularly good for a young child, and a semi-invalid, it must follow that the more closely this list is followed for the active adult, the more wisely the digestive system is treated.

Simple, well cooked foods are the most important. Serve a few dishes at one meal and make the meals as varied as possible. In general cost of food, age, occupation, climatic conditions and abnormal conditions are the points which must be considered in order that the family may be fed as wisely as it is possible for it to be fed.

Endeavor to distribute the protein, fat, and carbohydrate through the day so that no meal will have a striking preponderance of one kind of foodstuff.

For example, meat served with macaroni and cheese concentrates the protein in one meal, potatoes with rice concentrate the starch, and fried potatoes and pie concentrate the fat.

With the exception of a few such staples as bread, butter, and milk, try to avoid serving any food in the same form twice in the same day.

Try to avoid serving any food which gives character to a dish twice in the same meal, even in different forms. Do not, for instance, select tomato soup and tomato salad for the same meal.

At each meal, seek contrasts between successive courses, a bland course being followed by a more highly flavored course, and vice versa, to give a pleasing combination.

In each course endeavor to have harmonious combinations, as to flavor, color, form and texture. As the number of courses increases, decrease the number of dishes and size of serving in each.

SUMMARY

Do not provide too much muscle-building food for one meal. Do not provide too much fuel food for one meal. Do not fail to provide bulk by means of fruits and vegetables just indicated. Do not fail to provide something of characteristic flavor. Do not fail to consider the especial needs of extreme youth, extreme age, and abnormal conditions. Do not serve too many foods of pronounced flavor at one meal. Do not neglect the simple and easily prepared dishes in order to serve those more elaborately prepared.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

HOW TO SELECT FOOD

GENERAL SUGGESTIONS

From "What the Body Needs."

Farmers' Bulletin No. 808. U. S. Department of Agriculture.

It is believed that it is impossible to plan the meals for a family wisely without at least as much knowledge of how different kinds of food serve the body as the above bulletin gives and that the safest short cut to good planning lies in considering foods in the five groups therein described. Ways of making economical use of the materials in each group cannot be here discussed, but a few general suggestions for getting the most for one's money in the matter of food may be given.

Use cereals (flour, meal, cereal breakfast foods, etc.) freely, taking pains to prepare them with great care and to vary the kind used from day to day if necessary to keep people from tiring of them.

Remember that a quart of whole milk a day for each child, to be used as a beverage and in cookery, is not too much.

Remember that while skim milk should never be substituted for whole milk as the principal food in a child's diet, it is as valuable as whole milk as a source of protein and mineral matters in the general diet.

Remember that except in the case of milk for children, the amount needed of foods specially useful for body-building purposes—that is, meat and meat substitutes, fruits and vegetables—is not large, but what is needed is needed very much.

Do not be ashamed to plan closely. Thrift in food means providing enough food, neither too little nor too much.

Notice carefully how much of such staples as flour, sugar, milk, cooking fat, etc., is used each week for a month, and see if there are any ways of cutting down the quantity consumed.

Buy non-perishable materials in quantity if better prices can be secured and there is a good storage place in the house. Neighbors can sometimes club together to get lower prices.

Try to make the dishes served of such size that there will be enough to satisfy the appetite of the family and no unnecessary table and plate waste.

Do not be above noticing whether anything usable is thrown away with the garbage, which always shows how thriftily food is used in the home.

Many inexpensive materials can be made attractive, and the diet can be pleasantly varied by the use of different flavorings.

"Finicky" tastes in food often prevent the use of many valuable materials which might be the means of saving money.

Good food habits are an important part of personal hygiene and thrift. Children get such habits by having suitable amounts of suitable foods served to them and then being expected to eat what is set before them.

True economy lies not alone in buying wisely but also in making the fullest possible use of what is bought.

FRESH FRUITS AND VEGETABLES

CONSERVERS OF OTHER STAPLE FOODS

(Extracts from Farmers' Bulletin 871, U. S. Department of Agriculture)

Under the present unusual conditions, when it is desirable to save staple foods, and to reduce the amount of labor expended in transporting foods, special attention should be given to the possibility of using perishable food materials, particularly vegetables and fruits, near the place of their production. The use of these foods can be increased without lessening the food value or attractiveness of the diet or seriously altering food habits.

In general peas, beans and similar legumes would be the most useful as protein (meat) savers; potatoes, sweet potatoes and similar vegetables as starch savers; and fruits and sweet potatoes as possible sugar savers, while all fruits and green and succulent vegetables are valuable to supply the diet with mineral substances, and with certain substances essential to health which are present in them and in many other foods in minute amounts. When vegetables are used to supply protein, it is important to supplement them with other food containing protein, and for this purpose milk, and particularly skim milk (so often a by-product, and a perishable one as well) is important.

USES OF FRESH FRUITS AND VEGETABLES IN THE ORDINARY DIET

Under ordinary conditions, 1 to 1¼ pounds of fresh fruits and vegetables (the equivalent of an apple or an orange, two medium-sized potatoes and an average sized helping of some other vegetable) is probably all that even a grown person really needs in the course of a day. He may desire more because of their fine flavor or refreshing character, but the necessary health-promoting substances would probably be obtained from the amount mentioned. These supply less than a tenth of all the fuel and the protein needed, but a relatively large part of the iron, calcium and phosphorus.

USES OF FRESH FRUITS AND VEGETABLES IN EMERGENCY DIET

In an emergency, when fresh fruits and vegetables are relatively abundant they may with advantage be used partly to replace cereals and sugar, and to a less extent meat. Under such circumstances it is the part of wisdom to examine the list of fruits and vegetables and to see which can be used in a way so as to save cereals or sugar, and which used in such a way as to save meat.

Fresh fruits and vegetables can be used in large quantities with little danger, providing they are carefully cleaned and handled. It is even safe to say that there is absolutely no danger from the fruits and vegetables themselves, the only real difficulty lying in the fact that being bulky they quickly satisfy the appetite and sometimes lead people to believe they are supplied and to leave out of their diet the more substantial foods—meats, cereals, etc.—which are needed either for fuel or for body-building purposes. This fact should always be kept in mind in finding uses for these bulky foods.

CLASSIFICATION OF STAPLE FOOD SAVERS

Meat Savers—Shelled green peas, shelled green beans (Lima, kidney, etc.), shelled green cowpeas (common in the South) shelled green soy beans (common in the South).

Cereal Savers—Potatoes, sweet potatoes, partially ripe bananas (cooked).

Sugar Savers—Sweet potatoes, all fruits.

USING SHELLED GREEN BEANS AND PEAS TO SAVE MEAT

Beans and peas contain more protein than other fresh vegetables. This, however, is not the same as the proteins of meat, milk or egg, and should not be used to the exclusion of the others. When, however, beans and peas are freely used, less meat, milk and eggs are needed. For these reasons these vegetables are here called, not meat substitutes but meat savers. The following foods or combinations of foods, supply as much protein as one-fourth pound of beef of average composition:

Eight or nine ounces of shelled green peas or beans. A large dish of green peas may be used in place of meat for dinner occasionally. Many persons like peas cooked with mint or served with mint sauce.

One egg and 4 or 5 ounces of shelled green peas or beans. An omelet with peas (1 egg and 1 cup peas per person) or a baked pea or bean souffle may be used as a meat substitute.

One cup skim milk and 4 ounces shelled green peas or beans. A Lima bean chowder made with skim milk is a good lunch or supper dish.

USING POTATOES TO SAVE CEREALS

A small potato (3 to 4 ounces) supplies as much starch as a large slice of bread (1 ounce) but rather less protein. Potatoes eaten abundantly make it possible to get along with less bread. Potatoes can be substituted for about one-fourth of the wheat flour used in making ordinary bread and rolls. Recipes are given in the BREAD Section of this book; also in Farmers' Bulletin 807, Department of Agriculture. These call, however, for old rather than new potatoes. Mashed potatoes may be used in place of biscuit crust in making meat pies. Mashed potato sliced and fried may be used in place of bread and butter and makes a good breakfast dish. A very large variety of attractive salads may be made by combining potatoes with other vegetables—peas, beans, beets, cucumbers, radishes, onions, etc. Cottage cheese and potato salad go well together. This cheese has always been made in small quantities in the home, and now the Department of Agriculture is recommending to dairymen that they make it as a means of utilizing their large quantities of skim milk. This should make cottage cheese a more common article of trade than it has been in the past.

Sweet potatoes can be used in the same way as white potatoes. Bananas baked or fried supply considerable starch, though the amount cannot be exactly stated, because as the fruit ripens the starch changes to sugar. Green bananas peeled and boiled can be used like mashed potatoes, or may be sliced raw and fried.

USING FRUITS TO SAVE SUGAR

All ripe fruits contain sugar. The amount varies from about 3 ounces to one-fifth cup per pound in fresh figs and plums to about one-half ounce per pound in watermelon.

If the water is driven off from fruits, as in the drying process, the sugar becomes far more prominent than it is in fresh fruits. Dried fruits therefore taste far sweeter than fresh ones and are for this reason often classed among the sweets. It should be remembered, how-

ever, that sugar is present in all fresh fruits, even in the most acid ones, and that those persons who wish to do so can combine or economize on other kinds of sugar by eating large amounts of fresh fruits in unsweetened forms.

In warm weather melons and other fruits may be used in place of "made" desserts, which usually contain both butter and sugar. Fruit and ice-cold junket, which can be prepared from skim-milk, make a refreshing dessert and utilize perishable foods chiefly. Or the dessert course may be omitted entirely and a fruit salad with cottage cheese may be used in its place.

CONCLUSION

When fresh fruits and vegetables are abundant and cheap they can be used in large enough amounts to effect an important saving of staple foods. If used intelligently, there is no danger that the diet will lack fuel or protein. Fresh legumes may be used to a certain extent in place of meat, potatoes in place of bread, and fruit in place of sugar. In connection with these foods, however, it is safe and highly desirable to use skim milk and its products, which like fresh fruits and vegetables are perishable and can be profitably used near the place of production.

MILK: A CHEAP FOOD

From Lesson III., Food Series, Cornell Reading Course for the Farm Home (Extracts)
College of Agriculture, Ithaca, N. Y.

Milk is a cheap food. Furthermore, in any family dietary where the welfare of children as well as of adults is intelligently considered, it is almost a necessity.

The proof that milk is a cheap food is not in the price paid for the quart. Even at fifteen or twenty cents a quart milk is a cheap source of certain nutritive substances always needed by the body, and particularly needed during the growth period.

The increasing cost of many common foods leads to a temptation to reduce expenses by excluding those foods the prices of which seem prohibitive. It is an altogether unsafe practice, because the food thus eliminated may be, in spite of its seeming high cost, the cheapest possible source of some nutritive substance necessary to the health and welfare of the body.

A study of the value of milk as a food and the particular part it should play in the dietary will serve as an illustration of the method that should be followed in determining the right of any food to a place in the daily meals.

IS MILK A CHEAP SOURCE OF ENERGY?

The energy that a food may yield is measured in terms of the Calorie. The greater number of Calories a digestible food will furnish for a given amount of money, the cheaper the food as a source of energy.

If ten cents be spent and the particular need to be considered is that of energy, the problem is how to invest the ten cents in order to buy the most energy.

Even figures showing energy values, however, must not influence one too much in estimating the cost of milk as an energy food, since two of the main sources of energy in milk, milk-fat and milk-sugar, besides their ability to yield energy, seem to have further significance in the dietary. Milk-sugar is believed to be of importance in holding in check putrefactive changes in the contents of the large intestine. This is particularly important in the case of the infant or young child who may be very susceptible to the injurious action of abnormal substances produced in the food canal. The fat of milk contains an unknown substance essential for growth, and occurring in but few foods in amounts sufficient to promote normal growth. In considering the cost of milk as a source of energy, therefore, it is not entirely fair to forget these characteristics of two of its energy-yielding substances, since they play so important a part in human welfare, and particularly in the welfare of growing children.

THE PROTEIN IN MILK

The criticism sometimes indulged in of the cost of protein in milk, based entirely on comparative tables of protein contents only, would be convincing if it were not for the certain facts recently made clear about protein. Protein is a name given to a group of substances differing rather widely in their value to the body. Two foods may contain the same amount of protein; but an ounce of the protein from the first food may be much more valuable in building and repairing tissue than an ounce of the protein from the second food.

Milk is a decidedly superior source of protein for general human consumption and is a particularly good source where growth is taking place; the amount of protein required in the daily dietary may be less if milk forms a considerable part of the diet than if such foods as cereals are mainly depended on; milk is not an expensive source of protein.

MILK AS A SOURCE OF LIME

Milk as a protein-yielding food can be replaced in the dietary more easily than milk as a lime-yielding food. Comparatively few common foods contain, in the amounts that can be eaten and digested by a child, a sufficient quantity of lime to provide for normal growth and health.

Milk is the richest in available lime of all the common foods, and its absence in the family dietary or its use in very limited quantities may prove to be an expensive procedure as well as an unsafe one. The abundance of lime in milk makes it at eight cents a quart the cheapest possible source of lime, and at even fifteen or twenty cents a quart a very cheap source of lime.

When therefore in a family having growing children the statement is made that the increasing cost of milk must cause a reduction in the amount of milk used, the housekeeper should be urged to consider the lime needs of the children before she seeks to reduce expenses in this way.

Of course if all members of the family are adults, a lessened amount of milk may not be serious, but even here thought must be given to provide lime in other foods in order that adult welfare may not be impaired.

MILK AS A SOURCE OF PHOSPHORUS AND IRON

Milk is comparatively rich in phosphorus as well as in lime, and forms an important and cheap source of this valuable element. Milk is low in iron, and when it forms any considerable part of the diet it should be associated with foods rich in iron. In spite of its low iron content, it is an important food to use when the blood is low in iron, because lime in food is believed to increase the ability of the body to utilize iron. The question is frequently raised: Why, if milk is low in iron, does a baby thrive on it so well as the only source of nutriment? The answer is found in the fact that at birth the healthy baby has a stored surplus of iron in its body, which normally will last it through a period of nine to twelve months of maternal nursing.

IS MILK A CHEAP SOURCE OF BODY-REGULATING SUBSTANCES?

The term **body-regulating substances** is used to cover all the nutrients that play a part in keeping the machinery of the body in working order. The beating of the heart, the circulation of the blood, the ability to grow and reproduce, the ability to digest and absorb food, may all be classed as body processes regulated by certain substances furnished by food. All nutrients contained in food undoubtedly have some part to play as body-regulating substances. Protein, phosphorus, iron and lime not only serve as conspicuous materials for building the body, but play a second part in regulating its activities. Salts, acids, flavors, are all concerned in regulating body processes.

THE SO-CALLED VITAMINES IN MILK ESSENTIAL TO GROWTH

In the past two years some results of deepest importance to human welfare have been accomplished showing that besides all the nutrient substances that are now familiar, such as protein, fat, starch, lime, acids, salts and flavors, there are other dietary factors essential to

health and growth. Very little is known as yet about these factors that some foods seem to contain and others seem to lack, except that when the foods containing them are absent from the dietary, the young animal ceases to grow and the adult animal suffers in health. One serious disease of nutrition, beriberi, so common in some Eastern rice-producing countries, has been traced to the too exclusive use of polished rice, which lacks these dietary factors. Other nutritive diseases somewhat like beriberi, and occurring in this country, may be proved to be similarly caused.

A popular name, vitamines, has been given to these essential dietary factors, and is referred to now because many persons may have heard it used. The name **vitamine** is, however not accepted as either good or descriptive by many of the persons doing the most work on this subject, and consequently is only mentioned in passing.

There seem to be two of these factors essential to right nutrition. One of them occurs dissolved in the fat of certain foods; the other one can be obtained from certain foods dissolved in water. They are designated for convenience "fat-soluble A" and "water-soluble B."

THE FAT-SOLUBLE GROWTH-PROMOTING FACTOR IN MILK

The fat-soluble factor that promotes growth and is essential to it, does not occur in all fats. This necessarily points to decided differences in the value of certain sources of fat. Milk-fat as it occurs in milk and butter and probably cheese, the fat in egg-yolk, cod-liver oil, and to a considerably lesser extent muscle and kidney fat, contain the needed factor. Forage foods, such as alfalfa and cabbage leaves, seem to contain it in abundance. It seems to be absent or deficient in lard and all vegetable oils.

When this knowledge is summed up into usable form, it results in this statement: That since the human being has a limited capacity for forage foods, such as alfalfa and cabbage, since he must have this essential factor in his diet to some extent in adult life and to a much larger extent in childhood, and since it is absent or deficient in the grains that he uses as food, he must depend primarily on milk, eggs and meat for his supply. Further, since meat contains a smaller amount of this factor than milk or eggs, the two foods last mentioned take first rank as its sources. For the reason that meat contains this factor in lesser quantity than does milk-fat, oleomargarine, although having the same energy value as butter, is less valuable than butter as a source of the fat-soluble A.

THE WATER-SOLUBLE GROWTH-PROMOTING FACTOR IN MILK

The second factor essential to growth, the water-soluble factor, is also absent from certain foods; and in its absence not only is growth prevented, but as in the case of the too exclusive diet of polished rice in India, serious illness results.

This water-soluble, growth-promoting factor, like the fat-soluble one, is present in amounts sufficient for growth in milk and eggs. It occurs in considerable amounts in the embryo of the cereal grains, but is absent in the grain from which the germ has been removed.

When white bread, polished rice, or degerminated cereals form an important part of the diet, as they frequently do, some food must be added that contains the water-soluble, growth-promoting factor. Bread and milk make an excellent combination in this respect.

SUMMARY

With all the evidence in, no food bears the investigation of nutritive properties better than does milk. It is impossible to escape the conviction that not only is it a cheap food,

but it is a food whose value can hardly be estimated in terms of dollars and cents. It has been pointed out that:

1. Although milk is not the cheapest source of energy that can be bought, it is nevertheless an important source of energy, and the energy-yielding substances, the protein, the milk-sugar and the milk-fat, all have special value.

2. Milk is a cheap source of protein because the protein that it contains is of a kind particularly valuable for building tissue.

3. Ordinarily milk is the cheapest and most valuable source of lime, unless it is discovered that lime in water can take the place of lime in milk.

4. Milk is a valuable and cheap source of phosphorus.

5. Milk is deficient in iron, but the iron that it contains is particularly well utilized by the body.

6. Milk is the most important of the three foods, milk, eggs and meat, which are the chief sources of a factor in foods that is soluble in fat, that is essential to growth and health, and that is called "fat-soluble A."

7. Milk is one of the most important sources of a factor in foods that is soluble in water, is essential to growth and health, and is called "water-soluble B."

Amounts of Food Equivalent in Fuel Value to One Glass of Milk, 157 Calories

(Iowa State College of Agriculture)

2 small eggs
2 glasses of buttermilk
1 large baked potato
1 very large baked apple
4 2/3 tablespoons apple sauce
5½ tablespoons mashed potatoes
½ cupful green pea pulp
1 cupful creamed celery
2 small oranges
¾ cupful spinach pulp
4 stewed prunes with juice
3¼ cupfuls carrot pulp
½ medium lamb chop
3 2/5 tablespoons baked custard
10 tablespoons oatmeal
2 4/5 tablespoons rice
3 tablespoons average cream
6 large dates
18 peanuts
5 large walnuts
4½ graham crackers 3 in. square
3 2/3 oatmeal crakers 3 in. square
2½ slices white bread toast
1½ slices white bread (home made)
1½ slices whole wheat bread

TO PASTEURIZE MILK

Set the bottles of milk in a pail with a perforated false bottom. An inverted perforated pie tin will do. Insert a thermometer in one of the bottles, by punching a hole in the cap or through the cotton plug. Fill the pail with water nearly to the level of the milk. Heat the water sligthly until the thermometer registers 150° F. Change the thermometer from the milk to the water, add cold water till the temperature of the water is also 150° F. Cover the kettle, keeping it as nearly this temperature as possible for 30 minutes; then cool, by running water into the pail . Remove the bottles and put them immediately on ice.

If no thermometer is at hand, the following method may be followed: Put a gallon (4 quarts) of water on the stove in a kettle with a perforated false bottom. When the water is boiling hard, remove the kettle from the stove to a table and allow it to stand uncovered for 10 minutes; then put the filled and loosely corked bottles into the water, cover the kettle, and allow it to stand covered for half an hour. At the end of this time remove the bottles, cool rapidly under running water, and put in the ice box until needed. Do not uncork the bottle from the time it is first closed until the baby is to be fed.

SUGAR: A VALUABLE FOOD

(From Iowa State College of Agriculture Bulletin "Sugar")

Sugar in its various forms constitutes one of the important food materials of the world. With the development of the sugar industry and the consequent cheapening of the product the consumption of sugar has increased at a very rapid rate.

Manufacture

The great bulk of the sugar used for household purposes is prepared by expressing the juice from crushed sugar canes or sliced beets, filtering the liquid, boiling it in a vacuum and clarifying by means of lime, acid calcium phosphate and bone-black.

Molasses is a product obtained in the process of refining sugar.

Brown sugars are not completely refined.

Granulated, loaf and **pulverized sugars** are the various forms in which refined sugar is prepared.

COMPARATIVE VALUE OF CANE AND BEET SUGARS

There is no difference in the nutritive value or purity of the different forms of sugar made from beets and sugar cane if they have undergone the same degree of refining. Cane and beet sugar are identical in composition, in sweetening power, in chemical reactions and in dietetic value.

Failures in jelly making and candy making sometimes attributed to the use of beet sugar may usually be traced to other causes.

SUGAR AS A FOOD

Sugars are among the most valuable of the carbohydrate foods. Unlike the other fuel foods (starches and fats) they yield energy very readily. Some of the simple sugars such as glucose and fructose from honey and the fruits, are ready for body use as soon as dissolved. These pass into the blood stream by absorption through the walls of the intestine and become available for body needs at once.

The more complex sugars, sucrose, lactose and maltose, are acted upon by digestive ferments which change them to glucose and fructose, thereby preparing them for absorption. All of the sugars, and the starches as well, must be in the form of glucose or other kindred sugars before the body can convert them into energy. It will be seen, therefore, that pure glucose is a wholesome and easily assimilated food.

Honey consists largely of fructose and has a mildly laxative effect, hence, is a good substitute for some of the sucrose in the diet.

Lactose (milk sugar) is only slightly sweet in taste and does not ferment so readily as other sugars. For these reasons it is used extensively in the preparation of foods for infants and invalids.

MODERATION IN THE USE OF SUGAR

The increasing per capita consumption of sugar in the United States should serve as a warning against the dangers of a one-sided diet.

Because sweet foods have the quality of satisfying the appetite very readily, they should not be taken to satisfy hunger but should rather be eaten after sufficient body-building and body-regulating foods have been taken to meet the body's need for such foods. The custom of serving the sweet food at the last of the meal is in harmony with this dietetic principle.

It is important that children should form sane habits of eating sweet foods. The practice of using large amounts of sugar on cereals, cooked fruits and in beverages should be discouraged. The cereal foods are more wholesome and better balanced when served with milk, cream or a little butter. Candy is more wisely allowed only at the close of a meal.

Such fruits as dates, raisins and figs, which furnish the easily digested fruit sugar, are a better confection for children than the candies which consist chiefly of the less easily digested sucrose. These fruits furnish mineral matter in addition to sugar.

Concentrated sweet foods are less apt to cause irritation and fermentation in the digestive tract if taken with large amounts of water.

Menus rich in sugar should not include large amounts of fat and starch. Menus rich in starch and fat should not include large amounts of sugar.

SUGAR AND ITS VALUE AS FOOD

(From U. S. Farmers' Bulletin 535)

MILK SUGAR

Milk contains from 4 to 5 per cent. of an important sugar—milk sugar or lactose. When separated or purified it is a crystalline product and is sold in that form. It is said to be the most readily digestible sugar and is often found in prepared foods, especially those made for invalids and children. It is much less sweet than cane sugar.

HONEY

Before sugar was a common commercial product, honey, stored by the honey bee, was very generally used to sweeten foods. Although its use for this purpose is much less common since cane sugar has become so plentiful and cheap, honey is still highly prized as a wholesome sweet food and is used either alone or with other foods in a great many ways. Its flavor is due to volatile bodies in the flowers from which it is obtained, some flowers imparting a more agreeable flavor than others to the honey. Its behavior in cooking and storing is different from that of the ordinary sugars for reasons not yet thoroughly understood. Honey has been used as a food from the earliest times, and is generally conceded to be wholesome as well as palatable. Prior to the passage of the Federal Pure Food Law, in 1906, strained honey was very frequently adulterated with commercial glucose and other materials, such as commercial invert sugar, but since this law went into effect there is little adulteration of this product. Mixtures with glucose and invert sugar are sold, but the law requires that they be so labeled.

SWEET MATERIALS OTHER THAN SUGAR

Saccharin, an extremely sweet material, is not a sugar, but is of an entirely different chemical structure, being a benzene compound. Its use in food products was forbidden under the Federal Pure Food Law. It is quite commonly prescribed in cases of diabetes to satisfy the craving for sweets, as it is believed to be less harmful in such cases than the sugar, the flavor of which it replaces.

There are other chemical substances which are not sugars, but which have a marked sweet flavor. They, like saccharin, are in no sense foodstuffs.

GLUCOSE AND OTHER PRODUCTS MADE FROM STARCH

"Commercial glucose," "40 sugar," "80 sugar," and "commercial dextrose" are commercial products of the hydrolysis of starch. The first is a thick liquid, rarely showing crystallization.

Commercial glucose is often used as a substitute for sugar in syrups, candy making, preserving, etc. Confectioners maintain that certain kinds of candy cannot be made of as good consistency with pure cane sugar as with the addition of some glucose. In such cases it can hardly be considered an adulterant. When it is used as a cheaper substitute for cane sugar, and the goods are sold as cane-sugar products, its use is evidently fraudulent. The present law in the United States requires that syrups, jams, jellies, etc., made with glucose shall be so labeled. Its nutritive value is practically the same as that of other carbohydrates, and there is no reason to suppose that when properly made it is not wholesome.

PURITY OF SUGAR

Of 500 samples of sugar examined several years ago by the Bureau of Chemistry of this department, not one was found to be adulterated. The low price of cane sugar, in comparison with the price of substances that might be used for adulteration, protects it from such attempts.

A more recent publication of the Bureau of Chemistry states that sugars as a class, both the high and low grades as now found on the market, are practically free from adulteration. This is particularly true since the Federal Pure Food Law of 1906 went into effect.

There is a popular belief that granulated sugar is often adulterated with white sand or finely ground rock, and that pulverized sugar is commonly adulterated with starch or lime dust. Cases of such adulteration, however, have rarely been found by the Bureau of Chemistry, though starch has been detected in a very few samples of powdered sugar. It is a very simple matter to test suspicious sugar for the presence of such materials. Sugar is readily soluble in water, and the sand and mineral adulterants are insoluble.

FOOD VALUE OF SUGAR

The most interesting use of sugar is as a food for the animal body. Within certain limits, sugar may be considered as the equivalent of starch that has been digested and made ready for absorption. A mealy boiled potato like all forms of starchy food, must be largely converted into some kind of sugar by the digestive juices before it can be absorbed as food.

DIGESTION OF SUGAR

When sugar is eaten it is changed in the digestive tract before it is taken up in the blood and carried where it is needed. If a solution of cane sugar be injected directly into the blood, it is passed out by the kidneys unchanged, showing that it is not fitted for assimilation until it has been changed, as it is in normal digestion.

SUGAR AS A FOOD FOR MUSCULAR WORK

Food must supply enough protein or nitrogenous material for the formation and repair of tissues and for certain other uses in the body.

According to our present knowledge the value of sugar as a food for muscular work may be briefly summarized as follows:

When the organism is adapted to the digestion of starch, and there is sufficient time for its utilization, sugar has no advantage over starch as a food for muscular work.

In small quantities and in not too concentrated form sugar will take the place, practically weight for weight, of starch as a food for muscular work, barring the difference in energy and in time required to digest them, sugar having the advantage in these respects.

It furnishes the needed carbohydrate material to organisms that have little or no power to digest starch. Thus, milk sugar is part of the natural food of the infant whose digestive organs are, as yet, unable to convert starch into an assimilable form.

In times of great exertion or exhausting labor, the rapidity with which it is assimilated gives sugar certain advantages over starch and makes it prevent fatigue.

This latter quality, which renders it more rapidly available for muscular power, may account for the fact that sugar is so relished by people who are doing muscular work, and by those of very active habits, such as children.

The American farmer ranks high among agriculturists as a rapid and enduring worker, and his consumption of sweets is known to be very large. The same is true of lumbermen and others who work hard in the open air; sugar and sweet cakes are favorite foods with them. Dietary studies carried on in the winter lumber camps of Maine showed that large quantities of cookies, cakes, molasses, and sugar were eaten, sugar of all sorts supplying on an average 10 per cent of the total energy of the diet.

The value of sugar in cold climates, where foods containing starch are not available, is evident, and in the outfit of polar expeditions sugar is now given an important place.

SUGAR AS A FAT FORMER

Sugar, like starch, is fattening; that is, when taken in excess it may be transformed into fat and stored as reserve material. On this account physicians commonly advise that sugar be sparingly used by the corpulent. This advice is given because sugar in the form of candy or other sweets is often taken as an accessory to an already abundant diet.

SUGAR AS A FLAVOR

In addition to its value as a food, sugar is important in the diet as a flavor, one which the cook could not easily spare, as it now enters into a great variety of dishes. Indeed its agreeable flavor has always constituted one of the chief reasons for its use, and will continue to do so, even though we make use of the abundance of relatively cheap starchy materials which we possess which theoretically may readily take the place of sugar as a food.

In some dietary studies made under the auspices of this department with a club of students at the University of Maine, an investigation was made of the effect of supplying a liberal amount of maple syrup in a diet which contained an abundance of nutrients. The syrup was evidently relished, and considerable amounts were eaten. However, there was not a corresponding decrease in other foods; on the contrary, the amount of flour was in excess of the amount ordinarily consumed. It would seem that the maple syrup, and flour in the form of griddle cakes, were consumed simply on account of their agreeable flavor. Provided the deit contained sufficient nutrients in the first place, this increase was not desirable on the ground of economy, and it may be questioned whether it was desirable from the standpoint of health. When a similar comparison was made of the addition to the diet of liberal quantities of milk, which has a much less distinctive flavor, there was a corresponding decrease in the amount of other foods consumed. This would indicate that much of the sugar used is consumed for its agreeable flavor and not because it is recognized as a food which is required to satisfy body needs.

GENERAL CONCLUSIONS

One may say in general that the wholesomeness of sweetened foods and their utilization by the system is largely a question of quantity and concentration. For instance, a simple pudding flavored with sugar rather than heavily sweetened is considered easy of digestion, but when more sugar is used, with the addition of eggs and fat, we have as the result highly concentrated forms of food, which can be eaten with advantage only in moderate quantities and which are entirely unsuited to children and invalids.

It is true that the harvester, lumberman, and others who do hard work in the open air consume great amounts of food containing considerable quantities of sugar, such as pie and doughnuts, and apparently with impunity; but it is equally true that people living an indoor life find that undue amounts of pie, cake, and pudding, with highly sweetened preserved fruit, and sugar in large amounts on cooked cereals, almost always bring indigestion sooner or later.

From a gastronomic point of view it would seem also that in the American cuisine sugar is used with too many kinds of food, with a consequent loss of variety and piquancy of flavor in the different dishes. The nutty flavor of grains and the natural taste of mild fruits are very often concealed by the addition of large quantities of sugar.

In the diet of the undernourished larger amounts of sugar would doubtless help to supply adequate nutrition. This point is often urged by European hygienists. In the food of the well-to-do it is often the case, however, that starch is not diminished in proportion as sugar is added. That sugar, on account of its agreeable flavor, furnishes a temptation to take more carbohydrate food than the system needs cannot be denied. The vigor of digestion and muscular activity in each particular case would seem to suggest the limit. A lump of sugar represents about as much nutriment as an ounce of potato, but, while the potato will be eaten only because hunger prompts, the sugar, because of its taste, may be taken when the appetite has been fully satisfied.

Sugar is a useful and valuable food. It must, however, be remembered that it is a concentrated food, and therefore should be eaten in moderate quantities. Further, like other concentrated foods, sugar seems best fitted for assimilation by the body when supplied with other materials which dilute it or give it the necessary bulk.

Persons of active habits and good digestion will add sugar to their food almost at pleasure without inconvenience, while those of sedentary life, of delicate digestion, or with a tendency to corpulency would do better to use sugar very moderately. It is generally assumed that 4 or 5 ounces of sugar per day is as much as it is well for the average adult to eat under ordinary conditions.

FATS AND THEIR ECONOMICAL USE IN THE HOME

(From U. S. Farmers' Bulletin 469)

The fats in the ordinary diet fall naturally into two groups, those eaten because they happen to be components of foods, like the fat in milk, meats, or fish, and those like butter, salad oils, or lard, which are added to other foods in cooking or serving. The housekeeper interested in the economical use of fats in the home must take into consideration fat as contributed by both groups. Obviously, the kind and quantity of the first group of fats eaten are determined by the foods making up the diet and this is governed largely by individual tastes and local or family food habits. As regards this group, economy involves chiefly the proper selection and combination of foods containing fat in abundance with other foods containing little of it, so as to secure a diet supplying the proper proportions of protein and carbohydrate as well as fat.

The flavors and odors of fats are probably due to the presence in them of small amounts of difficultly removable substances rather than to specific properties of the pure fats themselves, in view of the fact that flavors and odors become much less noticeable the more completely the fats are purified. The characteristic flavor of butter, for example, is due to the absorption by the fat of the substances formed in the fermentation of milk and cream by lactic acid and bacteria and to the presence of small particles of the curd. Similarly, the by-products, such as butyric acid, which are formed by the action of undesirable bacteria, may be absorbed by the fat and give rise to the undesirable flavor of butter of poor quality or that which has deteriorated. Musty flavors are doubtless due to the presence of the products of metabolism of molds which may be present in the fats. In the case of some fats, like those of beef and mutton, or the fish oils, it has apparently been impossible to remove entirely the flavor-giving substances by the ordinary methods of refining.

THE PLACE OF FATS IN THE DIET

The chief value of fats in nutrition is that they furnish energy which the body requires to perform its work. The ideal diet should contain sufficient quantities of fat and carbohydrates to insure it the required amount of energy, as well as a sufficient quantity of protein to supply the necessary nitrogen for growth and repair of the body, also mineral matter for growth and other body needs, and vitamins or similar bodies required to render the diet adequate for maintenance. Since fats furnish 2¼ times as much energy, pound for pound, as do proteins and carbohydrates, and since they are both wholesome and palatable, they are very commonly used to increase the energy value of the diet. Furthermore, they are especially useful as a source of energy where an excess of carbohydrates in the diet is to be avoided, as in cases of diabetes or certain forms of indigestion.

While fats and carbohydrates may replace each other to a considerable extent, recent investigations indicate that some carbohydrate supplied by the food or formed in the body from protein is essential for the combustion of fats in the body. Experts in nutrition and dietetics, therefore, believe that neither one should be used to the exclusion of the other.

The digestive disturbances often attributed to eating fat are probably due not so much to the inability of the body to digest the fat itself as to other factors, chief among which are bad cooking, overeating of foods containing fats, and rancidity.

Disagreeable sensations are experienced by some people after eating large quantities of foods such as meats containing much fat interspersed with the muscular tissue, and over-rich puddings or salads. This may be explained by the fact that the digestive juices of stomach have little solvent action on such nonemulsified fats and are thus hindered from digesting the protein which is covered by or very intimately mixed with the fat. The passing of the food through the pylorus into the small intestine is thus delayed until the fat has become separated from the lean portions by the enzymic and mechanical action of the stomach. For this reason very fat meats, for instance, remain a longer time in the stomach than lean meats, although in the end they are as thoroughly digested. Similar digestive disturbances are sometimes experienced after eating fried foods (cooked without scorching) or foods in which fat is incorporated in such a manner that it prevents the digestive juices from acting upon the protein and carbohydrates. This delayed digestion is often mistaken for diminished or incomplete digestion.

It must be remembered that there are some persons whose systems can tolerate little if any food rich in fats. This, like the inability of some to eat strawberries, onions, or other foods, without digestive disturbances, is a matter of individual peculiarity.

OLEOMARGARINE

A discussion of animal fats would not be complete without some mention of oleomargarine, called "margarin" in Europe. The principal fats used in its manufacture in the United States are oleo oil, neutral lard (that is, a specially rendered lard), and cottonseed and other oils. All these ingredients must be pure and prepared with care in order that none of them shall have any marked taste or odor. These are mixed in such proportions as will give the final product a melting point very near that of butter. After being thoroughly mixed the fats are churned with a small quantity of milk and sometimes cream, the proportions of these used depending upon the quality of the product desired. In the preparation of high-grade oleomargarine varying quantities of butter are also added. The resulting product is then washed, salted, and worked as in ordinary butter-making processes. Owing to the ease with which a highly colored oleomargarine might be sold as butter, it is illegal to sell oleomargarine unless it is plainly labeled as such, and the practice of coloring it to imitate butter is discouraged by a heavy tax. Oleomargarine is not used as extensively in this country as in Europe, where it serves both for table and culinary purposes. If prepared from pure materials and under sanitary conditions, it is a wholesome fat, which, according to European investigators, is well assimilated. It has an energy value of about 3,500 calories per pound.

OLIVE OIL

The best grade, known as virgin oil, is obtained from perfect olives of the proper degree of ripeness. Lower grades may be obtained either by crushing and pressing an inferior quality of olives or by a second pressing of the residue from the first pressing of the better grades of fruit. The only refining or purification of the better grades of oil necessary is filtration to remove foreign matter. In the United States olive oil is used almost exclusively for table purposes, being a very common salad oil. In localities where it is produced, especially in Southern Europe, it is used for cooking as well as for table purposes, owing to the larger and more readily available supply (especially of the cheaper grades) and to the relatively limited supply of animal fat in such regions.

COTTONSEED OIL

Cottonseed oil in its crude form is obtained as a ruby or dark-red oil by subjecting the seeds of the cotton plant to great pressure. The refined oil was first utilized in the preparation of various lard substitutes by mixing with it hard animal fats to produce a substance having a consistency similar to lard. Other methods have been developed, and a wide variety of cooking fats prepared from cottonseed oil are now on the market. More recently salad oils have been prepared which are wholesome and palatable and are being used in increasing quantities for table purposes.

NUT BUTTERS

Closely related to the nut oils are the nut butters prepared by grinding finely the meats of peanuts, almonds, or other nuts rich in fat, so as to produce an oily mass much like butter in consistency. Peanut butter is by far the most common of the nut butters. It is used chiefly as a filling for sandwiches, crackers, etc., though it finds some use in cooking. The nut butters can be made at home by grinding the whole nuts; a special nut-butter knife being furnished with some of the meat or food choppers. In addition to containing a large amount of fat, nut butters also contain considerable protein.

THE SELECTION OF EDIBLE FATS

In the selection of edible fats the principle considerations should be the purpose for which the fat is to be used, quality, price, and individual preference, since the energy which the body derives from different fats is about the same, and all are regarded as wholesome when of good quality. Custom, which influences to a considerable extent the choice of all foods, can, therefore, be subordinated to the more essential consideration of economy.

When purchasing fats for table use it should be remembered that they influence the wholesomeness of the foods with which they are served as well as the energy value and cost. The price of table fats depends largely upon their flavor and to a less extent on color, and in selecting them each housekeeper must decide how much she can afford to pay for these properties, since all the edible fats have practically the same energy value. In general it pays always to buy fats of such good quality that none will have to be thrown away through spoilage. In some instances a higher-priced article may be more economical in the end as, for example, clean, sanitary butter, as compared to a cheaper but less sanitary product. In some instances, where taste or flavor only is involved, a less expensive table fat may answer quite satisfactorily the purpose of a more expensive one. For example, the chief use of table oils is as an ingredient of salad dressings, and when a characteristic flavor is not especially desired, good grades of cottonseed and peanut oils, having a bland flavor, may be used, when these are less expensive than the corresponding grades of olive oil.

Fats used for shortening influence the appearance, flavor, texture, composition, keeping quality, and cost of the foods in which they are incorporated. In selecting shortening fats flavor and odor are to be considered, but attractive appearance and color are of less importance, since in cooking these are usually masked. Other qualities being equal, those culinary fats are more economical and desirable which possess the best keeping quality; that is, the least tendency to become rancid. Also, for general use shortening fats give the best results if they are neither too hard nor too soft to be easily mixed with the other ingredients of the dough at ordinary temperatures.

Fats used as a medium for cooking should be carefully selected, since they influence the flavor, appearance, and texture of the foods cooked in them, as is evident when one recalls the bad flavor imparted to fried foods by burned or rancid fat. Preference

should be given to a fat which does not scorch too readily at the temperature most commonly used for frying. Experiments in the laboratory of the Office of Home Economics indicate that butter and lard scorch at a lower temperature than beef or mutton fats and cottonseed, peanut or cocoanut oils. For this reason, therefore, the latter fats are preferable for deep frying, which requires high temperature.

Prejudice often exerts an influence on the selection of fats as well as other food materials, and these prejudices are often curious. For example, some persons who think that lard is not only indigestible, but also unwholesome, nevertheless enjoy bacon, which, of course, supplies pork fat in a different form. Such prejudices have little or no basis of fact and should not exert too much influence on the selection of any food material.

SUMMARY

Economy of fats in the home may be secured by intelligent selection, economical use, and by the prevention of unnecessary waste. For intelligent selection, which means choosing the fat best suited for the purpose in question, a knowledge of the properties and prices of the different fats on the market is necessary. It should be remembered that the energy value of all the pure fats is practically the same, and the housekeeper must determine how much she can afford to pay for particular flavors or appearance, on which the difference in price largely depends. To secure economy fats should be used primarily for the purposes to which they are best adapted, and the extravagant use of both table and cooking fats should be avoided. To prevent unnecessary waste fats should be carefully handled and stored so that none need be discarded through spoilage. Furthermore, all scraps of fat which accumulate in the home should be saved and used for culinary purposes wherever possible, thus lessening the amount of money expended for cooking fats. It should always be borne in mind that while an economical use of fat is to be desired, stinting is to be avoided. In determining how far economy in the use of fats is to be practiced one should bear in mind that true economy is possible only where the value of the time and energy involved in the saving or utilizing of an article is less than the value of the articles saved.

COMMON SENSE IN MODERN COOKING

It is no longer considered sufficient that a girl should learn cooking only after the manner her mother attained it from her grandmother. Much that her grandmother knew was of high practical value, and while she did not know the scientific "why," yet in many cases we have never been able to improve on her "how." Her knowledge should properly pass on in the manner it does to the next generation. At the same time, the modern girl wants to know something of the simple chemistry of foods and the chemical changes that take place in cooking them.

The health of the family may be undermined not only in the food factories that devitalize foods through various "refining" practices and in adulterations, but through faulty treatment in the kitchen of the best and freshest foods.

One of the most serious and common mistakes to be avoided is the custom of "draining off" the water in which foods are cooked. Probably few do not commit this error. There are numerous ways to avoid it—use less water, or boil until the surplus passes off in the form of steam, leaving the natural salts behind, otherwise the most valuable nutritive elements are thrown away.

We know now that the mineral salts, although constituting a small percentage in the total bulk of foods in proportion to the protein, fats and carbohydrates, are nevertheless of most vital importance. These are the original salts of iron, phosphorus, lime, potassium and other minerals. They are indispensable in maintaining a healthy condition of the blood, and in the manufacture of the brain, the nerves, the bones, the glands and their secretions.

It is because of the very fact that the normal proportion of the mineral salts in any foods is small that they should not be drained or wasted away in cooking. No artificial "seasoning" with salt and pepper, butter and other additions, can restore the lost value of the natural salts—and the need of these seasonings to restore "taste" miraculously disappears to a large extent when the natural salts are retained with the flavor and "life" which they in themselves yield the palate.

There is reason for the popularity of baked potatoes. The mineral salts are in and next to the skin. In eating them the skin should be scraped very close—or itself eaten. Potatoes should never be peeled by paring off the skin; they are thus robbed of their highest value. If boiled and only the thinnest film of skin removed, this value is saved—providing they are boiled down until little or no water remains to be drained off, or provided they are mashed into the residue of juice or water and served in that manner.

Steam cooking is simple; almost anything can be steamed. An ordinary colander covered with a saucepan may be used. The double boiler enables one to cook vegetables in their own juices with the addition of little or no water and no draining off.

Baking is perhaps the most ideal form of treatment for many foods besides meats. It retains all of the natural juices and minerals and serves them in their most assimilable chemical condition.

THE ALL-CONVENIENT CASSEROLE

AND

THE USE OF THE OVEN

Under the head of Casserole come Marmites, Cocottes, Ramekins, au Gratin Dishes, and Souffle Cases.

Almost everything can be cooked **en casserole**—meat, fish, vegetables, poultry, fruit, cereals—anything requiring slow, gentle cooking. The flavor of re-cooked meats is far superior thus than if prepared in a saucepan, and the slow cooking does not harden or contribute to an "overdone" taste.

Left-overs, small entrees, salads, serve most attractively **en casserole** or **en ramekin.**

The oven, for casserole cooking, should be kept about 112 degrees Fahrenheit, or less; the food should simmer, not boil.

ADVANTAGES OF CASSEROLE COOKING

1. The casseroles are clean, to start with.
2. They are easy to keep clean,
3. Their glaze is hard and acid-resisting.
4. They are free from all injurious substances.
5. They do not change flavor or affect color of food.
6. They do not become flavored by food cooked in them.
7. They cook gently, steadily and economically, both as regards shrinkage of food and consumption of fuel.
8. They preserve all the goodness and the juice.
9. They improve the appearance of food and intensify natural flavors.
10. The casserole may be used either on top of the stove or in the oven.
11. The ingredients may be put into the casserole and allowed to stand in it for hours before cooking, without spoiling.
12. Food may be served in the casserole, thereby insuring its reaching the table "piping hot."

GLASSWARE BAKING DISHES

The new glass dishes which have come into favor for baking are deservedly popular.

They will resist any degree of oven temperature, are absolutely sanitary and easily cleaned, are not so cumbersome as earthenware and pottery casseroles, and are the last word in daintiness and attractiveness for table service. The process of special manufacture is such that the glass is almost unbreakable.

With these glass dishes one can also **see** if the cake, for illustration, is done all the way through, instead of depending altogether on a testing straw. And dough does not stick to the side as with metal cake dishes.

Glass is an unusually excellent retainer of heat, hence these glass dishes are economical, in that the heat may be turned off before the food is "done" and it will finish

"cooking" itself. Somewhat as in the case of "a fireless cooker," the retention of the heat makes all the difference in the world, too, when the food reaches the table piping hot instead of lukewarm.

The prices of these dishes are about on a par with aluminum; a little more, as yet, than the crockery dishes. But it must be borne in mind that they are themselves decorative and do not need some form of decorative holders for serving.

THE USE OF THE OVEN

Most American housewives appreciate too poorly the old-fashioned art of cooking in the oven. They turn too readily to frying and broiling.

"En Casserole" is incomparable for making chicken and other tender meats "go far," and is delicious for fish and game, and for vegetables and many other foods. And the oven must not be disregarded.

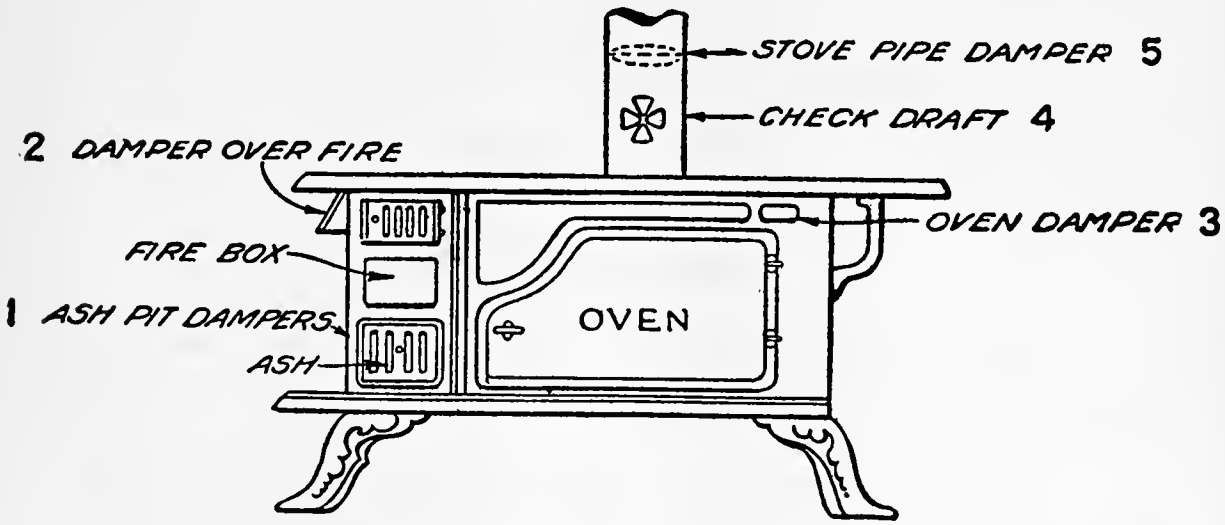
For oven cooking, earthenware can be had in very many convenient forms. These vessels are apt to crack when new, but this can be avoided if they are toughened when bought by plunging into cold water, which is brought to a boil and kept boiling for five minutes. The well-known Boston bean pot is useful for many purposes, and the blue and white stew pot. The new cooking glass is attractive, durable, easily cleaned and cooks very rapidly.

As food should so far as possible be served in the dish in which it is cooked—which also saves dish-washing—the little ramekin is a wonder; with ingenuity all sorts of dishes of which in the ordinary form one may grow tired may be shaped up attractively for individual service in the ramekin, garnished and seasoned as a "novelty."

Do not rebel over the "long time" that is frequently necessary for oven cooking. The result justifies the care; besides, in most cases, little or no attention is required—one may pursue other duties in the interim, and casserole cooking may often be **prepared the day before.**

With very little thought you can have many "oven meals"—nearly all of the foods being cooked in the oven at the same time.

WAYS TO SAVE COAL OR WOOD.



SAVE FUEL WHEN YOU COOK

United States Food Leaflet No. 12

Whatever fuel you use, make it go as far as possible. Money saved on fuel can well be spent on better foods to cook, and if you cut down your use of fuel, you can help make the supply go around.

To have a fire you must have, besides fuel, air to make it burn. In gas and oil stoves the air supply is regulated by the makers. In coal or wood ranges or cook stoves you must regulate it by means of dampers.

LEARN TO USE EVERY DAMPER IN YOUR KITCHEN RANGE

The important dampers are:

1. **Damper in the ash pit** which lets in the air which passes through the fuel box, making the fire burn.

2. **Damper over the fire** controlling air to flow in above the fire.

3. **Oven damper** which switches the current of hot air around the oven instead of letting it go by the shorter path up the stovepipe.

4. **Check draft damper** in the stovepipe just above the range. This is not always found and is less important than the rest.

5. **Stove pipe damper** which checks heat from escaping up the chimney.

Make Your Fire the Right Way—To make a fire in a range, whether coal or wood, close all dampers of the stove and shake the firebox to free it from ashes, dust, and clinkers. Take off the lids over the fire-box, place crumpled paper in the fire-box, arrange kindlings over and around it so that air can pass freely between them, and put on a small shovelful of coal. Light the paper, open dampers Nos. 1, 3, and 5, and put on lids. When the coal glows red, a little more coal should be added, and when the fire is burning well, the fire-box may be filled. If wood is used as fuel, put on a few sticks at a time.

Learn to Manage the Fire—By the proper use of the dampers the fire can be controlled and the heat regulated.

No. 1. **The damper in the ash pit.** This should always be kept open when the fire is burning as it is the best source of air for the fire. Close it only when you dump the grate and when the fire is banked to keep it for some time. However, if there is no stovepipe damper, the damper in the ash pit must be closed to check the draft when the fire burns too hard.

No. 2. **The damper over the fire.** Close this when you are starting a fire. If the fire burns too rapidly so that the flames are long enough to reach the back row of lids, open the damper a little bit. This will shorten the length of the flame and give you more heat. If you open this too much it may cool the oven.

No. 3. **The oven damper.** When this damper is closed the flames and smoke and hot air are forced to pass around the oven to heat it and then afterwards they escape up the chimney. When the damper is open they pass directly up the chimney. As soon as the fire is burning well, close this damper so that the oven will be heated. This will keep the oven so that you can make it very hot quickly by adding extra fuel and will warm your room if the oven door is left open. With this damper closed you will use much less fuel than by allowing the heated air to take the shorter path up the chimney.

No. 4. **The Check draft damper in the stovepipe.** It should be kept closed except when the fire is banked.

No. 5. **The stovepipe damper.** This is a most important damper. It can control the amount of fuel burned, as the more slowly the hot air passes up the pipe the more slowly the fire burns. A great deal of the fuel sometimes merely furnishes heat that escapes

up the chimney. Check this escape of heat and burn less fuel by using the pipe damper. If your fire is burning too hard, instead of closing the damper in the ash pit, close the one in the pipe, for it checks the fire much more effectively than the oter damper.

If your oven does not heat even with the oven damper closed, it is probably because the air carried around the oven has been pulled through the fire so fast that it has not been thoroughly heated itself and can not heat the oven. Close the pipe damper.

Keep Your Range Cleaned Out—If the fire-box is clogged with ashes, air can not pass through the fuel to make it burn. If soot hangs on the stove lids, less heat can come through it. A layer of ashes over the top and under the oven keeps it from heating quickly.

Banking the Fire—It is an economy to keep a hard-coal fire over from day to day, especially if the range is used as a source of heat for the room. As a rule a wood fire is hard to keep over but the hard-coal fire can be easily kept. In the evening rake out the ashes, put coal on, and open the dampers until the fresh fuel is burning well. Put on coal until the fire-box is almost full and close all the dampers except the check draft damper in the stovepipe.

Think of the Fire When You Select the Food to Cook—If you keep a slow fire in your range all day to supply heat for the room, select foods that require long, slow cooking. Baked beans or peas, roasts, and puddings can be baked in the oven and cereals cooked in a double boiler on the back of the stove. Avoid foods that require a very hot fire for a long time.

Gas, Kerosene or Coal Oil, and Gasoline are economical for cooking if carefully used. Never mix two liquid fuels and never use gasoline in an oil stove, for each requires a special burner. Use all with care.

WAYS TO SAVE GAS AND OIL

Reduce the Number of Burners Used—You can cook more than one kind of food over the same burner. If you have a colander or a wire basket that fits over an ordinary kettle, you can steam such vegetables as carrots or squash in the colander at the same time that you boil potatoes in the kettle. The under part of the double boiler can be used to boil eggs or small vegetables, while cereal cooks in the upper part. Compartment vessels that have two or three separate divisions fitting together over one burner may be purchased.

Regulate the Size of the Flame—Turn the flame down after the boiling point is reached, for water that is boiling fast is no hotter than water that is boiling slowly. When the flame spreads up around the vessel you are wasting fuel.

Don't Be Afraid of Relighting the Gas—Turn it out when you remove the vessel from the burner. Matches are cheaper than gas.

Have a Regular Bake Day—If you bake bread, bake as much at one time as will be eaten before it dries out.

Don't Light the Oven to Bake a Single Dish—If you have a roast for dinner that requires the use of the oven, plan a baked dinner. Beef roast with brown potatoes, scalloped tomatoes, and Apple Betty all could be baked at one time. Or, if you light the oven to bake quick breads or cake, bake fruit or a dessert for another meal. Small ovens that fit over one burner save fuel.

Select foods that can be quickly cooked. Cook in larger quantities such foods as cereals and soups that require long cooking. They will keep in the refrigerator and you will save much fuel. Leaflet No. 13 tells how to make a fireless cooker at home and how to use it to cut down your use of fuel. No matter what kind of fuel you use, the fireless cooker can help you save it.

THE FIRELESS COOKER

There is nothing new under the sun, and the fireless cooker, which has of recent years come into much usage, was known to the ancients. The Chinese and the Crusaders knew and practiced its principle, and the "clam-bake" of the East and "barbecue" of the West are only special forms in which the principle is used.

Fireless cooking does not mean cooking without fire. The cooker does not supply its own heat. One does not accuse a refrigerator of attempting to furnish its own ice. The cooker merely uses stored heat, as the refrigerator does stored cold. It is only that the fireless cooker retains the heat that goes into it, and gives it off to the cooking process later. It is economical because this surplus heat is stored and not lost, as is the case if the same foods are left to simmer over a fire.

There are many advantages in the fireless cooker. There are no burned hands and no spoiled food if the meal is kept waiting. The utensils last a long time and are easily cleaned each time used—there are no blackened pans to be scrubbed. There is no unpleasant odor over the house from the cooking, and cheap cuts of meat may be used because they can be cooked long and slowly to soften their toughness.

In fireless cooking the heat needed is only enough to bring the food up to the cooking temperature. The cooker then retains this heat, and the food continues to cook slowly until done, or ready to serve. It is not intense heat that cooks properly, but even heat slowly and steadily supplied.

The cooker saves hours of time. Once in the cooker the food can be practically forgotten while one goes about other household duties. One can go shopping while the dinner is "cooking itself." Cereals for breakfast may be cooked over night.

The fireless cooker may be used as an "iceless" freezer. It is simply a reversal of principle. Excellent mousses, custards and other desserts may be made in a cooker, with the application of a little cracked ice in the bottom, to give off its refrigeration later, instead of heat to give its cooking quality in the usual manner.

As in any other branch of cookery, one will usually fail to get the best results at first in a fireless cooker. It has to be studied, and practiced a bit on the different foods until one gets them "just right." But one does not quit on biscuit because they do not turn out as expected the first time tried. Apply the same common sense to a fireless cooker; get a good one and keep at it for a week or so until you learn its personality, and you will not thereafter be without it.

You do not need special recipes for the fireless cooker. Take any food that you have used on your cook stove, put it in the fireless cooker, and it will turn out better. Vegetables and cereals that need long cooking are of far finer flavor when cooked by this method.

A food to be boiled must actually boil for five minutes before being set in the cooker; it must be at the boiling point all the way through. Do not try to cook too small a quantity of anything by this method. A small quantity does not retain the heat.

But most especially remember it is not a matter of an intricate art or special recipes but rather that you get the habit of putting your foods in the filess cooker as a matter of course instead of on or in the stove, and your work and time will be cut in two and your food will be of finer flavor and more wholesome in every way.

LET THE FIRELESS COOKER HELP YOU COOK

United States Food Leaflet No. 13

You can't afford to be without one. The fireless cooker can save fuel in winter and make your kitchen comfortable in summer. It will save you time and labor for you can have your dinner cooking while you attend to other duties or go away from home. Make one for yourself. It may cost less than a dollar and will pay for itself in time and fuel saved. Or buy a ready-made one.

How a Fireless Cooker Cooks—First the food is made as hot as it can be on the stove, then it is put immediately into the cooker. Once there, it stays hot and keeps on cooking. The walls of the fireless cooker keep the heat in just as the walls of a good refrigerator keep the heat out.

MATERIALS NEEDED FOR A FIRELESS COOKER

1. **The Outside Container**—Any good-sized box or bucket with a tight cover—a grocery box, a butter firkin, a wooden candy bucket, a 100 pound lard can, or a new garbage can.

2. **Packing Material**—Soft hay excelsior, ground cork, sawdust, tightly crumpled newspaper, or any other good non-conducting material that can be packed in closely. This packing material forms a nest for the cooking vessel.

3. **The nest Lining**—A metal or enamel bucket and sheet asbestos to cover the bucket. The bucket must have straight sides and a lid and must be of such a size as to allow at least three inches of packing material between it and the outside container, top, bottom, and sides.

4. **The Cooking Vessel**—A vessel with a tight lid to fit closely into the nest lining and yet slip in and out easily, or two or three of the small ones especially made for the fireless. The best kind is of enamel, granite or aluminum.

5. **Cardboard**—To make the collar.

6. **The Cushion**—Denim or muslin stuffed with the packing material. This cushion is to be pressed down across the top under the outside lid.

7. **Two Soapstone Disks**—Purchasable at a hardware store. They are not needed for all cooking, but with them you can cookmore quickly and in greater variety.

TO MAKE THE FIRELESS COOKER

1. Line the outside container with newspaper if a wooden box is used.

2. Pack the bottom of the outside container compactly with a layer of the packing material to the depth of three inches or more.

3. Cut a circle of asbestos two inches larger in diameter than the nest lining. Place the asbestos mat in the center of the packing.

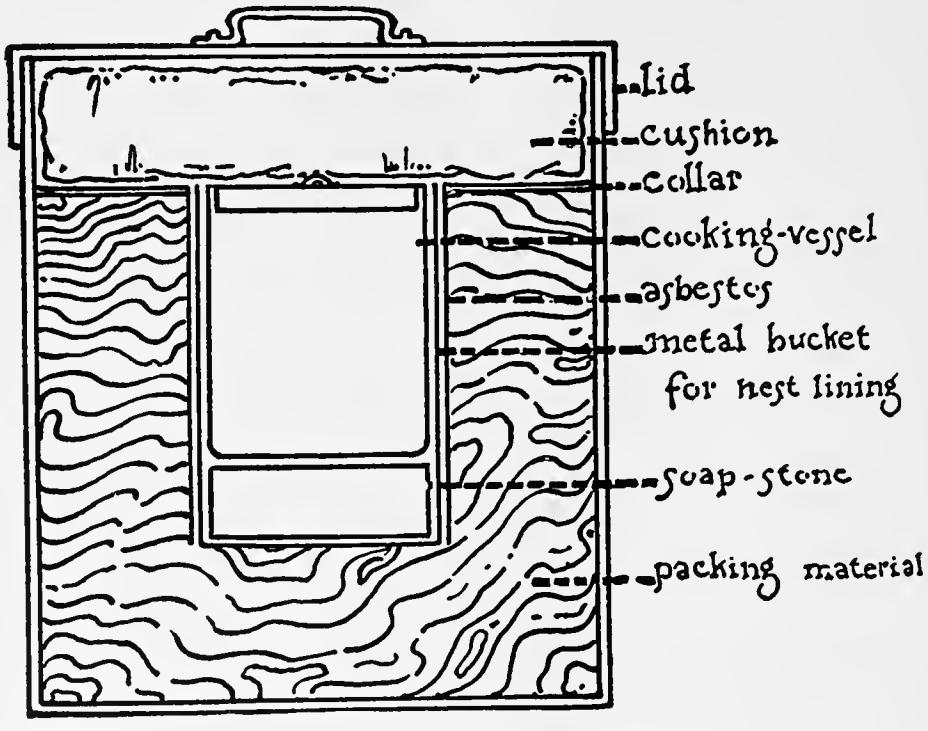
4. Cut a strip of asbestos big enough to cover completely the outside walls of the bucket which is to serve as the nest lining, and tie it in place.

5. Place the bucket with its asbestos covering directly in the center on the asbestos mat. Hold in place and tightly fill in the space between it and the walls of the outside container with the packing material. Pack in solidly to within one-half inch of the top of the bucket. The success of your cooker depends largely upon the tightness with which you crowd in the packing material, which prevents the heat from escaping from your hot food.

6. Cut a piece of cardboard to fit in the outside container. Cut a hole in the middle of it which will fit closely over the bucket which forms the nest lining. This "collar" holds the packing material in place.

7. Make the cushion for the top by cutting two pieces of cloth the size of the outside container and putting them together with a straight strip of cloth three inches wide. Stuff with the packing material.

8. Outside finishings. If a box is used for the outside container, the lid should be hinged and fastened down with a hook. If it is of wood, paint or stain it a dark color. Casters make it convenient to move about.



Cross Section of Fireless Cooker.

SOME PRECAUTIONS IN USING THE FIRELESS

Don't let the food or disks cool before you put them in the fireless. The food will not cook unless there is enough heat shut up with it. Reheat the food that requires long cooking, if it cools before it is finished. Reheat the food before serving, if necessary. A small quantity of food cools quickly, so either use the disks or put a small vessel containing the food in the regular cooking vessel and surround it with hot water.

Soapstone disks will increase the usefulness of your cooker. They can be heated hotter than the boiling point of water, and when shut up in the fireless furnish heat which cooks the food. If you made your fireless according to directions, you can safely use the disks. Heat them very hot, but do not let them get red hot for fear of cracking. With one below and one on top of the cooking vessel you will be able to roast meat or even to bake bread or puddings. Without the disks your fireless is useful only for certain kinds of food —cereals, beans, pot roasts, stews, etc.—things that can be cooked in water.

SOME FIRELESS SPECIALTIES

CEREALS

Prepare as for the stove, but use one-sixth less water. Boil for 10 minutes, or longer with coarser cereals. Place in the cooker boiling hot and leave 6 or 8 hours or over night.

MEATS

Buy cheaper cuts. The fireless can make tough meat tender. For more recipes see Leaflet No. 5.

CREOLE STEW

One pound lean beef or 1 medium fowl, 2 cups tomatoes, 1 cup carrots or okra cut small, 1 cup chopped sweet peppers, ½ cup rice, ¼ cup chopped onion, 1 teaspoon salt, 1 tablespoon fat.

Cut the meat in small pieces or cut the fowl into joints. Melt the fat, add the onions, peppers, meat or chicken. Brown for a few minutes. Put in cooking vessel with seasoning, rice, vegetables, and one cup boiling water. Simmer for ½ hour and put in fireless for 3 hours without the disks or 2 hours with them. With chicken and okra this is the famous creole chicken of the South.

ROASTS

Sear the roast, season, place in the cooking vessel between two hot disks. Do not add water. Allow 25 minutes per pound.

SOUP STOCK

Cut up meat, crack bones, and cover with cold water. Let it reach the boiling point, then place in cooker for several hours.

DRIED FRUITS AND VEGETABLES

Peas, beans, corn, dried fruit—soak in water until restored to the original size. Boil a few minutes, then keep in the cooker 6 to 12 hours. Baked beans or peas are especially good cooked in the fireless. See Leaflet No. 14.

For more recipes send to the Department of Agriculture for Farmers' Bulletin 771, "Home-made Fireless Cookers and Their Use."

FORM THE OLIVE OIL HABIT

The medicinal value of fats is very great. Olive oil is one of the best of foods. It is a laxative and body builder. We are apt to forget that, like both the front gate and the sewing machine, the human system needs a lubricant, and for this there is nothing better than olive oil.

The best varieties of olive oil come to us from Italy and France. Spain also produces a clear, excellent oil; but for the American taste the Spanish oil is a little too strongly flavored. Indeed, we might take a valuable lesson from the Italian and French peasants who use olive oil almost to the exclusion of other fats, and certainly the women of these peoples are thrifty housewives, fully aware of the economic excellence of the oil. When the cost of olive oil, as against that of other fats, is not too great for the family purse, it should be used liberally.

Olive Oil for Cooking—With the growing demand for olive oil unfortunately the adulterater has put out oil that is not absolutely pure; and although Uncle Sam has almost stopped the adulteration with seed oils the careful housewife will find that there is only one safe way to avoid being imposed on with mixtures of inferior foreign oils, and that is to find a standard, reliable brand and refuse any substitute.

Form the Habit—The cost of the best oil is normally in the vicinity of $1.00 a quart, and although this may seem to many housewives to put it in the class of luxuries, they must stop and think of the varied uses and the nutritive value of good oil.

Form the habit of keeping a quart can of oil in the refrigerator, then use it as plentifully as the purse will permit; the results in the improved cooking and family health will convince the most skeptical of its merits as a family necessity.

Tin has now almost replaced glass as a container for olive oil, and not only because tin is cheaper, lighter and more convenient, but also because a strong light deteriorates olive oil. Keep the can of oil in an even temperature and after it is opened in a cool temperature; and as it is quick to absorb other odors keep it corked or tightly closed.

To make olive oil recipes the success they should be, the following must be observed: Buy quart cans. Buy a known and reliable brand, and once you are suited accept no substitute and don't look for "bargains"—they will result in dissatisfaction.

Almost everything to be fried is improved by being cooked in olive oil. Apples, eggs, omelets, and even steaks or cutlets are delicious when cooked in this way, while a steak whose tenderness is in doubt will be rendered excellent if it is saturated in a mixture of olive oil and a tablespoonful of lemon juice.

Fritter batters, corn, oysters, etc., will prove a revelation if oil is used for the shortening, as they will be lighter, far more delicate and consequently easier of digestion.

Certain other vegetable oils are very good and, except for flavor, very nearly as desirable as olive oil. It is not intended here to recommend the exclusive use of olive oil over these others, which are in most cases absolutely pure and wholesome. But the use of olive oil is not ordinarily appreciated to the extent it should be, and the housewife should by all means "form the habit" of using it as freely as she can.

THE KITCHEN AND COOKERY

Part 2

COOKING RECIPES
with
TALKS ON COOKING
APPERTAINING TO THE VARIOUS FOODS
and
INSTRUCTIONS

A COMPLETE COOK BOOK

Condensed and Simplified

TWO "TIPS"

1. Keep the cook book, when using it, directly over the kitchen table, on a slanting shelf, where it will remain open to be easily read and may be kept clean through little handling.
2. When trying a new recipe, FOLLOW IT. Do not experiment with it the first time.

COOKING AND RECIPES

WITH TALKS ON COOKNG AND INSTRUCTIONS

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TABLES

All measures are level—leveling is done by passing over top the back of a case-knife.

Flour, sugar, soda, etc., should be sifted before measuring.

Do not pack these in measuring.

Butter, lard, etc., however, should be packed, and then made level with case-knife.

For a half-spoonful, divide through center lengthwise.

TABLE OF MEASURES

A "speck" or trifle	¼	saltspoon
4 saltspoons	1	teaspoon
3 teaspoons	1	tablespoon
16 tablespoons	1	cup
2 gills	1	cup
1 wine glass	½	gill
2 tablespoons butter	1	ounce
2 tablespoons granulated sugar	1	ounce
4 cups sifted heavy or "pastry" flour	1	pound
3 1-5 cups sifted fine light flour	1	pound
4 tablespoons sifted fine light flour	1	ounce
2 cups granulated sugar	1	pound
2 cups butter	1	pound
2 cups chopped meat, packed	1	pound
2 cups rice	1	pound
1 cup corn-meal	6	ounces
1 cup steamed raisins	6	ounces
1 cup cleaned currants	6	ounces
1 cup stale bread crumbs	2	ounces
8 or 9 large, or 9 or 10 small, egg	1	pound

TABLE OF PROPORTIONS

For: 1 quart of flour allow	1	1/3 cup of butter, or butter and lard mixed for pastry.
" 1 " " " "	4	tablespoons of butter for biscuit.
" 1 " " " "	6	tablespoons of butter for shortcake.
" 1 " " " "	1	cup of butter for cup cakes.
" 1 " " " "	1	level teaspoon of salt.
" 1 " " " "	4	teaspoons of baking powder.
" 1 " " " "	1	pint of liquid for batters.
Use: 1 measure of liquid to	3	measures of flour for bread.
" 1 teaspoon of soda to	1	pint of sour milk.
" 1 teaspoon of salt to	1	pound meat.

NOTE.—Less butter may be used than the above. In the best practice, as recommended by the U. S. Dept. of Agriculture, it is recommended that both butter (or other fats) as well as sugar, be used as sparingly as proper flavor will permit in all cooking—much less than usually prevails from old established custom. This is more wholesome as well as economical and sensible in every way.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

KITCHEN HELPS

CARE OF UTENSILS AND GENERAL CONVENIENCES

There are two maxims which the housewife should have in mind when she enters her kitchen workshop. They are: "Plan your work and work your plan," and "A place for everything and everything in its place."

A few simple articles kept handy and a little judgment used in the arrangement of shelves, tables and hooks, will do wonders towards lessening labor and saving steps.

The old saying that it is as cheap to sit as to stand should be observed in the kitchen of all places. A revolving stool, or any kind of high chair or seat, will prove a boon to the kitchen worker. It is not a sign of laziness but of conservation to sit while you work.

Have tables and chairs and shelves arranged to suit your height; stooping and bending tire unnecessarily.

Above all things, learn to think. In making trips to the pantry, ice box or cellar, take things to be left there, and bring others on the same trip. Heed the old saying, "Make your head save your heels."

TABLE AND KITCHEN UTENSILS

(From "Selection of Household Equipment"—Yearbook, Department of Agriculture)

Table and kitchen utensils make up an important group of furnishings. Very often the same kind of articles in different qualities are found in both sets. Table plates differ from kitchen plates more in their unattractiveness than in any other way. Real china or porcelain, which is always translucent and of which the choice tablewares are usually made, is more suitable for occasional than general use because it is rather fragile, but its light weight, fine color and smooth surface are undeniably beautiful. Earthenware with a good glaze usually ranks next to porcelain and is very satisfactory for general use. The old blue and white Staffordshire wares, which were so highly prized in colonial days in this country, belonged to this type, and similar ware is still to be obtained in many satisfactory designs,

one of the common ones being the well known willow pattern. Large and conspicuous designs usually become tiresome on things which are used as frequently as table dishes and it is safer to select plain white or some all-over pattern or inconspicuous bands of flowers, color or gilt. It is usually wiser to buy tableware from an open-stock design than to take the regular sets, which often include unnecessary pieces and cannot always be replaced when broken. Good, plain shapes are ordinarily to be preferred to more fancy ones, because they are better adapted to their purposes and are easier to clean than those which have irregular surfaces which catch and hold the dust. Pitchers, teapots and other dishes with openings so small that the hand cannot be inserted to wash and wipe them are to be avoided, or a teapot which is hard to clean on account of an elaborate handle. Kitchen crockery, like tableware, should have a good, smooth-finished glaze which will clean easily and not chip.

Glassware is to be obtained in almost any grade, from the most expensive cut-glass to the coarse kind used in jelly tumblers. The choice depends on the pocketbook, but it should not be forgotten that plain glass or glass cut in a simple pattern is easier to keep shining and is usually more beautiful than any except possibly the very expensive types of elaborately ornamented glass.

Knives, forks and spoons are made in several kinds of metal. Silver is the most durable and always has an intrinsic value. Plated silver is made so well and so cheaply nowadays that almost every family can have at least a supply of forks and spoons. Many prefer steel-bladed to silver knives for the main course at a meal because they cut better, but they are harder to care for than silver or plated ones. Tea sets, pitchers and other serving dishes come in good designs in plated as well as solid silver. If the family happens to own handsome ones, they make appropriate sideboard ornaments; but they require frequent rubbing up to keep them bright, and unless they are needed every day on the table it is better to put them away and reserve them for special occasions than to let them stand about tarnished.

There is much discussion as to the best material for cooking utensils. The truth is that no material is best for all, and the work is most easily and satisfactorily done if different kinds are chosen for different needs. Earthenware is excellent for certain purposes, as it holds the heat evenly, and baking dishes or casseroles in which the food can be served as well as cooked save dishwashing. Such wares are not adapted to all kinds of cooking, however. The great heat of fat in frying, for example, especially when the hot fat spatters up against the cooler parts of the dish, is likely to crack it. Enameled ware is light in weight, easy to clean, and is little affected by acids; it is excellent for mixing dishes and for keeping food in, but the cheaper grades do not always stand the heat of cooking well and soon chip. The enamel should be free from bubbles and have smooth, evenly finished edges which will not chip readily. Aluminum heats quickly and so economizes fuel, comes in very good shapes, is light to handle and very durable; it is affected by alkalis, discolors easily and is rather hard to clean. Nevertheless, since it does not rust, it is especially desirable for teakettles, double boilers, kettle covers, etc. Cast iron is still common ware for kitchen utensils, but it is being replaced in many homes by materials which are lighter in weight and less expensive. Good iron pans and skillets are excellent for some kinds of cooking, however, because they heat more evenly than those of other materials, and they last for generations. Iron rusts easily and is affected by acids as aluminum is by alkalis. It is because of the action of acids that iron dishes sometimes injure the color and flavor of food, and for this reason food, especially acid food, is usually not allowed to stand in them. Tin and sheet iron plated with tin are in common use in most kitchens because they are rather inexpensive, but they are not entirely satisfactory. Unless they are unusually heavy, they lose their shape quickly, and in thinly plated kinds the tin wears off and the iron beneath rusts easily.

The shape of kettles has much to do with the quickness with which their contents heat. The smaller the surface which comes in contact with the heat, the longer it will take the contents to become warm, and vice versa. This means that in a kettle with a broad base the contents heat more quickly than in one with a small base. The point should especially be considered where gas stoves are employed and fuel must be carefully used.

Because a thing is to be used in the kitchen is no reason why it should be ugly to look at, and if the housekeeper can find mixing bowls and kettles which are attractive in shape, color and finish, as well as convenient and easy to clean, they will give her a sense of pleasure every time they are used.

CHOICE AND CARE OF UTENSILS

(Extracts from Bulletin under above title, being Farm House Series No. 5, Cornell Reading Course Lessons for the Farm Home)

POINTS TO BE CONSIDERED IN CHOICE OF UTENSILS

In order to choose a utensil deserving of its name, something fit for use, we must consider the following points:

Is the utensil genuine, "as advertised"? No other investment of money is so bitterly regretted as one that calls for the admission, "This was not worth buying at any price."

Is the utensil durable? A purchase of permanent equipment should add enough to the value of the working plant so that it need not be charged as an expense against the year of its purchase, but may be treated as an investment covering as many years as its usefulness continues.

Is the utensil convenient to handle? This depends on more than mere lack of weight. A heavy utensil, well balanced, with handle or bail set in just the right place and way, may be easier to use than a lighter one in which these points were not considered and which must be kept balanced by hand and wrist in order not to tip.

For a utensil of moderate size, easily lifted with one hand, occupying little space in itself and intended for use on top of the stove only, a fairly long handle is best; it does not get in the way of the cover or contents to be poured out, and may be so constructed as not to grow uncomfortably hot to the hand.

It is convenient, at times, to have a utensil that may be transferred at will from the top of the stove to the oven. For this purpose utensils are made with a very short handle or with two handles of the sugar-bowl type.

The half-circle metal bail is best reserved for vessels so large in themselves as to require much stove and storage space and needing two hands to lift them.

What kind of cover shall we choose? For long, slow cooking, when the purpose is to conserve heat, moisture and flavor, a tight fitting cover is necessary. For rapid boiling, where much steam is being produced, an easily removed cover is an essential safeguard.

Is the lip of the utensil in the right place? Lips of utensils should be on the side that is convenient, according as we are right or left-handed. How many fulfill this requirement? Those with lip on each side are plainly sensible. Most utensils are designed to be held in the right hand while pouring one liquid into another. This necessitates either stirring with the left hand—a difficult operation—or alternately pouring and stirring with the right hand.

Is the utensil easy to clean? In order to insure ease of cleaning, a utensil should be made of one piece of metal with rounded edges or sides, not with seams or corners.

It should not have a rolled rim with a rough edge underneath. The joining of utensil and handle should not offer grooves or tunnels as gathering places for particles of grease, dust and soap. It is imperatively important that the inside rather than the outside of the utensil be smooth, polished and consequently easy to clean. The opening should be wide enough to permit easy access to every part of the utensil.

Is the utensil of proper size and shape for the amount and kind of cooking to be done? The pan that makes an ideal omelet for three would produce a very unevenly cooked dish if used for an omelet for six. The breakfast cereal for a small family, if put into a large kettle in the fireless cooker, would soon lose its small stock of heat and remain raw.

If a gas or an oil stove is used, the size of the bottom of the utensil greatly affects economy of fuel, time of cooking, and quality of the finished product. If utensils fail to fit the burner, a thin stove-lid of the proper size may be placed over the flame.

The time needed for evaporation, or boiling down, depends on the amount of surface exposed; hence evaporation will go on more rapidly in a utensil that flares at the tip than in one whose top and bottom are of the same size. The contents of a utensil made of material that is a good conductor of heat, such as aluminum, will boil down more rapidly than if put into an agateware utensil of the same size.

Is the utensil safe as a food receptacle? There must be no risk of forming poisonous compounds. As an illustration: we avoid the use of an iron utensil in canning and preserving, because we know that iron and fruit acids together form a compound which, although not actually harmful—iron being needed often in the blood—is of little value when taken in this form, and is at least a discoloring agent for the food and therefore detracting from the appetizing appearance. And this caution should go a step farther. If an enamel kettle has become chipped, so that the iron foundation and the acid can combine, it is best not to use it for cooking acid foods; even if the danger to health is slight, there remains the possible economic loss through impaired flavor or through scorching, as well as the chance that chips of enamel may find their way into the food.

UTENSILS BEST ADAPTED TO THE DIFFERENT PROCESSES OF COOKING

BAKING—Cake—Tin, if well cared for, is the metal best adapted for cake making. The round tin with a tube in the centre, known as an angel-cake tin, produces the most level and evenly baked cake, owing to the fact that the heat reaches the center of the cake as soon as any other part. A plain round tin, not too deep, gives the next best result; a square tin is next, while an oblong tin requires very careful regulation of heat in order to produce a well-baked cake.

Bread—The choice of utensils for bread baking lies between tin and Russia-iron (a sheet iron treated by a process having a polished blue-black surface). Since bread requires a hotter oven than does cake, the Russia-iron pan should have first choice; it absorbs more heat than does tin, is less affected by high temperature and is more durable.

Pie—It has been found that the best results are obtained from the use of graniteware plates, that old tin plates are next in order, while perforated and wire plates come third.

Cookies—Cookies are best baked on Russia-iron sheets cut to fit the oven, with heavy tin sheets as second choice.

MEATS—Roasting—Roasts require a high temperature at the start in order to sear the surface; for this reason the best choice is a pan of iron or high-grade granite ware. An oval pan can be more carefully cleaned than one with sharp corners.

Pot Roasts—The iron kettle with a tight-fitting cover, called also the "Dutch oven," best supplies the steady heat that a pot roast needs. Although a casserole may be used, or a bean pot with waxed paper tied tightly over the top, in either of these there is more evaporation than in the iron kettle, and the roast is therefore drier, although just as tender.

Meat Stews—Since in stews more liquid is added than in pot roasts, the casserole may well be used, or a shallow aluminum or granite-ware stewpan with close-fitting cover, straight sides, and very short or loop-shaped handles. The long, slow cooking may thus be done either in the oven or on top of the stove. In brown stews, the meat is first sauteed in an iron pan in order to give the desired color and flavor.

Stewing Fruits or Vegetables—Aluminum, granite, or enamel ware is equally good for this purpose. A wide, shallow type of saucepan, with well-fitting cover, should be selected for fruits and for such vegetables as require to be cooked in a small amount of water; while a deep saucepan, without a cover, is best for the cooking of strong-juiced vegetables that need a large amount of water.

Sauteing—A rather heavy iron or steel frying-pan is best adapted for this purpose. In a thin pan, or in one of granite-ware, the fat passes too soon from the temperature at which it forms the desired golden-brown crust on the food to be cooked to the point where it begins to decompose and become irritating to the mucous membranes.

Frying—For frying in deep fat use an iron or steel frying kettle, which may either be bowl-shaped or have straight sides. The latter shape accommodates a greater number of articles at a time, and is more convenient for use with a wire frying basket, since the basket fits it more readily. In using the bowl-shaped kettle, a long handled skimmer may be found more convenient for removing the food. The kettle should be deep enough so that when it is two-thirds full of fat the food to be cooked will be entirely immersed.

Candy-Making—Professional confectioners use a copper kettle. For the home candy-maker, aluminum comes nearest to copper in its quality of conducting heat. Syrup boiled in an aluminum kettle rarely scorches, and the smooth surface makes it easy to keep the sides wiped free from sugar crystals as they form.

Jelly-Making—Enamel or granite-ware (unless there is a defect in the enamel finish) is the best selection for jelly-making, because of the ease with which it may be cleaned and the certainty that it will neither affect nor be affected by the acid of fruit juices.

CHOICE OF VARIOUS UTENSILS

Knives—The assortment of knives should include a bread knife, butcher's knife, a knife with waved edge for cutting fresh bread and cake, and a palette knife, used by artists in cleaning palettes and adopted in every kitchen where cooking is classed among the fine arts, as by means of it a bowl may be so completely freed from the batter that was mixed in it as to reduce dish-washing to a minimum, while increasing the quantity of cake obtained to a maximum.

Heating Knives—To preserve the temper of steel knives, we must avoid the practice of heating the blade on top of the stove to facilitate cutting fresh bread or cake. Allowing hot water to run over the blade accomplishes the same purpose without injury to the knife, and this should always be done in cutting a frosted cake, in order not to mar the frosting.

Egg Beaters—Different types of egg beaters are needed, according to the consistency desired in the beaten whites. For all-round use, the Dover egg beater is a good

choice, because it works most quickly. The balloon-shaped egg whisk made of piano wire carries more air into the mixture, and the flat wire beater gives the airiest texture of all. Either of the latter types is preferable to the Dover egg beater for angel-cake, sponge cake or meringues.

Spoons—Spoons of hard wood should be used whenever possible; they are lighter than metal ones, do not discolor the hand, make less noise, do not get hot to the hand, and do not scratch metal surfaces. For basting roasts, or whenever a specially strong spoon is needed, a tinned iron spoon is good. Enamel spoons are not practical, as they are likely to bend and crack the enamel.

Pastry and Vegetable Brushes—If brushes are used in connection with food—that is, for greasing pans or for brushing rolls or pastry with butter, eggs or milk—they must be of a kind that can be cleansed with boiling water. This is impossible if the bristles are glued in. The bristles should be strong and pliable and should be bound to the handle with twine rather than metal. Small wooden-backed brushes are indispensable for the proper cleaning of vegetables, for brushing grated lemon rind from the grater, and for many other purposes. A round pitcher- or bottle-brush, and a long wire-handled trap brush for the refrigerator, are sanitary necessities.

PREPARING NEW UTENSILS FOR USE

Iron, Tin and Enamel Ware—It is a general custom to prepare a new iron utensil for use, after thorough cleansing, by rubbing unsalted fat over it and baking the fat in. The same treatment is adapted to tin, for while it destroys its shiny new appearance, it protects the tin from rust and increases its capacity for holding heat. Enamel ware, too, is said to be protected from cracking and chipping if it is well rubbed with fat before being used for the first time; the fat, however, cannot be baked in as with tin and iron, since it would not be absorbed, but only burned fast to the glaze.

Glass—Tumblers, jars and lamp chimneys may be toughened by putting them into a kettle of cold water, bringing it gradually to the boil, and after boiling a few minutes allowing it to gradually cool again.

Machinery—Egg beaters, ice cream freezers, and any other utensil in which there is friction between two parts, should be carefully oiled before using, the wheels turned until the oil has reached every part, and all surplus oil wiped off before the utensil is used for food. The bearings should never be put in water, since they cannot be perfectly dried and therefore would become roughened and clogged by rust.

PROLONGING THE USEFULNESS OF UTENSILS

Repair Kit—A well stocked repair kit is a necessary part of the up-to-date kitchen, in fact it applies to the home generally. If we calculate the time, strength and nervous force wasted in trying to use a teakettle lid with a loose knob, as against the time that it would take to tighten the nut which holds that knob if only the screwdriver were close at hand; in hunting for the kitchen memorandum in a drawer when a nail and hammer would fasten it to the wall; in tugging at a warped pantry door when a few strokes of the plane would make it open and close easily; in slamming a door that will not close in any other way, for the lack of a drop of oil on the catch; in having to discard a pet saucepan in the midst of preparing a company dinner because a tiny hole makes it useless, when a drop of solder would cure the trouble; in trying to carve meat or cut bread with a dull knife, when the possession of a knife sharpener and the knowledge of how to use it would make the process a pleasure: we shall readily see what a change would be wrought by the possession of a

toolchest containing hammer, screwdriver, plane, pliers, oil can, saw, soldering outfit, knife sharpener, twine, shears, and such nails, tacks, screws and hooks as are most often in demand.

PROTECTION OF UTENSILS NOT IN USE

If the house is to be closed for a time, or if for any other reason the utensils are to be set aside, all metals should be protected from dampness by a coating of vaseline, paraffin, or unsalted fat of some kind.

MATERIALS AND THEIR CARE.

Iron and Steel—Of the metals used in our kitchens, iron in its three varieties—cast iron, wrought iron and steel—is most common. Besides the utensils commonly known as iron and steel, we have also those in which iron or steel form the foundation; tin, galvanized iron, enamel, and nickel-plated ware.

A good iron or steel utensil, well cared for, grows better the longer it is used. The two essentials are that it be kept dry and that it be kept smooth. The chief foe of iron is rust, caused by the action of moist air. Rust in itself has no harmful effect on food, but by roughening the utensil it makes it insanitary. Moreover, rust once started proceeds rapidly to eat into the utensil that it has attacked.

Some cooks assert that an iron utensil should never be washed, but only thoroughly rubbed after use, in order that its surface may be protected by a constant coating of fat. However, if the air cannot attack the iron, it does attack the fat, causing decomposition which will taint the food cooked in such a utensil. The best way, therefore, to clean an iron utensil is to boil in it a solution of washing soda, rinse it with boiling water, and see that it is thoroughly dry before being put away. Iron that is put away for a time should be protected with paraffin.

Tin—The better grades of tin are not affected by the air, by weak acids such as vinegar or fruit juices, or by alkalis; they therefore effectually protect the steel foundation. Cheap grades, however, are not proof against the action of acids, and all grades are likely to change under the action of acids when hot. The quality of tin used may be determined by noting how a piece is marked, X being the cheapest and XXXX the best quality.

Tin utensils must be carefully protected from scratches, since every scratch, by marring the soft metal, exposes the steel foundation and is soon followed by a streak of rust. A tin utensil and a metal spoon should therefore never be used in combination, nor should a metal scraper be used for cleaning tin. Washing in hot soapsuds, boiling in a weak solution of washing soda, rubbing with whiting or one of the prepared cleaning powders, are the best ways of caring for tin.

A Pointer on Bread and Cake Boxes—Tin storage receptacles are good for keeping cookies and cake, but stone crocks are better for bread. The difference lies in the fact that the process of growing stale is a different one in each case. Cookies turn stale by absorbing moisture from outside; therefore they require that moisture be kept away. This the impervious tin cake-box does, especially if we add to the contents a few pieces of charcoal to absorb what little moisture may accumulate. Bread grows stale by a shifting of its own moisture from crumb to crust. A fresh loaf has a crisp crust and a soft crumb, while in a stale loaf the reverse is true. In a tin box, especially if it be unventilated, this moisture, held in the crust, soon makes a musty loaf. In a stone crock, which is porous, the moisture has a chance to escape, the crust becomes less soggy, and the flavor of the loaf is better maintained. In cake, where there is less difference in texture betwen the outside and the inside of the loaf, staleness consists in a gradual general loss of moisture. Cake is therefore better kept in tin, with the addition of a receptacle con-

taining water, to be daily renewed. If cake and bread be stored in the same box, the cake will take up moisture (and incidentally a bready flavor) from the bread and remain moist longer, while the bread will dry faster than when stored by itself.

Granite and Enamel Ware—Granite and enamel ware are made by coating sheet iron or steel utensils with an enamel or glaze. Two or three coats of enamel are applied successively. The quality of the enamel depends on the ingredients used and on the number of coats applied. Durability of granite and enamel ware depends no less on the quality of the steel or iron foundation than on the enamel finish. The foundation should be firm enough so that it will not bend or dent easily, since this inevitably cracks the enamel. The tendency to bend makes enamel spoons unpractical.

"Seconds"—There is a mistaken belief that if we avoid so-called "seconds" we are sure of getting a good article. As a matter of fact, it is only conscientious manufacturers who test their wares and set aside as "seconds" pieces that are not perfect in color or shape, or that show in the bend of the utensil pinholes which the enamel failed to cover perfectly. If the perfect pieces, or "firsts," made by such a firm are beyond our purse, we are safer in buying their "seconds" than in choosing cheap "firsts" so-called. A poor quality of enamel soon wears off or loses its gloss and may even discolor and dissolve in the dishwater.

Galvanized Iron—If iron, instead of being coated with tin or enamel, is dipped into melted zinc, it is known as galvanized iron. The zinc coating makes iron rust-proof, hence galvanized iron is the best material for garbage cans, refrigerator pans, and the like. Zinc is affected by the action of salt by the seashore, so that it does not last well, and it is not safe for use in cooking utensils because it is affected by both acids and alkalis.

Nickel-Plated Ware—Another coating given to iron is melted nickel, the product being called nickel-plated ware. This takes on a high polish, does not rust and is easily kept clean. It is therefore much used for coffeepots, chafing dishes and other utensils designed for table use. Its durability makes it desirable for use in institutions, but its weight and cost bar it to a great extent from the private kitchen. Nickel-plated ware is kept in good condition by washing in hot soapsuds and rinsing in very hot water. It very rarely needs friction, but may be rubbed if necessary with a paste made of whiting and lard.

Aluminum—Aluminum has come more and more into general use since the cost of producing it has ceased to bar it out. The advantage of aluminum utensils is that they are light, well made, easily cleaned, and are excellent conductors of heat. Milk, rice, sugar and other easily scorched foods are comparatively safe in aluminum.

Aluminum does not withstand a high temperature. If heated over a gas or oil stove, the flame should not be turned on full; if over wood or coal, the stove lid should be left on. Many complaints of the warping of aluminum have been due to not using this precaution. An aluminum utensil may be injured by allowing some foods to remain in it for any length of time.

The outside of aluminum utensils can be kept bright by the use of any kind of metal polish that is not gritty. The inside surface is darkened by water containing alkalis or iron. This thin, dark coating is easily removed by the use of whiting or any of the cleaning powders that do not contain free alkali. If food or grease is burned into the surface, it can usually be soaked loose by keeping hot water in the utensil for several hours; after which it may be scraped with a wooden spoon. If this fails, the utensil may be scoured with fine sand or powdered emery or fine steel wool. The mild acid of sour milk or tart apples, boiled in aluminum, will brighten it very effectually.

Copper—Copper is, next to silver, the best metallic conductor of heat. Its use in the household is limited because of its expense and weight, the danger from its use when not properly cleaned, and the labor involved in keeping it in good condition. Vegetables, acid

fruits, or preserves, if cooked in copper, should not be left for a moment after they are done. Copper and acid, when exposed to the air, form verdigris, which we all know to be very poisonous. The green coloring that forms when copper is exposed to moist air alone is not verdigris, although it is often so called. Copper cooking utensils should be washed with washing soda in order to remove all grease; stains should be removed with salt and vinegar, or with oxalic acid; and the utensil should then be thoroughly rinsed. Unless the acid used for cleaning is thoroughly rinsed off, copper will tarnish the more quickly because of its use. The acid may be further counteracted by rubbing with whiting. If not stained, copper is best brightened by rubbing with rottenstone or tripoli and sweet oil.

Silver—Silver is of all metals the best conductor of heat, but its costliness bars it out as a cooking utensil. Silver has to be combined with copper in order to make a compound hard enough for use. Plated silver is copper with a thin coating of silver applied by electricity. Silver does not tarnish, that is, grow dark, unless it comes in contact with sulphur. "Oxidized" silver has been treated with sulphur—in other words, purposely tarnished. If our silver discolors badly, there is an escape of sulphur either from our fires or from our lights; or the silver has been stored near rubber, or it has been wrapped in paper or cloth bleached with sulphur; or it has been used in eating eggs; or it has been handled with bare hands. The rule against handling silver with the bare hand in wiping it or in setting the table is a labor-saving one, since human perspiration contains sulphur and a warm, moist hand is sure to leave its mark.

Cloudiness in silver, with no change of color, may be due to imperfect rinsing or to that film of dust and moisture present in any room not perfectly ventilated where human beings work and breathe. Plenty of hot soapsuds, careful rinsing and wiping, will remove this film without the need of much rubbing. To remove tarnish, the use of silver polish, or of something that replaces it, is necessary. Silver is successfully cleaned by boiling it for five minutes in a new or bright aluminum or tin dish, in a solution made of one tablespoon of baking soda and a tablespoon of salt to every quart of water. The aluminum utensil must be kept scoured or it will not be effective. Most silver polishes have whiting for a foundation, made into a paste with either water, soap and water, alcohol, or, for solid silver, ammonia.

Pottery—Porcelain, stoneware and earthenware all have clay for a foundation, but differ in appearance and quality according to the fineness of the clay used, the kind of glaze applied, and the length of time taken for firing. Good stoneware can hardly be distinguished at first glance from porcelain, but its glaze is of a kind that easily becomes scratched or covered with fine cracks. Earthenware is made of the cheapest grades of clay, and its glaze—which is produced by throwing common salt into the furnace during the firing of the ware—is easily chipped, exposing the very porous ware underneath. For this reason white stoneware mixing bowls are in the end cheaper than yellow earthenware.

Fireproof ware is made of clay which contains little or no iron, and which therefore withstands fire. Utensils of this kind are often left unglazed, but more often they are covered with a glaze that is fired at a sufficiently high temperature to make a hard, smooth, glassy surface, which is proof alike against high heat and the effect of acids. Fireproof earthenware has long been represented in our kitchens in the shape of the Boston bean pot. We now have, in addition, a large variety of "casserole" dishes. The economy of long, slow cooking, whereby the cheaper cuts of meat are made digestible and palatable, is being given more and more consideration. Utensils that are equally useful for cooking and serving save time and strength in addition.

If stoneware, earthenware or china dishes are to be allowed, after washing, to dry without wiping, it is important that the rinsing water be very hot and very clean. Imperfectly rinsed dishes, dried without wiping, become coated with a thin film which in time spoils the glaze.

Glass—Glass is made by melting together sand, a lead or lime compound and a compound of soda or potash. The quality depends very much on the purity of the raw material. Glass is being more and more used in our kitchens, for measuring cups, rolling-pins, storage jars for cereals, milk bottles, jelly and preserving glasses. The glass door for our ovens and glass tops for our percolators not only save time and motions, but also satisfy the general desire to see things actually happening. Glass of good quality is durable if handled properly.

Wood—Steak Planks—With the passing of wood for other uses, many persons are just discovering that meat cooked on a well-seasoned oak plank has a flavor unlike any other, and comes near to filling the desire for "some new animal" which every household voices from time to time. A home carpenter may earn much gratitude by making one of these planks. It should be oval, an inch to an inch and a half thick, about eighteen inches long by twelve inches wide, with a depression at one end for holding the juices and with grooves leading toward the depression. As sold in the shops, the planks are furnished with trays on which to bring them to the table, but any oval tray fulfills the same purpose; in fact, the plank may be made to fit a tray already in use. To make the planks non-absorbent, after thoroughly cleansing them rub in all the oil (suitable for coming in contact with food) that the wood will take up.

KITCHEN UTENSILS—MISCELLANEOUS

To Clean Granite Ware—(Cornell Reading Course)—Apparatus: A vessel large enough to hold the utensil being cleaned, and one that will not be affected by strong soda solution; washing soda, bath brick, dishcloth and dish towel.

Place the utensils to be cleaned in the larger vessel. Nearly fill with cold water. Add soda in the proportion of one-half cup soda to one quart cold water. Let boil for an hour until most of the dirt will rinse off readily. Take the utensils out of the water and rinse under the tap. If necessary scour the utensils with bath brick or Sapolio in order to remove obstinate spots. Wash like ordinary dishes. In extreme cases it may be necessary to repeat this operation several times.

To Clean Ironware—(Cornell Reading Course)—Apparatus: An old newspaper, a flannelette duster, a lump of beeswax or mutton fat tied in a square of cloth, a piece of old cloth for scouring, some coarse salt, and a basin of soapy water.

Procedure to Season New Ironware—Heat the iron utensil hot enough to melt the wax or fat. Spread the newspaper on the table; rub the utensil with the wax or fat. Wash in hot, soapy water. Repeat several times if necessary.

To Clean Rusty Ironware—Spread the newspaper on the tabel. If very rusty rub the ironware with kerosene and let stand for an hour, or longer if necessary, before further treatment. Heat the utensil enough to melt the wax or fat. Rub with wax or fat until well covered; then scour off with salt. Wash the utensil with hot soapsuds and dry. Heat until thoroughly dry. If the weather is damp or the ironware is being put away for some time, rub with wax, vaseline or saltless fat of any kind, in order to prevent rust.

Note—It may sometimes be necessary to use finely pulverized bathbrick in addition to the salt. Flatirons should be cleaned as described for ironware.

To Clean Steel of rust, rub the rusted part with sweet oil and allow to stand for 24 hours; then rub with a piece of soft leather and sprinkle with finely powdered unslaked lime until the rust disappears.

To Clean Knives of rust, use a raw potato dipped in cleaning powder.

Cake Griddle—Keep this in good condition largely by the vociferous use of sandpaper occasionally, using very little grease for frying the cakes.

To Clean Brass and Copper—(Cornell Reading Course)—Apparatus: Rottenstone, sweet oil, scouring flannels, chamois skin, clean dry towel, and a saucer; also, if necessary, a soft brush.

Wash the article in hot soapy water. If badly tarnished, it may be necessary to make a weak solution of oxalic acid and rub this over the article before washing it. The acid, however, is a dangerous thing to use if the skin is broken anywhere on the hands. It should be kept off the hands in any event.

Mix a little paste of rottenstone and oil in the saucer and scour the brass vigorously with it. Be especially careful to get it into crevices and corners.

Wash thoroughly with hot water and soap,

rinse, and dry. If the article seems greasy after the washing, the water was not sufficiently soapy and the washing should be done over.

Polish with chamois skin.

Wash out the cloths and chamois skin and hang them up to dry.

Note—If the article is very badly tarnished it may be rubbed with fine emery paper, or finely pulverized pumice stone may be used as a paste with the acid or with water, rubbing vigorously.

Brass Saucepan—To clean a brass saucepan or preserving can quickly, put in it a little bathbrick and moisten it with vinegar; this will at once remove the stain.

Copper Kettles, etc., may often be cleaned by rubbing all over with a cut lemon dipped in salt, then rinsing thoroughly with clear water and polishing with a soft cloth or chamois. Or a little powdered bathbrick moistened with vinegar; mix to a paste and rub a little on the copper; let it stand for a time, then rub off and polish with a soft cloth; wash off and polish finally with chamois.

To Clean Zinc—(Cornell Reading Course)—Apparatus: The kerosene can, some cotton waste or an old cloth, a bottle of vinegar and alum mixture (see below) and an old pot.

Take a piece of cotton waste or an old cloth, pour a little kerosene on the zinc, and spread it all over with the waste or cloth. Start at one corner with the waste or cloth and rub hard until the zinc is clean and bright. Finally, rub off all superfluous kerosene with a piece of fresh waste.

If the zinc has been neglected and is very dirty, heat some of the vinegar and alum mixture in the old pot. Apply it hot, rub hard, and wipe off immediately.

Burn the waste.

Vinegar and Alum Mixture—2 oz. powdered alum; 1 qt. strong vinegar. Boil the vinegar, add the alum, and stir until dissolved. Apply hot. Badly stained nickel can also be cleaned by boiling in this mixture until the stains begin to disappear, before polishing. Keep in a tightly corked bottle.

To Clean Badly Stained Nickel—See immediately above: vinegar and alum mixture for zinc.

Tinware—Before using tinware of any kind, rub well over with fresh lard, to season, and fortify against rust later. To clean tinware, wash with hot soda water, dry, then polish with dry flour applied with soft leather, and then rub with leather only.

Stains on Tinware or Teacups can be removed by dipping a damp cloth in common soda and rubbing briskly. Wash and wipe dry.

Get a Wide-Mouthed Funnel and keep it on hand, among your tinware supplies; it is most convenient for pouring from one bowl to another; you will find use for it every day; it prevents spilling and slopping, which largely causes various stains on utensils generally, the thin coating of the spilled liquid burning dry immediately on the hot utensils.

To Clean Pewter—Wash the article with hot water and fine silver sand; then dry and polish with a leather. Clean discolored pewter with sweet oil and whiting.

Furred Kettle — Clean with sal-soda or sal-ammoniac. Fill the kettle with cold water, add a little sal-ammoniac, and boil. The fur will dissolve. Rinse the kettle thoroughly and polish dry.

Burned Pans—Saucepans that have been burned should never be filled with soda water, as this makes them more liable to burn again the next time used. Instead, fill with salt and water, leave a few hours, then bring slowly to a boil; the burned particles will come off without difficulty.

Stained Cruet—Fill cruet with finely chopped potato skins, cork tightly, let stand in a warm place for two or three days; then turn skins out and rinse cruet with warm water and borax.

Chopping Bowl—Remove the odor of food from a wooden chopping bowl in boiling water in which a little soda is dissolved. A tablespoon of soda to a gallon of water.

Cracked Dishes—If boiled in enough sweet milk to cover them for about 45 minutes the cracks will glue together and become invisible and the dishes will stand almost as much ordinary usage as before.

Wash Linoleum and Oil Cloth with luke warm water, then polish it with a soft woolen cloth which has been dipped in milk. Wipe oil cloth with skimmed milk; it is almost as beneficial as a coat of varnish. Linoleum should have a coat of varnish, even two coats, when new, before using, and an occasional coat afterwards; it will almost entirely prevent wear if applied frequently.

Under the Oil Stove, try putting oil cloth on the shelf below the burners; it can be removed for washing, and will prove less trouble than scouring the shelf itself and is less mussy than a drip pan for this purpose.

A Box of Salt, a large one, should always be near the kitchen stove, not alone for its convenience for cooking, but in case of fat boiling over and catching fire; the fire may be instantly put out by dashing on a handful of salt. It is almost the only good and instant means for smothering any sudden flare-up of fire. It takes time to beat out a flame by wetting a cloth for the purpose, and water is likely to spread fire around a stove where grease or fat catches the flame. A box of salt always handy is almost as effective as an expensive **fire extinguisher.**

Coffee-Grounds, left over, slightly moistened, make fine dust-down for sweeping floors; it is clean and will not stain.

Opening Fruit Jars—Instead of prying open with a knife, just hold the top (upside down) in hot water for a few minutes—just dip in the top, not the body of the jar—and the lid will come off easily without danger of cutting the hands. In prying, the tool may slip, or the top of the jar itself, giving one a bad cut.

To Remove Stopper from a bottle without mutilating it with a corkscrew, or to remove wooden or glass stoppers which stick, cut a narrow strip of sandpaper and, holding it tightly around the stopper, twist the stopper; the sandpaper gives the fingers a "purchase" so they do not slip. A large rubber band wound tightly around the stopper will perform the same function. A wider piece of sandpaper may be used for unscrewing the cover of a fruit jar. The narrow strip is used again for a hot water bottle the top of which has stuck.

A Glass Stopper may often be removed by inserting in the crack of a door at the hinged side. Close the door as tightly as you can on the stopper without breaking it and then twist the bottle gently back and forth.

Or: hold the bottle firmly by the same means, or have an assistant hold it. Take two turns around the neck with a heavy, rough, strong cord. Holding an end of the cord in each hand, pull one end and then the other, causing the cord to set up a high friction to the neck of the bottle. The heat expands the glass of the neck **slightly** but does not penetrate to the glass stopper so rapidly. The stopper is release for easy removal.

Paraffin the Corks of bottles, set away for a time, or for prevention of leakage when packing bottles for traveling, either bottles containing medicine or any other liquids. Paraffin seals the corks or other tops tightly from air and tends to preserve contents as well as prevent leakage. Simply dip the corked tops into melted paraffin and set away to cool.

Movable Kitchen Table—Put casters on kitchen table. It is surprising how often it is convenient to move a table around if it moves easily and conveniently. A movable table, at times, saves lots of steps.

(Paste or Write Here Scraps or Memos. of Your Own)

MAKESHIFT KITCHEN APPLIANCES

The housewife who is ingenious enough to supply a sudden need for a certain article from something in no wise intended for the purpose has gone far towards solving the question of efficiency.

The possibilities of cans and boxes is infinite. Take the oval cans in which soused mackerel comes; these, if the top is removed or melted off close to the side and edges smoothed, make most excellent jelly or pudding moulds, and are convenient for many purposes.

If the double boiler is missing or has sprung a leak, a good substitute will be found in a coffee can which is slipped inside the tea kettle. Should it prove a bit too small, cut down an inch or two, leaving an inch strip at the seam and another opposite, and it is handy for many other purposes for insertion into the kettle—to make paste in or to melt glue.

A tin collar for a stovepipe and a tin pail or other vessel which will fit snugly inside it makes an excellent double boiler when set over a pan or kettle of boiling water; and a very ideal way to bake potatoes is found in the use of a wire trivet placed on top of the stove with a round cake pan turned over it; this does away with the necessity of waiting for the oven to heat, for by the time it is hot enough to bake, the potatoes will be more than half done. Biscuit may even be baked in this way, and the top of the heating stove may be used quite as well as the range.

When the fire is allowed to die down between meals, a wood or coal fire being used, one does not always care to go to the trouble of starting one just for a light evening meal, and if a gas or oil stove is not used one may improvise a very good substitute by setting a large lamp in a box with one end removed and placing an oven rack across the top, a couple of inches over the chimney. On this improvised stove one may boil the tea kettle, fry potatoes, poach eggs, and do other little culinary stunts. This will be found invaluable on moving days when the range is not yet set up or the gas turned on. In the summer camp it is a find indeed, and with the use of the triple stewpans, which cook three separate things over one burner, a creditable dinner may be evolved by its use.

A suds dipper which has begun to leak needs only a few more holes punched in the bottom to make a superior sink strainer—because of the convenient handle. The lid of a workman's dinner pail makes an excellent biscuit cutter, being of about the right size for pocketbook rolls, for which the ordinary biscuit cutter is too small. The top from a coffee can, if not too large, or some other similar can, makes as good a biscuit cutter as can be purchased. The bottom of a colander should not be thrown away, but saved to put in the bottom of the kettle under the pot roast to prevent its sticking and scorching. A dozen pot lid knobs that can be bought on any five-cent counter are a good investment; they will not only replace lost knobs on pot covers, but can be used to convert the tops of tin cans into covers for small basins, bowls, pails and the like. The cover of an ordinary lard pail when fitted with a knob and punctured makes an excellent cutter for short-cake biscuit.

There is an improved lid on the market that should supersede the old fashioned lid entirely—a lid of gray enamel with a handle on the side ending in a hook for hanging it up. Half a dozen assorted sized lids may be hung on one nail. They can be used for other purposes than as lids—to set the hot kettle or pan on when dishing up on the table or to lift the meat from the kettle.

(Paste or Write Here
Scraps or Memos.
of Your Own)

WASHING THE DISHES AND CLEANING UTENSILS

Dish Washing—(Cornell Reading Course)—Apparatus: Dishpan, rinsing pan, draining pan and basket, dishcloth, several clean, dry dish towels, boiling water, soap and washing soda.

Put iron pots and pans to soak in strong soda water, also put to soak any cooking dishes that need it. Put one inside another so as to clean the outside also. This should be done the moment the contents are emptied, and before the meal goes to the table.

Clean the dining table, and leave the room in order.

Put the food away, scrape and stack the dishes at the washing end of the table, putting to soak any that need it.

Set out the pans, with the draining basket in the rinsing pan. Half fill the dishpan with hot, soapy water, three-quarters fill the rinsing pan with nearly boiling water.

Wash the glass, dropping each piece gently into the basket. Put flat silver into the dishwater to soak. Lift the basket of glass into the draining pan, dry the glass and set it aside. Use the softest towels for this and see that the glass is left shining. (If you prefer the glass dried out of cold water, use it, and then fill the pan with boiling water.)

Return the basket to the rinsing pan. Wash, rinse and dry the silver the same as the glass. The towels must be dry for the silver.

Wash, rinse, and dry the small china pieces the same as glass, and put away the basket.

Wash, rinse, and leave the rest of the china and crockery to drain, while the pots and pans are being washed.

Dry the china and crockery, rinse and dry the pots and pans. Scour the steel knives and forks.

Put away all the dishes.

Empty the dishpan, put rinsing water in it, wash the other pans, dry with the cloth wrung dry, and put them away.

If the rinsing water is still clean and warm, scrub the table and the sink with it; if not, get fresh water. Wash the teakettle, inside and out, once a day, when the water is soapy.

Put towels and dishcloth to soak in hot, soapy water. This need be done but once a day, usually after the midday meal.

Rub off the stove. Sweep the kitchen floor. Empty the garbage pail.

Wash the towels and dishcloth. Rinse the pail out with the suds, and dry with the cloth wrung dry. Rinse the towels thoroughly in hot water and hang to dry, in fresh air if possible.

Dust the kitchen once a day.

Note: The dishwater should be kept hot and soapy enough to prevent the formation of a grease-ring on the pan, and should be changed when dirty. Keep the rinsing water very hot, thus requiring fewer towels.

COOKING HINTS

In cookery, as in dress, a woman should remember that if she cannot afford to employ an artist she should not attempt things which are beyond the powers of any but an expert. She who tries to hide the evil cut of her dress with yards of trimmings is on a par in lack of taste with the cook who makes wonderful concoctions of pounded chicken elaborately encased in aspic and trimmed with stars and stripes and other shapes of tongue, white of egg and truffles, and which tastes of nothing but white of egg and truffles.

It must not be thought, however, that the appearance of food may be slighted. It is of great importance—almost as great as the cooking and flavoring. No matter how inexpensive the food, it should be nicely served, and no slovenliness should be allowed even in the most simple of family meals. On the other hand, the garnishing of the most elaborate dish should never be permitted to mar its taste or temperature. To that end, hot dishes must be generally less elaborate than cold.

To Whip Thin Cream—Thin cream, too thin to whip properly, will whip better if the white of one egg is added, or two whites if there is a large amount of the cream. The egg improves both the quality and the quantity.

Whites of Eggs—A teaspoonful of cold water added to whites of eggs will cause them to whip easily and quickly.

Pickles may be kept from becoming mouldy by laying a little bag of mustard on the top of the pickle jar.

Hashes and Minces are much improved if the meat is soaked in the gravy or sauce some time before being reheated.

Salt That Lumps—Add a little cornstarch to the salt before filling.

Spread Papers over your kitchen table before starting to clean poultry, or to make bread or pies; they catch waste and save much cleaning up later.

No Tears with Onions—Scalding water poured over onions saves "weeps."

Preserved Provisions, when opened, and only a part of the contents removed, should be emptied of all at once, and the unused portions put in earthen or glass vessels. The air acting upon the tin and the solder causes the acid contents to dissolve parts of the minerals.

Lemon Rinds—Save them, dry them in the oven and store them in an air tight vessel. A little added to apple sauce gives it a delicious flavor, and it has other uses for seasoning.

Use a Soft Brush for brushing bread rolls and pastry with melted butter—such a brush as is used for varnishing.

Before Grating Lemons wash them in a basin of lukewarm water; the outside of the lemon is often not very clean; examine a lemon under a microscope and you will find tiny black spots which are the minute eggs of an insect.

Sugar Syrup—A small quantity of cream of tartar in it will prevent the syrup becoming granulated.

Currant Jelly should be used for game and custards and bread puddings.

Keep on Hand always a quantity of grated bread crumbs, grated cheese, good vinegar, herbs and spices, as these are indispensable and you often want them without warning.

Mint, either with or without parsley, is served with roast lamb, both hot and cold. Dry mint, and put it away for future use.

Save the Sprigs of celery tops and use them for salads and cold meats, or dry them and put away for the future.

Cooking Raisins—To keep moist, keep in a glass fruit jar.

Cheese—To prevent becoming dry or mouldy, wrap in a cloth which has been moistened in vinegar.

Wire Spoon—Use for removing doughnuts from hot fat. Other uses suggest themselves if you have it.

Lemons can be kept soft much longer if put in a jar filled with water, the water being renewed every second day.

Tomatoes and Milk to be blended must be brought to the same temperature and beaten together vigorously; there is less liability of curdling.

A Saucepan in which rice, oatmeal or anything sticky has been cooked may be very easily cleaned by putting in a cupful of ashes and fill with water when you take it off the fire.

Sugar Used in Pie—Put the sugar always in the centre of the fruit, not at the top, as this makes the paste sodden.

Overheated Oven—Put a bowl of cool water inside to cool it.

Burnt Milk—Take the pan off the fire and stand it at once in a basin of cold water. Put a pinch of salt in the pan, give the milk a stir, and you will find that the burnt taste has almost if not quite disappeared.

After Eating Onions—Coffee beans, cloves, sugar or parsley moistened with sugar will prevent the onions from being noticeable on the breath.

Substitute for Maple Sugar—Equal parts of granulated white and dark brown sugar, with one-half the quantity of water added, and boiled until of desired thickness. When cold, add three drops of vanilla extract. Much of the cheap "maple-ized" sugar you buy is only the above with perhaps a few drops of maple syrup to further flavor.

(Paste or Write Here Scraps or Memos. of Your Own)

Wooden Spoon should be used for stirring in preference to an iron one; the latter will often scratch tin or cause discoloration in the food; the acid in the food working on the metal will do the latter.

Odors—When cooking anything which has a strong odor put a small pan of vinegar in the stove and there will be no scent of cooking in the air.

Soggy Bread or Pastry—When serving hot bread or pastry, use hot plates; the most delicious become soggy when served on cold plates.

Cream Pitcher—Cream may be prevented from dripping from the spout by rubbing the inside of the spout with a little butter.

Soak Nuts in hot water for an hour or two and they will crack easier and the meats come out whole with less trouble to pick.

To Open Cocoanut—Place it first in the oven for a few minutes; the warmth makes opening easier.

Cracker Dust—Always keep a jar of cracker dust on hand for breading unless you have no bread crumbs for the purpose.

Dates or Figs—When running these through the mincing machine add a few drops of lemon juice to prevent the fruit from clogging.

Cutting Hot or Brown Bread—Use a silk or linen thread or fine wire instead of a knife and the bread will crumble less.

LEFT-OVER FOODS

(Iowa State College of Agriculture)

"WASTE NOT, WANT NOT"

The American housekeeper has had an unenviable reputation as a careless buyer, a thoughtless manager and a reckless waster of foods. In no other way has this been more apparent than in the custom in many homes to throw away bits of leftover food materials which might be put to good use. Much more credit is due to the woman who, as far as possible prevents the accumulation of leftovers, but who uses them wisely as they are found, than to the woman who cooks fresh food attractively and well, but who throws away foods which still contain food value and which might form the basis of palatable dishes.

LEFTOVERS AND SOME USES

Bread—
White, graham, whole wheat, corn, rye.
Toast.
Biscuit.
Pancake or waffle batter.

Meat and Eggs—
Beef, pork, ham, bacon, chicken, fish; eggs —boiled, fried or scrambled.
Gravy.

Vegetables—
String beans, onions, potatoes, beans, peas, corn.

Cereals—
Rice, macaroni, oatmeal, cornmeal, cream of wheat, hominy.

Fruit Sauces—
Apple, prune, rhubarb, cranberry, etc.

Fats—
Suet, bacon fat, meat fryings, chicken fat, butter.

Prevent Leftovers (When Possible)

1. By Careful Planning—Do not serve too many kinds of food at each meal. Provide variety between meals. Do not cook too great an amount of each food.

2. By Careful Serving—Do not serve too generously. It is better to have a second helping in reserve, so that if not eaten it may be used later.

Use Leftovers (When at Hand)

1. Practice Economy—True not False—Other things than money should be considered in practicing economy. The fuel to be used; the time to be spent; the food value to be saved and the additions that must be made should all be taken into account. Use good judgment in the selection of leftovers to be used.

2. Consider Appearance—More skill is needed to make leftover dishes attractive than the fresh foods. The wise housekeeper will remember this and make her leftover dishes as attractive in appearance as she can.

3. Prevent Monotony—Practice making many different leftover dishes. The family will soon tire of the same food cooked in the same way many times.

4. Provide Flavor—Remember that many leftover foods, particularly meats, have lost their original flavor and must be made tempting if they are to prove popular with the family in the made-over dish. This does not mean that extravagant flavorings must be used, however. Select the highly flavored vegetables, as well as the standard seasonings.

Uses for Leftover Meat and Eggs

Meat pie
Scalloped dishes
Salads
Hash
Timbales
Souffles
Chop suey
Jellied meat
Croquettes
Meat loaves
Eggs as garnish
Eggs in salad dressing
Sandwich filling
Creamed meat or eggs on toast
Omelets with ground meat or eggs
Custards with ground meat or eggs
Peppers, stuffed
Tomatoes, stuffed
Combined with rice, macaroni, potatoes, peas, beans
Meat patties
Stuffed biscuits
Meat pancakes
Acidulated beef on toast
Stuffed potatoes
Meat bones for soup stock

Uses for Leftover Vegetables

Mashed Potatoes—
- Soup
- Potato Puff
- Souffle
- Stuffing
- Croquettes
- Cakes
- Doughnuts
- Loaf
- Custards
- Scalloped

Boiled Potatoes—
- Au gratin
- Creamed
- Salad
- Hash
- Chop suey
- Garnish with meat
- Vegetable chowder
- Meat pies

Baked Potatoes—
- Stuffed
- Baked potatoes au gratin
- Pulp used as mashed potatoes

Other Vegetables—
- Meat Pies
- Salads
- Chop suey
- Soups
- Souffles
- Patties
- Custards
- Pickles
- Vegetable relish
- Meat stews
- Vegetable stock for soups and sauces
- Garnish for roast
- Stuffing
- Vegetable chowder
- Vegetable loaf
- Creamed vegetables
- Jellied vegetables
- Croquettes
- Scalloped vegetables
- Sandwiches
- Stuffed peppers
- Vegetables on toast

Uses for Leftover Cereals

- Meat loaf
- Souffle
- Timbales
- Croquettes
- Hash
- Puddings
- Fried cornmeal mush
- Fried oatmeal mush
- Fried cream of wheat mush
- Muffins
- Pancakes
- Soup
- Cereal jelly
- Peppers, stuffed

Uses for Leftover Fats

- Cake
- Pastry
- Soap
- Sauces—white; tomato and other vegetable
- Gravy
- Soups
- Bread

Uses for Leftover Fruit Sauces

- Cake
- Pudding
- Pie
- Gelatin dessert
- Sauces for dry cake
- Fruit whips
- Pudding sauces

Uses for Leftover Bread

- Bread puddings
- Other puddings
- Stuffing
- Buttered crumbs
- Croquettes
- Scalloped dishes
- Bread sticks
- Croutons
- Patty shells
- Cake
- Bread
- French toast
- Toast with meat or vegetables in gravy
- Griddle cakes
- Dumplings made of leftover biscuits and served with gravy

RECIPES.

Leftover Bread

Rhubarb and Bread Pudding—4 slices dry bread (buttered), 2 cups rhubarb (uncooked), ¾ cup sugar, ¼ teasp. nutmeg.

Place a layer of rhubarb (cut in inch pieces) in the bottom of a buttered baking dish, sprinkle with sugar and nutmeg. Then place a slice of bread, more rhubarb and more bread until dish is filled, having last layer of rhubarb, sugar and nutmeg. Bake until rhubarb is soft.

Leftover Meat

Stuffed Biscuit—Leftover cooked meat, biscuit dough, 2 cups flour, 4 teasp. baking powder, 1 teasp. salt, 3 teasp. fat, ¾ cup milk or water.

Combine biscuit dough and roll on board ½ inch thick. Cut as for biscuit, spread half of each biscuit with melted fat, place a small amount of meat (ground and mixed with gravy and seasoning) on the biscuit and fold over as for Parker House rolls. Bake and serve with gravy.

Leftover Vegetables

Vegetable Soup—¼ lb. ground raw beef, 2 cups cold water, 2 cups vegetable stock, ½ cup rice (uncooked), ½ cup each ground cooked carrots and cooked string beans cut in inch pieces, salt and pepper.

Soak beef ½ hour in cold water. Add vegetable water and rice. Boil until rice is done. Add carrots, string beans, salt and pepper. Heat and serve.

NOTE—Raw vegetables may be used by adding to the soup with the rice. Any leftover vegetables may be used to take the place of carrots and string beans.

Leftover Cereals

Cereal Omelet—1 cup cold cooked cereal, 2 eggs, ½ teasp. salt, 1 tbsp. parsley, 1 tbsp. fat.

Beat eggs well, add cereal, salt and parsley. Melt fat in omelet pan and turn in the mixture. Cook with moderate heat until firm. Fold, turn on hot platter and serve.

Leftover Fruit Juice

Rhubarb Pudding Sauce—½ cup sugar, 2 tbsp. flour, 1 cup rhubarb juice, 2 tbsp. butter, ⅛ teasp. nutmeg.

Mix flour and sugar, add fruit juice and cook until thickened. Add butter and nutmeg.

NOTE—This sauce is good served over stale cake.

Leftover Fat

Cinnamon Bread—1 egg, milk, 2 cups flour, 2 teasp. baking powder, ½ teasp. salt, 2 teasp. ground cinnamon, ¾ cup sugar, 2 tbsp. bacon fat.

Beat egg in a measuring cup and add enough milk to fill the cup. Sift baking powder and cinnamon with flour and add to egg and milk. Add sugar and melted fat and bake.

(Paste or Write Here Scraps or Memos. of Your Own)

PLAIN PATTERNS IN COOKERY

(Iowa State College of Agriculture)

Many housewives, especially those who have had little experience in cooking, are dependent upon the cook book to such a degree that they are unable to prepare a dish without it. It is unfortunate that this is true, for often much time and effort are spent searching for certain recipes which are not at all difficult if the fundamental principles are understood. There are certain underlying principles which govern all recipes. These principles may be worked out in a system of plain patterns which may form the basis of much of the cooking.

PLAIN PATTERNS

1. CUSTARDS
2. SAUCES
3. TIMBALES
4. SOUFFLES
5. SOFT DOUGHS

CUSTARDS

Custard Pattern—2 cups scalded milk, 2 or 3 eggs (according to size), ⅛ teasp. salt.

Beat eggs slightly, add salt and hot milk.

Soft Custard—Custard pattern, ¼ cup sugar, ½ teasp. vanilla.

Add sugar to custard pattern and cook in a double boiler, stirring constantly until mixture coats the spoon. Add vanilla. Cool quickly.

Baked Custard—Custard pattern, ¼ cup sugar, a little grated nutmeg.

Add sugar to custard pattern and sprinkle nutmeg over the top. Bake in a dish set in a pan of hot water until firm. Cool quickly.

Cheese Custard—Custard pattern, ½ cup grated cheese, ½ teasp. salt.

Add cheese and salt to custard pattern. Bake as for baked custard.

Meat Custard—Custard pattern, 1 cup cooked ground meat, ½ teasp. salt, 1 tbsp. chopped parsley.

Add meat, salt and parsley to custard pattern and bake as for baked custard.

Rice Custard (With Meat)—Custard pattern, 1 cup cooked rice, ½ cup cooked ground meat, 2 tbsp. grated cheese, ½ teasp. salt.

Add rice, meat, cheese and salt to custard pattern. Bake as for baked custard.

Rice Custard (Sweetened)—Custard pattern, ¼ cup sugar, 1 cup cooked rice, ½ teasp. vanilla.

Add sugar, vanilla and rice to custard pattern. Bake as for baked custard. Cool quickly.

Bread and Cheese Sandwich—Custard pattern, ¾ teasp. salt, 4 slices buttered bread, ½ cup grated cheese.

Add salt to custard pattern. Place bread in layers, each sprinkled with cheese. Pour custard over bread and bake as for baked custard.

Bread and Fruit Sandwich—Custard pattern, ¼ cup sugar, 4 slices buttered bread, ½ cup chopped raisins, dates or figs.

Add sugar to custard pattern. Arrange bread and fruit in layers and pour custard over. Bake as for baked custard.

SAUCES

Sauce Pattern—1 tbsp. fat, 2 tbsp. flour, ½ teasp. salt, ⅛ teasp. pepper, 1 cup liquid.

Melt fat, add flour and cook thoroughly. Add liquid and cook until smooth, thickened and glossy.

Medium White Sauce—Sauce pattern, 1 tbsp. fat, 1 tbsp. flour.

Add fat and flour to sauce pattern.

Vegetable Sauce—Sauce pattern, 1 tbsp. fat, 1 tbsp. flour.

Add fat and flour to sauce pattern. Use 1 cup vegetable stock for liquid.

Meat Sauce—Sauce pattern, 1 tbsp. fat, 1 tbsp. flour.

Add fat and flour to sauce pattern. Use 1 cup meat stock for liquid.

Tomato Sauce—Sauce pattern, 1 tbsp. fat, 1 tbsp. flour, 2 cloves, 1 slice onion, ¼ bay leaf.

Add fat and flour to sauce pattern. Use 1 cup tomato (heated with onions, cloves and bay leaf and strained) for liquid.

Gravy—Sauce pattern, 1 tbsp. flour, ½ teasp. salt.

Use fat from meat in making sauce pattern and add flour and salt. Water, milk or meat juice may be used as liquid.

Pudding Sauce—Sauce pattern (salt and pepper), 1 tbsp. flour, ¼ cup sugar, 1 tbsp. vinegar or lemon juice.

Combine as in sauce pattern, using flour and sugar. Cook until thickened and smooth. Add vinegar.

Cream of Tomato Soup—Part I—Sauce pattern, 1 tbsp. fat, 1 tbsp. flour.

Add fat and flour to sauce pattern made with milk.

Part II—1 cup strained tomatoes, 1 teasp. sugar, 1 slice onion, 2 cloves, 1 bay leaf, ⅛ teasp. soda.

Heat Part II (except soda). Add soda and strain into sauce. Beat thoroughly and strain at once.

Vegetable Soup—Sauce pattern, ½ cup vegetable pulp, 1 cup liquid, salt and pepper.

Make sauce pattern with milk, add vegetable pulp and salt. Heat.

NOTE—Potatoes, peas, onions, celery and other vegetables may be used. Leftover vegetables are conveniently used in this way, even though only a small amount may be at hand.

TIMBALES

Timbale Pattern—2 eggs, 2 tbsp. fat, 1 teasp. salt, ⅛ teasp. pepper, ½ cup liquid.

Beat eggs, add seasonings, melted fat and liquid. Combine with other ingredients, turn into buttered cups, set in pan of hot water and bake until firm.

Spinach Timbales — Timbale pattern, ½ cup spinach pulp.

Use timbale pattern with spinach pulp.

Pea Timbales—Timbale pattern, 1 pt. cooked peas.

Heat, drain and mash peas and combine with timbale pattern.

Carrot Timbales—Timbale pattern, 1½ grated carrot, 1/3 cup bread crumbs.

Steam carrots until tender. Combine with timbale pattern.

NOTE—Any vegetable pulp may be used. This is a convenient way of using a small amount of leftover vegetables. Meat and fish may be combined with vegetables in timbales.

SOUFFLES

Souffle Pattern—3 eggs, ½ cup medium white sauce, 1/3 cup cooked cereal (or bread crumbs), 1 teasp. salt, ⅛ teasp. pepper.

Beat yolks of eggs until thick and lemon colored. Add white sauce, cereal, salt, pepper, and other ingredients. Beat egg whites stiff and combine with first mixture. Bake in a moderate oven until firm.

Onion Souffle—Souffle pattern, 1¼ cups onion pulp, 2 tbsp. chopped parsley.

Follow directions for souffle pattern.

Meat and Vegetable Souffle—Souffle pattern, 1 cup cooked chopped meat, ½ cup cooked vegetables, parsley.

Follow directions for souffle pattern.

SOFT DOUGHS

Baking Powder Biscuit Pattern—2 cups flour, 4 teasp. baking powder, 1 teasp. salt, 3 tbsp. fat, ¾ cups milk or water.

Mix and sift dry ingredients. Work in shortening and add liquid to make a soft dough.

Meat Rolls—Baking powder biscuit pattern, 1 cup cooked chopped meat, moistened with meat stock.

Roll biscuit dough on board ½ inch thick and cut as for biscuits. Butter one-half of each side and spread with meat mixture. Fold over and press edges together. Bake in hot oven.

Cheese Biscuit—Baking powder biscuit pattern, ½ cup grated cheese.

Add cheese to biscuit pattern with shortening. Roll dough on board (½ inch thick) and cut with biscuit cutter. Bake in hot oven.

Surprise Biscuit—Baking powder biscuit pattern, dates, figs, prunes or raisins.

Roll on board and shape as biscuit. Fold each biscuit over 1 tbsp. chopped fruit and press flat between palms. Bake in hot oven.

Fruit Pudding—Baking powder biscuit pattern, 1 pt. can cherries (or other fruits).

Drain cherries from juice. Add to biscuit pattern before adding liquid. Use enough water to make a soft dough. Place in a buttered steamer and steam from 1 to 2½ hours (according to the size of the dish used). Serve with a sauce made from the cherry juice.

Fruit Puffs—Baking powder biscuit pattern, 4 tbsp. finely cut dates or figs, 4 tbsp. chopped nuts, 4 tbsp. sugar, ½ teasp. cinnamon, 2 tbsp. butter.

Pat dough out into a sheet (½ inch thick) on board. Spread with butter (melted) and sprinkle with sugar, nuts, cinnamon and fruit. Roll as for cinnamon roll and cut into eight pieces. Flatten on greased tin and bake in a hot oven. (These puffs may be served as a pudding with a lemon sauce.)

Peanut Butter Biscuit—Baking powder biscuit pattern, 4 tbsp. peanut butter, peanuts.

Mix peanut butter with 2 tbsp. of the milk in combining with the biscuit pattern, then mix with the other ingredients as in pattern recipe. Place a half peanut on each biscuit and bake.

COOKING AND RECIPES

CLASSIFICATIONS

Soups

CLASS 1

Soup should be a frequent indulgence in every dietary. Cream soups and purees are most appetizing and nutritious. Clear soups are excellent stimulants to appetite and are hardly equalled in food value. All soups well made are easy of full assimilation.

Soups are made with and without meat stocks.

MEAT STOCK SOUPS ARE:

Bouillon—from lean beef, clear and seasoned. Clam bouillon is an exception.

Consomme—from two or more kinds of meat, seasoned with vegetables and otherwise; usually clear.

Brown Soup—from lean beef browned and seasoned.

NON-MEAT STOCK SOUPS ARE:

Puree—with the pulp of cooked vegetables added to milk or cream. Milk is thickened with cornstarch or flour; stock sometimes added.

Cream Soup—made thinner than puree—of vegetables or fish, with milk, or some cream, or both, and seasoned; thickened to taste.

The Economical Stock-pot—It may seem easy to put a bone into some water and let it boil hard for several hours. But the result is not apt to be the most flavorful and nutritious soup. In making all of the stock soups, the meat, bones, etc., should be put into cold water to which salt has been added, and allowed to come to a boil very slowly, so as to extract the juices before the tissues become toughened. At no time is it necessary to boil furiously. Indeed, the word "simmer" is peculiarly expressive for soups.

Meat Soups are made from scraps, left-overs, bones, trimmings, from steak or roasts, or from cheap cuts bought for the purpose, such as shins, neck or shoulder cuts, or lower round cuts. The tougher parts are richer in the extracts and in soluble albumen.

Use a porcelain or granite kettle, cover tight-fitting, and strainer, colendar fine sieve and strainer. A good fireless cooker is most excellent.

To Make Plain Soup Stock—Clean the meat, wiping with dry or damp cloth, separate the bone and fat. Cut meat into small pieces, place in kettle with one teaspoonful salt to quart of water. Cook at low temperature six or seven hours. Add other seasoning last half-hour.

Do not remove scum until just before serving, as the scum contains nutritive elements; some prefer the scum not removed.

A layer of fat forms: do not remove this until stock is used, as it protects by excluding the air. Save the fat, when removed, for drippings.

Clear the soup with white and shell of one egg to each quart stock. Break and beat together, add to the stock, set on fire, stir to boiling point, boil two or three minutes, skim, strain and serve. Add more seasoning, if desired, before clearing. Strain through filter paper for perfect clearness.

Thicken soup with wheat or rice or leftover cereal, flour or cornstarch, mixed with cold water or milk to smooth paste, more liquid then added until thin: cook 15 minutes after thickening.

If butter is added, melt until bubbling, then stir in a little flour; add gradually a cup of hot soup, cook, thicken, stir it into the soup; cook the soup then 15 minutes. Bread, dried and browned, and added to a cup of stock, may be used instead of flour; simmer until soft, crush and dilute with soup ½ cup dried bread to 1 quart finished soup. Use wheat or rye bread as preferred.

Glacé is clear stock boiled down to about a fourth of original amount; to almost a glue state; will keep for weeks, in a close jar in cool place. Use for enriching a weak stock, for gravy, for browning meats, or to add to sauce.

Vegetable Stock—the water in which vegetables have been cooked. It is rich in salts and flavors. Water from cooked macaroni, barley and rice should be retained for soups.

Seasoning for Soups—Keep on hand: dried celery or celery roots; sweet herbs, thyme, parsley, savory, celery salt or celery seed, marjoram; spices, cloves, stick cinnamon, allspice, whole pepper. Arrowroot, sago, tapioca, barley, rice, bread, eggs, cornstarch, flour are added to give flavor as well as for nourishment and thickening.

The Basis for Cream Soups—The cream soups may seem at first more difficult, but a little practice will show that a cream soup is one of the easiest to prepare. The basis is a thin, white sauce in about the following proportions: 1 tbsp. of butter, 1 tbsp. of flour, 1 cupful of milk or cream and ¼ teasp. each of salt and white pepper.

To this can be added from ½ to 1 cupful of pulp of any kind of vegetables or fish, or water in which vegetables have been cooked, with 1 tbsp. flour for each cup of liquid added. In most cases it is necessary to cook the vegetables separately with water, as carrots, dried peas, lentils, corn, etc. The mixture is poured through a strainer by using a wooden pestle or masher.

The resulting pulp is added to the above cream mixture.

As a general rule, the food should not cook after the puree has been added, only heated through and served at once. Puree should be neither thick and cloying, nor disagreeably thin, because the puree and the milk have not been sufficiently blended. The ideal puree is of the consistency of a thick cream very well blended.

Save the stale pieces of bread frequently thrown out. Cut into slices or julienne strips, brush with butter and brown in the oven, or saute in a skillet, then serve floating in the soup. Whipped cream also brings up the fat and makes a pleasing garnish.

Pimento gives a piquant touch to a plain cream puree. A delicious cream soup is made of corn and served with buttered pop-corn kernels floating on top.

Grated egg yolk is another attractive garnish. In fact, the cream soup offers endless possibilities. In our search for nourishing food at low cost, all soup should find a larger place.

SOUP RECIPES

Soups—The foundation of all soups is either meat stock made from beef, veal, chicken, etc., or vegetable stock, or milk.

Plain Soup Stock—1 lb. each of lean beef and veal cut in cubes, 2 lbs. cracked marrow bones. Cover with cold water and bring slowly to scalding point. Close the pot; simmer several hours. The last hour add stalks of celery, a turnip, carrot, onion, salt, pepper. After cooling stock skim off fat, strain and clear according to previous directions.

Many varieties of soups and broths may be founded upon this stock.

Brown Stock—Brown in drippings, 1 lb. beef cut small, add 2 lbs. raw beef and bones. Cover with cold water. Proceed as with Plain Stock.

White Stock—Use either chicken cut up or veal. Make as for Plain Stock, adding a lighter seasoning, such as celery, few grains paprika, salt, chopped parsley. Cool, remove all fat, strain and clear. This is a delicate stock foundation for soup for young children or convalescents.

A dinner soup preceding a heavy meal should be light, clear, hot, and served with bread, or breadsticks.

Bouillon (A Clear Soup)—Allow 1 pt. of water to each lb. beef and bone. Cut up meat; cover with cold water and let stand 1 hour. Heat gradually to boiling; simmer several hours until all strength is out of meat. Season with salt and pepper. Also celery and onion if desired. Cool until grease rises and hardens, skim, strain and clear. Serve very hot.

Chicken Bouillon—Cut up a 4-lb. fowl. Cover with 4 qts. cold water; bring slowly to a boil. Simmer until meat falls from bones. Last ½ hour season lightly with celery salt, pepper, onion juice. Cool, remove fat, strain out bones and meat, clear, serve hot.

Queen of Hearts Bouillon—Boil 2 doz. chopped oysters in 1 pt. cold water, 5 minutes. Strain, season to taste. Just before serving, drop tiny heart-shaped pieces of pimientoes into each cup of bouillon. Serve with bread cut into small heart-shapes, toasted.

Jellied Bouillon—To 1 qt. boiling hot beef or chicken stock add 1 tbsp. granulated gelatine softened in ½ cup cold water. Strain into bouillon cups. Serve ice cold. Garnish each portion with chopped parsley sprinkled over 1 teasp. of whipped cream.

Bouillon Cubes—When it is inconvenient, because of lack of time or materials, to make meat or vegetable stock, the modern housewife can use the compressed meat and vegetable cubes now on the market. They may be used plain with boiling water for bouillons or as a foundation for heavier soups.

Consomme (Clear Soup)—Brown 3 lbs. diced lean beef in suet with ½ sliced onion. Cover with 2 qts. cold water, simmer in closed pot several hours. Add 1 carrot, turnip, celery, 2 cloves, parsley. Cook 1 hour longer. Strain, cool, skim off fat. Reheat to boiling. Stir in white of 1 egg beaten in 2 tbsp. cold water. Remove from fire, strain in cloth, season to taste.

Mutton Broth—Cut away the fat and skin from 2 lbs. mutton. Place lean pieces in 3 pts. cold water, add bones and seasonings of 1 teasp. salt, grated carrot, few grains pepper. Simmer until tender. Strain, cool, skim off fat. Add either rice, or barley previously soaked 12 hours. Cook until cereal is done.

Oxtail Soup—Wash 1 oxtail, cut up at joints. Brown 1 minced onion in suet, add ½ oxtail pieces dredged in flour. Season with salt and pepper. Add other ½ oxtail, ½ teasp. salt, tiny bag of several mixed spices and water to cover all. Simmer about 3 hours. Remove browned meat to be served with soup. Continue cooking until remainder falls from bones. Strain, cool, skim off cold fat. If flavoring is not satisfactory, add more salt and pepper or some brown stock, or reheat for 20 minutes with minced vegetables as onion, carrot, turnip, celery.

Julienne (A Clear Soup with Shredded Vegetables)—Use 1 pt. of such vegetables as may be convenient or even leftovers, as peas, string beans, or asparagus, onion, celery, turnip, carrot, cabbage. Cut them into small fancy shapes, boil in salted water until tender. Add 1 qt. strong soup stock. Cook gently 15 minutes. Before serving, add chopped parsley to taste and boil up once.

Thickened Soups—Soups which form an entire meal or precede a light lunch should be of a nutritious character rather than mainly stimulating, as are clear soups.

Chicken Bisque (Stock Thickened with Minced Meat and Crumbs)—Cut up 1 chicken. Simmer in cold water as for Plain Stock, adding minced onion and celery. Remove bones, when cold chop meat fine. Heat together 1 cup of milk, pinch soda, minced parsley. Thicken with 1 tbsp. butter and 1 teasp. flour mixed. Bring soup to boil. Stir in thickened milk, minced chicken, and 1 cup cracker crumbs moistened in milk. Serve.

Corn Bisque—1 doz. small ears fresh corn, or 1 can corn. Simmer in 1 qt. salted water 1 hour. Rub corn through colander, reheat, stir in 1 teasp. sugar, 2 tbsp. flour and 2 tbsp. butter rubbed together.

When mixture is stirred smooth, add slowly 1 pt. hot milk, salt to taste. Pour soup over 2 beaten eggs in hot tureen. Serve at once.

Bisque of Crab—Cut up and mash the meat from several boiled crabs. Simmer 30 minutes in 1 qt. of water with either 1 cup bread crumbs and 1 tbsp. butter or 1 cup rice. If rice is used rub through sieve when done. Add ½ cup hot water mixed with ½ cup hot cream thickened with 1 tbsp. butter. Season with paprika and salt. Serve quickly, hot.

Cream Soups—Use only fresh milk. Before heating add pinch of soda to prevent curdling. Keep milk cooking below boiling point in a double boiler.

Plain Cream Soup Stock—Scald 1 qt. milk in double boiler with 1 teasp. chopped onion. In separate pan melt 1 tbsp. butter, stir in 1 tbsp. flour. Add slowly 1 cup hot milk, cook until creamy. Pour this into milk in boiler with 1 teasp. salt, pinch of pepper. Finish as desired.

Thick cream and vegetable soups are served with croutons, small squares of bread toasted in oven until crisp and brown.

Cream Soup Made with Canned Milk—Canned milk may be used most successfully in cream soup foundations. Take ½ the amount of milk in recipe, as evaporated (or condensed) milk should be thinned with an equal portion of water.

Cream of Celery Soup—Boil 1 head celery 40 minutes in 1 pt. water. When it is tender mash celery, stir into 1 qt. of steaming hot Cream Stock with 1 teasp. butter. Season with salt and pepper. Strain, serve. This is enriched by either pouring it over 1 beaten egg, or adding 1 cup whipped cream when soup is in the tureen.

Cream of Tomato Soup—Cook ½ can tomatoes, ½ teasp. sugar 20 minutes, add pinch of soda, mash, rub through strainer. Combine tomato mixture with 3 pts. of prepared cream stock; both must be hot. Pour the tomato carefully into the cream stock to prevent curdling. Serve at once without cooking more.

Peanut Soup—Make a "Roux" of 2 tbsp. peanut butter, 1 tbsp. flour. Mix in slowly 2 cups boiling water, stirring to keep smooth; add 2 cups scalded milk seasoned with salt and pepper, serve at once with oyster crackers.

Cream of Spinach Soup—Drain the water from well-cooked spinach. Blend 1 tbsp. flour with 1 tbsp. melted butter, add slowly 1 cup hot spinach water, 1 cup chopped mashed spinach, 2 cups hot milk. Cook slowly, stir until creamy. Salt to taste. Serve with toast.

Cream of Lettuce Soup—Boil lettuce 10 minutes. Make this in the same way as spinach soup. It is more delicate.

Cream of Corn Soup—Heat 1 can corn with 3 cups milk in double boiler. Simmer 1 minced onion in 2 tbsp. butter until tender. Cream in 1½ tbsp. flour. Blend this with the corn and milk in double boiler, salt and pepper, 1 tbsp. sugar. Cook 30 minutes.

Cream of Asparagus Soup—Use either canned or fresh cooked asparagus. After setting aside the tips boil the stalks and juice 30 minutes in either 2 qts. white meat stock, or 3 cups water, later adding 3 cups milk. Press through coarse sieve. Blend carefully with 2 tbsp. melted butter mixed with 4 tbsp. flour, salt, pepper, ½ cup hot cream. Add the tips hot and 1 teasp. chopped parsley. Simmer 1 minute. Serve.

Potato Soup—Potato soup should be well seasoned to make it as palatable as it is nourishing. To 6 boiled potatoes, mashed while hot, add slowly 1 qt. rich milk scalded with 1 small onion and celery stalk minced. Mix well, 2 tbsp. butter creamed with 1 tbsp. flour, 1 teasp. salt, minced parsley, a few grains paprika. Simmer 10 minutes. Serve with crisp cheese wafers.

Cream of Barley Soup—Wash 3 tbsp. barley and soak overnight in 1 cup water. Heat in double boiler 1 cup water, 1 qt. milk, 4 tbsp. butter. Add soaked barley. Cook several hours until soft. Season with salt. Stir in lightly the frothy white of 1 egg.

Farina Milk Soup—Stir ¾ cup farina slowly into 3 cups boiling salted water. Steam in double boiler 40 minutes. Add 2 cups scalded milk, 1 tbsp. butter with which 2 beaten yolks were blended. Stir gently, serve. Drop tbsp. whipped cream into each bowl of soup.

Puree—Puree is vegetables or cereals cooked and rubbed through a sieve to make a thick soup.

Green Pea Puree—Boil 1 qt. fresh peas in 1 pt. salted water. When soft mix in 1 teasp. minced onion, parsley, pinch of soda. Cook 5 minutes. Mash through puree strainer. Reheat with 1 cup seasoned meat stock, ½ teasp. sugar, 1 teasp. butter.

Puree of Dried Beans—Soak 2 cups beans overnight. Bean soup will have a grainy rough taste if they are underdone. Cook until tender in 3 qts. water together with a ham-bone or pieces of salt pork. Add ½ onion, 1 potato, several mixed spices, seasoning. Simmer 30 minutes longer.

Press through a puree strainer. Pour into hot tureen over sliced hard-boiled eggs, and lemon slices.

Puree of Lentils—Soak 2 cups of dry lentils overnight. Drain. Cook slowly until tender in 2 cups water, 2 cups strained tomato juice, 1 sliced onion, parsley. As water evaporates add beef stock from which the fat has not been removed. Rub all through sieve, cook 5 minutes with 1 teasp. sugar, 2 teasp. salt, dash of paprika. Combine with 1 tbsp. flour and 1 tbsp. butter mixed.

Vegetable Soup—Trimmings and bones from a roast or stock may be simmered in boiling water and gravy together with any vegetables and seasonings convenient. Or boil in 1 qt. water until thoroughly done the following diced vegetables: ½ cupful each of turnip, celery, onion, carrot, 1 cupful each of cabbage, fresh peas, potatoes. Add 1 teasp. salt, a little pepper. More water if necessary. When vegetables are tender put in 1 qt. soup stock. Cook 5 minutes, serve with croutons. Half this recipe for a small family.

Boiled Soup Meat—The juices will return to tasteless dry soup meat if it is left in soup overnight. It will be more nutritious and palatable to eat.

Okra Gumbo Soup—Cut 1 qt. okra into inch pieces, boil gently in 1 qt. water with ½ lb. minced corned beef, 1 sliced onion, 1 pt. tomato juice. Add 1 qt. stock, preferably of chicken. When okra is tender, skim any fat, season, add minced chicken or oysters. Serve with 1 tbsp. rice for each plate.

Tomato Soup—Cook 1 large onion and green pepper minced for 5 minutes in 2 tbsp. melted butter or drippings. Mix into this 1 qt. canned tomatoes, 1 pt. soup stock, several tiny spices. Simmer gently 15 minutes. Add parsley, few grains pepper and salt if needed. Thicken with a roux of 1 tbsp. flour, 1 tbsp. butter. Turn in 2 tbsp. cooked macaroni and serve.

Plain Chicken Soup—Cut up an old fowl, slicing meat from leg bones. Put all on in 4 qts. cold water, 2 teasp. salt. Boil up quickly. Simmer 4 hours, until tender; strain. Put in soup ½ cup washed rice, 3 minced celery stalks. Cook 30 minutes. Add seasoning, minced parsley and breast of chicken chopped.

Turkey Soup or Chicken—Break apart the carcass of a roast turkey, simmer in 1 qt. water with leftover gravy, dressing, and ½ cup cold vegetables, as peas, and asparagus. Add grated ¼ onion, 1 thinly sliced raw potato, salt. When ready to serve, remove all bones.

Corn Chowder—Brown ½ cup sliced onion in ¼ lb. chopped salt pork or 2 tbsp. lard. Cook 1 cup sliced potatoes in salted water 5 minutes, drain. To the onions add the potatoes, 2 cups sweet corn, 3 cups boiling water, pepper, 1 teasp. salt, ½ cup cracker crumbs. Simmer 30 minutes. Add 1 pt. hot milk thickened with 1 tbsp. flour. Keep it to the consistency of chowder by thinning with water.

Fish Chowder—Slice the flesh of a large haddock into 2-inch pieces. Brown 1 onion, sliced, in the fat fried out from minced salt pork. Remove onions from pot, put in layers of fish, sliced and parboiled potatoes with the onions and parsley sprinkled between. Repeat. Season with ¼ teasp. pepper, 1 tbsp. salt. Cover with 1 qt. cold water, bring to a boil, and simmer 30 minutes. Thicken 1 pt. hot milk with 1 tbsp. butter rolled in flour. Add slowly to chowder. Serve very hot.

Clam Chowder — Clam or scallop chowder may be made like the above, adding a pinch of cayenne pepper, 1 cupful tomato juice, instead of the pt. of milk.

Oyster Soup—Drain 1 qt. oysters from their liquor, scald 1 qt. milk, thickened with 2 tbsp. flour creamed in 2 tbsp. butter, salt and pepper. Bring oyster liquor to a boil, strain through cloth, reheat with the oysters until they begin to curl at edges. Mix in the hot thickened milk, remove at once and serve.

CROUTONS AND FORCEMEATS FOR SOUP

Croutons—Trim crust from stale bread. Butter slices lightly, cut into ½-inch cubes. Brown in oven. Serve with soups.

Bread Sticks—Cut trimmed sliced stale bread into ¾-inch strips. Drop into very hot lard or cottolene for ½ minute. Drain.

Noodles—Into 2 beaten eggs stir 2 pinches of salt, butter size of walnut rubbed into a little flour and moistened with 2 tbsp. warm water. Knead in enough flour to make a firm dough, roll out very thin, cut into ¼-inch strips with a sharp floured knife. Roll strips into balls, set aside to dry 30 minutes or longer. Cook for 15 minutes in boiling salted water, drain, add to clear soup. Or cook in the boiling soup itself.

Filled Noodle Turnovers—Make plain noodle dough; dry 30 minutes. Beat together a filling of 1 cupful chopped cooked spinach, ¼ lb. plain sausage meat, or minced ham, 2 beaten eggs, 2 tbsp. ground rye bread, pinch of sage, pepper, salt.

Roll dough thin as possible, cut in strips 3 inches long, 2 inches wide; spread with filling, fold strip over like turnover biscuit. Drop carefully into soup, cook 15 minutes.

Spinach Balls — Take 1 cup finely chopped seasoned spinach, 1 cup pulverized whole wheat bread crumbs. Moisten well with white of egg. Season with 1 drop tobasco, 1 pinch salt.

After 5 minutes shape in balls size of walnut, drop into boiling soup for 5 minutes. Serve in clear broths or cream soups.

Forcemeat Balls—Heat 2 tbsp. drippings; stir in ½ cup dried bread crumbs, ½ cup milk. Season 1 cup plain chopped beef, veal, or chicken with ¼ teasp. salt, pinch of ground spices and pepper. Combine the meat, crumb paste and 1 beaten egg; mix well. Set aside for ½ hour. Fifteen minutes before serving soup, mold forcemeat into small balls. Simmer in tightly covered pot of soup.

Ham Sponge Balls—Make a paste of minced lean ham, drops of onion juice, parsley, 3 tbsp. stale rye bread crumbs. Bind with beaten yolk of 1 egg. Mold into almond shaped balls between 2 spoons. Cook 10 minutes in gently boiling soup. Serve in spinach or bean soups or consomme.

Forcemeat Fish Balls—Put ½ cup white flesh of cooked fish through food chopper. Sprinkle with few drops of olive oil and a dash of flour to make it stick together. Press into filbert balls, roll in flour or cornmeal, drop into hot lard. When crisp, brown, drain, and add with slices of lemon to split soup when it is served.

(Paste or Write Here Scraps or Memos. of Your Own)

Angel Dumplings for Two—Mix ½ teacup flour, 1 tbsp. butter in saucepan. Stir in ¼ cup milk, white of 1 egg, until smooth. When cool, fold in yolk of 1 egg seasoned with pinch of salt and sweet marjoram. Cut a teaspoonful at a time and cook in boiling hot soup.

Custard of Chestnut Forcemeats—Mash to a paste 2 well cooked large mealy chestnuts. Mix with 2 tbsp. milk, 1 tbsp. vegetable broth. Fold into this 2 beaten egg yolks, few grains cayenne, ½ teasp. salt. Pour into buttered moulds, place in hot water, bake until firm. Cool, remove from moulds, cut into julienne strips, add to consomme.

THE TERM MEAT is the name given to the flesh of all animals that is used for food. Meat is principally albuminoids, fats, mineral matter, and water. Albumen makes blood and muscle. It dissolves in cold water and coagulates by the application of heat, beginning to coagulate at 135 degrees Fahrenheit and solidifying at 160 degrees. Meat, therefore, should be cooked in water below the boiling point, and in boiling and roasting a high temperature used to quickly harden the surface so that the juices are retained.

Remove meat from paper as soon as it comes; wipe with a damp cloth and place in a cool, clean place. See that it is uniform in color, and firm and elastic. Select **beef** with cream colored fat, avoid the dark yellow fat, which indicates an old animal.

The tender cuts of meat are most expensive; the cheaper cuts, not in so high demand, are the most highly flavored and most nutritious, but require more care and more time in properly cooking.

COOKING METHODS

Roasting—The meat should rest about an inch from the bottom of the pan, on roasting rack. To prepare rub the meat with salt and pepper, and dredge with flour for dry surface. If meat is very lean its flavor is improved by placing over the surface thin slices of fat meat, its own fat, or bacon or pork, leaving it there until there are sufficient drippings in which to baste the joint, an equal amount of water being added to the basting drippings. When done, remove to hot platter, draining off the fat, then add sufficient water to dissolve the glaze in the pan. This makes the gravy, which may be thickened with brown roux or served "au jus."

The time varies, but this method is the same for all roasted meats.

Broiling means cooking by direct exposure over flame or coals. First sear the surface by exposing to intense heat at once; this retains the juices. The exposure is then reduced somewhat to secure thorough cooking without scorching the exterior.

Pan-Broiling—A steel or iron frying pan is highly heated, then rubbed with fat meat until well greased. The meat is seasoned and laid in pan only long enough to sear well on under side, then turned to sear the other side, continuing the turning to retain the juices, reducing the heat, to cook more slowly until done.

Braising—This is sometimes confused with roasting, but is essentially different if done correctly. It is especially suitable for tough cuts or those lacking in flavor.

Use a deep pan with close cover. These are frequently sold as roasters when only in reality braising pans. The parts fit together tightly to confine the steam and the meat is cooked thus: in its own vapor. The toughest cuts may be cooked as tender as veal. Lemon juice is an excellent addition, and improves the gravy left in the pan.

Braising permits laying the meats on a bed of vegetables or herbs, the juices of which add to the flavor, the whole making a most appetizing, satisfying combination to the palate.

Very dry meats, braised, may be improved by "daubing." Ordinary cuts will cook well in their steam alone, especially with the lemon juice, or some vegetables.

Sautéing—To cook in shallow, hot pan with a little fat, browning alternately on one side and the other.

Frying—To cook in hot fat deep enough to entirely cover the meat.

Dipping Mixtures—If meat mixtures do not contain eggs, dip in crumbs and egg, for a surface to prevent the food from absorbing fat in frying. The albumen of the egg hardens and forms a protecting coat.

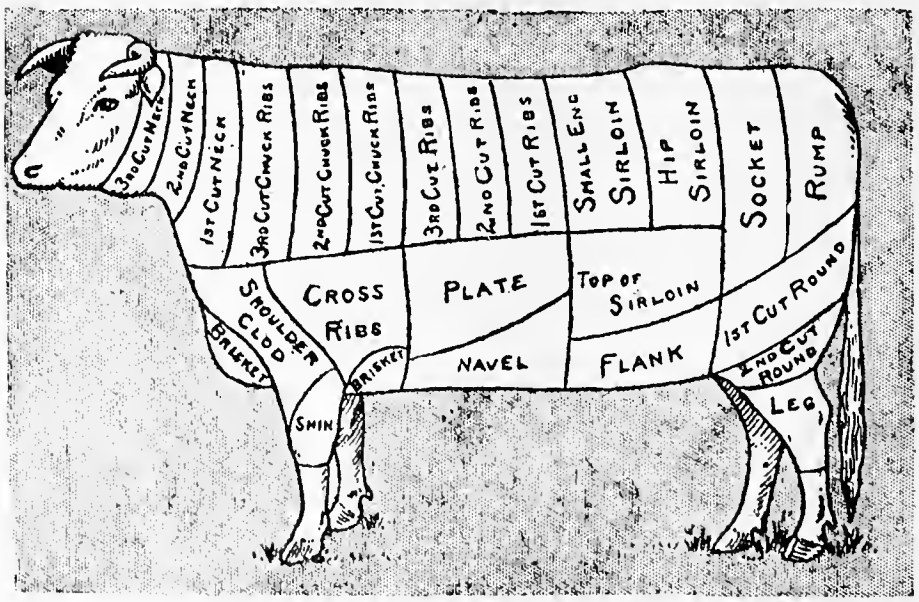
Boiling—Follow the principle of high heat at first until a layer of albumen hardens to retain the meat juices; then drop temperature to a simmer and cook very slowly until the tissues are almost ready to fall apart. Cool partly in the liquor; serve on very hot plates.

For Larding—Use salt pork fat, shaving off the rind; cut the fat into quarter-inch strips and cut these into quarter-inch strips the other way. Draw these strips into the meat with a larding needle, evenly and in alternate rows, until entire upper surface is covered.

Daubing—This refers to the process of forcing the large lardings through the meat from one surface to the other.

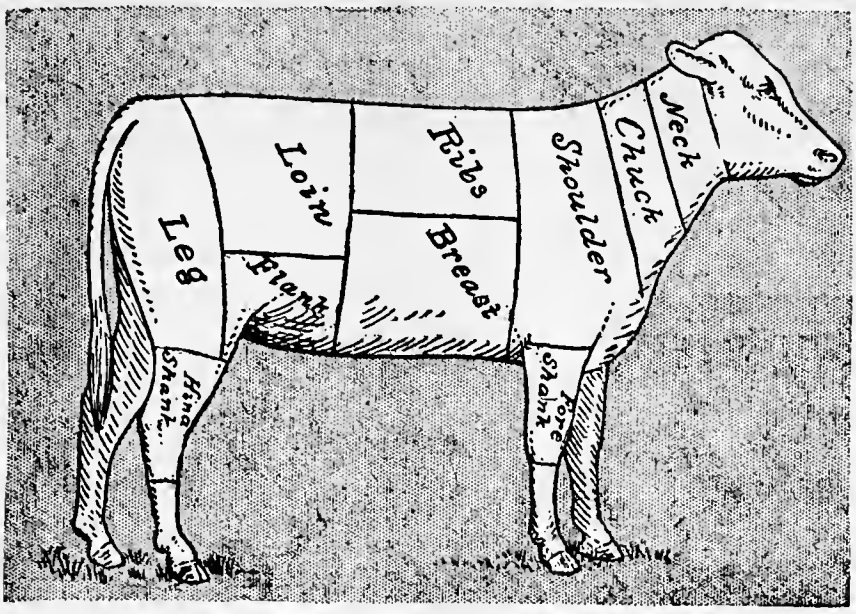
Never Wash Beef—Scrape, if necessary, or wipe with damp cloth, but never put in the water; keep it in a cool place, but not directly on the ice; obviously this means the lower part of the refrigerator.

DIAGRAMS OF BUTCHER CUTS



BEEF

Diagram Showing the Various Cuts of Beef. The Housewife Who Wants to Reduce the Cost of Living Should Be as Familiar with These as the Butcher, Understanding Their Prices, Their Relative Values and the Use for Which Each Is Best Adapted.



MUTTON OR VEAL

As Shown in This Diagram, the Cuts of Mutton or Veal Are Fewer Than Those of Beef, But It Is None the Less Important to the Buyer of Meats to Be Thoroughly Familiar with Them.

CHOOSING MEATS

LEARNING THE CUTS

In selecting **beef** for roasts or steaks see that the lean is firm and red and that the meat is finely grained. The fat should be firm and white. Never accept **any meat** which looks flabby or discolored or on which the fat is yellow. In choosing **mutton** the meat should be dark with plenty of fat in it. **Meat without fat** shows poorly fed stock. If the fat is yellow and the meat looks wet or moist do not accept it. As a general rule, **all meat** should be firm, never flabby. **Lamb and Veal** should both be light-colored—pale. Veal, in fact, cannot be too white.

BEEF CUTS

The question of cuts is largely one of preparation and cooking. In food value there is no such thing as good, better, or best cuts. The palate or neck contain as much nourishment as porterhouse steak; the difference is merely texture and flavor—and the so-called tender, and expensive cuts, which have the desirable texture without much cooking, as a rule do not have as fine flavor as the so-called tough cuts have when properly dealt with.

The problem is only one of making the cheaper cuts come out without losing their inherent flavor by bad cooking methods, such as letting their juices escape and doing them thereby to an insipidity merely because they have to be cooked for a longer time.

In buying, learn the following simple facts: Beef is divided into two sides, and these again into fore and hind quarters.

The Ribs are on the forequarters. The first seven are called the prime ribs, the others the chuck ribs. The prime ribs are divided into the first cut, the best, three ribs; the second, two ribs; the third, two.

The ribs are usually roasted, the ribs left in or the roast rolled. The meat is more juicy with ribs left in. If removed, remember they are weighed in before removed and you therefore pay for them and they are yours. Have the bones cracked, then take them along, cook slowly in a little water and you have broth for soups or for flavoring uses.

The Neck is tough but very nutritious and very sweet meat; it is generally used for stew or mince meat. The palate is used in the same way, contains more fat and is less tough. With the brisket and the navel it is used for corned beef.

The Shoulder has two cuts, known as the cross rib and the shoulder clod. They are tough, but free from bone and of good flavor. They make most excellent pot roast, They need long, slow cooking.

The Hind Quarter—The best part is the sirloin or prime steaks, which is the portion between the rump and the ribs.

Porterhouse—That between the last rib and the hip bone is called the porterhouse. Inside the bone the tenderloin is found. This is called "T" bone steaks when removed before being cut—from the shape of the bone.

The Sirloin Proper is divided into three parts: the hip bone, which is nearest the porterhouse; the flat bone, which is next, and is very good if you can cajole the butcher not to sell you all bone; and the round bone, nearest the rump.

The Rump is in two parts, the top and lower. These are used for roasts; also the top sirloin, which lies below the sirloin steaks proper.

The Leg—The upper part is called the round, the first two cuts of which, above the bone, are very tender. Below the joint it is called the shank, and is used principally for soups.

The Best Beef comes from corn-fed steers of about three years age.

VEAL, MUTTON, LAMB, PORK AND MISCELLANEOUS

Veal quality depends upon age. Calves six to ten weeks old are best. Under six weeks veal is not good food; it is known as "bob-veal." In many states the law forbids the sale of veal under four weeks old, but does not always prohibit it successfully. It has a bluish tint and the muscles are soft and undeveloped. Meat is sold as veal from calves up to one year old.

Veal should be white and pink, with firm grain and much white fat; the fat cannot be too white.

The cuts run as in beef. The top round is usually called fricandeau of veal. It is generally roasted. The leg and shoulder are boned and roasted.

Mutton, if not carefully dressed, may be materially affected in flavor, due to certain oil in the skin which if carelessly removed gives the meat a disagreeable, strong taste.

English mutton has smaller bones to larger proportions of meat; mutton at best has a large relative weight of bone to muscle.

The meat should be fine grained, red and juicy, the fat white and firm, and thick on the legs and back.

The Saddle—If not divided down the back, the ribs and loin together is called the short saddle. The long saddle takes in the back entirely to the tail, which is left on.

The Haunch is the hindquarter taken as a whole.

Lamb is in Season May to November. Lamb sold in winter is undersized mutton, and is tough and dry—or is from the cold storage house.

Pork—Pork should be pink, the fat firm and white, although the fat may become pink after salt is applied.

Diseased pork has a dull appearance and shows yellow lumps here and there in the flesh.

Summer Fresh Pork is undesirable. It should be prohibited from May 1st until December 1st, or later.

Poultry—This is treated so fully under Poultry Recipes Department that it "begs to be excused" under this general talk on Meats in this section.

Meat Trimmings—These belong to the purchaser—they are paid for—the meat is invariably weighed before the butcher asks if he shall trim or dress it for you.

The Feet of fowls contain gelatine and other valuable additions to gravies and soups. Those of calves, hogs and sheep make soups or jellies, or can be boiled, pickeled, fried in butter or stewed, or with parts of the head make scrapple. The heads of calves and pigs make head cheese.

The Livers of pigs, poultry, calves, beef, sheep, are all excellent, except perhaps that of beef is lacking in delicacy. Liver should be free from streaks or lumps and smooth in appearance. Lambs' liver is more toothsome and delicate, by the way, than calves' liver, and costs less.

Bulletin of the Iowa State College of Agriculture on MEATS

COMPOSITION OF MEAT

1. Protein
2. Fat.
3. Mineral Salts.
4. Water

AVERAGE COMPOSITION OF EDIBLE PORTION OF DIFFERENT CUTS OF MEAT

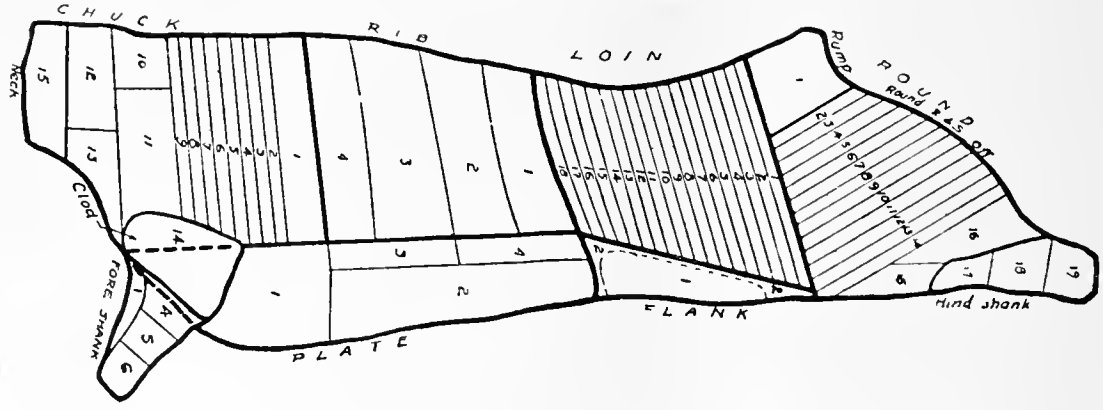
(Farmers' Bulletin, No. 391)

Kind of Meat.	Water Per cent	Protein Per cent	Fat Per cent	Ash Per cent	Fuel Value per pound in Calories
Beef:—					
Brisket	54.6	15.8	28.5	0.9	1,495
Chuck rib	66.3	19.0	13.4	1.0	920
Flank	59.3	19.6	21.1	.9	1,255
Porter-house	60.0	21.9	20.4	1.0	1,270
Neck	66.8	20.7	12.7	1.0	920
Ribs	57.0	17.8	24.6	.9	1,370
Round	67.8	20.9	10.6	1.1	835
Shank	70.3	21.4	8.1	.9	740
Side	62.2	18.8	18.8	.9	1,145
Veal:—Side with kidney, fat and tallow	71.3	20.2	8.1	1.0	
Mutton:—Side, without tallow	53.6	16.2	29.8	.8	1,560
Lamb:—Side, without tallow	58.2	17.6	23.1	1.1	1,300
Pork:—					
Tenderloin	66.5	18.9	13.0	1.0	900
Chops	50.7	16.4	32.0	.9	1,655

IN SELECTING MEAT POINTS TO OBSERVE

1. Color
2. Fiber
3. Tendons
5. Location of cut
4. Fat

RETAIL CUTS OF BEEF



FORE QUARTER

Rib
1. 11th and 12th rib roast
2. 9th and 10th rib roast
3. 7th and 8th rib roast
4. 6th rib roast.

Chuck
1. 5th rib roast
2-9. Chuck steaks
10-13. Pot roasts
14. Clod
15. Neck

Plate
1. Brisket
2. Navel
3, 4. Rib ends

Fore Shank
1. Stew
2. Knuckle soup bones
3-6. Soup bones

HIND QUARTER

Round

Rump
1. Rump

Round: rump and shank off
2. Round steak, first cut
3-13. Round steaks
14. Round steak, last cut
15. Knuckle soup bone
16. Pot roast

Hind Shank
17, 18. Soup bones
19. Hock soup bone

Loin
1. Butt-end sirloin steak
2. Wedge-bone sirloin steak
3, 4. Round-bone sirloin steak
5, 6. Double-bone sirloin steak
7. Hip-bone sirloin steak
8. Hip-bone porterhouse steak
9-15. Regular porterhouse steak
16-18. Club steaks

Flank
1. Flank steak
2. Stew

Bulletin 158, University of Illinois

PRINCIPLES OF COOKERY OF MEATS

1. Heat Hardens Protein—Sear meat to retain juices. Cook slowly to make tender. Extract albumen by soaking in cold water.

2. Heat Decomposes Fat—Cook fats at a low temperature (bacon, pork chops). Remove fat from pan as fast as it fries out of the meat.

Methods of Cooking Meats

1. To extract the juices, as in soups, broths and beef teas.

2. To retain the juices, as in broiling, roasting, boiling and frying.

3. Combination of both, as in stewing and braising where part of the juices are retained and part extracted.

Beef tea, beef juice and beef extract are some of the products made from beef, having more or less food value, according to the method of preparation. Beef juice is the fluid portion of the muscle fiber, obtained by pressure, usually, and may be concentrated by evaporation at a temperature below the coagulating point of the soluble proteins.

Meat extract is made by extracting the juice of meat by boiling water and then concentrating by evaporation. Beef extract was at one time highly recommended by Liebig, who said it had great nutritive value because it contained much nitrogen in a form readily absorbed from the digestive tract. Later he said: "It does not give us strength, but makes us aware of our strength." In other words, it is a stimulant rather than having any great food value. Sherman tells of a series of experiments performed by Grindley, and says that never were they able to obtain more than 13 per cent. of the true protein of the meat in the broth, even when made under very careful conditions, and the average was only 7 per cent.

METHODS OF COOKING MEATS

Boiling

Leg of mutton	2 to 3	hrs.
Ham (12 to 14 lbs.)	4 to 5	hrs.
Turkey (9 lbs.)	2 to 3	hrs.
Chicken (3 lbs.)	1 to 1¼	hrs.

Broiling

Steak (1 in. thick)	8 to 10	mins.
Steak (1½ in. thick)	12 to 15	mins.
Fish (slices)	15 to 20	mins.

Roasting

Rib of beef, per lb.	10 to 15	mins.
Leg of mutton, per lb.	10 to 15	mins.
Lamb, per lb.	15 to 20	mins.
Veal, per lb.	15 to 20	mins.
Pork, per lb.	25 to 30	mins.
Chicken, per lb.	15	mins.
Goose, per lb.	18	mins.
Eight lb. turkey	2 to 3	hrs.
Large turkey	3 to 4	hrs.

ECONOMICAL USE OF MEAT IN THE HOME

From Farmers' Bulletin 391, U. S. Department of Agriculture (Extracts)

Value of Meat as Food—Considering the fact that meat forms an important part of the diet, and the further fact that the price of meat, as of other foods, has advanced in recent years, it is natural for housekeepers to seek more economical methods of preparing meat for the table, and to turn their thoughts toward the less expensive cuts and ask what economy is involved in their use, how they may be prepared, and whether the less expensive dishes are as nutritious and as thoroughly and easily digested as the costlier ones.

The value of meat as food depends chiefly on the presence of two classes of nutrients: (1) Protein or nitrogenous compounds, and (2) fat. The mineral matter it contains, particularly the phosphorus compounds, is also of much importance, though it is small in quantity. Protein is essential for the construction and maintenance of the body, and both protein and fat yield energy for muscular power and for keeping up the temperature of the body. Fat is especially important as a source of energy. It is possible to combine the fat and protein of animal foods so as to meet the requirements of the body with such materials only, and this is done in the Arctic regions, where vegetable food is lacking; but it is in generally considered that diet is better and more wholesome when, in addition to animal foods, such as meat, which is rich in proteins and fats, it contains vegetable foods, which are richest in sugar, starch and other carbohydrates. Both animal and vegetable foods supply the mineral substances which are essential to bodily growth and development. In meat mineral matter constitutes about 0.3 to 1.9 per cent on an average of the total fresh material.

The difference between cuts is chiefly in the amount of the fat and consequently in the fuel value. So far as the proteins are concerned, i. e., the substances which build and repair the important tissues of the body, very little difference is found. For all practical every-day purposes it may be considered that the protein obtained from a given weight of meat differs very little either with the kind of meat or the cut. The fattest portions of pork, which are used for salt pork or cured pork and bacon, are exceptions, and in such cuts the proteins may be as low as 8 or 9 per cent.

APPARENT AND ACTUAL COST OF MEAT IN DIFFERENT CUTS

The relative retail prices of the various cuts usually bear a direct relation to the favor with which they are regarded by the majority of persons, the juicy tender cuts of good flavor selling for the higher prices. When porterhouse steak sells for 25 cents a pound, it may be assumed that round steak would ordinarily sell for about 15 cents, and chuck ribs, one of the best cuts of the forequarter, for 10 cents. This makes it appear that the chuck ribs are less than half as expensive as porterhouse steak and two-thirds as expensive as the round. But apparent economy is not always real economy, and in this case the bones in the three cuts should be taken into account. Of the chuck ribs, more than one-half is bone or other materials usually classed under the head of "waste" or "refuse." Of the round, one-twelfth is waste, and of the porterhouse one-eighth. In buying the chuck, then, the housewife gets, at the prices assumed, less than one-half pound of food for ten cents, making the net price of the edible portion 22 cents a pound; in buying round, she gets eleven-twelfths of a pound for fifteen cents, making the net value about 16½ cents; in buying porterhouse, she gets seven-eighths of a pound for 25 cents, making the net value about 28½ cents a

pound. The relative prices, therefore, of the edible portions are 22, 16½, and 28½ cents; or, to put it in a different way, a dollar at the prices assumed will buy 4½ pounds of solid meat from the cut known as chuck, 6 pounds of such meat from the round and only 3½ pounds of such meat from the porterhouse. To this should be added the fact that because of the way in which porterhouse is usually cooked no nutriment is obtained from the bone, while by the long, slow process by which the cheaper cuts, except when they are broiled or fried, are prepared the gelatin, fat and flavoring material of the bone are extracted. The bones of meats that are cooked in water, therefore, are in a sense not all refuse, for they contain some food which may be secured by proper cookery.

It is true, of course, that the bones of steaks may be used for soup-making, and that the nourishment may thus be utilized, but this must be done by a separate process from that of cooking the steak itself.

LESSENING THE AMOUNT OF MEAT USED.

In many American families meat is eaten two or three times a day; in such cases the simplest way of reducing the meat bill would very likely be to cut down the amount used, either by serving it less often or by using less at a time. Deficiency of protein need not be feared when one good meat dish a day is served, especially if such nitrogenous materials as eggs, milk, cheese and beans are used instead. In localities where fish can be obtained fresh and cheap, it might well be more cheaply substituted for meat for the sake of variety as well as economy. Ingenious cooks have many ways of "extending the flavor" of meat, that is, of combining a small quantity with other materials to make a large dish, as in meat pies, stews and similar dishes.

THE FAT, BONE AND TRIMMINGS IN MEAT, AND THE LEFT-OVER COLD MEATS

In the percentage of the fat present in different kinds and cuts of meat, a greater difference exists than in the percentage of proteins. If the fat of the meat is not eaten at the table, and is not utilized otherwise, a pecuniary loss results. If butter is the fat used in making crusts for meat pies, and in preparing the cheaper cuts, there is little economy involved; the fats from other meat should therefore be saved, as they may be used in place of butter in such cases, as well as in preparing many other foods. The fat from sausage or from the soup kettle, or from a pot roast, which is savory because it has been cooked with vegetables, is particularly acceptable. Sometimes savory vegetables, onion, or sweet herbs are added to fat when it is tried out to give it flavor.

Some illustrations of methods of preparing such cooking fats follow:

Trying-Out Fat—A double boiler is the best utensil to use in trying-out small portions of fat. There is no danger of burning the fat and the odor is much less noticeable than if it is heated in a dish set directly over the fire.

Clarifying Fat.—Excepting where the purpose of clarifying fat is to remove flavor, a good method to follow is to pour boiling water over the fat, to boil thoroughly, and then to set it away to cool. The cold fat may be removed in a solid cake and any impurities clinging to it may be scraped off, as they will be found at the bottom of the layer. By repeating this process two or three times a cake of clean, white fat may be obtained.

A slight burned taste or similar objectionable flavor often can be removed from fat by means of potatoes. After melting the fat, put into it thick slices of raw potatoes; heat gradually. When the fat ceases to bubble and the potatoes are brown, strain through a cloth placed in a wire strainer.

Savory Drippings—When rendering the drippings of fat meat, add a small onion (do not cut it), a few leaves of summer savory and thyme, a teaspoonful of salt, and a little pepper. This is enough for a pint of fat. Keep the drippings covered and in a cool place.

Uses for Bones—Almost any meat bones can be used in soup making, and if the meat is not all removed from them the soup is better. But some bones, especially the rib bones, if they have a little meat left on them, can be grilled or roasted into very palatable dishes. The "sparerib" of Southern cooks is made of the rib bones from a roast of pork, and makes a favorite dish when well browned. The braised ribs of beef often served in high-class restaurants are made from the bones cut from rib roasts. In this connection it may be noted that many of the dishes popular in good hotels are made of portions of meat such as are frequently thrown away in private houses, but which with proper cooking and seasoning make attractive dishes and give most acceptable variety to the menu. An old recipe for "broiled bones" directs that the bones (beef ribs or sirloin bones on which the meat is not left too thick in any part) be sprinkled with salt and pepper (Cayenne), and broiled over a clear fire until browned. Another example of the use of bones is boiled marrow bone. The bones are cut in convenient lengths, the ends covered with a little piece of dough over which a floured cloth is tied, and cooked in boiling water for two hours. After removing the cloth and dough, the bones are placed upright on toast and served. Prepared as above, the bones may also be baked in a deep dish. Marrow is sometimes removed from bones after cooking, seasoned, and served on toast.

Trimmings from meat may be utilized in various "made dishes," or they can always be put to good use in the soup kettle. It is surprising how many economies may be practiced in such ways and also in the table use of left-over portions of cooked meat if attention is given to the matter.

METHODS OF EXTENDING THE FLAVOR OF MEAT

Common household methods of extending the meat flavor through a considerable quantity of material which would otherwise be lacking in distinctive taste are to serve the meat with dumplings, generally in the dish with it, to combine the meat with crusts, as in meat pies or meat rolls, or to serve the meat on toast and biscuits. Borders of rice, hominy, or mashed potatoes are examples of the same principles applied in different ways. By serving some preparation of flour, rice, hominy, or other food rich in starch with the meat we get a dish which in itself approaches nearer to the balanced ration than meat alone, and one in which the meat flavor is extended through a large amount of the material.

IN PLACE OF MEAT

You Eat in Order to Keep Yourself Alive

(Reprint from publication, "Substitutes for Meat," issued by Mayor Mitchell's Committee on Food Supply, New York)

The work you do, the exercise you take, the thoughts you think, each breath you draw—all these use up a certain portion of your body each day. If you want to live and keep well, this used up portion must be replaced, and this is done through the food you eat. Part of your food furnishes you with new blood; part of it goes to make bone; part of it builds up new tissue, or flesh.

Meat has always been considered the best tissue or flesh building food, and for this reason people have always eaten it a great deal. Most of our meat has come from the Western States, but the tremendously large ranches of twenty years ago are greatly being cut up into small farms and cattle are not being raised in such large numbers any more, and this is one reason why meat costs so much. Another reason is the great demand there is for it on the part of the people who do not know that there are other foods that will supply the needs of the body in just the same way that meat does and which do not cost as much as meat. For instance, we can use fish in place of meat much more than we do.

Other foods that can take the place of meat are eggs, milk, creamed soups, macaroni, cheese, cereals, nuts, bananas, peas, beans and lentils.

Eggs contain all the elements, in the right proportion, necessary for the support of the body. They are rich in the same flesh-building element as the lean of meat and therefore make an excellent substitute for meat. They should be eaten with foods that are rich in starch, such as bread and potatoes, and if so eaten they will take care of the body practically as meat would.

Milk contains heat giving, strength giving and tissue building properties. Creamed soups and purees made with milk and the pulp of vegetables can take the place of meat.

Macaroni, Spaghetti and noodles contain so much starch and flesh building material that they are equal to meat as a food if combined with cheese. The fat that they lack is supplied by the cheese, and when so combined they make a perfect food.

Cheese contains in a condensed form the same flesh building material as meat and can be used in place of it. If combined with macaroni, rice, etc., it will supply all the needs of the body. Cheese costs less than most cuts of meat and a given amount of money will buy twice as much food value if spent for cheese as it will if spent for beef.

Cereals contain in varying proportions all the elements necessary to support life. They contain a great deal of starch, which is valuable as a strength giver. Oatmeal and cornmeal contain more fat than the other cereals and therefore make a good winter food, especially for hard-working people. Cereals with cooked fruits are very appetizing. A bowl of oatmeal, eaten for breakfast, will furnish the average man with all the strength, heat and energy he will need; it is not necessary for him to eat meat in addition.

Nuts contain in condensed form the same flesh building material as meat. Some of them contain a great deal of fat as well. They should not be eaten between meals, but raw or cooked they can take the place of meat. A pound of shelled almonds is equal in food value to three pounds of steak. Hickory nuts and pecans added to muffins or yeast breads may be used as a substitute for meat. Peanuts are also rich in food and flesh building material.

Bananas contain most of the nourishment that meat does, and if eaten with bread and butter make an excellent lunch without the addition of meat. Most children prefer banana sandwiches to meat sandwiches, and they cost much less.

Peas, Beans, Lentils are richer in flesh building material than any other vegetables and can be used in place of meat. Lentils are more easily digested than either peas or beans. If properly prepared, all these make very appetizing dishes. A dish of baked beans, costing about fourteen cents, will furnish a family of six with more nourishment than two pounds of beef costing forty-four cents.

In Stating that the various dishes given in this book can be used in place of meat it is not our purpose to urge one to give up eating meat altogether. It is a fact, however, that as a people we eat too much meat and we would undoubtedly find much benefit physically if we cut down the amount of meat we eat, and varied our diet more than we do.

We do not have to eat meat in order to keep well and strong. A great many people never eat meat at all, but find many foods of the strength-giving properties they require.

If our meat supply continues to dwindle in the future as it has in the past meat will some day be very scarce and sooner or later we will have to learn to use other foods in place of meat.

FOOD SUBSTITUTES FOR MEATS

Begin Now and Save Money

(Recipes given and recommended in the above—Mayor Mitchell's Committee publication)

Bananas—Moulded Cereal with Banana Surprise; Baked Bananas; Banana Fritters; Bananas Fried in Crumbs; Saute Bananas; Banana Sandwich; Banana and Nut Salad.

Peas—Puree of Peas; Pea Timbales; Creamed Peas; Spring Salad.

Beans—Baked Beans; Boston Baked Beans; Bean Croquettes; Boston Roast; Kidney Beans and Brown Sauce; Pork and Beans; Bean Polenta; Puree of Beans.

Rice—Savory Rice; Rice Balls with Tomato Sauce; Cheesed Rice; Rice with Cheese; Turkish Pilot; Rice a la Riston; Rice and Cheese Croquettes; Baked Rice and Cheese; Rice and Apple Comote; Rice Muffins; Raised Rice Muffins.

Nuts—Nut Loaf; Nut and Cheese Roast; Nut Scrapple; Nut and Celery Salad; Nut Muffins (without eggs); Prunes Stuffed with Nuts; Chestnuts with Brown Sauce; Chestnuts en Casserole; Stewed Chestnuts; Chestnut Puree.

Corn—Corn Pudding; Corn, Tomato and Cheese; Corn Mock Oysters; Corn Fritters.

Peppers—Huntington Stuffed Peppers; Stuffed Peppers; Pepper Timbale; Eggplant Baked in Shell; Vegetable Hash; Stuffed Spanish Onions.

Sauces—White Sauce; Tomato Sauce; Brown Sauce; Lemon Sauce; Mayonnaise Dressing.

Lentils—Curried Lentils; Lentils and Rice; Lentil and Rice Croquettes; Louisiana Lentils; Buttered Lentils; Lentil Gravy and Rice; Lentils as a Side Dish; Lentil Cakes; Lentil Croquettes; Mashed Lentils; Fried Lentils; Lentil Pancakes; Lentil Salad.

Potatoes—Potatoes au Gratin; Scalloped Potatoes; German Potato Salad; Potato and Nut Salad; Potato and Egg Salad; Potato Custard; Potato Souffle; Potato Croquettes; Potato Salad.

Cabbage—Creamed Boiled Cabbage; Cabbage with Cheese; Stuffed Cabbage; Cabbage Rolls.

Tomatoes—Stuffed Tomatoes; Curried Tomatoes; Scalloped Tomatoes.

Eggs—Eggs a la Suisse; Eggs Susette; Egg Croquettes; Cheese Omelet; Bread Omelet; Creamed Cheese and Eggs; Eggs a la Livingston; Eggs Baked in Tomatoes; Poached Eggs in Tomato; Eggs au Gratin.

Soups—Cream of Potato Soup; Cream of Tomato Soup; Cream of Pea Soup; Cream of Cauliflower Soup; Cream of Carrot Soup; Cream of Cabbage Soup; Cream of Rice Soup; Cream of Green Peas; Cream of Asparagus; Cream of String Beans; Cream of Spinach; Cream of Corn; Cream of Celery; Potato Chowder; Corn Chowder; Egg Soup; Black Bean Soup; Baked Bean Soup; Lentil Puree; Chestnut Soup; Cheese Soup; Split Pea or Bean Soup; Lentil Soup; Cream of Lentil Soup.

Macaroni, Spaghetti and Noodles—Baked Macaroni; Macaroni Baked with Tomatoes; Macaroni a la Italienne; Macaroni with Brown Sauce; Macaroni Croquettes; Macaroni Timbale; Spaghetti with Tomato Sauce; Noodles.

Cheese—Cheese Relish; Cheese Fondue; Cheese Dreams; Cheese Souffle; Cheese Custard; Cheese with Red Peppers; Cream Toast with Cheese; White Sauce; Cheese and Tomato Rarebit; Cheese with Tomato.

Cereals—Cereal with Fruit; Oatmeal Mush with Apples; Oatmeal Muffins; Raised Oatmeal Muffins; Raised Hominy Muffins.

SKIM-MILK VERSUS BEEF

Skim-Milk is a very economical food material and might well be more largely used for human food—this in spite of the fact that it is nine-tenths water. The experts in the United States Department of Agriculture strongly urge a wider use of skim-milk for food. It carries an argument for economy, based on the price at which it is usually sold and the composition of the nutritive tenth of its contents.

Whole Milk is an indispensable food for the young, and even in the diet of the adult it is comparatively economical. The only nourishing material taken from it in skimming is the butter fat. There is left, therefore, in the skim-milk, not only all of the sugar, which amounts to about four and a half parts in every hundred, and all of the mineral substances, but also all of the protein. The last named substance is important because, besides serving as food for the body as fats, sugars and starches do, it also supplies tissue-building material. The proportion of protein in skim-milk, as well as of the mineral constituents, which are also valuable for body building, is even greater in whole milk.

Skim-Milk is to be classed, as whole milk is, with such food materials as eggs, meat, fish, poultry and cheese (though it is much more delicate than those foods) rather than with such substances as sugar, which serve only as fuel. Two and a half quarts of skim-milk contain almost as much protein and yield about the same amount of energy as a pound of round of beef.

When skim-milk sells for four cents a quart, or about two cents a pound, and round of beef for twenty cents a pound, a dime or any other sum of money spent for skim-milk will provide nearly twice as much nourishment as it will if spent for round steak.

INSTEAD OF MEAT

(U. S. Food Administration Bulletin Food Leaflet No. 8)

CHEESE, MILK, EGGS, BEANS, PEAS, NUTS, CEREALS

These make appetizing dishes to take the place of meat. Why not use them oftener? There are plenty of good ways of cooking them.

They give you a body-building material, the protein, and they give a lot of it.

The child to grow must have food that furnishes this kind of material. You need it too. Even if you are grown up, you must have it to renew parts of your body used up by work and exercise.

Don't think you have to eat meat to get this protein. These other foods have it, too. Take cottage cheese, for example. It is richer in this material than meat. You can eat a third of a cup of it with pleasure, and this third of a cup will give you as much of the protein as a quarter of a pound of sirloin steak—a good, generous serving. Or if you like baked beans, eat a cupful to give you the same amount of protein.

PEAS, BEANS, PEANUTS, CEREALS

These are cheaper than meats and good. They should be used, but eat some milk or cheese besides.

CHEESE, MILK, EGGS, MEAT

These give body-building material in a little better form than the plant foods do.

Cheese is a Fine Meat-Saver. There is a great deal of food in a little piece of it. Don't eat it at the end of a meal when you have already had enough. You would not eat a piece of meat then. An inch cube of American cheese contains a third more protein than the same sized piece of lean meat. Cheese is excellent food if eaten at the right time.

Get the Farmers' Bulletin on Cheese, No. 487, to learn how to use it in many ways.

USE THESE GOOD MEAT-SAVERS

Cottage Cheese is a delicious and easy dish. You can buy it from almost any milkman or you can make it yourself. Add salt and pepper before eating, and if you prefer it more moist, stir in a little milk. It is good, too, served with applebutter, or a bit of jelly. While this is more of a dessert, it can still lessen the amount of meat you eat.

To make cottage cheese, warm sour milk, whole or skimmed, on the back of the stove, or put a bowl of it in a pan of hot, not boiling, water for about 20 minutes. Stir occasionally. When the curd and whey have separated, pour off the whey through a sieve. Work the curd with a spoon and let it drain. When fairly dry work again until smooth. The whey is good to use in making bread.

Nuts are concentrated foods, too. Twenty single peanuts are about the same as the inch cube of cheese. Remember that nuts are good food. Chew them thoroughly or grind them up for a cooked dish and eat them as an important part of your meal.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

Tender cuts of meat are best broiled, roasted or baked to keep in the juices and develop the flavor. The tougher cuts are more nutritious if cooked properly. They should be braised, boiled, stewed, or treated to tender in a dressing of olive oil, onion juice, lemon parsley, bay leaf, for from 1 hour to 12 or 24 hours.

Pot Roast (Boiled Beef)—Select about 4 lbs. from rump, round, or brisket. Wipe meat, brown quickly in hot tried-out beef suet. Add boiling water to half cover. Bring to boil, cover pot, simmer 15 minutes to each pound till very tender. After first half-hour, add salt and pepper.

For pot roast with onions, fry 1 large sliced onion 1 minute in hot suet, remove, sear meat in suet, put onions on top meat, add, sliced, 1 turnip, 1 carrot, cupful canned tomatoes, salt, pepper, water to cover vegetables. Close pot tight, simmer 2 hours. When meat is tender, remove, skim, press gravy through colander, thicken and season—pour some hot over roast, serve rest of gravy separate.

Roast Beef—A rolled roast has ribs removed, meat rolled and tied. A standing roast has ribs left in.

Wipe meat with damp cloth or scrape. Do not wash. Do not salt until partly done. Sear outside quickly with a dash of boiling water or in hot oven. Then lower gas and cook for a rare roast 10 minutes to each lb., basting every 15 minutes with meat juice, water, or cook in a self-basting roaster. 15 minutes before roast is done, dredge with butter, flour, salt and pepper. Use the juice from meat plain for gravy. Garnish with horseradish, parsley and Yorkshire pudding.

Make the pudding 20 minutes before roast is done. Mix 1½ cups flour, ½ teasp. salt, 1 teasp. baking powder. Beat 2 eggs, add with 1½ cups milk to the flour, beat. Pour into a hot pan greased with beef drippings. When batter is about to brown, baste with hot drippings. Brown, cut into squares, serve with roast.

Beef a la Mode—Take several lbs. from under part of the round. Wipe, spread with lemon juice and oil. Put in ice box several hours. Remove, make sharp incisions through the meat, stuff with a mixture of seasoned bread crumbs, minced fat pork. Lay strips of fat pork on top, dredge with flour, tie to keep in shape. Cover meat in pot with minced 1 onion, carrot, turnip, few mixed herbs. Simmer tight closed about 4 hours. Skim fat from gravy, season, thicken, stir, serve on roast.

Braised Beef—This may be cooked without water in a baking dish on a bed of vegetables. Partly cook 2 large onions sliced in fat. On these lay small pieces of 1 carrot, 1 turnip, 3 stalks celery, salt, pepper, small bag of 6 mixed spices. Dredge 2 lb. piece of meat with flour, place it on top of vegetables. Cover. Cook slowly as possible 2 hours.

When time to remove the meat, and vegetables, they will have made a gravy of their own juices. Serve these around the meat on a hot platter.

Baked Heart—Cut away tough veins from a calf's heart, wash, soak in salted water ½ hour. Stuff with forcemeat made of 1 cup soaked stale bread or bread crumbs, 1 cup chopped salt pork, ½ teasp. salt, pepper, 1 tbsp. melted butter or drippings, chopped half onion, 2 tbsp. water; 1 egg beaten into forcemeat improves it. Stuff the heart, bake in slow oven, baste often with beef stock or hot water and drippings. Serve in its own gravy. Garnish with pickled beets, sprigs of parsley or watercress.

Braised Beef Tongue—Take a fresh tongue and boil; that is, wipe, cover in pot with boiling water, simmer 2 hours. Remove skin and roots when done. Place in braising pan with 2 tbsp. each diced carrot, onion, celery, 1 teasp. parsley. Half cover with water tongue was boiled in.

Cook 2 hours. Make a sauce of the gravy by adding 2 tbsp. butter rolled in 1 tbsp. flour seasoned with ½ cup tomato juice, salt, paprika, ½ teasp. Worcestershire sauce.

Pour sauce around tongue on hot platter and serve. Mushrooms with a little lemon juice added to sauce improves its flavor.

Beefsteak Broiled—Wipe and trim steak, place on a greased hot broiler under a flame. Sear all surfaces by turning several times for first minute. Cook a thick steak 6 minutes to be rare, 8 minutes well done. Dish up on hot platter. Sprinkle with salt, pepper and butter. Serve at once so, or with a prepared mushroom or brown sauce.

Smothered Beef with Macaroni—Cut 2 lbs. meat into neat pieces, sear on all sides in hot fat, dredge with flour, cover with boiling water, simmer until nearly done in closed pot. Then add

3 small potatoes, halved, 1 piece onion, ½ teasp. salt, pepper; cook. The last 5 minutes add 2 cups boiled salted macaroni. Simmer. Remove meat and thick part to deep closed dish. Thicken gravy, 1 tbsp. flour in 1 tbsp. butter. Stir smooth, pour over contents of dish. Serve.

Beef Stew—Cut 2 lbs. beef from round into 1 inch cubes and cook as for smothered beef, except instead of macaroni, add 1 carrot, 1 turnip, 2 potatoes, parsley, 1 tomato, 2 tbsp. cooked kidney beans. Serve with the thickened gravy poured over.

Hamburg Roast (en Casserole)—To 1 lb. Hamburg steak (chopped raw beef) add 1 tbsp. minced celery, ½ cup bread crumbs, ½ teasp. minced green peppers, 1 teasp. minced onion, ½ teasp. salt, black and red pepper, few grains, 1 tbsp. melted butter or suet.

Mix well, shape into long loaf, place in center of casserole dish. Arrange around the loaf any sliced vegetables convenient. Cover bottom of pan with water 1 inch. Close tight, simmer 2½ hours, or bake in very slow even. Season gravy when nearly done. Remove meat to brown in oven. Thicken gravy with butter and flour and ½ quantity of cooked strained tomato juice. Simmer until smooth and thick as puree. Dish meat loaf with vegetables around it. Serve sauce over individual slices of the roast.

Hash—The richest flavored hash is made of pieces from sides of roast beef, mutton, veal, chicken, or steak, or a good stew. Mix minced meat with gravy, a little fat, ½ quantity cooked potatoes, salt, pepper. Either pack in hot greased skillet until brown, fold and turn out on hot dish and serve, or simmer down in broth and thicken until creamy with 1 tbsp. flour in 1 tbsp. butter. Serve with toasted crackers, toast, or thin hot buttered biscuit.

Delmonico Hash—Lightly brown 1 minced onion in frying pan with 2 tbsp. butter. Stir in 1 lb. chopped raw beef until brown. Add slowly ½ cup hot water, then 6 cold boiled potatoes chopped, 1 teasp. celery salt, ½ teasp. salt, paprika. Stir and cook 3 minutes, serve, garnish with parsley.

Meat Pie—Take 1 lb. beef ground or cut in ½ inch cubes, dredge with flour, sear in hot pan, add ½ lb. ground fresh pork, 2 small onions, 2 potatoes, chopped. Place in layers in baking dish. Salt and pepper each layer. Pour hot water over. Cover with pie crust. Make an incision with fork in center of crust to let steam escape. Bake 2 hours.

Creamed Fresh Beef—Chop 1 lb. round steak as for Hamburg. Turn it over with fork in hot pan. Stir 1 tbsp. butter, 1 tbsp. flour into meat until flour browns. Add 1 cup rich milk. Simmer few minutes, salt, pepper. Serve with hot toast.

Minced Beef, Curried—Brown ½ cup sliced onion in 1 tbsp. drippings. Remove onions to be arranged on top meat when served. In same pan mix ½ cup minced onion, 1 tbsp. curry powder, 1 teasp. salt, 2 lbs. round beef minced or from a roast. Add 2 cups milk or stock, simmer slowly 1 or more hours. Stir often. Serve with sliced onions on top, and hot rice in separate dish.

Tripe—Simmer until tender in water to which vinegar is added. Dry on cloth. Cut in pieces, roll in flour, salt and pepper, then in egg, cracker crumbs. Fry in deep hot fat, drain. Serve.

Chili Con Carne—Brown 1 lb. ground round steak in 2 tbsp. tried-out suet. Cover with boiling water, simmer till tender. Add 1 teasp. salt, 1 tbsp. chili powder, 1 onion chopped, 1 small can of kidney beans, 1 large can tomatoes. Simmer down until all are thoroughly blended and thickened, but beans unbroken. Serve hot with rice.

Smoked Beef and Potatoes—Pare four big potatoes, cut in ½-inch pieces, add ¼ of a chopped green pepper. Cover with water (boiling) cook 15 minutes. Tear ½ lb. smoked beef into small pieces, cook in with potatoes and peppers 3 minutes. Drain. Blend 1 tbsp. flour with 2 tbsp. butter. Stir into 2 cups seasoned hot milk until smooth. Add this to drained meat and potatoes. Simmer 2 minutes. Serve.

Chopped Frizzled Beef—Pick apart into small pieces ½ lb. dried beef. Add this to 2 tbsp. butter in hot skillet then 1 tbsp. flour. When flour looks brown add slowly 2 cups milk, little pepper. Cook until creamy. Add beaten egg if desired. Serve on hot toast.

Corned Beef Boiled—Select 4 lb. lean beef streaked with fat. Soak in cold water 1 hour. Put on in cold water to cover and 1 tbsp. vinegar. Cover, cook slowly to boiling, simmer 1½ hours. Let stand in liquor ½ hour, remove, serve with horse-radish and mustard or pickles.

Corned Beef Hash—To diced cold corned beef use ½ quantity firm boiled potatoes cut in small pieces. Wet with stock or milk. Turn carefully into skillet with 1 small chopped onion fried in fat from corned beef. Simmer until liquor is absorbed. Brown and fold as an omelet.

CLASS 4

Mutton and Lamb

MUTTON AND ITS VALUE IN THE DIET

(From U. S. Farmers' Bulletin, No. 526)

Mutton has from early times been a popular food both in the Orient and among western nations. The ease with which the sheep is raised and the fact that its flesh is not, like some other meats, excluded on religious grounds from the dietary of any large group of people, combine with its palatability to bring it into widespread favor. The terms "lamb" and "mutton" are somewhat loosely used to designate the meat obtained from the younger and older animals. In some localities mutton is used to apply to the flesh of all but young lambs; in others its use is limited to the flesh of full-grown sheep. The latter is perhaps the commonest usage in the United States.

The general belief that mutton and lamb are wholesome has been strengthened recently by such work as that of the United States Department of Agriculture whose reports of meat inspection show that it has been necessary to reject relatively few mutton carcasses as unfit for food, and that the sheep is particularly free from diseases which render meat undesirable.

COMPOSITION AND NUTRITIVE VALUE

The term "mutton" is here used to apply to the flesh of a sheep one year or more old. Such meat differs in composition from the flesh of a lamb very much as meat of any other mature animal differs from that of a young animal of the same kind, as beef differs from veal, for example, or fowl from chicken, i.e., it has, in general, a smaller percentage of water and larger percentages of fat, protein, and extractives or flavoring substances. Pound for pound, mutton has a larger amount of tissue-forming substances and a higher energy value than lamb.

So far as nutritive value is concerned, mutton is usually classed with beef. Analyses show that they have nearly the same composition. The percentage of waste differs very slightly in the two, being on the average a little less than 20 per cent. in each. In the edible portion the percentage of protein is practically the same; it averages about 18 per cent. in the beef and 16 per cent. in the mutton. It is only when the fat is considered that any considerable difference is noted. This averages about 20 per cent. of the edible portion in medium fat beef and a little over 30 per cent. in the corresponding kind of mutton. As might be expected, water is correspondingly low in the mutton and high in the beef, being about six-tenths, or 60 per cent., of the total in the beef and about five-tenths, or 50 per cent., of the total in the mutton. Because of the larger amount of fat, the fuel or energy value is greater in mutton than in beef, being usually stated as 1,500 calories per pound, while that of beef is given as about 1,145 calories. The fact should be kept in mind, however, that these figures refer to the average of many samples of the two kinds of meat. The variations in different samples of either meat are wider than the differences between these average values, and for this reason the custom of classing beef and mutton together when their nutritive values are concerned may be considered fair.

RELATIVE ECONOMY IN THE USE OF MUTTON

While mutton and beef do not differ materially in percentage composition or digestibility, mutton has an advantage in that it is capable of somewhat more economical use. The mutton carcass, unlike the beef carcass, is of such size that a quarter or a half, either of which supplies a variety of cuts, can be conveniently utilized in a household of moderate size with ordinary refrigerating facilities, and the price per pound is commonly less when the meat is bought in this way. There is a certain advantage, too, in the fact that

the leg, which has the smallest percentage of waste of any of the cuts of mutton, is of suitable size for family use, for a piece of meat which has not been cut up keeps better than one which has been cut. On the other hand, the rather general belief, which, however, seems unfounded, that all kinds of mutton fat are unsuitable for culinary purposes, has tended somewhat to an uneconomical use of this meat.

CARE OF MUTTON IN THE HOME

Because of the facility with which mutton absorbs odors and flavors, special care should be taken of it in the home. When it comes into the house, it should be wiped thoroughly with a damp cloth, and all portions that have the slightest unpleasant odor about them should be cut off. Such portions are most likely to be found where the layer of meat is thin, as, for example, on the lower end of the leg, on the flank, or on the ribs. When a large piece of mutton is bought, these facts should be kept in mind in determining which parts should be used first. It is well, for example, to remove the flank end of the loin and part of the rib bones first, and use them for soups or stews. The removal of the membrane and the red skin from the surface of the meat before it is cooked is also desirable. In roasting mutton, many housekeepers believe that it is well to keep the meat well up from the pan by means of a rack, for if this is not done, the fat of the meat is likely to become scorched and to affect the flavor of the meat itself.

JUDGING MUTTON

There are a number of points which should be borne in mind when purchasing mutton for the table. The lean portion of the meat should be firm, finely grained, and of a deep red color. The fat should be well distributed. The leg should be nearly covered with a layer of fat and there should also be a thick layer over the back. This outside layer is often in the trade referred to as the "covering." The fat itself should be white, hard, brittle, and flaky. The "mottling" of the flesh with fat, which is so important a sign of good quality in beef, is considered of less importance in judging mutton.

RECIPES

Boiled Leg of Mutton—Select leg weighing 6 or 8 lbs. with fat white and flaky. Trim, wipe off, put on in boiling water, boil until scum rises, skim, simmer until tender. Season with 1 teasp. salt, when nearly done, serve with caper sauce. The water left may be used for soup, or to season meat dishes made from cold mutton.

Roast Shoulder of Mutton—Have butcher remove bone and trim, put these in cold water, and make stock for soup or to baste roast. Stuff shoulder with a mixture of 1 cup bread crumbs, 1 tbsp. melted butter, 2 tbsp. boiling water, ½ teasp. grated onion, ¼ teasp. salt, pepper. Add a few chopped mushrooms if convenient. Sew or skewer to keep dressing in. Place in hot oven with 1 cup water in roasting pan. Baste often. In half-hour reduce heat, cook 2 hours. Plain mutton gravy should never be served. Use a meat sauce. Garnish daintily with mushrooms or parsley or forcemeat balls. Serve dinner vegetables of tomatoes, string beans, green peas, or young turnips Pass current jelly.

Leg of Lamb Roasted—1. **Plain**—If leg of lamb is not prepared in the market for roasting, peel off membrane (the caul) trim, wipe with wet cloth. If a self-basting roasting pan is used sprinkle meat and pan with salt, pepper, and flour. Put in hot oven. When flour is browned fill bottom of roaster with water. Cover, cook rapidly 30 minutes, more slowly for 1 hour longer. Remove, cover, brown roast, serve with mint sauce.

2. **Stuffed**—If bone is removed, stuff as for shoulder of mutton and roast. Prepare stuffing with 1 cup bread crumbs, 1 tbsp. melted butter, 1 tbsp. minced parsley, ½ minced onion, ¼ teasp. paprika. Add 1 dozen raw chopped oysters if liked.

3. **Seasoned with Vegetable Puree**—To an 8-lb. leg of lamb prepared for plain roasting add a cheesecloth bag of the following minced vegetables: 1 small onion, turnip, tomato, carrot, 3 celery leaves, 10 small mixed spices, pinch of cayenne. When lamb is tender, remove, strain gravy and thicken with flour browned in butter. Pour this over roast when served. Garnish with sliced hard-boiled eggs. A sliced cucumber garnish is nice with roast lamb with potato croquettes and brown gravy and cucumber sauce.

Stew of Lamb with Peas—Cut 2 lbs. lean stew lamb into cubes, dredge with flour, brown quickly on all sides in 2 tbsp. hot fat with 1 sliced onion. Add 1 cupful stock or water, cover, stew 1 hour until tender. Turn in 1 cupful peas, fresh or canned, and 4 mint leaves. Cover, cook gently few minutes. Remove peas before they break, and the meat. Add to the gravy ½ cupful tomato puree, thicken if needed with flour browned with butter, simmer, stir till smooth, pour over the stew and peas.

Lamb Chop Stew (with Vegetables en Casserole)—Take 6 lamb chops, trim off fat and skin. Sear in 1 tbsp. fat with 1 minced onion. Arrange 3 chops on tomato slices in onion fat in casserole.

Add in layers 2 parboiled potatoes, carrots, turnips, diced; 3 remaining chops, sliced tomatoes. Sprinkle with bread crumbs. If preferred, omit tomatoes and add peas or tomato puree to the 1 cup of seasoned meat stock thickened with 1 tbsp. flour browned in 1 teasp. butter. Pour stock over contents of casserole, cover, cook slowly 1 hour. Serve in casserole.

French Loin Chops—To 1 cup freshly boiled mashed potatoes, seasoned, add 1 beaten egg, ½ cup minced ham. Broil 4 to 6 lamb chops, salt and pepper and spread one side of chop with potato mixture. Dip potato covered chop into beaten egg, bread crumb, and fry in hot lard to cover. Remove when brown, serve on platter around boiled green string beans.

Creamed Lamb—Cut cold cooked lamb into dice, add with 1 cup green peas to a hot cream sauce previously made of 2 tbsp. butter, 2 tbsp. flour, ¼ teasp. salt and pepper, 2 minced mint leaves, ½ cup cream, ½ cup water. Stir carefully without mashing peas while it simmers 3 minutes. Serve on toast.

Pie of Curried Mutton—Fill a small casserole with alternate layers of bread sauted in butter, thin sliced cold mutton or lamb chops and sliced tomatoes, pepper, salt. Bake slowly about 30 minutes.

Or, pour over sliced mutton and bread crumbs a curry sauce made of 1 chopped onion, 1 green pepper, 1 tbsp. flour, 1 tbsp. butter, ½ teasp. curry powder, ½ teasp. salt, 1 cup stock, 1 cup cooked tomatoes. Cover with pie crust. Make incision with fork in center. Bake 20 minutes. Serve.

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Veal
CLASS 5

VEAL is not as easily digested as beef and is less nutritious, but because of its tenderness, the contrary is often thought the case.

For determining quality of good veal, see article on "Choosing Meats," under section on MEATS.

If one can purchase the entire fore-quarter of veal he may secure it at a very low price; the breast, though delicious when stuffed and braised, is little known and demanded. The fore-quarter contains the ribs, corresponding to the rib roast of beef, and from these are cut the best chops, the entire rack of veal, as the chops are known, makes a roasting equalled only by the loin and the fillet. The neck of the veal cuts into excellent breakfast cutlets. The flesh portion of the foreleg, or shin, make pot pies or stews, and the leg itself makes soup or stock.

RECIPES

Plain Roast Veal—Use either the ribs or a leg. Trim and wipe, sear all sides quickly in a hot roaster. Add 1 cup boiling water to pan. Cover, roast at the rate of 20 minutes to each lb., basting every 15 minutes. Add water to keep pan from getting dry. The last 40 minutes salt and pepper the meat, dust with flour, put in around it peeled halved sweet potatoes. When about done remove cover, brown meat and potatoes.

Shoulder of Veal—This is roasted in the same manner except that the bone is removed carefully without breaking the outer skin and a forcemeat is put in the bone cavity. This stuffing may be of onions, sliced, seasoned, and an equal quantity of bread crumbs, or chopped ham and bread crumbs with salt and pepper or tomato seasoning. Bake the meat until the gravy shows no red color. Take up the meat. Thicken liquid in pan with 1 tbsp. flour; when it is browned add boiling water, salt and pepper, stir until smooth. Serve this gravy with the shoulder of veal and potatoes that have been either baked brown with the meat or roasted in their jackets.

Filet of Veal—Stuff the hole from which the bone is taken with a forcemeat of ½ cup salt pork, chopped, 1 cup minced ham, 1 cup bread crumbs, 1 tbsp. salt, ½ teasp. pepper, 1 teasp. lemon juice, parsley, 2 tbsp. gravy or fat. Skewer the filet round. Brown surface in hot oven, salt and pepper, lay thin slices of salt pork on top. Baste with water. Roast in moderate oven several hours. When done remove slices of pork, dredge with flour and brown uncovered. While roast is browning slice tomatoes, salt and flour them, fry quickly in hot lard or cottolene. Make gravy of 1 cup meat gravy, 1 cup tomato puree. Garnish roast with fried tomato slices and serve at once, and send in tomato puree gravy seasoned with few drops of tobasco or tomato catsup.

Veal Loaf—This may be made as beef loaf, or use 3 or 4 lbs. of meat, ½ of which is veal, ¼ beef, ¼ salt pork. Chop all fine, mix with 1 minced onion, 1 tbsp. lemon juice, 1 tbsp. salt, ½ teasp. pepper, 3 tbsp. crumbs, 1 egg, 4 tbsp. cream or gravy. Shape into oblong loaf, bake slowly about 2 hours, baste every 15 minutes. Carve loaf at table; serve thin slices with thick tomato sauce or catsup; or spinach and rice; or mashed sweet potatoes and gravy.

Veal Pot Pie—Take 2 cups cooked veal chopped or sliced thin, 1 onion, and 1 potato, diced, 1 cup fat pork minced, ½ teasp. salt, few grains cayenne. Moisten well with gravy, add extra cupful. Simmer in deep meat pie pan 5 minutes. Cover with a rich biscuit dough crust, perforated. Bake in moderate oven 40 minutes.

If crust is not desired cover meat with boiled rice seasoned, pour over it 1 cup tomato juice, garnish with halves of hard boiled eggs half imbedded in the rice. Dot with butter and crumbs. Bake 30 minutes. Serve in baking dish.

Veal Breast—Breast of veal may be boned and stuffed; or spread on one side with a forcemeat, rolled loosely over and tied; or put meat in a roaster with pork strips laid over and under it, add 1 cup boiling water, cook until half done, then spread with 2 chopped onions, parsley, 1 chopped green pepper, 2 cups peeled and sliced tomatoes.

Finish cooking covered. Lift cover and brown meat, take vegetables out with strainer and serve around the meat with plain boiled rice in a separate dish.

The tomatoes in the spread may be omitted, and when cover is lifted to brown meat drain out the gravy, and cover veal with mashed sweet potatoes. These will brown on top. Lift meat with potatoes to hot platter. Serve with spinach.

Gelatine of Veal—Gelatine is meat boned, stuffed, rolled, boiled and served cold. A breast may be used. Spread with a rich, well seasoned forcemeat, roll, tie up in cheesecloth. In a pot prepare bones, trimming and seasoning as if for soup. Add several small vegetables convenient, carrot, turnip or onion, half cover with water. When this boils, add stuffed roast, boil up, skim, then simmer until meat is tender. Cool and press the veal with a heavy weight for several hours. Serve cold.

Instead of breast take a knuckle of veal. Boil tender, mince the meat, add it to the juice, pour it into a mold. While cooling add slices of hard boiled egg. Serve cold from the ice box.

Veal Cutlets, Breaded—Be sure to cook veal thoroughly, as it is neither wholesome nor palatable if underdone. Bread the cutlets with fine breadcrumbs, salt and pepper, dip in beaten egg, then crumbs. If not firm, set on ice until fat is ready, smoking hot. Drop cutlets in, turn within 5 minutes, then cook more slowly so that the outside will not get too brown before inside is done. Drain off fat, serve at once, in hot dish. Sprinkle horse-radish on each cutlet, or serve with tomato sauce, or corn muffins and apple sauce.

Veal Shortcake—Make a dough of 2 cups flour, 2 teasp. baking powder, ½ teasp. salt, 2 tbsp. lard, 1 cup milk. Roll thin, cut into 2 squares. Dot one with butter, cover with the other square, bake in hot oven.

In the meantime cream diced cold veal in 1 cup gravy seasoned and thickened with flour and cream. When shortcake is brown separate the cakes, spread creamed veal in between them and on top. Serve with tart jelly.

Veal Cutlets Broiled—Trim and wipe loin cutlets, turn over and over in salad oil seasoned with finely chopped green peppers, a few drops of onion juice and lemon. Put on ice in the oil mixture 1 hour. Drain, broil in hot skillet 5 minutes; turn lower heat, broil 5 minutes or longer. Serve with a Spanish sauce.

Baked Calf's Liver—Remove skin from calf's liver, cut deep gashes in upper side, pour boiling water on and off until it is thoroughly blanched. Spread the gashes and top with a paste of moistened bread crumbs seasoned with salt, pepper, parsley, onion. Lay thin slices salt pork on top. Sprinkle with lemon juice. Pour 1 cup brown sauce around the liver. Cook in covered casserole 2 hours. Serve with small sweet potatoes fried in hot fat.

Broiled Liver—Buy it sliced for broiling, skin, blanch 1 minute in hot water, dry, salt and pepper, moisten with oil and lemon juice, sprinkle fine cracker crumbs on and broil until done.

Calf's Brain—Place in cold salted water as soon as received from market. In 30 minutes peel all membranes off, wash, and parboil in salted water 15 minutes. Plunge into cold water, put on ice until ready to prepare for the meal. They may be:

1. **Fried**—Cut in pieces size of a small oyster, dip in egg, bread crumbs. Brown quickly in hot lard, drain, serve a la fried oysters.

2. **Scrambled**—Chop in small pieces, stir lightly into beaten eggs seasoned. Pour into greased hot pan, stir until eggs are soft set. Serve on toast.

3. **Creamed**—Chop brains with mushrooms, and stir into a thick cream sauce. Blend 2 tbsp. flour, 1 tbsp. butter, and 1½ cups hot milk and cream, season ¼ teasp. salt, pepper. Cook brains and mushrooms and sauce together until smooth. Serve in patty cases.

4. **Baked or Larded**—Slip narrow strips of salt pork into the folds of 2 pair of brains. Sprinkle with salt and pepper, dredge with flour. Bake 20 minutes in hot oven. Serve with green peas and cream sauce.

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Sweetbreads

These may be parboiled and prepared:

(1) As brains, in any of the ways mentioned for brains;

(2) Sliced lengthwise, dredged with salt, pepper and oil and broiled over hot fire; or

(3) Cooked en casserole—bake slowly 1 hour, with sliced carrot, onion, butter and 1 cup stock. Add canned peas the last 15 minutes. Serve with sauce made of 1 tbsp. butter, 1 tbsp. flour, 1 cup stock, 1 minced onion. Simmer, stir in 2 teasp. cream, yolk 1 egg, strain, add 1 teasp. lemon juice. Pour sauce over sweetbreads en casserole.

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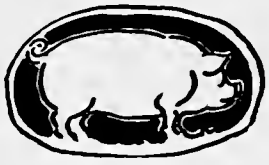
CLASS 6

Pork



RECIPES

Roast Pork—Select either the spare ribs, loin or shin; trim, wipe and score the skin. Force into the slits a mixture of bread crumbs, salt, pepper, onion juice and sage. Put in hot roasting pan, dredge with flour, brown quickly, then cook slowly, 30 minutes to the pound, basting every 20 minutes.

When thoroughly done, remove from greasy liquor and serve with apple sauce or baked apples.

Pork Chops — Take either chops or steaks. Sear well on both sides in a hot frying pan, drain off any fat. Salt and pepper. Finish cooking slowly, either in pan or hot oven. Serve well done with fried apples or brown gravy from which all fat has been skimmed. Thicken gravy and add chopped pickles just before serving. Pork chops may be seared, drained, floured and baked 30 minutes with layers of onions and canned tomatoes.

Breakfast Bacon—Slice bacon thin, trim off rind, place on broiler over dripping pan in hot oven, watch and turn until crisp. Serve at once.

Ham—A good rule to remember when cooking whole hams in any way is to heat gradually, cook slowly, cool in liquor.

Soak a ham several hours in cold water, scrape, trim and put on in cold water. Bring slowly to boiling point within 1 hour, simmer gently 25 minutes to each lb. When tender, put aside in liquor. Cool, peel off skin. Dot top of ham with salt and pepper, sprinkle on bread crumbs and minced onion. Bake 1 hour in moderate oven. Serve with sweet potatoes baked in their skins, or stuffed white potatoes and apple sauce.

Ham in Slices—To broil, use thin slices of smoked ham, soak in warm water 20 minutes, wipe dry, broil 3 minutes. Serve at once. To bake with apples, use inch-thick slices, trim off fat, rub sugar into the lean, lay in baking pan with slices of apples, cloves, sugar and a little water. To 2 lbs. ham take 6 apples. Bake 45 minutes.

Scalloped Ham—In a baking dish place in alternate layers 4 large sliced potatoes, 2 chopped carrots, onion, parsley, salt and pepper and 2 slices of ham cut into 4 pieces each. Pour 1 pint rich milk over, bake in slow oven.

Ham and Potato Pancake — Season 3 cups mashed potato, mix with ½ cup chopped cooked ham, 2 tbsp. bread crumbs, 2 tbsp. milk, salt, pepper, parsley, 1 beaten egg. Pour into a greased frying pan. Bake covered over a slow fire, until edges look brown. Use a large pancake turner, lift ham carefully and flop over to other side. Cook same length of time. Serve at a home supper with thin hot biscuit and tart jelly.

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CLASS 7
Poultry

POULTRY includes turkey, chicken, duck, etc.—generally domestic fowl. The meat of poultry is not so nutritious as beef and mutton, but its tenderness and flavor render it most agreeable as a change in the usual bill of fare.

SELECTING POULTRY

When selecting a chicken in the average market you cannot always know the history of its breeding and feeding though you may look instinctively for the plump breast, rounded legs and well-meated back of the fine, well-fed bird. You can tell by other signs whether it has been handled from the barnyard to the market in the sanitary and skillful manner which keeps a good chicken sweet, fresh and tender; that is, whether it has been properly killed and well bled, chilled, dry-picked and carefully packed in cartons under refrigeration.

Always ask for the dry-picked chicken; select a short, plump, fat one, if possible. Its skin should be soft, loose, dry and unbroken, and the breast fat yellow. Scalding a chicken for picking removes much of the nutriment, affects the flavor, adds water to its weight, and makes it less liable to keep well. Avoid a bird with tightly drawn, shiny skin and legs that are difficult to draw back.

If the dry-picked fowl you have selected has been properly bled and air-chilled it will be of an even yellow or white color over the entire body, not with discolored neck or red blotches on the wings and hips.

The carton-packed are placed in small groups in boxes, their heads wrapped in parchment paper. They are not packed with ice in a barrel.

These special signs indicate the sanitary treatment of the chickens. To judge age, you must know that an old hen or cock has a coarse head, rough skin, rough shanks and feet, heavy, blunted toe-nails, rigid breast-bone and long hairs, no pin-feathers. If carefully cooked they are suitable for chicken-pie, the casserole and the fricassee.

The youth and tenderness of a chicken are indicated by a small comb, smooth shanks, soft, thin skin, easily bent breast-bone and the presence of pin-feathers.

Choose spring chicks for broiling; a fairly young, plump one for roasting.

A young turkey should have plump, pliable breast-bone, smooth, dark legs, very short spurs.

Young ducks and geese not more than a year old have firm, plump breasts, the fat is soft and white, the wings tender and the skin between the toes tender.

Young pigeons have tender, pink legs and light red flesh on breast; on old ones it is very dark. Squabs are young tame pigeons; they are very large, but are soft and plump covered with pin-feathers.

Grouse, partridge and quail should have plump breasts, dark legs and yellowish bills.

Chicken offers 20 per cent of protein, 8 per cent of fat and 850 heat units per pound and compares favorably with sirloin steak in the amount of digestible nutrients furnished.

TO DRESS AND CLEAN POULTRY

Remove pin feathers, singe off all hairs. Slit skin down the back of neck, cut neck off even with body, cut skin of the leg below knee-joint, lightly, without cutting the tendons, break the bone with a sharp rap and pull off the foot.

Make an incision from end of breast bone to tail. Hold the fowl steady, reach carefully into the body, loosening membranes and removing the intestines without breaking them. Cut out of this mass the giblets, which are the heart, gizzard and liver, being careful not to break the green gall-bag near the liver. Put aside the giblets, neck and feet for soup or gravy.

Through the neck opening remove the wind-pipe and glands. Allow cold water to run through the fowl, wash it quickly and thoroughly inside and out. Wipe dry and truss.

To Stuff a Fowl, force the dressing through the opening below the breast bone and the one near the neck. If stuffed too tight, bread dressing will be soggy and crackers will swell and crack the skin.

To Truss—Bend the wings close to the body and turn under; push thighs up against the breast. Fold the skin over front incision and neck. Skewer the wings, thighs and skin into place, or sew, or tie with twine.

When a fowl is dressed, cleaned, trussed and stuffed it is ready for roasting or boiling.

To Prepare for Broiling—Singe, wipe, cut down from neck along the back bone, open, remove insides, wash, wipe dry, skewer wings and thighs close to body. If preferred, cut out the ribs and remove breastbone.

To Cut Up for frying, fricassee or boiling: clean and dress; separate legs from body by cutting skin and flesh at base of leg and disjoint. Cut flesh and disjoint upper leg or second joint from lower or drum stick. Cut wings off in same manner. Beginning two inches below breastbone make an incision following a line below ribs to collarbone; disjoint. Slice off the wishbone piece from the breast. Divide breastbone. Cut the back in two pieces.

To Prepare Giblets—Use only healthy looking giblets. The liver should be light in color. Carefully cut away from it the green gall bladder without breaking. Remove membranes and blood from the heart, leaving only the fleshy part. Remove fat from gizzard, cut open, peel off the outside muscle from the inside skin. Wash giblets, place in cold water. Cook until tender, mince fine and add to the gravy. When cooked with neck and wing-tips there is enough stock for gravy.

The legs of a young fowl make as nutritious jelly as calves' feet. Scald legs until the skin and claws will peel off. Place legs in cold salted water and simmer until flesh falls from bones.

POULTRY RECIPES

Boiled Chicken—An old fowl will do for boiling. Clean according to directions; rub inside and out with lemon juice to make the meat white, juicy and tender. It may be stuffed with a poultry dressing or boiled plain. To have it keep its shape, tie up close in a cheese cloth. Plunge in boiling water to nearly cover. Simmer gently, 20 minutes to the pound. The last hour add salt and tie up in cheese cloth bag ½ cup washed rice. The bag must be large enough to allow for rice to swell. Put in with chicken. When done, lift chicken out of bag to hot platter, garnish with a border of drained rice. Pour over it some oyster or celery sauce, or make a dressing of parsley, celery, hard boiled eggs chopped and added to a pint of skimmed gravy from the boiling pot.

Roast Chicken—Prepare a 3 to 5 lb. chicken for cooking, rinse inside with cold soda and water, wipe, rub with salt and pepper and lemon, stuff with a dry dressing of 1 cup dry bread crumbs, 2 tbsp. butter, ¼ teasp. salt, ⅛ teasp. pepper. If onion flavor is liked, brown one small onion minced in the butter before stirring in the crumbs, add minced parsley if desired, or sage. Wet dressing is made by moistening with 1/3 cup milk. When chicken is stuffed, rub over the breast and legs a paste of flour and butter and dust bottom of pan with flour. Place in hot oven. When flour is brown, baste with 2 tbsp. butter in ½ cup hot water. Lower oven heat, cover tight, roast 15 minutes to each lb. If water dries out in pan, baste with more. Serve with a gravy made of the thickened chicken broth and the giblets chopped fine.

If a roasting pan is used it is not necessary to put it in the oven. A delicious roast is the result if the meat or fowl is put in roaster with some water and seasonings and set on top of the stove. It should steam slowly until tender. If needed, add a little water but uncover as little as possible. The meat when done will be juicy and well flavored; make gravy with the juice.

Broiled Chicken—Prepare a very young one, split it down back, wipe inside and out, sprinkle with salt, pepper and salad oil. Place on broiler with inside uppermost under flame, until nearly brown. Broil 12 minutes to the lb., turning often. Serve breast up on hot platter with drawn butter sauce poured over. Garnish with parsley or watercress.

Fried Chicken (Southern Style)—A tender spring chicken is best to fry. Clean and cut it up at joints. Lay in salt water 5 minutes, wipe dry. Rub with salt and pepper, dip in beaten egg then flour. Heat fresh bacon fat, brown chicken in it, cover the skillet and cook slowly until tender. Serve the crisp brown pieces of chicken on hot platter with broiled bacon. Make a cream gravy with 1 tbsp. flour stirred into the fat left in skillet, add 1 cup rich milk or thin cream. When gravy thickens, serve at once with chicken, cold boiled ham, boiled rice and hot corn-meal muffins.

Maryland Chicken (Baked)—Cut up a chicken, sprinkle with salt, pepper, flour and butter; bake in hot oven 40 minutes or more, basting every 10 minutes with 2 tbsp. melted butter in ¼ cup hot water. When tender, lay on hot boiled rice or hominy served on hot platter with sweet potato or turnip balls. Pour over the chicken a sauce made of 2½ tbsp. flour stirred into the fat in pan, ½ cup chicken stock and thin cream, salt and paprika.

Brown Fricassee of Chicken—Cut up a large chicken, wipe dry, roll in flour, brown in hot fat, place in casserole and pour over it all a thick rich gravy made with what was left in browning pan. If needed, add more water to cover, season, simmer till tender in moderate oven. If a more savory fricassee is wanted, pack in the casserole in layers with the chicken either (1) a mixture of ¼ cup minced ham, 1 pimiento, ½ teasp. sage, ½ teasp. summer savory, ½ teasp. curry powder, pepper and salt; or (2) a vegetable fricassee of 2 celery stalks, 6 button onions, ½ cup diced carrot, ½ cup diced turnips, 2 bay leaves, 2 tbsp. vinegar or lemon juice.

Chicken a la Marengo—Select a young chicken, cut up and roll in corn-meal. Fry ¼ lb. sliced salt pork and in the drippings brown the chicken. Remove the pieces to the casserole or deep pan. Put a minced small onion in the browning fat, add 2 tbsp. flour and 2 cups boiling water; boil 5 minutes, season with salt and pepper and 1 cup of canned tomatoes. Strain this over the chicken, cover, simmer 15 minutes. Add ½ can mushrooms, simmer 10 minutes. Serve with mashed potatoes beaten with cream and butter until light and fluffy.

Chicken a la King—To 2 tbsp. butter in saucepan add 6 mushrooms cut in quarters, 1 green minced pepper; simmer gently until peppers are tender; add 4 tbsp. flour blended with 1 tbsp. butter. Stir in gradually 1 cup rich milk, 1 cup chicken broth, bring to boiling point. Put in the breast of chicken cut in 1 inch squares and yolk of 1 egg. Stir very carefully and serve on hot toast.

Pressed Chicken or Turkey—Boil a chicken gently in just enough water to cover, until it falls from the bones. If too much water is used, or it is cooked too fast so that it all boils away, the mixture will not jelly. Remove skin, bones, gristle. Chop the meat and season. Skim fat from broth, return meat to it, heat, turn into a bowl. Press a platter down on the meat with a heavy weight. When cold, this should turn out as a mold of jelly and cut in smooth, even slices. In very hot weather it is sometimes necessary to add 1 teasp. gelatine to stock.

Molded Jellied Chicken—To make a large loaf, use a knuckle of veal, cover with cold water, boil up, add a large old fowl, cover, cook until meat falls from bones. Remove meat, cool. Simmer the stock with 1 cup canned tomato juice down to 2 cups in all, season with ¼ teasp. salt, ⅛ teasp. pepper, onion juice. Cool, strain. Pass the lean veal through meat chopper, add 1 cup stock, season if needed with salt, paprika, lemon juice and onion. Mix in 1 cup chopped celery. Place large mold or pan on a piece of ice. Cover bottom of pan with stock. When jellied, arrange whites and yolks of hard boiled eggs, canned pimientoes cut in fancy shapes. Sprinkle with finely shredded green peppers or parsley. Pour rest of stock on slowly so as to harden. When this has jellied add a layer of chicken, then one of veal. Spread on a thin layer of butter, then oiled paper. Put a plate with a weight on top. When on ice 3 hours turn the jellied loaf out and serve.

Chicken Pie (with Forcemeat Balls)—Cut up a chicken and boil covered according to directions. When it begins to be tender remove and place at once in a baking pan. Lay the pieces on top of 2 thin slices of fried pork with 1 dozen marble-sized forcemeat balls and 1 cup hot water. Cover the top with a thin biscuit dough. Lightly brown the crust in hot oven, lower heat, cover with thick paper, and bake 20 minutes. Make a gravy of the boiled stock seasoned and thickened with flour and cream. Pour this gravy quickly through the holes in the crust.

Individual Chicken Pie—Mix 1 cup minced cold fowl, 1 cup minced cooked ham, season with salt, paprika, parsley, minced green pepper if liked. Moisten with thickened gravy or cream. Cut several strips of pastry twice as long as wide. Spread half of each strip with the meat paste, fold over the other half and pinch edges of pie together. Bake in hot oven until brown. Serve with a cream gravy, seasoned with paprika and tomato.

Roast Turkey—Wash and clean inside thoroughly. Fill with a stuffing, sew up the body, tie skin around neck, bind legs and wings close to body, cover breast with thin slices of salt pork,

put in roaster uncovered. Sear turkey under oven flame or in hot oven. Pour over it 1 cup boiling water, cover roaster, lower heat, cook slowly 15 minutes to each lb., baste about every 30 minutes. Fifteen minutes before turkey is done, uncover, remove pork strips and giblets. Baste turkey with gravy, dredge with flour, pour out the gravy, brown turkey in oven. Skim gravy, add 2 tbsp. browned flour and water paste, salt, pepper, and giblets minced. Simmer and pour into gravy boat. Serve cranberry sauce with turkey.

Roast Goose—Prepare for oven as directed for turkey, except that a goose must be scrubbed with brush and hot water; rinse inside and out with cold water, wipe, stuff with a dressing seasoned with onions and sage. Roast in hot oven for 2 hours or more, basting often, first with 1 cup boiling water then with drippings in the pan. When thoroughly done, dredge with flour, pepper and salt, and brown. Place on hot platter, remove strings and skewers. Serve with baked apples. To make gravy, skim off all fat from liquor in pan, thicken liquor with browned flour, and stir in the minced giblets.

Roast Duck—Select young small ducks rather than a large drake. Leave the feet on, remove the long neck and pinions. Prepare as for roast turkey, scald and skin the feet and twist across the back. Stuff with a dry dressing. Skewer the wings close to the sides. Roast 30 to 40 minutes. Arrange 6 small sour cored apples around the duck. Brown quickly in hot oven, lower heat, baste while cooking until apples are done. Serve with green peas. Garnish with stuffed olives.

Stewed Duck (with Peas)—Clean and singe 1 large duck, cut into pieces, roll in flour, pepper and salt, brown quickly in fat. Pour over it 1 quart of Spanish sauce and soup stock mixed, seasoned with ½ teasp. onion juice, 1 bay leaf, 2 cloves, and minced parsley. Cover closely, cook slowly 2 hours, uncover and add ½ can peas. Cover and cook ½ hour longer. Serve with a border of potatoes.

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POULTRY AND GAME STUFFING

Bread Dressing—To 1 cup bread crumbs add 1 tablespoon minced fat pork, a dash of paprika and onion juice and minced parsley. Moisten with water or stock. Sausage meat partially cooked may be used instead of the pork. If chopped nut meats are substituted omit the onion juice and moisten with milk or leave the dressing dry.

Oyster Dressing—Mix rdy bread crumbs with a seasoning of parsley, thyme, salt and pepper. Add a dozen small oysters. If a wet dressing is wished, moisten with oyster liquor.

Chestnut Dressing—Boil 1 quart large Italian chestnuts. When done, shell and peel them, mash smooth, mix with 2 tbsp. butter, salt and pepper.

Southern Turkey Dressing—Make a corn-meal mush of 2 tbsp. corn-meal, salt, boiling water—cool. Stir in 1 cup fine bread crumbs, 1 beaten egg, 1 tbsp. butter, lard or melted chicken fat, 1 tbsp. minced ham, 1 teasp. salt, 1 saltsp. pepper, mold into tiny balls with a spoon, stuff the turkey or fowl with the balls, allowing room for them to swell.

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California Dressing — Moisten stale slices of bread in a little milk, press out the liquid. Mix with the bread 1 tbsp. melted butter, 1 tbsp. sugar, ½ cup chopped almonds, 2 tbsp. whole-seeded raisins or currants if the dressing is for game.

Potato Stuffing (for Ducks and Geese)—To 2 cups mashed potatoes add ½ cup milk, 1 teasp. onion juice, 1 tbsp. butter, 1 tbsp. chopped parsley, salt, pepper and sage. Add 1 egg yolk, beat all together.

For those who like a sour kraut dressing, omit the milk, sage and parsley, and use a generous amount of sour kraut with the seasoned potatoes.

Apple Stuffing (for Roast Goose)—Fry in a little bacon fat, 1 chopped onion, 1 teasp. each chopped celery and parsley. Add to this the goose heart and liver previously cooked and chopped. Remove from skillet, mix with 2 large apples cut in cubes, ½ cup bread crumbs, pepper and salt. Moisten with baked apples cored and filled with chopped nuts and currant jelly.

Duck Giblet Stuffing—Boil the duck's liver and mince with 3 large onions, 1 hard boiled egg yolk; stir into 2/3 cup of bread crumbs, 1 teasp. salt, sage, few grains pepper and 1 teasp. parsley.

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CLASS 8

Game

Under this head is included all wild animals and wild fowl used for food. In cooking either, apply the same general rules already given for meats and poultry, remembering that all white meated game should be cooked well done; dark meated game rare, and both must be sent to the table very hot, with hot plates. Wild meat contains a much greater percentage of phosphates, and much more lean than fat, while the lean is of much greater density than the flesh of domesticated animals. It follows that they are a strong food, and, if well digested, very nutritious.

When game is kept many days it should be drawn, the inside rubbed with salt and pepper, and it does no harm to put some lumps of charcoal in the cavity. If there is any objection to washing, it must be very carefully drawn and then wiped with a damp cloth until perfectly clean. Neither salt nor pepper should touch the outside of the meat until it is cooked.

Simplicity is the highest perfection in cooking, especially of game, and all seasoning, sauces and accompaniments should be subordinate to the flavor of the meat.

RECIPES

Roast Venison—Venison, the meat of deer, should be cooked rare and served very hot. It will be too dry if not covered thoroughly with butter and basted often with hot water and butter, or larded with strips of pork. Put the larded leg or saddle of venison in a covered roaster with a little water. Cook 20 minutes to each lb., basting every 15 minutes. Half hour before it should be done baste with claret or melted currant jelly. Make a gravy with the drippings seasoned. Pour into gravy boat, serve some tart jelly with the roast.

Loin haunch or leg may be roasted in the same way.

When the roast is to be reheated, slice it and heat in a brown sauce, or curry, or olive sauce, or serve cold with mustard sauce.

Venison Steak—Cut steak ¾ inch thick, rub with oil and lemon juice, set aside 1 hour, then broil as beefsteak. Sprinkle with salt, paprika. Serve at once with wild plum or crabapple jelly, or Maitre d'Hotel sauce.

Roast Rabbit or Hare—These are fall and early winter game. Select a young one with soft paws and hairs not stiff. Have the butcher skin the hare, which was drawn supposedly soon after it was killed. Wash carefully, stuff with a dressing as for chicken with minced pork added. Sew up, truss the legs. Put in roasting pan and lay sliced pork over it. Bake 1 hour in hot oven, turn and baste often with boiling water and butter. Before basting the last time, dredge with flour and brown. Thicken the gravy and add 1 tbsp. tomato catsup or Worcestershire sauce.

Hare en Casserole—1. Cut up the prepared hare as for fricassee, roll in flour, brown well in hot pork fat or bacon grease. Arrange these pieces in hot casserole on a layer of sliced onions lightly fried. Add parboiled potatoes sliced. Pour over all a brown mushroom sauce. Simmer until tender from 1 to 2 hours; add 1 tbsp. lemon juice, 4 tbsp. sherry, and serve.

2. Pour over the browned pieces of rabbit in casserole a curry sauce, or Spanish sauce, or rich brown stock. Cover tight, simmer 1 to 2 hours. If brown stock is used, add to the casserole just before serving 2 tbsp. tart jelly; serve with boiled rice.

Squirrel or Rabbit Pie—Brown the pieces of squirrel in bacon fat, season with 1 teasp. salt, pepper, 1 sliced onion, 3 lemon slices, 1 tbsp. butter or minced pork. Cover with boiling water; put on a tight cover and stew slowly 1 hour or until tender. Put the squirrel into a baking dish and pour over it the gravy thickened with 1 tbsp. flour heated with 1 tbsp. butter or fat. Cover with a light biscuit crust and brown in the oven.

Wild Ducks—These should be carefully picked, singed, washed outside, drawn and wiped inside with a cloth wet in soda and water.

For a casserole cut the birds up neatly. Split them down the back for broiling or smothering. Leave them whole for roasting and truss with the neck twisted down to cover the opening in breast, the tail turned down to close opening through which it was drawn. Season with salt and pepper. Cook rare 20 to 30 minutes.

If stuffing is used, select either a dry bread dressing, or oysters rolled in egg and dry bread crumbs toasted in butter, or chopped onion, celery, and crumbs. All wild birds may be prepared in about the same ways.

Broiled Quail—Pick, singe, draw and cut off heads and feet of 6 quail. Wipe out with a wet cloth, split down the back, spread inside and out with oil, pepper and salt, broil on both sides 15 or 20 minutes. Baste with the oil and drippings if the birds seem to get dry before they are done. Serve plain on buttered toast, or with a spoonful each of hot bread sauce topped with crisp fried bread crumbs.

Smothered Prairie Chicken—Prepare as quail for broiling. Brown lightly in hot skillet, then arrange in a steaming pan with tight cover. Steam very slowly 30 minutes. Remove cover and pour over birds 1 cup Maitre d'Hotel sauce. Serve with fried hominy, green peas and tart jelly.

Broiled Squab—Split down back and spread flat; season with salt and pepper, broil until done. Lay each squab on a square of toast and pour over it Maitre d'Hotel sauce.

Roast Grouse—When ready for roasting, truss and stuff if desired with an oyster dressing to which finely minced fat pork has been added or a seasoned bread crumb dressing, or spread inside of the birds with butter, tie slices of fat pork on the back and thighs, as the grouse is a dry meat bird. Place in a covered roaster with 1 cup boiling water, roast 45 minutes. Brown and serve with jelly sauce.

Pigeon Pie—The birds may be floured as for roasting and browned quickly in butter, spread inside with salt, pepper and butter, and spread outside with a forcemeat of veal and ham ground and mashed with yolks of hard-boiled eggs. Arrange in a deep pie dish with a very little water. Fill in between the birds with the remaining forcemeat made into tiny balls. Bake covered until nearly done, then pour in a drawn butter sauce. Cover with a thin pie crust with a slit in the center. Cook until crust is done and brown.

(Paste or Write Here Scraps or Memos. of Your Own)

Fish is an important part of our food supply. Fresh fish is less stimulating and nourishing than meat, but is considered more easily digested. Fish makes an agreeable change in the usual routine of a roast, broil, fry and boil. A notable advantage is the short time required to cook fish; another is the great variety of kinds through the long list of fresh and salt water, red or white fleshed, dry, salt or fresh. The white fleshed fish is more easily digested than the red fleshed. Examples are whitefish, haddock, cod, flounder, perch, pickerel, crappies, etc. Examples of red fleshed fish are salmon, shad, lake trout, etc. Very large fish are, as a rule, better when boiled or steamed; medium sized ones should be baked or split and broiled, and small ones fried. Red fleshed fish, being richer in fat, should not be fried.

A fish is in good condition when the eyes are bright, the gills a bright clear red, scales shiny, the flesh firm and free from a disagreeable odor.

Mayor Mitchell's Food Committee on Fish

The habit of eating fish on Friday **only** is absurd, and should be stopped. Fish are just as appetizing and nourishing on Tuesday and Thursday as on Friday, and if you and your neighbors will buy fish any day in the week you will get cheaper fish and better fish. Hundreds of carloads of fish are sent from New York to other cities because the people of New York do not appreciate the value of fish as a food and do not buy it as often as they should.

Vary your diet as much as you can. You will be more healthy if you do. Don't use meat so much. Use fish more. Fish is just as nourishing as lean meat and if eaten with bread, potatoes, etc., will supply all the needs of the body. If possible, buy your fish from a fish dealer.

When you buy fish see that you get the trimmings. You are just as much entitled to them as you are to the trimmings of your meat.

The meat part of almost any fish may be cooked separately. If you ask your fish dealer to remove the meat part of the fish for you, the trimmings will consist of the head, the skeleton and the fins, and these can be used for fish stock out of which can be made excellent fish soups and fish sauces.

Halibut costs from fifteen to twenty-two cents a pound. Market cod costs about five cents less a pound, and can be cooked in the same way as halibut. It can be cut up into steaks; it can be boiled; the tail can be split and broiled in the same way that you would broil mackerel or bluefish, and it costs about eight cents less a pound than either mackerel or bluefish.

Haddock costs about five cents to eight cents less a pound than halibut and can be cooked in the same way. Both cod and haddock are in season all the year and if properly cooked are extremely appetizing.

When you buy bluefish get a large sized fish; it costs about five cents a pound less than a medium sized one, and if you buy a large one you will have enough left over for

another meal. Any fish left over can be used to make fish cakes or can be creamed and put into a dish and baked.

Many People go to a fish store and buy the fillets of a fish instead of buying the whole fish. A fillet of fish is nothing more or less than the meat of the fish stripped from the skeleton. Some fish dealers have these fillets all ready on a platter for sale, **but if you buy them that way** you will pay anywhere from five to twenty cents more a pound for them than if you buy the entire fish and ask the dealer to strip the fillets off for you and give you the trimmings.

HOW TO TELL WHEN FISH IS FRESH

In fresh fish the eyes are bright, the gills red, and the flesh firm and odorless. Put fish in water, and if it sinks you will know it is fresh. If it floats, it is a sign it is not fresh, and it should not be used. Serious illness is apt to follow the eating of fish that is not fresh.

Cleaning Fish—Be sure that your fish is thoroughly cleaned before cooking. It should be cleaned as soon as it is bought.

Fish in Season—Cod, scrod, haddock and chicken halibut can be obtained practically all the year. (Scrod is young cod split down the back and the backbone removed except a small portion near the tail. Chicken halibut is the kind usually found in the markets.)

Flounders are not so good in November, December and January.

Smelts are in season from June to March.

Mackerel is in season from May to September.

Shad is in season from January to June.

Salmon is in season from May to September, but it can be obtained the greater part of the year.

Bluefish are in season from May to October. As it is frozen and kept in cold storage from six to nine months it may be obtained practically the year round.

THE TUNA FISH

It is surprising that more are not familiar with the tuna fish. It provides a most satisfactory fish dinner at a moment's notice, and it is a veritable delicacy that every housewife should keep in stock.

The meat of the tuna fish is pure and white, greatly resembling lobster meat and, to many, much like it in flavor. In Norway it is much preferred to fillet of sole. But its greatest advantage lies in its adaptability. It may be broiled and used with toast, it makes a most tempting sandwich, with crisp lettuce, and for a fish salad no other fish can rival it.

The commercial tuna is a small fish found off the coast of Alaska and California and off Finland and Norway. We get most of it from California.

It is one of the nourishing foods. Like the salmon, it is a fat fish, and supplies many calories, or units of body fuel. The salmon has 9.5 per cent of fat and the tuna 9.1 per cent. The salmon's calories, or food value per pound, is 685. The tuna's, 669.

The tuna may be served cold, as an hors d'oeuvre, or it may be broiled and spread on toast, like anchovy paste, as a relish. But, best of all, it may be taken solid from the can, thoroughly heated, garnished with dabs of butter and bits of bacon, and served as the chief dish for a Friday dinner.

The meat of the tinned tuna fish is so white and solid that it lends itself admirably to all sorts of treatment for serving, even for frying.

THE PREPARATION OF FISH

White fleshed fish are best broiled or planked, larger white fleshed fish are best boiled and served with sauce Hollandaise or Maitre d'Hotel butter (as bass, cod, halibut, red snapper, haddock), as they need the addition of some form of fat to give flavor and nutriment. Small fish (as brook trout, smelts, etc.) are best fried. Halibut slices may be dipped in egg and bread crumbs and fried in fat.

DIRECTIONS

To Clean a Fish—Remove the scales by scraping with a dull knife from the tail toward the head. Head and tail may be left on or removed according to the manner of cooking. Small fish to be served whole have the entrails removed by opening under the gills and pressing out their contents with the thumb and finger; example, smelts. Larger fish are split half-way down the belly and the insides scraped and washed with salt and water after it is empty. Wipe the fish inside and out with a cloth wrung out in cold salted water, then wipe with a dry, clean cloth.

To Skin a Fish—First remove the fins along the back and cut off a narrow strip of skin the entire length of the back. Loosen the skin over the bony parts of the gills and slowly work toward the tail. Do the same on the other side.

To Bone a Fish—Clean fish and remove head; beginning at the tail, run sharp knife close to the backbone, cutting the meat away on one side and working toward the head. Turn and repeat on the other side.

Boiled Fish—Clean the fish according to the directions, wipe carefully and rub with salt. Wrap in a piece of cheesecloth to hold the fish together and to prevent the scum from adhering to the fish. Place it in a kettle half filled with boiling water, cook slowly, allowing fifteen or twenty minutes to the pound. A long fish-kettle with a rack is useful. A wire basket in a kettle may be substituted, the fish coiled about in the basket. The water in which the fish cooks should have salt and vinegar or lemon juice added, 2 teasp. of salt and 1 of vinegar to a qt. of water. The salt gives flavor, the vinegar or lemon juice keeps the fish white. The fish is cooked when flesh is firm and separates easily from the bone. Take from the water and remove cheesecloth. Garnish with parsley and slices of lemon.

Steamed Fish—Clean carefully but without removing head or fins; rub inside and out with salt and pepper and lemon juice, laying slices of onion inside if liked. Lay on a buttered paper and steam till the fish falls easily from the bones. Lay on a folded napkin, garnish with lemon and parsley and serve with a Hollandaise sauce.

Baked Fish—Clean, wipe and dry the fish; rub with salt inside and out; stuff and sew; cut gashes two inches apart on each side so they will alternate and skewer into the shape of an S or an O. Put the fish on a greased baking sheet, or if this fish sheet is not at hand place strips of cotton cloth under the fish by which it may be lifted from the pan. Sprinkle with salt and pepper and place narrow strips of pork lardoons in the gashes. Place in a hot oven without water; baste with hot water and butter as soon as it begins to brown and repeat every ten minutes afterwards. For a four-pound fish the time would be an hour. Remove to a hot platter; draw out the string; wipe off all water or fat which remains from the fish, remove pieces of pork. Garnish the head of fish with parsley or watercress.

Stuffing for Baked Fish—1. One cup cracker crumbs, ¼ teasp. salt, ⅛ teasp. pepper, 1 teasp. chopped onions, 1 teasp. chopped parsley, 1 teasp. capers, 1 teasp. chopped pickles, 3 tbsp. melted butter; this is sufficient for a fish weighing 4 to 6 pounds.

2. 1 cup bread crumbs, 1 tbsp. minced onion, 2 tbsp. butter, 1 teasp. chopped parsley, ¼ teasp. salt, ⅛ teasp. pepper, 1 egg. Soak bread in cold water; when soft, press out all the water; fry onion in butter, add the bread, parsley and seasoning. Add the beaten egg at last.

3. ½ cup lean veal, ⅛ lb. fat bacon, ¼ cup bread crumbs, ¼ teasp. salt, ⅛ teasp. pepper, 1 teasp. onion, 1 teasp. parsley. Chop the meat very fine, add the bread crumbs soaked and pressed and the seasonings.

Broiled Fish—Large fish should be split through the back to broil, head and tail are usually removed. Salmon, halibut and sword fish are cut in inch slices for broiling. Smelts and other small fish are broiled whole. Clean and wipe fish as dry as possible, sprinkle with salt and pepper, place in a well-greased broiler. Broil the flesh side first till almost done, then cook on the skin side just long enough to brown well. Small fish require from 5 to 6 minutes, thick ones from 20 to 30 minutes. To remove from the broiler, loosen one side from the wires first, turn and

loosen on the other side, then slip from broiler to hot platter. Spread with butter and set in warming oven to let it penetrate the fish.

To broil fish in a gas stove, clean and dry as usual, only it is better to remove the backbone. Put under the flames an iron or granite baking dish well greased. Place the fish on this, skin down, sprinkle with salt and pepper, dot with butter and dredge with flour. When nicely browned reduce heat; time required, from 25 to 30 minutes.

Fried Fish—Wipe the fish dry, sprinkle with salt, then dip in flour or crumbs, then dip in egg, and again in flour or crumbs, and fry in deep fat.

Panned Fish—This is suitable for any small fish or such as can be cut in slices. Have the fish well cleaned, seasoned with pepper and salt and dried with a little flour; or, better still, very fine bread crumbs. Have a large frying pan smoking hot with as little grease in it as will keep the fish from sticking. Dripping from good sweet pork is the best, but any sweet drippings will do. When the fat begins to smoke blue, lay in the fish and brown quickly on both sides, then cover closely and set back to cook more slowly, from 10 to 20 minutes, according to the size of the fish. Bass in all its varieties is suitable to cook in this way; so are butterfish, cisco (lake herring), herring, perch, porgies, trout, weakfish, etc.

Saute Fish—Prepare your fish as for frying and cook in frying pan with small amount of fat. Cod steaks and smelts should be cooked in this way.

Salt Fish—Very salt fish should be cooked several hours in 3 or 4 changes of warm water. Place the skin side up, so that salt crystals may fall away from the under side or meat side. Wipe carefully and clean, then soak an hour in very cold water.

RECIPES

Boiled Halibut—Lay fish in cold salt water 1 hour. To remove the black skin before cooking put that side in boiling water an inch deep for a few minutes. Scrape skin off, wash, sew up in cheesecloth, put on to cook in cold water, add a gill of vinegar, boil a moment, then simmer. When the flakes begin to separate or a fin can easily be loosened, remove fish to hot dish gently, then slip off the cloth. Make a rich sauce of canned tomatoes, thickened with 1 tbsp. butter rubbed into 1 tbsp. flour, ½ teasp. sugar, ½ green pepper minced, and salt, pepper to taste. Cook 15 minutes, press through a colander, pour over the fish. Serve mashed potatoes, baked with cheese.

Baked Halibut Steaks—Wipe fish with cold wet cloth, season slices with salt, pepper, roll in flour, put into baking pan with milk to the depth of 1 inch, sprinkle with parsley and butter, minced celery leaves and few slices of onion. Bake slowly 45 minutes in moderate oven.

Baked Haddock Larded—Clean, wash and dry fish, sprinkle salt inside and out and stuff with 1 cup bread crumbs mixed with 1 teasp. minced salt pork, 1 teasp. salt, 1 teasp. chopped onion. Insert strips of salt pork in gashes cut on each side of backbone. Tie fish with a cord in package fashion to be removed before serving. Place in baking pan in moderate oven. Bake 15 minutes to each lb. Baste with water as gravy in pan dries out. Serve with a cream sauce, garnish with thin lemon slices.

Smoked Haddock en Casserole—Prepare fish, boil 10 minutes. Skin, lift large pieces of flesh from the bones, dip them in flour, lay in a buttered baking dish, sprinkle with salt and pepper, put a layer of thick sliced hard-boiled eggs on top. Pour in and over all a plain thickened cream sauce, sprinkle bread crumbs over and cover. Bake slowly 10 minutes. Serve with whole baked tomatoes and potatoes mashed with cream and butter.

Broiled Spanish Mackerel—Wash a 2 lb. fish, wipe dry, split and remove the backbone, rub inside and out with salt and oil. Grease the broiler, place fish on it skin down. Broil under oven flame slowly about 20 minutes. Serve at once on hot dish with melted butter.

Fried Smelts—Leave on the heads and tails. Clean carefully, making an opening at the gills and pushing the insides quickly out the gills; wipe dry, sprinkle with salt, pepper, dip in egg and bread crumbs and fry in hot lard or cottolene. Drain, serve hot with Tartare sauce.

Baked Fresh Codfish—When fish is sent from market, clean, wipe, rub inside and out with salt and put on ice ½ hour. Heat baking pan with bottom covered with water and butter, or 1 cup meat stock. Lay the 3 lb. fish on greased grating of pan, sprinkle on salt, pepper, lemon juice, oil. Cover and bake 30 minutes. Uncover, sift on the fish fine bread crumbs and drops of butter, brown. Thicken gravy with butter and flour, add lemon, onion juice, and ½ tbsp. Parmesan cheese. Simmer 1 minute. Serve fish surrounded with boiled salted inch-length macaroni. Grate cheese over macaroni. Garnish with sliced hard boiled eggs if desired. Pour the sauce over the individual slices when served.

Boiled Salmon Trout—Clean a small salmon, sew up in cheesecloth, place in kettle with boiling salted water to cover. Add a tbsp. vinegar. Cook slowly, 20 to 30 minutes. Remove cheesecloth, slide fish to a hot platter. Pour over it a white cream sauce with egg, or a cream sauce with peas. Garnish with parsley and lemon slices.

Planked Shad—While the plank is heating under the oven flame, wash, split and dry a 3 lb. shad, sprinkle with salt, pepper, few drops of olive oil, lay skin down on hot plank, cook quickly 20 minutes. During that time boil white potatoes until mealy, drain, add butter, salt and rich milk; beat until smooth and stiff enough to stand alone. Drop spoonfuls of the potato on the plank around the shad. Put where the potatoes will brown, spread over the fish a dressing of melted butter and lemon juice. Serve.

Shad Roe—This may be broiled, fried, baked or creamed. Wipe roe with wet cloth, dry, sprinkle with salt and pepper. **Broil** 5 minutes on greased wire broiler under flame, turn, and while the roe is cooking on the other side, place thin slices of bacon on top. Both roe and bacon will be done at the same time. Serve at once with lemon slices.

To Fry—Roll in flour, egg, bread crumbs, fry in deep fat, serve with Maitre d'Hotel butter sauce.

To Boil—Cook in gently boiling water 10 minutes, serve with tomato sauce.

Creamed (Baked)—Crumble 2 boiled shad roes with a fork, stir lightly into a plain cream sauce, season with salt and pepper. Mix in the chopped whites of 2 hard-boiled eggs, turn into a glass baking dish. Crumble the hard-boiled yolks on top. Place in hot oven for a few minutes before serving.

Boiled Filet of Flounder—Filet the fish; that is, take backbone out and cut each half in about 2 neat long slices. Wipe these, season with salt, lemon juice and oil. Roll each slice up with skin side inside; pin with a toothpick; put on ice 15 minutes to stiffen. Arrange filets in pan, add 1 cup water, 1 tbsp. butter, simmer 15 minutes, then lift them out with a flat wire spoon, lay on buttered toast and pour over them a thick cream sauce cooked with chopped parsley.

Fish Kedgeree—Hard boil 2 eggs, wash 1 cup rice, boil until tender, drain; mix 2 cups of cooked fish flaked with the rice and sliced egg whites. Turn into a hot pan with 2 tbsp. butter. Season and stir until hot all through. Serve quickly on a hot dish, garnish with parsley and grated egg yolks. Canned tuna fish is nice prepared in this way.

Tuna Fish with Mayonnaise—Canned tuna fish is usually too rich to serve cold unless rinsed in boiling water to remove some of the fat. Then chill it in the whole piece. At the same time marinade on ice in spiced vinegar, 1 can of asparagus tips and ½ can stringed beans in separate dishes. At serving time dish the whole piece of tuna fish on a platter, cover with stiff mayonnaise, garnish with the asparagus tips and string beans.

Fried Tuna Fish—To fry tuna, wipe it as thoroughly dry as possible without breaking and prepare fat for immersion. Do not use the old fry-pan method. Beef fat is good because it does not leave the fish greasy, or some of the modern prepared cooking fats of today are even better. Do not get the fat smoky. Prepare a lot of very fine bread crumbs, beat eggs without separating yolks and whites, and brush this over the fish. Sprinkle with the bread crumbs and place in a wire basket. Throw a few bread crumbs in the fat and if they brown in thirty seconds the fat is just right. Immerse the fish in the fat by means of the wire basket and when they are browned and crisped outside, remove and drain in a warm place. Serve the fish on a folded napkin on a platter garnished with lemon and parsley.

Tuna in the Can—If you heat the tuna fish in the can an excellent sauce for serving with it is made of 2 cups of milk, 2 cups of water, 5 tbsp. butter, 3 tbsp. flour, ⅛ teasp. pepper and ½ teasp. salt. First put 3 teasp. butter in a saucepan and cook the flour in it, then add the boiling liquid, the remainder of the butter, bit by bit, and the seasoning. Boil 6 minutes.

Tuna Hors d'Oeuvres—As an hors d'oeuvre a tuna fish meat may be served by cutting into tempting little bits the solid white meat, thoroughly chilled, and with it serve a generous slice of lemon. Sprinkle paprika on the meat and garnish with parsley.

Tuna Paste—A paste may be made of tuna meat by mincing it thoroughly and forcing it through coarse cheesecloth. Lightly brown a narrow slice of bread. With the tuna meat paste mix paprika and enough salt to make it more than ordinarily salty. Spread this thinly on the toasted bread and hold again over the hot coals of the gas flame until the fish paste has browned. Serve hot for a relish. If you cannot get sufficiently coarse cheesecloth, use a very fine sieve. Put only enough butter with this to moisten. Too much spoils the flavor.

Tuna Filet—For a filet nothing is better than the tuna fish. Many people place it ahead of sole. Cut the meat in strips an inch wide, roll the strips over and fasten with a skewer. Immerse in hot

fat or cooking oil as in frying. The tinned tuna fish need be in the oil no more than 3 minutes. Drain carefully and serve on a napkin, garnishing the filet with parsley and lemon.

Canned Salmon (Baked)—Remove bones and skin from canned salmon, flake the fish and simmer in its own liquor. Mix 1 tbsp. butter, 1 tbsp. flour in 1 cup milk; add 1 tbsp. lemon juice, few grains cayenne; stir sauce into salmon with 2 sliced hard-boiled eggs. This may be poured into a buttered baking dish, sprinkled with crumbs and browned in hot oven, or it may be spread in a casserole dish on a bed of boiled rice or thin sliced cooked potatoes. Cover with rice or potatoes and steam 20 minutes. Serve with peas, or Hollandaise sauce.

Creamed Salmon—Remove bits of skin and bones and flake the canned salmon; mix with 4 finely chopped hard boiled eggs, 1 cup bread crumbs, 2 tbsp. melted butter, 1 cup milk, ½ teasp. salt, dash of pepper. Heat slowly to boil, stirring often, then pour it over crisp buttered toast or puffed pastry browned.

Sardines or tuna fish may be used instead of the salmon.

Salt Codfish Balls—Soak 1 cup of shredded salt codfish in 2 cups water, 15 minutes, drain. Simmer with 2 cups sliced potatoes until they are tender, drain and mash. Beat in until thoroughly mixed, 1 beaten egg, 1 tbsp. butter, pepper, and salt if needed. Dip tablespoonfuls of the mixture in hot fat when brown, drain, serve.

A quicker way when cold cooked potatoes are at hand is to mix mashed potatoes with the soaked codfish, or canned salmon or any cold fish. Season, moisten with 1 tbsp. warm milk, and 1 tbsp. melted butter stirred into an egg. Mold the mixture into balls, dip lightly in flour, fry in hot fat to cover, drain, serve at once on hot dish with tomato sauce.

(Paste or Write Here Scraps or Memos. of Your Own)

CLASS 10
Shellfish

Oysters are in season from September to May. Oysters are nutritious and are easily digested, especially when eaten raw.

To Open Oysters—Insert a thin, sharp knife between the shells near the back, pushing the knife forward till it cuts the muscle which holds the two shells together.

To Clean Oysters—Place the oysters in a strainer over a bowl. Reserve the drained liquor. Pick over each oyster carefully for bits of broken shell and wash in cold water, allowing two cups to each quart. The oyster liquor should always be scalded and strained before using. For many purposes the oysters should be scalded before using. Place one pint of cleaned oysters in a frying basket and dip it for one minute in a kettle of boiling water, drain and dry in a soft cloth.

RECIPES

Oysters on the Half-Shell—Lay 6 oysters on the deep halves of their shells, arrange these in individual soup plates on beds of fine ice. Serve with lemon, pepper, salt.

Oysters Fried—Select large plump oysters, wipe dry, sprinkle with salt and pepper, dip in crumbs or flour, then egg, crumbs again, and fry 1 minute in deep very hot fat. Drain, serve at once with tomato catsup, or tartare sauce, or make this cosmopolitan sauce: Melt and brown 2 tbsp. butter, 2 tbsp. flour; when smooth stir in 1 cup oyster liquor until it boils. Cool, fold in ½ cup mayonnaise, ¼ cup Chili sauce, ½ teasp. Worcestershire, 2 teasp. vinegar, ¼ teasp. celery seed, few drops onion juice, 1 pimiento cut fine, few drops tobasco sauce. Serve at once.

Scalloped Oysters—In a buttered baking dish arrange fine bread crumbs and oysters in alternate layers, topping with bread crumbs. Moisten each layer with a little milk and oyster liquor seasoned. Dot with butter, brown in the oven. Instead of milk, a tomato sauce may be used. Mix 1 cupful thick white sauce with 1 cup tomato juice, 1 teasp. onion juice, 2 tbsp. minced green peppers, 2 tbsp. minced celery, salt and pepper. Pour some of this sauce on each layer of bread crumbs and oysters.

"Little Pigs in Blankets"—Wash and dry some large oysters. Wrap around each a thin slice of bacon; pin together with a toothpick. Broil or roast until bacon is crisp and brown. Serve at once on toasted crackers.

Brown Fricassee of Oysters en Casserole—Scald 1 pt. oysters in 1 cup oyster liquor. Brown 2 tbsp. flour, 3 tbsp. butterine and 1 minced onion. Stir in 2 tbsp. cream, 1 tbsp. chopped parsley, 1 cup oyster liquor. Cook until it thickens. Put half the sauce in a small buttered casserole. Lay the oysters on, season them with salt, sprinkle lightly with grated cheese and bread crumbs. Cover with remainder of sauce, then cheese and bread crumbs. Brown in quick oven. Serve hot en casserole.

Oyster Stew—This may be made with fresh or canned milk. If the latter is used, mix 1 cup milk with 1 cup water. Stir this slowly into a roux of 2 tbsp. butter, 2 tbsp. flour, ½ teasp. salt, few grains pepper. Stir all the time it cooks until creamy. Add 1 pt. oysters; remove from stove when oysters are hot through. Serve.

Clam Fritters—Wash clams, cut off heads, split, scrape the necks and chop the entire clams. Make a batter of 2 cups milk, 2 beaten eggs and about 2 cups prepared flour. Stir the chopped clams into the batter; drop this by spoonfuls into deep hot fat or lard. When fritters brown on one side turn them over. When brown all over, drain and serve at once while crisp.

Clam Shortcake—Wash 1 dozen large clams, plunge in boiling water a moment, open the shells. Make a shortcake, bake, and keep hot. Blend flour, salt, cayenne, with a little melted butter; add gradually ½ cup milk, some clam liquor and the clams. Simmer about 4 minutes. Split the shortcake, spread the creamed clams between and some on top. Serve at once.

Scallops — Select scallops medium size and creamy white, rinse in salt water, dry, dip in egg mixed with tomato catsup, roll in bread crumbs, sprinkle with salt and pepper, fry in deep fat 2 minutes. Serve with tartare sauce. Stewed scallops are cooked in a double boiler 10 minutes with 2 cups of white sauce.

Lobster a la Newburg—Select perfectly fresh ones. Test by drawing back the tail. It should spring into position again if the lobster is good. Plunge into boiling water and boil until thoroughly heated; any more cooking destroys the fine delicate flavor. Pick the meat from the shells of the boiled lobster. Cut into small cubes. Stir a pinch of soda into 1 cup cream, add the beaten yolks of 3 eggs, ½ teasp. salt, few grains cayenne. Stir this to the boiling point. When thickened add quickly 2 tbsp. sherry and the lobster meat. Stir until smoking hot. Serve in deep dish, covered. Garnish with triangles of crisp puff paste.

Lobster Cocktails—Thoroughly heat through 2 large lobsters in boiling water, remove, cool. Cut meat into large dice, pour over them the mixture of ½ tbsp. each Worcestershire sauce, vinegar, lemon juice, tomato catsup, 1 teasp. horseradish, 1 saltsp. salt, 1 saltsp. tobasco. Put directly on ice 1 hour. Serve in small cocktail glasses.

Lobster Cutlets—Beat 3 egg yolks into ½ cup cream; add this slowly to 1 tbsp. melted butter mixed with 1 tbsp. flour, season with 1 teasp. parsley, minced, pinch of cayenne, salt and mace. Cook up almost to boiling, remove. Stir in lobster meat chopped fine, place all in a dish to cool. When cold enough to mold with hands, shape into cutlets, dip in egg, then fine bread crumbs. Fry brown in hot fat. Serve quickly.

Soft Shell Crabs—Take live crabs, plunge in boiling water until hot through. To remove the meat of soft shells, lift each point or wing of back shell, scrape out every bit of spongy meat. Turn crab on back, remove the dark soft shell called the flap, cut out the same spongy substance under it. Wash in cold water, dry, cook quickly.

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To Broil — Dash with melted butter or oil, sprinkle with salt and cayenne, lay on wire broiler. Cook under oven flame. Serve at once on thin slices buttered toast. Sprinkle with lemon juice.

To Fry—Season with salt and pepper, roll in egg, in cracker crumbs, fry in hot fat, serve with lemon slices.

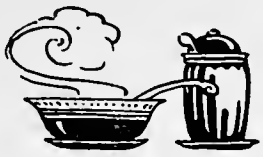
Deviled Crabs—Select ½ dozen heavy crabs. Boil in same way as lobsters, drain, break off claws, separate the shells, pick out all the spongy meat, wash and scrub the upper shells, wipe ready to stuff. Prepare a cream sauce: Bring 1 cup cream nearly to boil, add 1 tbsp. flour rubbed into 1 tbsp. butter, stir 2 minutes. Take sauce from stove, add crab meat, the mashed yolks of 2 hard-boiled eggs, 1 tbsp. bread crumbs, 1 teasp. chopped parsley, salt and cayenne to taste. Fill shells with this mixture, cover with buttered bread crumbs and brown in hot oven.

Crab Meat Cocktail—To serve 3 persons: Put ice cold crab meat in small chilled glasses, pour over it this dressing: Mix well 1 tbsp. tomato catsup, 1 tbsp. grated horseradish, 1 tbsp. lemon juice, 1 teasp. mild vinegar, 1 tbsp. each of minced pimiento and green pepper, season with salt and pepper, put on ice.

Shrimps—These may be prepared in any of the ways given for lobsters or crabs with a lighter seasoning.

Creamed Shrimps with Tomato Sauce—Take 2/3 cup canned shrimp, remove the fine black thread of intestine, rinse in lightly salted water, drain, break in small pieces, air for 15 minutes. Cook and stir 2 tbsp. butter with 1 tbsp. chopped onion 5 minutes, add the shrimp with the same amount of boiled drained rice, ½ cup cream. Heat thoroughly, add ½ tbsp. salt, pinch celery salt, cayenne, ½ cup hot tomato sauce. Stir lightly, turn onto hot dish, garnish with toast points and parsley.

Creamed Shrimp Patties—Make a rich white sauce, add 1 cup shrimp, 2 chopped hard-boiled eggs, season with salt, paprika. Heat, serve in patty shells or on toast.



CLASS 11

Fish and Meat Sauces

A sauce to be dainty must be neither too thick nor too thin and must be perfectly smooth, free from all lumps. A good proportion for the foundation or "roux" as the French call it, is 2 level tbsp. flour and 2 tbsp. melted butter stirred together and thinned slowly with 1 cup of liquid, seasoned with 1 saltspoon pepper, ½ teasp. salt.

White Sauce—This is thinned with milk. Heat 2 tbsp. butter until it bubbles, stir in 2 tbsp. flour, add gradually 1/3 at a time, 1 cup of heated milk. When it boils and is stirred perfectly smooth, add seasonings of ½ teasp. salt, few grains pepper.

Cream Sauce (for Croquettes, etc.)—This is thinned with cream. Make the sauce as for white sauce, using instead of the milk, 1 cup of scalded cream; season with salt, pepper, ¼ teasp. celery salt, few grains cayenne. Cream sauce should be almost as thick as butter and mixed while hot with the meat for croquettes.

English Drawn Butter Sauce—This is thinned with water or white stock. Melt 2 tbsp. butter in saucepan. Mix in well 2 tbsp. flour, ¼ teasp. salt, few grains pepper. Add slowly 1 cup boiling water or white stock, drop in an extra lump of butter, stir rapidly until smooth.

Egg Sauce—Add to drawn butter or white sauce 2 raw egg yolks beaten, a little minced parsley. If this is to be served with fish, add one minced hard-boiled egg, a few drops of lemon juice just before serving.

Anchovy Sauce—To an unseasoned drawn butter sauce, add ⅛ teasp. white and cayenne pepper mixed, 1 teasp. lemon juice, 1 tbsp. anchovy butter and salt to taste. Serve with fish.

Lobster Sauce—Pound the coral from 1 lobster and mix with 1 tbsp. butter; add to a rich drawn butter sauce, season with 2 tbsp. lemon juice, pinch of cayenne and salt. Simmer 3 minutes, add the minced meat from 1 small lobster, boil up quickly and serve.

Sauce Hollandaise—Beat 1 egg yolk into 1 cup white sauce; add slowly 1 teasp. olive oil, ¼ saltsp. salt, sugar, few grains cayenne. When creamy, stir in ½ teasp. lemon juice. Serve at once. If the oil is omitted, add 1 tbsp. extra butter as the sauce thickens.

Maitre d'Hotel Sauce—Use either drawn butter sauce as a foundation or 2 tbsp. plain butter creamed. Into this work 1 tbsp. minced parsley, few drops onion juice, salt, pepper, then 1 tbsp. lemon juice dropped in slowly. Serve cold with hot fish or meat.

Tartar Sauce—Fold into 2 cups of stiff mayonnaise this tartar dressing: ½ teasp. mustard, ½ teasp. each of chopped capers, pickles, olives, parsley, onion. Chill until ready to serve. If mayonnaise is not convenient, use instead 1 cup highly seasoned drawn butter sauce. Stir in 1 beaten egg yolk and add the tartar dressing of mustard, pickles, etc.

Cucumber Sauce—1. To be Served Cold with Broiled or Panned Fish—Add a pinch of soda to ¼ cup cream and whip stiff. Peel several large cucumbers, remove seeds, grate, drain, turn into a chilled dish, season with 1 tbsp. grated onion, 1 tbsp. lemon juice, ½ teasp. salt, white pepper. Fold the whipped cream carefully into the cucumber mixture. Serve at once. If preferred, omit the whipped cream and mix the minced cucumbers with a French dressing of oil, lemon, onion, salt and pepper; or of plain vinegar, salt and cayenne.

2. To be Served Hot and Poured Over Broiled Steak—Simmer for 3 minutes 3 large cucumbers peeled and sliced with 3 large sliced onions, drain, season with salt and cayenne. Boil until tender in 2 cups rich soup stock or steak gravy.

Made Mustard—In a granite double boiler mix 1 level tbsp. dry mustard with 1 teasp. flour; add ½ teasp. salt, 1 tbsp. melted butter, 1 teasp. sugar and, last, 1 tbsp. vinegar. Cook with ½ cup boiling water, stir until all is smooth. Serve with boiled whole ham or boiled tongue.

Spanish Sauce—Take 1 tbsp. each chopped carrot, onion, green pepper, celery. Cook until brown in ½ cup butter or butterine. Stir in 2 tbsp. flour, ½ teasp. salt, 1 teasp. mixed spices, 1 teasp. minced parsley. Add gradually 1 cup brown stock, or half stock or gravy, and half tomato juice. Cook all together 5 minutes, strain, serve.

Curry Sauce—To a white sauce add 1 teasp. curry and if needed more flour and seasonings.

Tomato Sauce—1. Simmer 1 cup tomato juice with ½ onion minced, ½ teasp. sugar, 1 bay leaf, ½ teasp. minced parsley. Add this gradually to a drawn butter sauce. Simmer 3 minutes until smooth and creamy. Serve with broiled steak or chops.

Tomato Chili Sauce—To 2 cups tomato juice add 2 minced onions, 1 green pepper, ¼ teasp. mustard, ¼ teasp. salt, 1 teasp. sugar, few grains cayenne, 1 teasp. mixed spices, 1 cup vinegar. Simmer 30 minutes. Thicken if needed with a roux of flour and butter.

Cold Tomato Sauce (Served with Cold Sliced Beef)—Peel firm fresh tomatoes, mince fine, season with few drops onion juice, salt, pepper, 1 tbsp. salad oil, 1 tbsp. lemon juice. Chill and serve.

Horseradish — The oil in horseradish, which gives it the sharp flavor, is very volatile, so the vegetables should be kept fresh by being buried in sand, and grated only as needed. If kept after grating it should be put in sterilized jars and sealed with wax.

Horseradish Sauce—1. Beat 2 tbsp. horseradish into a white sauce until it is creamy, add 1 teasp. lemon juice.

2. Mix together 4 tbsp. horseradish, ¼ teasp. mustard, ½ teasp. salt, paprika, ½ teasp. sugar, 1 tbsp. vinegar. If liked, add 1 mashed hard-boiled egg yolk, and fold in 4 tbsp. stiff whipped cream. Serve with cold roast beef or corned beef.

Onion Sauce—Peel and slice 6 onions, boil in a little salted water, stir to keep from browning. When very soft drain, mix with 2 tbsp. flour, some pepper and salt and stir in slowly 1 cup milk. Strain if preferred. Serve with mutton chops, cutlets, game or fowl.

A brown onion sauce may be made to serve on beefsteak: (1) Fry sliced onions till brown and stir in some thickened brown gravy; or (2) Mince soft boiled onions and mix with 2 tbsp. browned butter, salt and pepper. Beat to a cream over the fire. Serve hot.

Worcestershire Sauce—Melt 2 tbsp. butter in hot pan. In it brown 3 tbsp. flour; add slowly 1 cup brown stock, 1 tbsp. Worcester sauce, salt and pepper. Boil up for 2 minutes, serve with steak, chops or cold roast beef.

Brown Sauce of Mushrooms—Make a brown sauce of 1 tbsp. flour browned in 1 tbsp. butter and combined slowly with 1 cup brown stock. Season with salt, 2 cloves, 1 bay leaf, 4 peppercorns. Add ½ can mushrooms. Simmer 5 minutes and serve either with or without a glass of sherry stirred in at the last moment.

Wine Sauce—Prepare a brown sauce as above, season with salt and pepper to taste and 6 cloves. Simmer 5 minutes. Remove from fire, stir in 1 cup port wine or champagne.

Caper Sauce—Make a white sauce with 1 cup mutton broth instead of 1 cup milk. When done and smooth, add 1-3 cup drained capers. Serve with mutton. If it is not convenient to use capers, a good imitation is neatly chopped cucumber pickles. Drain these and stir into the thickened mutton broth. When hot and thick as cream serve.

Mint Sauce—Dust 1 tbsp. white sugar over several mint leaves. Chop fine, cover, put aside. Mix 1 teasp. salt, few grains pepper, in 4 tbsp. hot vinegar. Pour this over the sugared mint. Cover and stand 10 minutes before serving with roast lamb.

Sauce of Parmesan Cheese—To 1 cup white sauce add ½ teasp. onion juice, ¼ teasp. salt, pepper. Stir till hot, add 1 teasp. butter, ½ tbsp. Parmesan cheese, 1 teasp. lemon juice. Stir, boil up once, remove and serve.

Bread Sauce—Mince in a saucepan 1 sweet pepper and 1 onion. Simmer until soft in a little water and press through a strainer. Add this juice to 1 cup rich milk, ½ cup of grated bread, ½ teasp. salt. Simmer 3 minutes. Serve with wild fowl, as partridge or grouse.

Dry Bread Sauce—Season 1 cup milk with celery salt, pepper, a few drops onion juice, 1 tbsp. butter or melted chicken fat. Heat and add ½ cup stale bread grated. Toss this lightly about in pan until bread crumbs are just crisp. Serve with boiled chicken.

Celery Sauce—Stew 1 cup minced celery in 2 cups boiling water until tender, squeeze through a fine strainer. Thicken this liquid in a double boiler with 2 tbsp. flour rolled in 2 tbsp. butter, salt, a dash of paprika. This is improved by stirring in a beaten yolk of egg. Heat for 1 minute. Serve with boiled chicken, mutton or breast of cold turkey.

Cranberry Sauce — Select large firm berries, wash and pick over 1 quart. Put on with 1 cup boiling water in a double boiler to prevent burning. Stew gently until ready to mash. Press through a colander, add a scant ½ cup sugar to each cup of juice. Return to saucepan and stir; boil 1 minute. Turn into molds to harden. Serve with turkey, roast pig, stuffed fowl.

Apple Sauce—Peel, core and cut into quarters 12 tart apples. Drop the quarters into cold water. Put the cores and peeling in hot water, cover, cook until tender enough to press in a colander. Lift the apple quarters from the cold water to this hot juice. Simmer until soft enough to beat

smooth, add 1 teasp. lemon juice, pinch of salt, 4 tbsp. sugar. Stir 1 minute. If too thin, add 1 tbsp. flour browned in 1 tbsp. butter. Put aside to cool. Serve with roast pork, roast duck.

Jelly Sauce for Game—Melt 2 tbsp. butter, brown in it 2 tbsp. flour and 1 tbsp. brown sugar. Stir in 2 tbsp. boiling water till all is smooth. When boiling hot, beat in 2 tbsp. of tart jelly. Serve with game, mutton, lamb or turkey.

Venison Sauce—Wash and seed whole raisins or currants. Boil 15 minutes in 1 cup water, then add ½ cup bread crumbs, 1 tbsp. butter, salt pepper, cloves, cinnamon, ½ teasp. grated lemon rind. Simmer gently and when ready to serve with the venison add a glass of port wine.

Browned Nut Sauce—Brown ¼ lb. finely chopped peanuts or almonds in 2 tbsp. plain butter, add ⅛ teasp. pepper, 2 tbsp. flour; stir in slowly 2 cups rich milk and salt to taste. Cook until smooth and thick as heavy cream.

If prepared peanut butter is used instead of the dry nuts, mix the flour with only 1 teasp. plain butter. Add this to the peanut butter and thin slowly with the salted milk.

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CLASS 12

Eggs

Eggs are such familiar every-day articles of food that hardly anybody considers it a problem to be able to cook them properly. Yet there are good and bad ways of preparing eggs. The egg is one of the most valuable of muscle-making foods and when properly cooked is easily digested.

To Tell Fresh Eggs—If an egg is "strictly fresh" it will, when placed in a pan of water, lie on its side on the bottom.

If stale, it will stand on end, and if very old will rise to the surface.

When just a few days old the egg will begin to tilt a trifle, and as it ages more and more the angle at which it tilts will increase.

In shaking an egg, if it makes a sound it is not good and should be rejected.

To keep yolks of raw eggs fresh for several days, drop unbroken into a bowl of cold water.

When boiling eggs, wet the shells thoroughly with cold water before placing them in boiling water, and they will not crack.

Cracked eggs can be boiled by adding a teasp. salt to the water, and they will not lose any of the white or albumen.

RECIPES

Breakfast eggs should never be boiled. A thin shell of the white is made hard and indigestible while the bulk of the egg is barely warmed through.

Boiled Eggs—For soft boiled eggs put 6 into a vessel that will hold 2 qts. Fill with boiling water, cover closely and set on the stove shelf for 6 to 8 minutes. For medium, 10 minutes; for hard boiled, 40 to 45 minutes.

Poached Eggs—Fill a shallow pan nearly full of salted boiling water. As soon as the water simmers, not boils, slip in the eggs one by one, from a dish into which they have previously been broken. Dip the water over them with a spoon, that the yolk may be cooked. When the white is firm and a film has formed over the yolk, take out each egg with a skimmer. Drain well, place on buttered toast, sprinkle with salt, pepper. Serve at once.

Poached eggs may be done in milk, stock or gravy, which can be poured over the toast on which they are served.

Griddled Eggs—Heat the griddle almost as much as for baking cakes, butter it lightly and arrange small muffin rings on it. Drop an egg in each and turn as soon as lightly browned. They resemble fried eggs, but are far more delicate.

Scrambled Eggs—Take small piece of butter and a little cream; warm in a frying pan. Break 6 eggs in it and stir until slightly cooked. Serve hot.

Fried Eggs—Fried eggs may be done in butter, oil, or any sweet fat; the pan should hold enough fat to almost cover the eggs; the eggs should be slipped into the fat singly from a cup; dip the hot fat over them; do not let the fat get hot enough to "frizzle" the whites. Season with salt and pepper. Serve at once.

Plain Omelet—Break 4 eggs into a bowl, add ½ teasp. salt, ⅛ teasp. pepper. Give several beats with a fork and add milk. Melt the butter in omelet pan, pour in the eggs, shake over a moderate fire until they are set. Roll and turn into hot dish.

To make jelly, parsley, ham, cheese or chicken omelet, spread the seasoning over the eggs just before rolling them.

A Secret with Omelets—In making omelets put the salt with the whites of the eggs instead of the yolk and the omelet will not fall, but will be dry and puffy.

To Fold and Turn Omelets—Hold an omelet pan by the handle in the left hand; with a knife

make two inch cuts opposite each other at right angles to the handle; place knife under omelet nearest handle, tip pan slowly over a hot platter, pass knife under omelet slowly when the omelet will fold out.

Light Omelet—For each egg allow ¼ teasp. salt, a dash of pepper, 1 tbsp. of liquid (milk, cream, stock, tomato, etc.), break whites and yolks separately, beating each until very light. Add liquid and seasonings to yolks, fold the yolks into the whites, stirring as little as possible. Have the omelet pan hot, melt in it 1 teasp. butter, turn in the omelet and cook over a slow fire until well browned on the bottom, then set in the oven until the top is set. Fold carefully, not to break the crust, and turn into a hot dish. Serve at once.

This omelet is delicious made with minced ham, green peas, 1 cup grated or chopped sweet corn or asparagus tips. The latter should be well cooked, drained, seasoned and spread on just before folding the omelet. The ham may be folded in or mixed through the whole egg.

Spanish Omelet—Cut 4 oz. bacon in thin slices, and then into half inch squares. Fry until crisp and add 1 small onion, 1 tomato chopped fine and 5 mushrooms chopped fine. Cook for 15 minutes. Rub the spoon with a clove of garlic. Break 6 eggs into a bowl, add ½ teasp. salt, ⅛ teasp. pepper, give several strong strokes and turn into a buttered frying pan. Bake until nearly set, spread the bacon and vegetables quickly over, fold, set in oven for 1 minute, turn it upon a hot platter and serve with tomato sauce.

Rice Omelet—Warm 1 cup milk in a double boiler, add 1 cup cold boiled rice, and 1 tbsp. butter, stir and beat till well blended; add 3 eggs well beaten, and ½ teasp. salt. Melt 1 tbsp. butter in omelet pan; when hot turn the rice mixture in and let it brown 1 minute; put in oven to set, fold and serve.

Chicken Liver Omelet—Cook together 1 cup minced cooked liver and ½ cup Spanish sauce or brown gravy; add 1 teasp. vinegar, 1 tbsp. chopped mushrooms, ½ teasp. salt, few grains cayenne. Keep warm while preparing omelet; make the omelet following directions as given for light omelet. Just before folding spread with the liver mixture. Serve with brown sauce or tomato sauce.

Omelet with Cheese—Beat 4 eggs very light, add ½ cup milk, 1 teasp. flour, a little parsley, pepper and salt, ½ teacupful grated cheese, 1 tbsp. butter. Beat all well together and pour into well buttered pan. Let it cook till light brown; shake the pan while omelet is cooking. Serve at once.

Omelet with Oysters—Blanch 1 dozen small Blue Point oysters by bringing them just to the boiling point in their own liquor, seasoned with a dash of cayenne, 1 saltsp. of salt, and a grate of nutmeg; mix an omelet, place over the fire, and when it begins to cook at the edges, place the oysters, without any liquor, in the center, fold together and serve at once.

Eggs, Rice and Spinach—Boil and blanch a cupful of rice and heap it on the center of a platter. With the back of a spoon make places for as many eggs as you wish to serve. Break each egg carefully into its place, and season. Place spinach, cooked and seasoned, around the edge of the rice. Bake until the eggs are as firm as you like them.

Curried Eggs—Cook 1 teasp. chopped onion and 3 tbsp. butter in small frying pan for 3 minutes; add 1 tbsp. flour and 1 teasp. curry powder; stir until it becomes smooth, then add 1 cup stock, ½ cup milk, or cream, salt and pepper to taste, and cook for 10 minutes. Quarter 6 hard-boiled eggs, place in a deep saucepan, strain the sauce over them, simmer for 3 minutes. Serve very hot with toast.

The teasp. of curry powder gives a delicate flavor. More may be used if desired.

Scalloped Eggs—Boil 8 eggs twenty minutes. Crumble about half of small loaf of bread. Put 4 cups milk, 3 tbsp. butter and several sprigs of parsley in a pan and heat; when hot, thicken with a heaping tbsp. flour, salt and pepper to taste. Put into buttered baking dish first a layer of bread crumbs, then a layer of sliced eggs, a little pepper and salt, more butter, if desired; then a few tbsp. white sauce, and so on, with a layer of bread crumbs on top. Bake 30 minutes.

Deviled Eggs — Cut 4 hard-boiled eggs into halves, lengthwise; remove the yolks, being careful not to break the whites. Powder the yolks with a silver fork; then add 1 teasp. mustard, 1 teasp. salt, a dash of paprika and cayenne pepper and 1 tbsp. vinegar mixed together; add 1 tbsp. butter or olive oil or half a cupful mayonnaise; mix until smooth and fill into the whites; rough the tops with a fork. Serve on lettuce.

Creamed Eggs—Boil 8 or 10 eggs hard, put into cold water, and carefully take off shells. Put into a deep dish and cover with a drawn butter sauce made of 1 pt. milk, 1 tbsp. butter, 1 small spoonful cornstarch and a little salt. A very nice tea dish, easily prepared for unexpected guests.

Stuffed Eggs — Cut 6 hard-boiled eggs into halves, crosswise or lengthwise. Rub the yolks to a paste with 3 tbsp. minced ham, ½ teasp. salt, ⅛ teasp. pepper, ¼ teasp. mustard; moisten with 1 tbsp. butter and 1 tbsp. vinegar; form into balls the size of the yolks removed and pack into the space from which they were taken; roll each in a piece of paper napkin, twist the napkin at each end. A tbsp. of highly seasoned salad dressing

may be substituted for the butter. These make a nice picnic dish.

Studio Eggs—Boil 1 qt. milk 1 minute, add 2 cups bread crumbs, boil gently 5 minutes, stirring continually. Add 3 well beaten eggs, 2 cups grated cheese, 1 scant tbsp. salt, 1/3 teasp. mustard, ¼ teasp. pepper, and dash of paprika. Allow mixture to simmer 5 minutes. Add 3 tbsp. cornstarch, stir gently 3 minutes. Serve very hot on buttered toast—not too well toasted—on hot plates.

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CLASS 13

Entrees

FORCEMEATS, CROQUETTES AND FRITTERS

Entrees are served before and after the heavy meat course. In such a place they are small and dainty, well flavored and often elaborately garnished. They may also serve as the main dish at family luncheons and suppers and frequently are the means of using to good advantage the left-overs of a previous meal.

All the large variety of fritters, croquettes, souffles, timbales and aspics are listed as entrees.

Material for entrees should be carefully prepared and well seasoned; the meat or fish should be chopped fine and all ingredients thoroughly mixed.

Almost all entrees are served with an appropriate sauce and crisp bread. Patties should be served alone; timbales usually with cream sauce and peas, mushrooms or truffles; croquettes are usually served with peas.

Forcemeat is used extensively in the making of garnishes and entrees. It consists of meat chopped fine, served separately or used as stuffing.

Croquettes are well adapted for using any remnants of meat, fish or game and to make a savory dish from the more insipid vegetables.

As meat and fish lose flavor in a second cooking, it is necessary to replenish this lack by using stock, cream or broth, either in the composition of the dish or as a sauce to serve with it. These sauces should be thoroughly cooked before the meat or fish is added; in order to avoid over-cooking of the protein substances.

RECIPES

Chicken Forcemeat — Chop, pound and rub through a sieve enough chicken meat to fill 1 cup. Boil together ½ cup fine stale bread crumbs, ½ blade of mace, and 1 cup cream until they are cooked to a smooth paste, about 10 minutes; then take from the fire; add 3 tbsp. butter, then the meat, ½ tbsp. salt and ⅛ teasp. pepper. Beat whites of 3 eggs well and add to mixture. Test to make the texture right and set away to keep cool until wanted.

Game and veal forcemeat are prepared in the same way.

To test mixture, drop a small ball of it into a saucepan of boiling water and set back where it will not boil; cook for about 10 minutes. If it cuts smooth and fine all through and is tender, it is just right; if it should be tough, add 2 tbsp. cream to each cup of forcemeat; if, on the contrary, the forcemeat ball is too soft and shrinks when cut, add 1 well beaten egg to every pint of the forcemeat.

Liver Forcemeat—Put goose liver in hot water 15 minutes, drain and cook slowly in salted water for 25 minutes, pound and rub through a sieve. Cook 1 cup bread crumbs in chicken stock, add 1 teasp. salt, ⅛ teasp. pepper, blade of mace; combine with 3 cups liver, 1 cup butter, and 3 eggs well beaten; mix well together.

Chicken, turkey or veal liver can be substituted.

Oyster Forcemeat—Drain and wash 1 dozen large oysters, scald and strain the oyster liquor; chop the oysters very fine. Add 2 cups bread crumbs, 3 tbsp. butter, 1 teasp. salt, ⅛ teasp. pepper, 1 teasp. minced parsley, a grate of nutmeg, 1 tbsp. lemon juice, 3 tbsp. oyster juice, and 2 raw egg yolks; pound to a smooth paste and rub through a sieve.

Chicken Quenelles—Use ½ calf's brains, clean, tie in a piece of cheesecloth, and cook slowly for half an hour in well-seasoned stock. Cool and pound smooth, add to 1 chicken breast also chopped and pounded, and rub both through a sieve. Cook 2 tbsp. bread crumbs and ¼ cup cream together until a smooth panada, add the meat with 2 tbsp. butter, 1 teasp. salt, ½ teasp. lemon juice, grate of nutmeg, a few grains of pepper, and, lastly, 1 egg, and set away to cool. When ready to use, dip 2 teasp. in hot water, fill one spoon with the mixture and slip from one to the other until it is smooth and shaped like the bowl of the

spoon; slide on a buttered pan when all are formed, cover with boiling stock, and let cook below the boiling point for 10 minutes, keeping the dish covered with buttered paper.

Quenelles of Grouse—Use half an anchovy, chop and pound with 1 cup meat, minced fine, and ½ cup bread crumbs. Add ½ teasp. chopped parsley, 2 tbsp. butter, 1 egg, ½ teasp. salt, ¼ teasp. pepper, ½ clove garlic, and ½ teasp. lemon juice. Mix altogether carefully, cool and shape in balls the size of an egg. They may be poached and served with a Bechamel sauce or fried and served with any good brown or mushroom sauce.

Lobster Quenelles—Pound to a paste the meat and coral of a lobster; mix with it 2 tbsp. bread crumbs and 6 tbsp. butter; add ½ teasp. salt, ¼ teasp. pepper, few grains cayenne, and moisten with 2 egg yolks and 1 egg white; if it proves too soft when tasted, add another white of egg; if too stiff, work in a little water. Shape and poach. Serve with Tartar sauce.

If served hot, the sauce should be Bechamel.

These may be cooled after poaching, fried in butter and served as a garnish for steamed fish, or in soup.

Croquettes—The excellence of croquettes depends upon three things: (1) The mixture must not be too thick. (2) It should be made some time before cooking, and, after rolling in eggs and fine crumbs, be set aside in a cold place to thicken. (3) The fat in which they are cooked must be boiling and deep enough to cover them.

Eggs used for covering croquettes may be the whole egg or the whites only; never use the yolks alone. Beat the eggs until broken, not until light; add 1 tbsp. water for each white, or 2 tbsp. for a whole egg. Mix well before using.

To Shape Croquettes—Take about a tbsp. of the mixture and with both hands shape in the form of a cylinder. Handle very gently and carefully. Pressure forces the particles apart, and thus breaks the form. Have a board sprinkled lightly with fine bread or cracker crumbs, and roll the croquettes very gently on this. The slightest pressure will break them, so let them lie on the board until all are finished, when, if any have become flattened, roll them into shape again. Beat an egg slightly and add 1 tbsp. water. Roll in egg and cracker crumbs and fry in deep fat a golden brown.

Chicken Croquettes—Mix 2 cups of chopped cold fowl with ½ teasp. salt, few grains cayenne, 1 teasp. lemon juice, ¼ teasp. onion juice, 1 teasp. chopped parsley, and combine with 1 cup white sauce. Shape, crumb, and fry in deep fat. Drain on soft paper.

Chicken and Cornmeal Croquettes (Farmers' Bulletin 565, on "Cornmeal," U. S. Dept. of Agri.)—1 cup white corn-meal mush, 1 cup chopped chicken, few drops onion juice, 1 egg, salt and pepper.

Combine the ingredients and drop by spoonfuls into hot fat.

White corn-meal may be combined very satisfactorily with other kinds of cold meat to make croquettes. In general, corn-meal croquettes need not be egged and crumbed like ordinary croquettes, for the hardening of the corn-meal on the surface of the mixture forms the necessary crust.

This serves three people.

Chicken Croquettes with Mushrooms—Chop 1 cup cold cooked chicken and ½ can mushrooms or 6 large oysters fine. Melt 2 tbsp. butter, add 3 tbsp. flour, mixed with ½ teasp. salt, ¼ teasp. pepper, and 1 teasp. lemon juice; then add slowly ½ cup chicken stock and ¼ cup mushroom liquor. Cook until smooth and add ¼ cup cream. Combine with the meat and mushrooms. Cool, shape, and crumb. Fry in deep fat. Drain on brown paper.

Royal Croquettes—Parboil 1 large sweetbread and 1 calf's brains; chop fine with meat of half a chicken; add one egg, well beaten. Melt ¼ cup butter, add 3 tbsp. flour, mixed with 1 teasp. chopped parsley, 1 teasp. salt and ¼ teasp. pepper; add cream or milk a little at a time until 1 cup is used, and cook until smooth. Combine mixture with the sauce and set aside to cool. Shape and roll twice in egg and in cracker crumbs and fry in deep fat. Drain on brown paper.

Calf's Brains Croquettes—Parboil 1 small sweetbread and 1 pair calf's brains; chop very fine with 1 can mushrooms; add ½ cup boiled rice and white sauce. Cool and shape into small rolls. Roll in fine crumbs, egg and crumbs again, and fry in deep fat. Drain on brown paper and serve.

Beef and Rice Croquettes—Mince the meat fine, but not to make it pasty; add an equal amount of hot, boiled rice, cooked much softer than it is usually served for a vegetable. Season highly with salt, pepper, cayenne and onion juice and set to cool. If it is too stiff, work in a little stock or gravy. Drain on brown paper.

Sweetbread Croquettes—Mix 1 teasp. salt, ⅛ teasp. white pepper, a dust of nutmeg, ½ teasp. chopped parsley, 1 tbsp. lemon juice with 2 cups cooked and chopped sweetbreads and 4 tbsp. chopped mushrooms, and set aside to season while making a white sauce of 2 tbsp. butter, 2 tbsp. flour, and 1 cup cream. Add the meat to the sauce, and, lastly, 2 beaten eggs. Set away to cool or stiffen for 2 or 3 hours, then shape, crumb, and fry. Serve with mushroom, white sauce, or Bechamel yellow sauce.

Fish Croquettes—Use 2 cups cold boiled fish. Pick the fish over carefully to remove skin and bone; mince fine; mix thoroughly with 2 cups hot mashed potato, 1 tbsp. butter, ½ cup hot milk, 1 egg, 1 teasp. salt, ¼ teasp. pepper, and 1 teasp. chopped parsley, and let cool. When cold, form into balls, dip into beaten egg and bread crumbs, and fry in hot fat. Drain on brown paper.

Shad roe may be used this way instead of fish.

If canned salmon is used, substitute bread crumbs for the potatoes and an extra egg, omitting the milk.

Lobster Croquettes — Combine 2 cups finely chopped lobster with 1 teasp. salt, 1 teasp. mustard, few grains cayenne, and 1 cup white sauce. Cool, form into balls, roll in beaten egg and bread crumbs, and fry in hot fat. Drain on brown paper.

Oyster Croquettes—Drain and clean 1 cup raw oysters, scald and strain the liquor; chop the oysters very fine, soak 3 tbsp. cracker crumbs in the liquor; then mix with 1 cup cooked veal, 2 tbsp. butter, 2 egg yolks, and 1 tbsp. onion juice. Shape, dip in egg and crumbs, and fry. Drain on brown paper.

Tile Fish Croquettes—Steam ½ lb. tile fish and separate in flakes. Melt 1 tbsp. butter, add 1 tbsp. flour; stir until blended; add ½ cup milk, stirring constantly until it boils and is smooth; then add 1 tbsp. lemon juice, 1 tbsp. Chili sauce, 1 tbsp. finely chopped parsley, and season with salt and paprika. Serve in hot potato croquettes hollowed in center.

Cornmeal Fish Balls (Farmers' Bulletin 565, on "Cornmeal," U. S. Dept. of Agri.)—Two cups cold white corn-meal mush, 1 cup shredded codfish, 1 egg, 1 tbsp. butter. Pick over the codfish and soak it to remove salt, if necessary. Combine the ingredients, and drop by spoonfuls into hot fat. Drain on porous paper. These codfish balls compare very favorably in taste with those made with potato, and are prepared more easily and quickly. The mush must be as dry as possible.

This makes 12 fish balls.

Macaroni Croquettes—Boil ¼ lb. macaroni in salted water until very tender. Drain, and put into saucepan with 1 heaped tbsp. butter, ½ oz. Parmesan cheese, ¼ oz. cooked tongue cut in fine dice. Spread on a well-buttered platter, about an inch thick, cover with a buttered paper, press it well down, and set away to cool. Divide with the back of a knife into 6 parts, roll each one in grated cheese, then in beaten egg and crumbs. Fry in very hot fat till well browned. Drain and serve.

Rice Croquettes—Beat 1 cup hot boiled rice with 1 teasp. sugar, 1 teasp. butter, ¼ teasp. salt, 1 egg, and 2 tbsp. milk to the consistency of a firm paste. Shape into oval balls and dip in bread crumbs, beaten egg and again in bread crumbs. Fry in deep fat until brown, drain on soft paper. These are nice with a well-plumped raisin or a candied cherry pushed into the center before frying. Serve with maple sauce.

Potato Croquettes—Season hot mashed potatoes with salt and pepper and a little nutmeg; beat to a cream with 1 tbsp. melted butter and a few drops of onion juice; add 1 beaten egg yolk and some chopped parsley. Roll into small balls, dip in egg and milk, coat them with bread crumbs, and fry in hot fat. Drain on brown paper.

Timbales of Chicken—Chop 2 cupfuls of cooked white meat of a chicken and pound it to a smooth paste, adding ½ cup cream gradually. When well mixed, add salt and pepper to taste and 1 tbsp. finely chopped truffles. Then add, one at a time, the unbeaten whites of two eggs, mixing the first with the paste until it has disappeared before adding the second. Then beat whites of 2 more eggs to a stiff, dry froth and stir them carefully with the mixture. Fill greased timbale molds half full of the chicken paste, place them in a pan of hot water (the water should come up as far on the outside of the tins as the paste fills the inside). Bake in a moderately hot oven 20 or 30 minutes. Serve hot with a cream mushroom sauce.

Aspic Jelly—Cook 5 cups strong consomme, 1 tbsp. minced carrot and onion, 2 teasp. lemon juice, and ¼ cup wine for 10 minutes. Soak 1 box gelatine in cup cold water; let stand 20 minutes. Pour the hot broth over the soaked gelatine; add ¼ cup wine to whites of 2 eggs, beat slightly and add to broth. Stir well together, remove from fire, and let stand 30 minutes. Strain through heavy cheesecloth.

Bananas en Casserole—Peel 6 bananas; scrape off coarse threads, and cut in halves, lengthwise, the pieces in halves, crosswise. Put these into buttered casserole. Melt 1 cup jelly in 1 cupful boiling water and pour over bananas. Add strained juice of 1 orange and 1 teasp. lemon juice; cover the dish, and cook in moderate oven 30 minutes. Serve from casserole as a sweet entree with beefsteak, mutton or roast beef.

Veal Souffle—Melt 2 tbsp. butter without browning, add 2 tbsp. flour; stir until smooth; add 1 cup cream and 1 cup milk; stir until it thickens. Add 2 cups chopped cooked veal to the sauce, and when thoroughly heated add beaten yolks of 3 eggs. Take from fire and cool. When ready to use, beat the whites of the eggs to a stiff, dry froth; mix them gently with the meat and sauce. Turn into a greased baking dish and bake 20 minutes in hot oven.

FRITTERS

Fritter Batter No. 1—Mix 1 cup flour and ½ teasp. salt; add 1 cup milk gradually and 1 egg, well beaten. When used for a sweet dish, add 1 teasp. sugar.

No. 2—Mix 1 cup flour, ½ teasp. salt and 1 teasp. baking powder; add ½ cup milk slowly, then 1 tbsp. olive oil, and, lastly, 2 eggs beaten till stiff.

Chicken Fritters—Melt 1 tbsp. butter, add 3 tbsp. flour and ½ tbsp. salt; cook together. Add gradually 1 cup chicken stock and cook until smooth and thick. Pour half the sauce on a small platter and spread ½ cup cold minced chicken evenly over the top; then cover with remainder of sauce. Cool on ice and cut into inch by two-inch pieces. Dip them in fritter batter No. 2, fry in deep hot fat until light brown, drain on soft paper, and serve hot.

Oyster Fritters—Pick over and parboil the oysters; drain them well, and use their liquor in place of milk to make the batter No. 2, adding more salt and pepper if desired.

Vegetable Fritters—Cook any kind of vegetable thoroughly, drain and chop, and add to batter, either No. 1 or 2.

(Paste or Write Here Scraps or Memos. of Your Own)

Corn Fritters—Put 1 can corn in bowl with 1 tbsp. melted lard, add 1 cup flour and 1 egg slightly beaten, then 1 teasp. baking powder, 1 teasp. salt, and ¼ teasp. white pepper; if mixture is very thick, add 1 tbsp. milk. Drop by spoonfuls on greased griddle and fry until brown on both sides. Serve very hot.

Apple Fritters—Peel and core 3 soft, tart apples, cut in round, thin slices, dust with sugar and cinnamon. Beat 2 eggs light, add 1 cup milk, enough flour, about 1½ cups, to make a soft batter, and 1 teasp. salt; beat well, add 1 teasp. baking powder, beat again. Dip each slice of apple into the batter and drop into very hot, well-buttered deep pan. Fry until brown. Serve hot, sprinkled with sugar and cinnamon.

Banana Fritters—Peel 6 bananas, cut in half lengthwise, and dip lightly in flour seasoned with salt; beat 1 egg with a tbsp. milk, dip each piece in this, then roll in finely chopped nuts. Fry in very hot fat; drain carefully; serve hot.

Pineapple Fritters—Cut pineapple in thin, small sections, sprinkle with sugar, and put aside for 1 or 2 hours, then drain. Roll each piece in fine bread crumbs, then dip in batter No. 1. Fry in deep fat. Drain on soft paper, sprinkle sugar over, and serve with sweet sauce.

CLASS 14

CHEESE DISHES
CANAPES, TOASTS, ETC.
KNOWN AS

Savories

Cheese being rich in protein takes the place of meat so far as the actual nourishment of the body goes. It has more fat than meat and 25 percent more muscle-building substances, but it should be remembered that so concentrated a food is not a well balanced diet when eaten alone. It is more easily digested when grated or melted with a pinch of soda added, or cooked with other foods. It should be accompanied by bread, vegetables or fruits for bulk, mineral salts, and water.

Cheese should be kept covered in a cool place. Old cheese may be grated and kept in a cool dry place.

CHEESE AND ITS USE IN THE DIET

(U. S. Farmers' Bulletin 487)

Cheese is believed to be the oldest of the dairy products and the first form in which milk was preserved for future use. One may conjecture that it owes its origin to the accidental storing and ripening of sour milk curd. Although it has been a staple food with many races for uncounted years, there is a widespread belief that it is suitable for use chiefly in small quantities as an accessory to the diet, and that in large quantities it is likely to produce physiological disturbances. We are inclined, therefore, to think of those who make cheese one of the chief articles of their diet as being driven to this course by necessity rather than being led to it by choice.

Because of these opinions extensive studies have been carried on as a part of the Department Work in Home Economics, of the food value, thoroughness of digestibility, ease of digestion, physiological effect, and special character of cheese as food as well as of methods which are followed in preparing it for the table. The conclusion drawn from this extended study is, in brief, that cheese properly prepared and used is not generally a cause of physiological disturbances, and that it may easily be introduced into the bill of fare in such quantities as to serve as the chief source of nitrogenous food and may be made a substitute for other nitrogenous foods when such substitution is desired.

From the standpoint of the housekeeper, cheese is of importance because of its high nutritive value, particularly its high percentage of protein or muscle-forming materials, because of the ease with which it can be kept and prepared for the table, and because of its appetizing flavor and of the great variety of ways in which it can be served.

There is something to be said of the value of cheese to that not inconsiderable number of individuals who must occasionally cater for themselves —those men and women in business life, for example, who find it convenient neither to carry lunches nor to go to restaurants. For these, cheese offers a convenient way of supplying the necessary protein, for it can usually be obtained in good condition in any neighborhood. Combined with crackers, some of the ready-cooked cereals, or bread, and with fruit, it makes a fairly well-balanced meal.

The average cheese while fresh and moist contains proteids and fat in much the same ratio as that in which they are found in the milk. More that one-fourth its weight is proteid, about one-third fats, and one-third water. There are always present small amounts of albumen and sugar which have clung to the curd. Owing to the addition of salt, the percentage of mineral matter is high compared with that of most other foods.

THE CARE OF CHEESE IN THE HOME

One of the best ways of keeping cheese which has been cut is to wrap it in a slightly damp cloth and then in paper, and to keep it in a cool place. To dampen the cloth, sprinkle it and then wring it. It should seem hardly damp to the touch. Paraffin paper may be used in place of the cloth. When cheese is put in a covered dish, the air should never be wholly excluded, for if this is done, it molds more readily.

In some markets it is possible to buy small whole cheeses. These may be satisfactorily kept by cutting a slice from the top, to serve as a cover, and removing the cheese as needed with a knife, a strong spoon, or a cheese scoop.

CHEESE AS A FOOD

Cheese is used in general in two ways—in small quantities chiefly for its flavor, and in large quantities for its nutritive value as well as for its flavor. Some varieties of cheese are used chiefly for the first purpose, others chiefly for the second. Those which are used chiefly for their flavor, many of which are high priced, contribute little to the food value of the diet, because of the small quantity used at a time. They have an important part to play, however, in making the diet attractive and palatable.

Those cheeses which are suitable to be eaten in large quantities and which are comparatively low priced are important not only from the point of view of flavor, but also from the point of view of their nutritive value. Among such cheeses the one which, as noted above, is known to the trade as standard factory cheese and to the housewife as American cheese stands out pre-eminently. Therefore, when the word "cheese" is used without specification in the following pages it may be taken to refer to this particular variety.

The liking for highly flavored cheeses of strong odor is a matter of individual preference, but from the chemist's standpoint there is no reason for the statement often made that such cheeses have undergone putrefactive decomposition.

COMPOSITION OF CHEESE AND SOME OTHER FOODS COMPARED

In the present state of our knowledge concerning dietetics, it seems best to give the housekeeper general rather than absolute rules with respect to the kind and amount of food which should be eaten at any meal or at any given time by persons in normal health living under usual conditions. It is not necessary, therefore, for the housekeeper to know the exact composition of food materials in order to cater well for her family, a rough approximation being sufficient for the purpose. In the case of cheese, she will be near enough to the fact if she thinks of it as composed approximately of equal parts by weight of proteids, fats, and water. This rough conception is sufficient to associate it in her mind with the foods of high proteid value, a point which is important in connection with the making of bills of fare. It should lead her to class it also with the foods which are rich in fat and prevent her from combining it unnecessarily with other fatty foods.

The total amount of the mineral matter needed per day by the body is relatively small, yet mineral matter is very important. It is commonly assumed and is probably true, that a mixed diet reasonably varied and reasonably generous will supply all the ash constituent which the body requires. If for any reason calcium and phosphorus are lacking in the diet, the amounts may be readily increased by a free use of milk and such milk products as cheese and junket, without decreasing the palatability of the diet or materially increasing its cost.

Since cheese is ready to be eaten when it comes from the market, it may be more interesting for some purposes to compare its composition with that of cooked beef, freed from bone and from superfluous fat, such a piece as would be served to a person at the table. Weight for weight, cheese has appreciably more protein than such cooked beef, and 50 per cent. more fat.

THE DIGESTIBILITY OF CHEESE

As was stated above, cheese has been thought a cause of digestive disturbances, but work recently done by the Office of Experiment Stations, in cooperation with the Bureau of Animal Industry, and briefly summed up in a recent publication, tends to disprove this.

The statement refers to full-cream cheese. Experiments made at the same time gave practically the same values for the digestibility of skim-milk cheese, of Swiss cheese, of Roquefort and Camembert cheese, and of cottage cheese.

The burning sensation or similar sensations sometimes experienced after eating certain sorts of cheese has been attributed to the presence of small amounts of free fatty acids. It is commonly said that cheese is difficult to digest, the idea being that the body expends more labor in assimilating it than is required for other comparable foods. Experiments recently carried on by the Office of Experiment Stations, in which the respiration calorimeter was used to study the energy expenditure during the period of active digestion, do not indicate that cheese differs materially in ease of digestion from a comparable amount of meat. Uncooked full-cream cheese was used in these experiments. Another series recently begun by the Office of Experiment Stations with cooked cheese, though not yet sufficiently advanced to be conclusive, indicates that cheese thus eaten does not differ materially from raw cheese in this respect.

In connection with the use of cooked cheese in the diet, one fact should always be kept in mind. This is that, in common with all other fatty foods, cheese which has been overheated in cooking is

likely to contain burned—that is, decomposed—fats. Disturbances from this cause, however, should be laid to poor cooking and not to the composition of this special food.

Curds and Whey

Cheese curds and whey, an old-fashioned dish, which is often spoken of in accounts of life in earlier times, sometimes refers to sour-milk curd and sometimes to curd separated with rennet. This dish, when made with rennet, is much like junket and though far less common today than was once the case, is wholesome and palatable.

Cottage Cheese

This cheese is very commonly prepared in the home, and the process of making it is very simple. It consists merely of curdling the milk, separating the curd from the whey, seasoning, and pressing it.

The curd is formed by the souring of the milk, and the process is hastened if the milk is kept warm, the best temperature being about blood heat, 96 degrees F. A temperature much above this should be avoided, as the curd is likely to become hard and tough if much heated. The danger is usually not that the whole will be overheated but that the portion nearest the fire will be. In the old-fashioned kitchen there was usually a place where the milk could stand till it was uniformly warm throughout. With our present cooking arrangements it is often desirable to hasten the process. This may be done by setting the milk into a pan of warm water or by pouring hot water directly into the milk itself. The effect of the latter method is to remove much more of the acid than when the whey is left undiluted. Some consider this a great advantage.

If, for any reason, the curd is overheated, it should be put through a meat chopper. This will insure cottage cheese of excellent texture.

If the milk is thoroughly chilled before the whey is drained off it retains more of the fat than if this is done when warm. Under no circumstances, however, is much of the fat retained in cottage cheese. It is therefore more economical to make it out of skim milk and to add the fat to the curd in the form of butter or cream.

Chopped parsley, caraway seeds, chopped olives, and pimiento may all be used for flavoring if such flavored cheese is preferred to plain cottage cheese.

Cottage cheese is most commonly consumed immediately, but if made in quantity for commercial purposes, it may be packed in tubs and placed in cold storage. Sometimes it is formed into rolls or blocks and wrapped in tinfoil when marketed. Such cheese is used without ripening.

Though cottage cheese is usually made by allowing the milk to sour naturally, it is sometimes more convenient to curdle the milk by adding rennet, and some housekeepers have a preference for cottage cheese thus made, since the flavor is milder and the acid taste which it possesses when made from sour milk is lacking.

Sour-Cream Cheese

When cream is to be made into cheese similar to cottage cheese, it should be drained without having previously been heated. The drainage is facilitated by moistening the cloth in salt water before the cream is poured in. The curd is formed either by souring or by the addition of rennet.

Uncooked Curd, or French Cottage Cheese

The French make cheese from sour milk without heating it. They pour the milk into earthen molds which have holes in the bottom. A very fine sieve may be used instead of the molds. The whey drips out and the curd assumes a custardlike consistency and takes the shape of the mold. When sufficiently stiff, the cheese is chilled, and is eaten with sweet cream and sugar. It is a staple dessert in many French families, especially in hot weather, and is delicious served with acid fruit, such as currants, or with strawberries.

Junket

If cottage cheese is made from sweet milk and rennet and served without breaking and separating the curd and whey, the dish is called junket. It is customary to season it a little, as with grated nutmeg or with cinnamon and sugar.

Buttermilk Cheese

At the Wisconsin Experiment Station a method has been devised for making a soft, moist cheese out of buttermilk. When made on a large scale, as it might be in creameries, there are various precautions to be taken, which are pointed out in the publication cited. In making it in small quantities, these precautions are unnecessary, and the method is even simpler than that of making cottage cheese, because the quality does not depend so much on the temperature.

To make the buttermilk cheese, heat buttermilk gradually to about 130 or 140 degrees F. Allow it to cool, and strain it. As the curd will settle to the bottom, most of the whey may be poured off before the draining is begun.

This cheese is, of course, almost wholly without fat, and yet—probably because the particles of curd are very finely divided—it has a smooth consistency, which suggests the presence of fat. It may be served seasoned with salt only, or it may be mixed with butter or cream and seasonings. It is suitable for combining with olives and pimientos, or for any use to which the ordinary cream cheeses are put.

Buttermilk Cream

This product also was devised by the Wisconsin Experiment Station. By controlling the temperature in heating the buttermilk and not allowing it

to go above 100 degrees F., a compound is made which after draining has the consistency of a very thick cream. It is claimed by the station investigators that this "cream" is suitable for eating on bread in place of butter.

Devonshire Cream

Devonshire cream somewhat resembles sweet cream in flavor and consistency. It is very much liked in England, where it is commonly eaten with fresh or preserved fruit, but is not so well known in America.

To make Devonshire cream, allow a pan of whole milk to stand for 24 hours in a cool place, or for 12 hours in a warmer place. Place the pan on the cooler part of the stove and heat until the milk is very hot, but not to the boiling point. If heated too much, a thick skin will form on the surface. The more slowly the milk is heated the better. Having been heated, the milk should be kept in a cool place for 24 hours and then skimmed. The thick cream obtained has a characteristic flavor and texture.

RECIPES

Cheese with Vegetables — Grated or divided cheese may be combined with vegetables and baked, or melted in a hot milk sauce and poured over, or served separately, to be added to hot vegetables at the table by those who like the cheese mixture.

Creamed Potatoes with Cheese—Boil and cream 2 cupfuls of potatoes, or turnips, or cabbage. Turn gas very low; add to the potatoes 2 to 4 tbsp. chopped or grated cheese; stir gently until melted. Serve at once.

Kidney Beans with Cheese—Soak ½ lb. kidney beans overnight. Cook slowly 1 hour; add 1 chopped green pepper. Cook until beans are tender, then add ½ lb. cheese cut in small dice. When cheese is melted, serve beans quickly with hot toast or crackers.

Creole Rarebit—Melt 1 tbsp. butter in hot skillet or chafing dish; add ¼ grated onion, ½ chopped green pepper, ½ can tomatoes. Cook slowly 10 minutes. Stir in ½ cup grated cheese and 1 well-beaten egg seasoned with a dash of red pepper and ½ teasp. salt. Continue to stir until the whole is of a creamy consistency. Serve hot on toast.

This may be varied by adding ½ cup of minced ham mixture to the tomatoes.

Cream Tomato Rarebit—Stew 1 cup tomatoes, add pinch of soda. Let come to boil and strain. Keep hot. With 2 tbsp. hot butterine blend 2 tbsp. flour. Add slowly 1 cup of cream or half cream and half milk. Stir until boiling, add a dash of pepper, mustard, 1 teasp. salt. Stir into this the strained tomato, until mixture is smooth. Add 2 cupfuls cheese, 2 beaten eggs. When thoroughly blended, serve hot on toast.

Welsh Rarebit—Into 2 tbsp. melted butter stir 1 tbsp. flour. Add gradually ½ cup rich sweet milk. Cook for 15 minutes. Add ¼ lb. diced cheese, ½ teasp. salt, pinch paprika, ¼ teasp. white pepper. Stir until cheese has melted and mixture is smooth and creamy. Pour over hot crackers.

Welsh Rarebit—Dissolve 1 heaping dessert-spoon of cornstarch in ½ cup cream, add 1 beaten egg into this mixture, add 1 lb. American or Swiss cheese cut in small pieces. Put in double boiler, and stir until melted and about to thicken; then add glass of beer or ale; continue to stir, seasoning with salt and paprika to taste. Stir until right consistency for serving. Serve hot on rye bread or toast.

Welsh Rarebit au Gratin—Cut ½ lb. Swiss cheese into 1-inch slices; lay 6 slices thin toast in a dripping pan, cover each with slices of cheese spread with mustard and dust lightly with salt and pepper. The addition of a dropped egg to each slice makes what is often called a Golden Buck.

Cheese Straws—Chop ½ tbsp. butter into 5 tbsp. flour sifted with a pinch of salt and cayenne. Add ½ cup bread crumbs, 3 tbsp. grated cheese. Mix well; add 1 tbsp. milk. Knead this stiff dough, roll into a sheet ¼ inch thick. Cut into strips 1/3 inch wide. Bake in a moderate oven 10 minutes.

Fruit and Cheese—To each cup of diced apples add ½ cupful chopped figs or grapes, 1 peeled orange cut into small pieces. Heap fruit in center of dish and arrange a border of cottage cheese around fruit. Pour over all thick sour cream or a salad dressing. Sprinkle with nuts.

Cottage Cheese (Schmier-Kaese)—Set a qt. or more of thick sour milk in warm water or oven. Increase the temperature to 180 degrees (Fahr.) and keep there for an hour until whey is well separated and curd feels firm. Drain in cheesecloth bag for several hours. Remove and mix with salt and cream, sweet or sour, to taste.

Cheese au Gratin—Into a deep buttered baking dish lay 4 buttered slices of bread. Mix ¼ lb. grated cheese with a pinch salt, cayenne. Scatter this over the bread. Beat several eggs and mix with 3 cups milk. Pour over the bread and cheese. Let stand about 1 hour. Bake 20 minutes in moderate oven.

This mixture of cheese, eggs, milk and seasonings may be added to a cup of bread crumbs and heated in a buttered chafing dish. Stir until cooked

into a creamy form and pour it over toasted crackers. This is sometimes called "English monkey."

English Woodcock—Make a smooth cream sauce with 2 tbsp. flour stirred into 2 tbsp. melted butter, and 2 cups heated milk added slowly. Add 4 hard boiled eggs cut into quarters, 1½ cup asparagus tips cut into inch pieces, ½ teasp. salt, paprika and anchovy essence to taste. When hot, serve on small squares of toast.

Breakfast Cheese Dishes

Scrambled Eggs with Cheese—Beat 6 eggs. Stir in 1 cup milk, 1 teasp. salt, ⅛ teasp. pepper. Scramble in hot pan with 1 tbsp. melted fat. When nearly done, add 2 tbsp. grated cheese. Serve on toast.

Golden Buck—Toast 6 slices bread, poach 6 eggs and keep hot. Boil up once, 1 cup milk, add 1 tbsp. butter or butterine, salt, mustard, paprika to taste, and 2 cups cheese, grated. Stir until cheese melts. Pour hot cheese mixture to cover each slice of toast. Place a poached egg on top of each. Salt and pepper the eggs. Serve hot.

Cheese Sandwich—Lay slices of cheese on thin slices white bread, slightly melt cheese under oven flame. Top with bread and brown these sandwiches on both sides in a hot buttered skillet. Serve at once.

Pimiento Cheese Sandwich — Mix well finely chopped pimientoes from 1 can, 1 tbsp. minced sour pickles, salt, paprika, 1 teasp. onion juice and 1 cup grated cheese. Spread on lettuce sandwiches.

Canapes—A canape is usually a savory mixture of some sort, forcemeat, eggs or cheese, spread on buttered toast or ¼ inch sliced bread cut into squares, diamonds or strips and browned in deep fat. Canapes are served hot or cold and usually take the place of oysters at dinner.

Liver and Bacon Canapes—Chop crisp fried bacon and liver cooked tender; mix with a little stiff mayonnaise and spread on toast.

Ham—Mix ½ cup minced ham, 2 tbsp. melted butter, 1 teasp. chopped parsley. Spread on bread fried brown in hot fat.

Tomato Canapes—On each round slice of buttered toast lay a thick round slice of tomato. Top this with 1 teasp. mayonnaise sprinkled with watercress or minced hard boiled egg.

Fish Canapes—Whole or mashed sardines seasoned with paprika and lemon juice laid on strips of toast or crackers, or salmon and lobster mashed and mixed with mayonnaise heaped lightly on diamond-shaped buttered toast.

Cheese Canapes—Press ½ lb. soft cheese through colander. Mix with ½ cup sweet cream or milk, season with salt, paprika, mustard, 1 teasp. Worcestershire Sauce. Slice bread rather thick, trim crusts and cut in two diagonally. Spread between slices with cheese mixture. Brown the sandwich in hot fat. When brown and crisp serve at once.

Anchovy Canapes—Wash and bone 6 anchovies, pound them to a paste with two hard boiled egg yolks, 4 tbsp. butter, ¼ teasp. salt, few grains Cayenne pepper, ½ teasp. lemon juice. Fry six croutes of bread, spread with the above paste, and sprinkle over them the whites of the two eggs chopped very fine.

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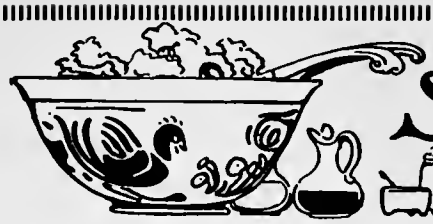

CLASS 15

Salads and Salad Dressings

FOOD VALUE OF SALADS

(Iowa State College of Agriculture)

A well prepared salad is an excellent food. Salads supply water, mineral salts, acids, cellulose and flavor to the diet.

The ingredients should be fresh and cold and it should be pleasing in appearance as well as flavor.

A great variety of materials are used in salads: fruits, green and cooked vegetables, eggs, meat, fish, cheese, nuts, etc.

Green vegetables should be crisp, cold and dry when served. If water is left on the leaves the salad and salad dressing will be poor in flavor.

Salad dressing should be added just before time of serving as the salad material wilts if allowed to stand after the dressing has been added.

VALUE IN DIET

Fruits and Vegetables

1. Supply water.
2. Supply mineral salts.
3. Supply acids.
4. Supply cellulose.
5. Supply flavor.
6. Supply variety.

Salad vegetables often contain 90 per cent. or more of water, which in itself is useful in the system in many ways.

They furnish only a small quantity of protein, which varies from 1.5 to 4 per cent. In addition, they contain cellulose, chlorophyll, sugars, gum, pectin and sometimes a little fat.

MATERIALS USED IN SALADS

Raw Vegetables

Lettuce
Tomatoes
Cucumbers
Radishes
Onions
Dandelion tops
Cabbage
Cress
Chickory
Celery
Green Peppers

Cooked Vegetables

White potatoes
Kidney beans
Asparagus tips
Beets
Peas
Carrots
Pimientoes
Spinach

Nuts

Peanuts
Walnuts
Pecans
Almonds
Filberts
Brazil nuts
Hickory
Butternuts
Black walnuts

Meat

Chicken
Veal
Bacon
Ham
Roast Pork

Fish

Halibut
Salmon
Bass
Pike
Sardines (canned)
Tuna
Codfish
Fish flakes

Cheese

Camembert
American
Cream
Neufchatel
Parmesan
Cottage

Fruit

Apples
Bananas
Cherries
Currants
Grapes
Oranges
Peaches
Pears
Pineapple
Avocado
Grapefruit

Eggs

POINTS TO REMEMBER

Meat, fish, eggs and cheese supply protein and fat in the diet. Starchy vegetables supply fuel food. Salad dressings supply fuel food. Salad plants should be:

1. Tender. 2. Cold. 3. Crisp.

Salad materials should not be crushed and should be symmetrical in shape. Gather green vegetables in the early morning or after sunset; keep in a cool place (not directly on ice) and keep closely wrapped in waxed paper.

Vegetables should be carefully dried and exposed to the air for a few minutes before adding the dressing, as water and oil do not mix.

Salads dressed at the table should first be sprinkled with salt and pepper, then oil added, and, lastly, vinegar or lemon juice.

A salad is perfectly dressed when each individual leaf or bit of vegetable is lightly coated with oil or appropriate dressing.

MAKING SALADS

The first step in making a good salad is to have good materials, fresh, crisp vegetables raw or carefully cooked, good oil and vinegar. Prepare these with care, wash and dry green stuff, drain and cut up cooked vegetables or meats in attractive diced pieces put away to cool. Either make the dressing and put on ice, or mix it at table, or use one of the excellent bottled dressings now sold at all good food shops. But remember never toss up the salad with the dressing until just before serving.

Salads made of minced meat, vegetables and dressing are not dinner salads when meat is the main dish, but should be used rather for supper or light luncheon.

Fruit combines with nuts and lettuce and dressing hold all the food value of a meat salad and are a refreshing substitute for meat at a mid luncheon.

When fresh green vegetables are not obtainable there are always the carefully canned asparagus, peas, etc., and when fresh fruit is rare the delicious canned pineapple, pears, grapes, etc., are on the market.

Canned meats and even raisins and nuts offer endless opportunities for a good salad.

All salads depend largely on the dressing. Fruit salads are better with a rich mayonnaise or a butter and cream dressing with a dash of sugar. The vegetable salads need a more highly seasoned French dressing and no sugar.

Meat salads may take either a French dressing or mayonnaise without sugar and seasoned with the meat's appropriate sauce. For beef use a bit of grated horseradish; pork or ham, Chili sauce; lamb, chopped capers; veal or fish, tomato mayonnaise or a few drops of catsup; fowl, plain mayonnaise.

Pure salad oil has a faint nutty odor when it has any at all, is pale green in color and tastes somewhat like the ripe olives from which it is made. It should blend easily with condiments.

RECIPES

Mayonnaise Dressing — The secret of success with mayonnaise is to have the dish, beater and materials ice cold, to work quickly, and place at once on ice.

Stir into yolk of 1 egg, a mixture of ½ teasp. mustard, ½ teasp. salt, 1 teasp. sugar, dash of paprika and cayenne. Beat thoroughly and steadily, adding drop by drop 1 cupful olive oil. When dressing is stiff, thin slowly with 1 tbsp. lemon juice, then 1 tbsp. vinegar. Should oil not thicken egg at once, add ¼ teasp. unbeaten white of egg or a few drops of vinegar will make it smooth again. It should be thick enough to cut with a spoon before adding rest of vinegar. Put on ice. When salad is ready to serve, mix in lightly only small portion of mayonnaise; drop the remainder on top.

Colored Mayonnaise—Green mayonnaise is made by adding the juice from a small quantity of mashed spinach or parsley. Strain through cheesecloth before putting it in the mayonnaise dressing.

To color it red, add beet juice or juice of lobster coral.

Tomato Mayonnaise—Stew gently 3 cups canned strained tomato; mash, strain, add ½ teasp. butter, ½ teasp. flour, blended. Simmer until very thick, add 1 tbsp. powdered sugar. This is tomato puree and can be bought canned. Fold this puree into ½ cup stiff mayonnaise. This is delicious with meat or fish salads.

Marinade is used to express the seasoning of salad to taste with salt, pepper, oil or vinegar.

French Dressing—Mix 4 tbsp. oil slowly into the dry seasonings of ½ teasp. salt, ¼ teasp. pepper, ¼ teasp. onion juice; add 1 tbsp. vinegar.

Boiled Salad Dressing—Into 2 beaten eggs stir 1/3 cupful vinegar with water added to make ½ cupful; add 1 teasp. sugar, 1 teasp. salt, ½ teasp. mustard, dash of paprika. Beat thoroughly, put in double boiler, add 1 tbsp. melted butter, cook, stirring until smooth and creamy. This will keep on ice a week.

Sour Cream Dressing—Mix ½ teasp. salt, ¼ teasp. mustard, ⅛ teasp. pepper, 1 teasp. sugar. Stir into 1 beaten egg. Put on in double boiler. Add at once slowly 1 tbsp. vinegar thinned with 1 tbsp. warm water. As it heats add 1 teasp. butter rubbed in 1 tbsp. flour; stir carefully until smooth and thick. Remove and chill. When ready to serve, thin with sour cream.

Condensed Milk Dressing—Beat slowly into ½ cup olive oil yolks of 2 eggs. Add 1 cup vinegar into which 1 teasp. mustard, ½ teasp. salt have been mixed; carefully stir in ½ can condensed milk and the stiff whites of the eggs; put on ice until used.

Cheese Salad Dressing — Into ¼ lb. grated American or Roquefort cheese mix the following: 1 tbsp. olive oil, ½ teasp. cayenne pepper, 1 teasp. salt, 1 teasp. powdered sugar, ¼ teasp. mustard. When well blended, thin with 4 tbsp. vinegar or 2 tbsp. lemon juice and olive oil to suit.

This is a nice dressing for fish, potato, or green vegetable salads.

Horseradish Cream Dressing — Mix ¼ teasp. mustard and cayenne, ½ teasp. salt, ½ teasp. sugar, 1 teasp. grated horseradish, 1 tbsp. lemon juice. Chill. Just before serving, fold this into ½ cup whipped cream.

Salmon Salad (Canned)—Chop the salmon well with a fork, add a little chopped onion if desired and mix with French or mayonnaise dressing and serve on lettuce leaves.

Canned tuna fish, or any boiled or baked fish when cold, can be treated this way.

Macaroni and Fish Salad — Either macaroni, spaghetti or rice may be used with cold canned or fresh cooked fish.

Boil broken macaroni or rice in salted water until tender; rinse, drain, chill. Into a bowl lined with lettuce leaves or chickory, place in layers the macaroni and 1 cup flaked fish, sprinkling in between ½ tbsp. chopped parsley. When ready to serve, pour over all tomato mayonnaise or a plain French dressing. Garnish with sliced tomato or cucumber.

Shell Fish Salad—Lobster, crab, shrimp, or oyster may be used. Boil, shell and pick out meat and chop into dice; if oysters are used, cut in two. Use 1/3 as much celery as meat, cut in small bits, chill. Mix in a bowl, sprinkle with salt, stir in mayonnaise. Serve on lettuce with plain or tomato mayonnaise.

If omitting the celery, mix with pulp of scooped out fresh tomato and return to tomato. Serve with dressing.

With vegetable salads it is sometimes well to use as a body for the salad either potatoes sliced thin, cooked rice, each grain separated, or well dried macaroni cut in inch pieces.

Some kinds of vegetables combine better than others, as beans, peas, cauliflower, tender carrots, asparagus, and again turnips with beets, carrots, cabbage and tomatoes.

Mixed Vegetable Salad—Use firm boiled potatoes sliced thin; slice cucumbers and fresh tomatoes. Mince and marinate separately 1 Spanish onion, 1 green pepper, 2 tbsp. crisp cabbage. Arrange sliced vegetables on lettuce leaves, sprinkle over them the minced marinated ones. Dress with an oil salad dressing to which a drop or two of tobasco is added.

Mashed Potato Salad—To 4 mealy boiled potatoes, mashed, mix the mashed yolks of 4 hard boiled eggs seasoned with ½ teasp. salt, ¼ teasp. paprika; add a few chopped gherkins, 1 small minced onion and lightly fold in a cooked salad dressing. Serve in a bed of lettuce. Garnish with chopped parsley and sliced hard whites.

Potato Salad with Eggs—Put a layer of sliced cold boiled potatoes on lettuce leaves in a bowl rubbed with onion juice. Arrange in layers above them either sliced cucumbers or hard boiled eggs. Sprinkle each layer with seasonings of ½ teasp. salt, ¼ teasp. pepper, ½ cup diced celery mixed with 1 cup boiled dressing. When serving do not mash; lift salad out lightly with fork.

Potato Salad—Pare and boil potatoes; chop fine when cold, season with raw onion sliced thin. Make a dressing of yolks of 3 hard boiled eggs, mashed fine, salt and mustard to taste; then add enough olive oil or melted butter to make a paste,

mixing thoroughly; to this add 1 cup vinegar gradually, beat well with the paste and mix with potatoes.

Plain Egg Salad—Press hard boiled egg yolks through a ricer. Place sliced whites on lettuce and chickory, sprinkle the riced yolks over, then salt and pepper, and, last, drop on some creamy salad dressing.

Egg and Cream Cheese Salad—Mix yolks of hard boiled eggs with equal amount cream cheese, few grains cayenne, salt, chopped nuts. Mold flat with hand. Cut with silver knife into strips 3 inches long, ½ inch wide. Lay two strips on a lettuce leaf for each place; drop mayonnaise in space between strips, or if too rich pour over a French dressing. Garnish with hard whites, sliced.

Lettuce Salad—Have ready a salad spoon and fork, a small bowl, vinegar, oil, salt and pepper, and a large bowl of crisp cold lettuce. Into the chilled bowl, rubbed inside with garlic, mix 1 teasp. salt, ¼ teasp. pepper, with 1 tbsp. vinegar, 3 tbsp. oil; stir until thoroughly blended. Pour over the lettuce, tossing lightly and quickly with salad fork and spoon. Serve at once with cheese wafers.

Many prefer to mix their own salad dressing at the table, especially for simple lettuce salad.

Tomato and Lettuce Salad—Drop whole tomatoes an instant into boiling water, peel, cool on ice, slice. Serve on lettuce with or without sliced cucumbers. Drop on top spoonfuls of stiff mayonnaise.

Stuffed Tomato Salad—Remove inside of as many fresh tomatoes as required. To half the pulp add the same quantity of this mixture: minced ham or roast pork, a few chopped olives, and a dash of Chili sauce; stir in French dressing, fill tomatoes, put on ice. Serve the stuffed tomatoes in a cup-shaped leaf of watercress on individual plates, with a spoonful of seasoned whipped cream over each.

Stuffed Cucumber Salad—Select small cucumbers, peel, cut in lengthwise halves, put in cold salted water 1 hour. Remove pulp, mix with chopped celery or cabbage, olives, anchovies and either chopped blanched nut meats or cooked minced white chicken, veal or fish. Mix thoroughly with French dressing and fill up cucumber shells just before serving.

Quick Cucumber Salad—Stuff cucumbers with minced cabbage and nuts served with dressing on lettuce leaves.

Cabbage Salad—Shred 1 small crisp white cabbage very fine. Put on ice in salad bowl. Before serving mix in salad dressing; or, at table, prepare dressing as follows: Sprinkle cabbage with ½ teasp. salt, ¼ teasp. pepper, 4 tbsp. olive oil. With a silver fork and spoon toss cabbage, adding 2 tbsp. vinegar until all is covered with seasoning. Serve on chickory.

Chestnut and Tomato Salad—Boil chestnuts 10 minutes, peel, slice. To ½ cupful nuts prepare ½ cupful crisp celery, ½ cup ripe olives, 2 pimientoes, all diced. Mix together with mayonnaise. Pour the mixture over yellow sliced tomatoes and sliced hard boiled eggs on beds of watercress or romaine and chickory.

Beet Salad—Slice tender cooked beets, cover with vinegar mixed with 1 tbsp. water beets boiled in, ¼ teasp. sugar, ¼ teasp. salt, few grains paprika. Let stand several hours on ice, drain, lay pickled beets on lettuce leaves and serve with some of their dressing poured over; if preferred, use mayonnaise when served.

Bean Salad—Boil 1 lb. French beans, strain and allow them to get cold. Mix ½ teasp. ground ginger, pepper and salt to taste, 2 tbsp. oil and 3 tbsp. vinegar carefully together and pour this dressing over the beans.

Cauliflower and cabbage can also be treated this way.

Canned Vegetable Salad—Use either asparagus, green beans, or fresh cauliflower. Heat, season with salt, drain, cool, and serve with lettuce leaves and mayonnaise. Garnish with hard boiled eggs.

Tomato Aspic (Jelly Salad)—Soak ½ package gelatine in ½ cup cold water. Strain 1½ cups canned tomato juice, season with ½ teasp. onion juice, 1 teasp. sugar, several mixed tiny spices, pepper, ¼ teasp. salt. Simmer for 10 minutes. Add gelatine, stir, strain. Pour some of the tomato aspic into small mold, put on ice. When hard, add layer of meat or vegetable salad mixture. Cover with rest of aspic, chill. When ready to serve, dip mold quickly in hot water, carefully turn out jelly salad on bed of lettuce leaves. Garnish top with mayonnaise.

Spinach or Pea Aspic—Cook, drain, chop fine ½ can spinach, or, if peas are used, press through a sieve. Dissolve ½ package gelatine according to directions on box. Season with ¼ teasp. salt, little pepper, add spinach or peas. Put on ice in mold until stiff. Serve in slices on lettuce leaves. Garnish with hard boiled eggs and top with a stiff dressing to which add chopped olives and parsley if desired.

Fruit and Nut Salads—Several pleasing combinations of fresh or canned fruits, nuts, and sometimes celery may be arranged, as: (1) Diced pineapple, celery, nuts, on lettuce with mayonnaise. (2) Sliced apple on lettuce sprinkled with nuts and mayonnaise. (3) Grapefruit, French dressing, lettuce and nuts. (4) Canned pear with

Roquefort grated cheese added to mayonnaise. (5) Bananas and apples sliced, chopped dates, lemon juice, sugar, lettuce, mayonnaise or French dressing. (6) Soaked boiled raisins, apples, celery, marinated. Add mayonnaise and lettuce.

Combination Fruit Salad—In a cold salad bowl arrange in sugared layers diced pineapple, 4 sliced bananas, peaches, pears or grapes, 4 sliced oranges or grapefruit; top with blanched chopped almonds. Pour over this a cooked syrup of ¼ cup lemon juice, ¼ cup pineapple juice, 1 cup sugar. Put on ice until served.

Waldorf Salad—Use equal portions of apples and celery cut in small pieces mixed with a few finely chopped nut meats and enough salad dressing to hold together. Serve in cups made of bright red apples hollowed out, on crisp lettuce leaves. Garnish with celery tips.

Chicken Salad—Dice cold chicken, put 2 cupfuls in bowl; marinade with 1 tbsp. vinegar, 3 tbsp. oil, 1 teasp. salt, dash of pepper. Place on ice 1 hour. Also chill 2 cups celery cut fine. At serving time mix chicken, celery and 1 cupful mayonnaise. Place on shredded lettuce, garnish with sliced hard boiled eggs, olives or watercress.

Cold Beef Salad—Line a bowl with crisp lettuce leaves. Slice cold roast beef very thin, then mince evenly. Mix with equal quantity chopped ham. Fold into this carefully a part of the horseradish whipped cream dressing; drop the rest on top of the salad. Slice hard boiled eggs over all. Serve at once.

(Paste or Write Here Scraps or Memos. of Your Own)

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Scraps or Memos.
of Your Own)**

CLASS 16

Vegetables

STRUCTURE AND COMPOSITION OF VEGETABLES

By Maria Parloa.

(U. S. Farmers' Bulletin No. 256)

Plants are made up of innumerable cells, each consisting of a thin membranous wall inclosing a semifluid mass, in which lie the nucleus or center of cell activity and minute grains of starch or other material which the plant has elaborated.

The whole framework of the very young plants is made up of these cell walls, commonly called cellular tissue or cellulose. However, early in the growth of the plant wood cells begin to develop. The wood cells grow into a fibrous substance that may be torn apart like threads, which is called woody fiber. It is this woody fiber and the thickening and hardening of the cellular tissue that make poorly grown or stale vegetables hard and indigestible.

Practically all green plants contain a large percentage of water with a larger or smaller percentage of starch and some nitrogenous material (protein), sugar, gum, crude fiber, and other carbohydrate and mineral matter. The fruits and seeds of some plants are rich in fat, but the plant itself rarely contains any appreciable amount of this constituent.

Most vegetables contain small amounts of volatile essential oils or other bodies of pronounced flavor and owe their characteristic taste to such constituents; sugars and acids when present, as they often are, and mineral salts, found in all vegetable foods, also contribute their share toward the flavor.

CLASSIFICATION OF VEGETABLES.

Vegetable foods may be divided into a few general classes. These are cereals, legumes, tubers, roots and bulbs, herbaceous or green vegetables, and vegetable fruits and flowers. The cereals are the most valuable of the vegetable foods, including as they do the grains from which is made nearly all the bread of the world. The use of cereals for bread making, for breakfast foods, and in similar ways is taken up elsewhere. In this bulletin rice and corn are the only cereals considered, as they are the only grains commonly employed as table vegetables.

Rice is largely composed of starch and has very small proportions of nitrogenous, fatty, and mineral matter. Therefore, when used as a vegetable, it is naturally and very properly served with foods rich in the constituents which it lacks.

Legumes belong to the pulse family. The fruit is usually in the shape of a pod. Although there are several thousand species of the Leguminosae or pulse, only a few kinds are used as table vegetables, beans, peas, cowpeas, and lentils being the legumes principally employed as human food. The dried seeds of beans, peas, and lentils constitute a most valuable all-the-year-round food supply. The seeds occupy small space, keep well, and may be prepared in a great many appetizing and nutritious forms.

The ripe leguminous seeds are very rich in nitrogenous matter. Peas, beans, cowpeas, and lentils contain on an average 25 per cent nitrogenous matter and over 50 per cent starch, and about 10 per cent cellulose, fatty matter, and mineral matter. When properly cooked and consumed in reasonable quantities peas, beans, and lentils may replace a portion of the meat in the daily dietary. The unripe legumes and their edible pods, like all green vegetables, are quite succulent foods, the proportion of nutritive material being small as compared with the water present.

Since the fatty matter in the legumes enumerated does not average 3 per cent they are commonly and wisely cooked with some added fat. The green seeds and the green pods of peas and beans are not so highly nutritious as the dried seed, but they are more delicate and apparently more easily digested.

Among the foods served as table vegetables, tubers and roots have an important place. The potato comes next to the cereals in its almost universal employment and the material consumed. We have no other vegetable that lends itself to such a variety of preparations. The potato contains a large percentage of water, a fair percentage of starch, a very small percentage of sugar, and nitrogenous, fatty, and gummy matter, and about 1 per cent of mineral matter. The mineral matter consists of potash and soda salts, citrates, phosphates, magnesia, and silicate of lime. It is to this mineral matter that the potato owes its antiscorbutic properties.

The sweet potato is rich in starch and sugar. The percentage of nitrogenous and fatty matter is very small. This vegetable makes a pleasant and healthful addition to the table. It is somewhat laxative.

The true roots most used as table vegetables are beets, radish, turnips, parsnips, carrots, salsify, and celeriac. Both the parsnip and salsify withstand frost and may be left in the ground all winter, thus making it possible to have these vegetables in the early spring as well as in the fall. However, they must not be left in the ground too late in the season the following spring, as they soon grow hard and fibrous. Turnips, beets, and carrots, for summer and fall use, should be of the quick-growing kind, and should not be allowed to grow to great size. To have these vegetables in perfection it is necessary to sow them frequently during the season. When grown for winter use, these roots, like all vegetables that are to be stored, must, of course, develop until mature, else they will not keep well.

The bulb-bearing plants belong to the lily family, the onion being the bulb most generally used as a vegetable and flavorer. On the Continent of Europe very many other members of the onion family are also freely used as flavorers, and no continental kitchen garden would be considered complete without several varieties, such as the common onion, leek, shallot, garlic, chives, and cibol. Much of the delicious flavor of the French and Italian cookery is due to the skillful combination of several of the onion flavors.

The herbaceous vegetables, cabbage, lettuce, celery, spinach, etc., are valuable for their refreshing qualities, the salts they yield, and the variety they give to our diet, but owing to the amount of water they contain (90 per cent or more on an average) their food value is low. The leaves, stems, and shoots are the parts used as food. These vegetables should be employed while young and tender; the more rapidly the vegetables grow the more tender they will be.

Fruits used as vegetables include tomatoes, okra, squash, pumpkin, cucumber, egg-plant, and peppers, among others. Such fruits as muskmelon and watermelon are used as fruits rather than as vegetables, and are not taken up here. In the case of globe or French artichoke, cauliflower, and broccoli the flower buds or inflorescence are the parts eaten.

GENERAL PRINCIPLES UNDERLYING VEGETABLE COOKING.

Vegetables are baked, roasted, fried, or boiled, are used for making a great variety of dishes, and are prepared for the table in other ways; but the most common method of cooking them is in boiling water. Steaming is not infrequently resorted to as a method of cooking vegetables and is, of course, similar in principle to boiling in water.

The simpler the methods of cooking and serving vegetables the better. A properly grown and well-cooked vegetable will be palatable and readily digestible. Badly cooked, water-soaked vegetables very generally cause digestive disturbances, which are often serious. Nearly every vegetable may be cooked so that with plain bread it may form a palatable course by itself, if it is desired to serve it in this manner.

All green vegetables, roots, and tubers should be crisp and firm when put on to cook. If for any reason a vegetable has lost its firmness and crispiness, it should be soaked in very cold water until it becomes plump and crisp. With new vegetables this will be only a matter of minutes, while old roots and tubers often require many hours. All vegetables should be thoroughly cleaned just before being put on to cook. Vegetables that form in heads, such as cabbage, cauliflower, and Brussels sprouts, should be soaked, heads turned down, in salted cold water, to which a few spoonfuls of vinegar may be added. If there are any worms or other forms of animal life in these vegetables, they will crawl out. To secure the best results all vegetables except the dried legumes must be put in boiling water, and the water must be made to boil again as soon as possible after the vegetables have been added, and must be kept boiling until the cooking is finished. Herbaceous vegetables should boil rapidly all the time. With tubers, roots, cauliflower, etc., the ebullition should not be so violent as to break the vegetables. Green beans and peas when removed from the pod must also be cooked gently, i. e., just simmer. When the pods and all are used they are to be cooked rapidly, like the herbaceous vegetables.

To secure the most appetizing and palatable dishes, only fresh, tender vegetables should be cooked. If, however, green beans, peas, etc., have grown until a little too old and it still seems best to gather them, a very small piece of baking soda added to the water in which they are boiled makes them more tender, it is commonly believed, and helps to retain the color. Too much soda injures the flavor, and an excess must be carefully avoided. A little soda may also be used to advantage if the water is quite hard. Peas may be boiled for fifteen or twenty minutes in the water to which the soda has been added, then to be cooked the same as peas with pork.

During the cooking of all vegetables the cover must be drawn to one side of the stewpan to allow the volatile bodies liberated by the heat to pass off in the steam. All vegetables should be thoroughly cooked, but the cooking should stop while the vegetable is still firm. This, of course, does not apply to vegetables that are cooked in soups, purées (thick strained soups), etc. The best seasoning for most vegetables is salt and good butter. Vegetables that are blanched and then cooked with butter and other seasonings and very little moisture are more savory and nutritious than when all the cooking is done in a good deal of clear water.

BLANCHING VEGETABLES AS A COOKING PROCESS.

Blanching, which in cookery in entirely different from the bleaching or blanching of green vegetables in the garden, is a cooking process often used with vegetables, since it removes the strong or acrid taste and improves the quality. It is also convenient, since blanching may be done at any time, and the cooking completed in a very short time when the dish is to be served.

Have a large stewpan half full of rapidly boiling water. Add a tablespoonful of salt for every 2 quarts of water. Have the vegetables cleaned and well drained. Drop

them into the boiling water, and bring the water back to the boiling point as quickly as possible. Boil rapidly, with the cover partially or wholly off the stewpan, five to twenty minutes, depending upon the vegetable, then drain off the water. If the cooking of the vegetable is not to be finished at once,, pour cold water over the vegetable to cool it quickly, then drain and set aside until needed. If the cooking is to be continued at once, it will not be necessary to rinse the vegetable with cold water. To complete the cooking the vegetable should be put in a small stewpan with butter or drippings and the other seasonings and cooked gently until done. A few spoonfuls of liquid will be required for every quart of very juicy vegetables, and half a pint of liquid for drier vegetables. The stewpan is to be covered, only a slight opening being left for ventilation. All vegetables cooked in this manner should be cut up rather small either before or after the blanching.

LOSSES IN COOKING VEGETABLES.

In baking vegetables there is little loss of material except the water which is driven off by the heat. When vegetables are immersed in water, as in boiling, a greater or less loss of material is almost inevitable, the kind and amount of material extracted by the water depending upon such factors as the sort of water used, its temperature at the beginning and during the cooking period, the length of time the cooking is continued, and the condition of the vegetable, that is, whether pared, whole, or cut into small pieces.

INDIAN CORN.

(U. S. Farmers' Bulletin 559)

Indian corn is peculiarly an American product, being native to American soil. The ways of preparing it for human food are very numerous, and many of them, like the cereal itself, are of Indian origin.

COMPOSITION OF INDIAN CORN

The varieties of Indian corn are many, white and yellow types being very common, red not uncommon, and even blue and black corn being found in the southwestern United States. There is a widespread popular belief that the food value of these different sorts varies as greatly as their color, but this is not the case. White, yellow, red, blue, and black corn are very much alike in composition, and are therefore equally valuable as sources of nourishment. They vary somewhat, however, in flavor. The liking for one or another is a personal or local matter.

COMPARISON OF DIFFERENT PARTS OF THE KERNEL.

The percentage composition of Indian corn as given above is that of the whole kernel as distinguished from any of its parts. A grain of corn is complex in structure, and its different parts vary greatly in nutritive value. For our purpose here it may be considered to consist of skin, germ, and endosperm. The skin constitutes about 6 per cent of the whole weight of the kernel; the germ, which contains the embryo, from which under favorable conditions new life will spring, constitutes about 10 per cent; and the endosperm, which is the storehouse of food for the new life, constitutes about 84 per cent. Of the total amount of crude fiber in a kernel of corn, 51 per cent is in the skin; of the starch, 90 per cent is in the endosperm; and of the protein, 80 per cent is in the endosperm and 16 per cent in the germ; while of the fat, 65 per cent is in the germ.

A SPECIAL USE FOR CORN MEAL.

Corn meal, because of its lack of gluten, cannot be made into light and porous breads except by the addition of eggs or of wheat, rye, Graham, or gluten flour, or in some similar

way. The absence of gluten, which with water forms a sticky, tenacious mass, is responsible, however, for the fact that the meal retains much of its granular quality even after it has been mixed and heated with water. Dishes made with corn meal are likely to be more tender than those made with wheat, and the use of small amounts of corn meal in the making of such foods as waffles and doughnuts is to be recommended.

COOKING CORN MEAL.

A study of the modifications in methods of cooking which have been rendered necessary by changes in the composition of the meal was made at Teachers College, Columbia University, New York City, for the Office of Experiment Stations. The results of these investigations, which are still unpublished, may be summarized as follows: In general, 10 per cent more water is needed for the new-process meal than for the old-process, and where the large amount of water used renders the meal liable to sink (in breads, for example), the mixture of meal and water should be thoroughly heated before being used.

In experiments made in this office it was found that, when convenience as well as the final result is taken into consideration, it is best for almost every purpose to put the meal and cold water together and then heat them over boiling water in a double boiler. Except when very finely ground meals are used it is unnecessary to stir the mixture at any time, not even when the meal and water are put together. The conclusion has been reached, in fact, that in all cases—even those in which the liquid used is not water but either sweet or sour milk—the best results are obtained by heating the meal and liquid together without stirring. This applies to the making of cornmeal mush and also to more complicated dishes, such as breads.

PLENTY OF POTATOES

(U. S. Food Adminstration Food Leaflet No. 10)

They Are a Splendid Food. Excellent For Your Body. Delicious When Well Cooked.

WHAT THEY DO FOR YOUR BODY.

They are good fuel. They furnish starch which burns in your muscles to let you work, much as the gasoline burns in an automobile engine to make the car go.

One medium-sized potato gives you as much starch as two slices of bread. When you have potatoes for a meal you need less bread. Potatoes can save wheat.

They give you salts like other vegetables. You need the salts to build and renew all the parts of your body and to keep it in order.

POTATOES AT THEIR BEST.

One old king is said to have tested each cook before hiring him by asking him to boil a potato. Even the best potato can be spoiled by a poor cook.

TO BOIL THEM so that they will be "fit for a king," drop the unpeeled potatoes into boiling salted water and cook 20 to 30 minutes. Drain the water off at once. If they are cooked too long or allowed to stand in the water they get soggy.

If you peel the potatoes before cooking them you will waste time and potatoes both. You may throw away a sixth or even a quarter of the good part of the potato with the skins. Also, if the potatoes aren't covered up by the skins while cooking, some of the valuable material will soak out into the water. Even very small potatoes can be economically used, if they are boiled in their skins.

FOR BEST MASHED POTATOES. Peel the boiled potatoes, mash and beat until very light, adding salt, butter or oleomargarine and hot milk, a half cup of milk to six potatoes. If dinner is not ready to serve, pile lightly in a pan and set in the oven to brown.

POTATOES ARE GOOD IN BREADS. Get Farmers' Bulletin No. 807, "Bread and Bread Making in the Home," from the Department of Agriculture, Washington, D. C., to learn how to make potato yeast bread.

POTATOES ARE GOOD IN CAKE. They are often used in this way to keep the cake from drying out quickly. Mash the potatoes and beat up with milk until very light. You can use your usual cake recipe, substituting one cup of mashed potatoes for one-half cup of milk and one-half cup of flour.

POTATOES FOR YOUR MAIN DISH. Potatoes, left over or fresh, may be combined with cheese or nuts or meat or other material, often to make the main dish of a meal.

VEGETABLES FOR WINTER

(U. S. Food Administration Food Leaflet No. 9)

Everybody Needs Them—Grown People and Children, Too.

DON'T STOP USING THEM IN WINTER even if they are harder to get than in summer.

Doctors say that the tired-out feeling at the end of the winter—"spring fever"—often comes from a lack of fruits and vegetables in the winter diet. Keep the family well and make their meals pleasanter by using vegetables. Give them to children especially. Young children can digest them better if they are mashed and put through a sieve.

The salts or "mineral matter" that vegetables contain is one of your chief helps in keeping your body strong and well.

In every part of your body there are salts somewhat like table talt, but of many kinds—iron, lime and others. Your body won't work smoothly unless it has plenty of these salts, and the children can't build strong bodies without them. You must get them from your food. Vegetables and fruit are rich in them. Eat a variety so as to be sure to get all the kinds of salts you need.

The salts and other substances in vegetables also help prevent constipation. Keep yourself and your children well.

FRESH WINTER VEGETABLES.

These include cabbage, turnips, onions, carrots, potatoes, etc., which are always good simply cooked, stewed, boiled or baked, and served with a little butter or oleomargarine or a simple cream sauce. You waste valuable salts when you throw away the water in which you cook vegetables. Sometimes the flavor is not desirable, but if it is good, save the water for soup or gravy. Even better—cook them in as little water as possible so there is none left to drain off. Or bake or steam them.

Cabbage is one of the vegetables that is best simply cooked. It may be poor or it may be delicious, depending upon how you cook it. Don't boil it too long—20 or 30 minutes in salted water is long enough.

The winter vegetables are excellent, too, combined with meats to make savory stews.

CANNED VEGETABLES.

Often canned vegetables need only skillful seasoning to make them as good as fresh. Chopped onions or green peppers may add a good flavor. Of course, you will not use any canned vegetables about which there is a suspicion of spoilage.

Canned corn is very good when turned into a baking dish, milk and seasoning added, and the whole heated through in the oven and allowed to brown on top. Outside stalks of celery cut up, a green pepper, or both, added before baking, make the dish more appetizing.

DRIED VEGETABLES.

Do you use them? They are as good as canned or better. Dried beans and peas are well known. Besides these, you can dry all kinds yourself, especially if you have a garden and get them fresh. The only change that takes place is the loss of water. The salts and other valuable parts are the same as in the fresh. Farmers' Bulletin 841 tells how to dry vegetables.

To prepare dried vegetables for cooking first soak them for several hours or overnight so that they will take up the water lost in drying. Then cook them exactly as you would fresh ones—as a vegetable, in soups, or with meat. They make a good, economical addition to your winter meals.

VEGETABLES SAVE MEAT AND WHEAT.

Beans and peas have long been used in place of some meat. Like meat, they furnish protein which the body needs.

Potatoes and other starchy vegetables can save wheat. Use them in bread making or use less bread at the meals where such vegetables are served. Bread and starchy vegetables are both good sources of body fuel.

VARIETY AND FLAVOR IN YOUR MEALS.

VEGETABLES—GENERAL DIRECTIONS

Select fresh, crisp vegetables and prepare for cooking as soon as possible. They should be kept in a cool place. Turnips, carrots, parsnips and similiar roots may be kept plump and fresh by being put into boxes filled with earth or sand and kept in a cool place.

Wash vegetables in cold, cook in boiling water. Cook green or top-ground vegetables uncovered. Put in 1 teaspoon salt to each quart of water. White or underground vegetables are better when salt is added after cooking.

Soak dried peas, beans, lentils and dried fruits over night. Soak old potatoes in cold water 1 hour before cooking. Freshen wilted vegetables by putting on ice or in cold water to which a little borax is added.

Open canned goods 1 hour before using. Empty from can at once, drain in colander, pour cold water over and put in cool place.

To prevent odors from arising from cabbage, cauliflower, onions, turnips, cook rapidly uncovered or add a piece of charcoal.

The water in which cabbage or turnips have been boiled will be found excellent for cooking dried vegetables such as beans or lentils, macaroni or spaghetti.

Sprinkle a little salt on parsley when chopping; it will chop much finer and easier.

VEGETABLES

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RECIPES

Asparagus—This may be served as a vegetable hot, or as a salad cold with French dressing.

On Toast—Wash green asparagus, cut off the toughest part of the thick ends, tie in a bunch and boil gently 20 or 30 minutes in enough salted water to cover. If canned asparagus is used, drain off the water in the can, remove the stalks without breaking to a saucepan, cover with boiling salted water until heated through. Serve on buttered toast with melted butter or Hollandaise sauce.

Creamed—Cut up all the tender parts of a bunch of boiled asparagus. Boil down the water in which it has been cooked to 2/3 cupful, add 3 tbsp. cream, cook to a thick sauce, add ¼ teasp. salt, few grains paprika and pour over asparagus. Serve on squares of toast or in sauce dishes. This may be varied by adding a minced hard boiled egg to the sauce, or by laying a slice of tomato on the toast before pouring the creamed asparagus over.

Baked—Lay the tender parts of two bunches of cooked asparagus in a shallow casserole or baking pan. Put around and over them minced cooked ham. Pour over all 4 eggs, ¼ teasp. salt, ⅛ teasp. pepper, 4 tbsp. minced ham beaten together as for omelets. Bake until the eggs are lightly set, about 5 minutes. Serve at luncheon with mashed or stuffed potatoes, or watercress and fresh tomatoes.

Luncheon Asparagus with Vegetable Mayonnaise—Arrange 4 individual portions of buttered toast or fried bread on a long dish. Place on these cold cooked asparagus and pour over them a cold vegetable mayonnaise sauce made of ½ cupful shredded cooked vegetables, as carrots, turnips, green beans, mixed with 1 cup thick mayonnaise. Chill on ice until time to serve.

Artichokes—Cut the stalks close of 12 artichokes, clip sharp points from leaves, wash and lay in cold salted water for 20 minutes. Cook in boiling salted water about 45 minutes. They should be tender enough to draw out the leaves. Drain, serve hot with Hollandaise sauce or serve cold on lettuce leaves with a vinaegrette sauce of 6 tbsp. olive oil beaten with 1 tbsp. vinegar, salt, and red pepper, chopped parsley and chopped capers, or small pickles.

Beets—Select young fresh beets, old ones will never cook tender; wash, cut off leaves one inch from beets, cook in boiling water about 20 minutes. When done, skin, slice into a hot dish and pour over butter to which a little sugar has been added. Cover to keep hot till served.

Brussel Sprouts—Pick off all dark leaves, lay in salted water 15 minutes. Drain, cook in boiling water uncovered till tender. Drain, serve at once with a good cream sauce.

String Beans—1. Select them young and crisp, string, break in halves, boil about 1 hour in just enough water to cover. When tender and water nearly gone add pepper and salt, butter, and ½ cup cream. Simmer 3 minutes, serve on a hot dish. One or two slices of salt pork boiled with the beans add to the richness of their flavor, then omit the cream in the sauce.

2. Parboil 1 qt. green string beans 30 minutes; drain, add 2 tbsp. butter, 1 teasp. sugar, ½ teasp. salt, dash of pepper. Cook slowly 5 minutes, then add ¼ cup meat stock, ¼ cup water the beans were boiled in, ½ teasp. lemon juice. Simmer till tender.

Lima Beans—Soak all dried beans overnight and cook next day in boiling water for 40 minutes, or until tender. Add salt 10 minutes before done, drain, season with butter, salt, or a cream sauce, or cook a piece of salt pork with them.

Boston Baked Beans—Soak 1 lb. California pea beans overnight. Next morning simmer slowly in water to cover, add ¼ teasp. soda. When beans are swelled but not bursted lift out into clear hot water for a few minutes. Wash and score ½ lb. salt pork. Put into a hot earthen bean pot a layer of beans, the pork in the center, then fill up with beans. Dissolve in boiling water 1 tbsp. molasses, ¼ teasp. mustard, 1 teasp. salt. Pour over the beans and fill pot with boiling water. Bake slowly 5 or 6 hours. Keep beans almost covered with water until the last hour, then let water cook two-thirds away.

Frijoles con Queso—Boil 1 pt. red beans till soft and water boiled down; drain, turn into frying pan with 2 tbsp. butter, salt, cayenne, and ¼ lb. grated cheese. Stir until cheese thoroughly blends. Serve hot.

Kidney Bean Stew—Put on to stew 1 cup soaked red kidney beans with 1 pt. canned tomatoes, ⅛ teasp. pepper, 1 teasp. salt. Clean, cut up 1 small oxtail; add to the beans with water to cover. Simmer 3 hours, add a sprig of parsley the last half hour.

Bean Loaf—Mash fine 1 cup cooked beans, add 1½ cups bread crumbs, ¼ green pepper, minced, 1 cup cream or rich milk, 1 cup cooked tomatoes, few grains paprika, ¼ teasp. salt. Mix all together. Bake in buttered dish in moderate oven 1 hour. Serve hot or cold, sliced. If the green pepper is omitted, garnish with thin slices of pimiento.

Kidney Beans and Rice (with Brown Sauce)—Cook 1 pt. shelled beans in salted water until tender. Make a brown sauce of 2 tbsp. butter or beef suet browned, 1 tbsp. flour stirred in and browned, 2 cups beef stock added. Season with salt and pepper. When beans are done, add brown sauce and 1 cup cooked rice. Cook 1 minute. If gravy is used in place of stock, omit the butter. In food value this dish takes the place of both meat and potatoes.

The Soy Bean or "Togo Bean"—Soy beans are rich in protein and fat and lacking in starch, so should be cooked without fat pork and served at the same meal with a starchy vegetable, as rice, to make a balanced ration. Any recipe for dried beans may be used for Soy beans by omitting the fat pork.

Soy Bean Loaf—Pick over and mash 2 cupfuls Soy beans. Cover with water and let stand at least 12 hours. Drain. Cook in fresh water with ½ level teasp. salt until tender, longer than the 1 hour for navy beans. When done, drain, put aside the water for soup. Serve the beans plain with rice and spinach, or mash beans and cool for a loaf. Add 1 minced onion, a pinch of cayenne and black pepper, 2 cups toasted bread crumbs, 1½ cups milk. Mix well, fold in 2 well-beaten eggs. Bake in a flat buttered pan for 40 minutes, basting with ¼ cup milk. Brown, slice and serve hot with tomato sauce and boiled rice.

Lentil Croquettes—Soak and cook lentils as dried beans. Rub 1 cup soft cooked lentils through strainer to remove skins. Mix with 1 cup cooked rice, ½ cup milk, 1 beaten egg, a bit of sage and salt to taste. Form into croquettes, roll in beaten egg, then in bread crumbs. Moisten the tops with a little milk and bake in oven until brown.

Succotash—Put soaked lima beans on to boil. When almost done, add corn cut from the cobs. Have twice as much corn as beans. Boil together 20 minutes, until nearly dry, adding butter if the beans have not been boiled with salt pork. Season with pepper and salt, ½ cup rich milk. Simmer and stir 3 minutes. Serve.

Green Corn—Select fresh tender corn. Boil 15 minutes. Send to the table at once in a napkin or covered dish. Tender corn is often toughened by cooking too long.

Green Corn Pudding—Remove husks and silk from 1 dozen small ears of corn. Cut the kernels down fine and scrape cob. Turn the corn into ½ pt. hot milk, thickened with 1 tbsp. butter, 1 tbsp. flour, ½ teasp. sugar, ¼ teasp. salt. Add 1 or 2 beaten eggs. Stir well together. Pour into buttered baking dish. Bake in moderate oven 30 minutes. Sprinkle buttered crumbs over top and brown. Serve in baking dish.

Corn Oysters—To 1 pt. grated corn or canned corn mashed, add 1 or 2 eggs, 2 large grated crackers or ½ teacup flour. Beat well, season with salt and pepper. Drop by spoonfuls in hot fat. When brown, drain as fried oysters. Serve hot with jelly or maple syrup for breakfast, or for lunch with cold boiled ham.

Creamed Celery — Cut off the leaves, wash, scrape and cut into inch pieces 1 bunch of celery. The leaves may be used to flavor soup. Boil the celery in slightly salted water 30 minutes. When tender and water boiled down, add a white sauce, stir lightly, serve hot.

Carrots—Wash, scrape, cut in size preferred; boil 20 minutes if cut up small and serve with sauce as creamed celery. If cut in lengthwise pieces, boil 30 minutes and fry as parsnips.

Stuffed Cucumbers—Cut in half lengthwise 3 large cucumbers; scoop out centers. Fill with a bread or meat stuffing or one made of 3 chopped tomatoes, ½ cup minced ham, ½ cup soft bread crumbs, 1 small onion minced, 1 tbsp. Worcestershire sauce, 1 tbsp. olive oil. Pour 1 cup boiling water around the stuffed cucumbers. Bake 20 minutes, or simmer on top of stove until tender. Serve with a white sauce or a tomato sauce.

Cauliflower—Cut off all green leaves and coarse stalk. Cover with cold salted water 30 minutes. Drain in a cheesecloth, boil gently in salted water 20 minutes or till tender. Drain, pour over it a cream sauce. Serve hot with fried chicken.

Boiled Cabbage—Lay cabbage head down in salted cold water 15 minutes or more. Drain, trim off any unsightly leaves. Boil either whole, in quarters or chopped fine, in salted water; add pinch of soda. When tender, drain, chop fine if preferred. Serve with butter or vinegar or a cream sauce.

Cabbage is richer in flavor if cooked in water in which salt pork has been boiled. When done, mince the salt pork with the cabbage.

Sauce for Boiled Cabbage—1. Rub together 1 tbsp. flour, 1 tbsp. butter, 1 cup milk; stir, boil up once, add 1 teasp. salt, 1 saltsp. pepper. Pour over 2 qts. of finely chopped boiled cabbage.

2. Add to the above white sauce 2 chopped hard boiled eggs, 1 tbsp. grated cheese.

3. Beat together 1 or 2 egg yolks, 2 tbsp. sugar, 2 tbsp. vinegar, 1 teasp. butter, salt, cayenne pepper. Heat, stir until it boils, add 1 cup cream or rich milk, boil up, pour over hot boiled cabbage or raw minced cabbage.

Stuffed Cabbage—Parboil a firm head of cabbage. Cut out a piece of stalk at bottom, making a cavity to hold 1 cupful of stuffing. Tie the stuffed cabbage in cheesecloth. Cook for 1½ hours in salted boiling water. When done, dish, remove cloth, serve with a cream sauce poured over, with a sprinkling of cheese if liked.

Stuffing—1. 1 cup bread crumbs, ½ cup ground cooked ham or veal, a pinch of summer savory. Moisten all with melted butter.

2. 1 tbsp. minced fat salt pork, 1 tbsp. minced beef, 1 teasp. each minced onion and parsley, 1 teasp. salt, pinch of cayenne, 1 tbsp. creamed butter, 2 slices bread soaked in milk and 2 beaten egg yolks.

Slaw—Soak a cabbage head down in cold salted water, add 1 teasp. borax to make the leaves crisp. Drain, wash, chop fine and serve cold with a French dressing or thin mayonnaise, or cold with hot cabbage sauce No. 3 poured over.

Eggplant — Stuffed — Cut in two lengthwise, scrape out center, leaving a shell ½ inch thick. Mix with minced ham or veal, 2 tbsp. grated crumbs, 1 tbsp. butter, ½ minced onion, salt and pepper. Stuff. Top with lumps of butter. Bake 15 minutes.

Fried—Cut in slices, lay in salt water 2 hours. Wipe dry, season with pepper and salt, dip in yolk of egg, then bread crumbs, fry in hot fat till brown.

Fritters—Parboil, roll slices in fritter batter and fry; or parboil, mash, season, mix with a batter of 2 tbsp. flour, 1 teasp. butter and milk. Drop by spoonfuls in hot fat, brown, drain. Serve very hot.

Oyster Plant or Salsify—Scrape, throw into cold water. Cook in boiling salted water, add a little vinegar to keep them white. When done, drain, and either (1) mash, season with butter, lemon juice, salt and pepper, or (2) dip each piece in fritter batter and fry brown, or (3) cut into inch lengths, pour over it a white sauce.

Onions—Baked—Boil in salted water until almost tender, lift out, place in baking dish, top each onion with butter, bake in hot oven 10 or 15 minutes. When brown, serve in baking dish.

Creamed — Pour over boiled onions a white sauce.

Okra—Boiled Whole—Cut off stems, wash, cook in boiling salted water until tender. Drain. Turn into a saucepan with melted butter, salt, pepper, a little vinegar. Simmer 5 minutes.

Stewed with Tomatoes—Wash and slice okra. Stew with equal amount of tomatoes, 1 minced sweet pepper, 1 teasp. salt, 1 teasp. butter. Serve in hot dish or pour over hot boiled rice.

Green Peppers (Baked)—When stuffing green peppers for baking, if they are oiled first they will not turn brown. Wash 4 peppers, cut a slice off the top, remove seeds. Stuff (1) with a dressing similar to cabbage stuffing, or (2) with left over meat or fresh round steak ground. Put meat into the peppers in alternate layers with mashed potatoes or buttered boiled rice. Top each with butter. Cover, bake in moderate oven 30 minutes.

Parsnips—Wash, boil in salted water until tender. Skin, serve plain or mashed, season with butter, salt and pepper or a white sauce.

Fried—Parboil whole, skin, slice, sprinkle with sugar, salt and pepper. Brown in bacon fat or dip in fritter batter and brown in hot fat.

Green Peas—Boiled—Fresh green peas should be cooked soon after picked. Shell them, wash the pods, boil for 20 minutes. Take out the pods, add the peas and more water if needed to half cover. Add salt the last 10 minutes. When tender, use 1 tbsp. of the water with butter or cream and bit of sugar. Heat the peas in the sauce, serve at once.

Pea Souffle—4 tablespoons flour, 4 tablespoons fat, 1 cup skim milk, 1 cup mashed cooked peas (any kind), 3 eggs, 1 teaspoon salt, ¼ teaspoon pepper, few drops of onion juice.

Make a white sauce from flour, fat and milk. Mash the cooked peas to a pulp. Beat whites and yolks of eggs separately. Mix vegetable pulp, seasonings, sauce and well-beaten yolks. Fold in stiffly-beaten whites, put in greased baking dish and bake in slow oven until firm. Lima beans, split peas, cowpeas, or fresh or canned green peas may be used.

Fricasseed—Season fresh boiled peas with a white sauce. When ready to serve add yolks of 1 or 2 eggs in 1 tbsp. cream.

Creamed Canned Peas—Stir into 2 cups canned peas 1 cup rich milk thickened with 2 tbsp. flour, 1 tbsp. butter, ⅛ teasp. sugar, paprika. Simmer 5 minutes, stirring gently not to break the peas. Serve (1) hot on buttered toast, or (2) pour out on a dish, cool until set, then cover with a layer of strained seasoned tomatoes. Garnish with sliced hard boiled egg. This is nice with cold sliced meats.

Spinach — Select tender fresh-looking greens. Cut off roots, wash carefully through several waters. Cook in a very little water, cover and boil fast 15 minutes. Drain, chop fine, stir in a sauce of 1 tbsp. butter, 1 tbsp. cream, salt and pepper. Keep hot and arrange in hot serving dish. Garnish with sliced hard boiled egg.

Beet Tops, young turnip tops, dandelion greens and kale may be cooked in same way.

Spinach Loaf—You can make a small can of spinach, chard, or beet tops serve seven or eight people by making into a loaf combined with rice or bread crumbs. Asparagus or string beans are also good served this way.

One can chopped spinach, 4 cups boiled rice, 2 cups white sauce, 1 red pepper.

Make a thick white sauce of two cups skim milk, four tablespoons flour, four tablespoons oleomargarine and one teaspoon salt. Melt fat and mix with flour, add to milk and stir over fire until it thickens. Mix with the rice, chopped spinach and pepper. Form into a loaf and bake 20 or 30 minutes.

Spinach with Eggs — Mash yolks of several boiled eggs with salt, pepper, 1 teasp. butter. Mix with hot spinach and heap it on the white halves of eggs. Pour over all a sauce made of 2 cups milk, 1 tbsp. butter, 2 tbsp. flour, paprika, salt, ½ cup grated cheese. Set the dish in hot oven 5 minutes. Garnish with toast and serve.

Squash—Wash and pare squash, cut in quarters, boil or steam until tender. Drain in a cheesecloth, press out all water. Return to stove, beat in a piece of butter, salt and pepper. Serve at once.

Fried—To fry squash, wash, pare and slice in thick pieces. Sprinkle with salt, pepper, flour; brown in hot fat. Cook slowly, covered; serve hot.

Turnips—Pare turnips, boil 45 minutes in plenty of water, salted. When tender, drain, season plain or mashed, with salt, pepper, butter. If mashed they may be heaped into a mound on a baking dish. Sprinkle with grated cheese and brown in oven; or:

Boil turnips until tender, add cream and butter, salt, simmer 3 minutes, serve; or:

Cut boiled turnips in cubes and serve with white sauce.

Tomatoes (Raw)—To peel tomatoes for serving raw, dip in boiling water and remove at once to cool. Peel off the thin outer skin and return to ice box to chill before serving.

Broiled—Slice or cut tomato in half across the grain. Broil on very hot gridiron. When brown, turn, sprinkle with salt, pepper and butter and remove carefully to hot dish.

Stewed—(1) Slice and put on in very little water, add salt, pepper and butter. Cover pot and simmer 15 minutes. (2) To 1 can good tomatoes add 1 pinch soda, 1 small chopped onion, 2 tbsp. sugar, salt, pepper, 2 tbsp. bread crumbs. Cook slowly 45 minutes. Just before serving stir in 1 heaping teasp. butter.

Baked—(1) Plain: Cut a thin slice off the stem ends and arrange 6 tomatoes in a baking dish. Sprinkle with a mixed dressing of 2 tbsp. sugar, 2 tbsp. butter, 1/3 teasp. pepper, 1½ teasp. salt. Cover and simmer 5 minutes on top of stove. Dredge with flour, bake uncovered in hot oven. (2) Stuffed: Cut a slice off the ends of tomatoes, take out the seeds and mix with a seasoned rice dressing, or one of bread crumbs, butter and cheese, or ground meat seasoned. Stuff tomatoes and bake ½ hour.

Fried—Cut fresh tomatoes in halves or slices 1 inch thick; dip in fine bread crumbs seasoned with salt, pepper, and sugar. Brown quickly in hot butter or lard or bacon fat. Cook slowly; when tender, remove carefully without breaking. Serve hot. Tomatoes fried may be served with a cream gravy poured over or a white sauce cooked with 1 teasp. curry.

Scalloped—Use either fresh or canned tomatoes in alternate layers with bread crumbs, sprinkle each layer with salt, pepper, butter and sugar or with chopped onion or chopped green pepper.

Tomatoes with Eggs—Cut a slice off the end of each tomato, scoop out the seeds, slide a raw egg into the cavity, add ½ teasp. butter, salt, pepper and chopped parsley. Bake gently until egg is set, sprinkle with toasted bread crumbs. Serve on toast or fried bread.

Vegetable Cutlets—One cup cooked rice, 2 cups cooked beans, 1 cup mashed potatoes, 1 tablespoon oil or savory fat, 2 tablespoons onion, 2 tablespoons cornstarch, 1/3 cup tomato, ½ teaspoon salt.

Directions—Put the rice and beans through the meat chopper, mix with the potato thoroughly. Cook the onion in the fat, stir in the cornstarch and the tomato and salt. Combine the two mixtures, shape like cutlets and bake ½ hour in a quick oven, basting twice with fat or oil.

POTATOES

Potatoes—Potatoes are composed principally of starch and water. As they are lacking in protein they should be served with meat, fish or eggs. They give the necessary bulk to food.

New Potatoes—Scrape until white, wash in cold and cook in boiling salted water about 30 minutes; drain, shake dry over fire. Serve plain with butter, or pour over them a white sauce. This may be seasoned with chopped meat or parsley or grated cheese.

Old or Winter Potatoes (Boiled Plain)—Peel thin or scrape, soak in cold water, boil in salted water 45 minutes, or until they can be pierced with a fork; drain; or: Wash and boil with skins on; when done, drain, set back uncovered to steam dry, skin while hot. Serve plain with salt and butter or brush over with butter and brown quickly under oven flame.

Mashed—Boil 6 potatoes, drain, mash while hot and beat to a snow white stiffness with 2 tbsp. butter, 1 teasp. salt, rich milk enough to moisten. Serve at once on hot dish. Stiff whites of eggs or grated cheese beaten in last add to the lightness and richness of the potatoes.

Baked Mashed—Spread hot mashed potatoes in a mound or drop from a large spoon on a buttered fireproof dish. Lay on top a heavy layer of thin sliced or grated cheese. Heat in oven until cheese melts. Grate bread crumbs over and brown.

Potato Sausages—One cup mashed potatoes, 1 cup ground nuts, fish or meat, 1 egg, well beaten, 1½ teaspoons salt, ⅛ teaspoon pepper, salt pork, bacon or other fat.

Mix the mashed potatoes and seasonings with the ground nuts, fish or meat. Add beaten egg. Form into little cakes or sausages, roll in flour and place in greased pan with a small piece of fat or salt pork on each sausage. Bake in a fairly hot oven until brown.

Scalloped Potatoes and Cheese—Arrange a layer of sliced raw or boiled potatoes in greased baking dish and sprinkle with grated cheese and a little flour. Repeat until dish is nearly full. Pour milk over the whole, about ½ cup to every 3 potatoes. Skim milk is good. Bake in a moderate oven until done. The length of time required depends upon whether the potatoes are raw or boiled and whether the baking dish used is deep or shallow. Boiled potatoes baked in a shallow dish will take only 20 minutes. Raw potatoes in a deep dish may take as much as 1½ hours.

Baked Stuffed—Take 6 baked potatoes from oven when about done. Cut in two lengthwise or slice end off each without breaking skin and scoop out inside. Prepare as for mashed potatoes with 3 tbsp. butter, ½ teasp. salt, ⅛ teasp. pepper, 1 tbsp. chopped parsley, ⅓ cup hot milk. Return mixture to potato shells, brush with butter or egg and brown in oven.

French Fried Potatoes—Peel the raw potatoes, slice and lay in ice cold water 1 hour, put for a moment in hot water, drain, wipe dry, place in a frying basket or large strainer and lower it into deep hot fat for about 10 minutes. Lift out when brown, sprinkle salt over and serve at once.

Hashed Browned—Make a white sauce of 2 tbsp. cream, 1 teasp. flour, 1 teasp. salt, 1 teasp. minced parsley, pepper; add chopped cooked potatoes. Toss all together lightly then turn into a buttered pan and brown in oven, or turn into omelet pan; cook slowly 20 minutes, fold and serve like an omelet.

Lyonnaise Potatoes—Slice or dice 6 boiled potatoes; fry 2 sliced onions in hot drippings, turn the potatoes in with the onions and toss over with a fork until brown. Add 1 tbsp. minced parsley, cook 1 minute. Drain off any grease, serve.

Scalloped en Casserole—Pare and slice 4 potatoes, lay in cold water ½ hour, drain and parboil 5 minutes in salted water. Arrange in buttered baking dish or casserole in layers with seasonings of ½ teasp. salt, pepper, 1 tbsp. butter, 1 tbsp. bread crumbs. Pour over this any one of the following sauces and bake in hot oven about 15 minutes till done.

Sauce—1. Scalded milk to cover, seasoned if liked with few drops lemon juice.

2. A white sauce to which 2 tbsp. grated cheese or sliced hard boiled eggs have been added.

3. 1 cupful seasoned white stock.

Mashed Potato Tarts (with Peas and Carrots)—Line muffin pans with pastry, make a nest in each with mashed potatoes, brush over with butter and whites of egg, brown in oven, then fill with cooked peas and carrots, pour over them a little cream sauce. Serve.

Potato Cornmeal Muffins—Two tablespoons fat, 1 tablespoon sugar, 1 egg, well beaten, 1 cup milk, 1 cup mashed potatoes, 1 cup cornmeal, 4 teaspoons baking powder, 1 teaspoon salt.

Mix in order given. Bake 40 minutes in hot oven. This makes 12 muffins. They are delicious.

Potato Puffs—(1) Shape mashed potatoes while hot into balls size of an egg, brush over with beaten white of egg and brown in oven.

(2) 2 cups mashed potatoes, stir in 2 tbsp. melted butter. Beat to a white cream, add to this 1 or 2 stiffly beaten eggs, ½ teacup rich milk, salted. Beat well, pour in deep dish or drop into greased muffin rings arranged on a fireproof dish. Bake in quick oven till brown.

Potatoe Croquettes—Mash boiled potatoes while hot, fold them into a pan with 2 tbsp. melted butter, 2 tbsp. cream or rich milk, 1 teasp. chopped parsley, salt and pepper. Beat 1 or 2 egg yolks with 1 tbsp. milk and add to potatoes. Stir well over fire until mixture is set, then put aside to cool. Then shape into oblong croquettes, brush over with beaten egg white, bread crumbs, and drop into hot fat. When brown, drain, serve at once garnished with parsley.

Hungarian Potatoes—One quart cooked potatoes, 3 tablespoons fat, 1 tablespoon chopped onion, 2 tablespoons parsley, 2 cups tomatoes, 1 teaspoon salt, ¼ teaspoon paprika.

Brown onion slightly in fat and add to diced potatoes. Add remaining ingredients except parsley to potatoes and put in greased pan. Bake covered in a moderate oven 45 minutes. Sprinkle top with chopped parsley and serve.

Potato Loaf—Two cups mashed potatoes, 4 tablespoons minced onion, 2 tablespoons green pepper or pimento pepper, ½ cup canned tomatoes, 1 egg, 1 teaspoon salt, 1/3 cup ground peanuts.

Directions—Mix the ingredients well together. Turn the mixture into a buttered baking dish. Brush it over with melted butter or drippings. Bake it in a moderate oven for 25 minutes.

Belgian Baked Potatoes—Wash, pare and cut into pieces as for French fried potatoes. Lay potatoes on an oiled pan, season with salt and pepper and bake in a fairly hot oven until puffed, golden brown and mealy.

Potato Pudding (Uses No Wheat Flour)—One and a quarter cups mashed potatoes, 4 tablespoons fat, 2 eggs, well beaten, ½ cup milk, ¼ teaspoon salt, ½ lemon (juice and rind), 1 tablespoon sugar, ½ cup raisins and nut meats.

Boil potatoes, mash, and add fat, eggs, milk, lemon juice, grated peel and sugar. Beat all ingredients together and bake in greased dish ¾ hour or longer. Serve with top milk.

BAKED POTATO DON'TS

The Irishman claims that the only thing better than a good baked potato is two baked potatoes. Here are some baked potato don'ts:

Don't have your oven too hot.

Don't have different-sized potatoes.

Don't delay in getting them into the oven—they will not hurry when the time is short.

Don't fail to allow them from 45 minutes to an hour for a medium-sized (6 ounce) potato.

Don't select potatoes that are too big.

Don't put them into your oven dripping with cold water.

Don't plan to serve them as a second course in a dinner; it is difficult to get them just right—use them with the first course in a lunch or supper.

BOILED POTATO DO'S

Do select potatoes of uniform size.

Do wash and scrub thoroughly.

Do boil in the skin unless the potatoes are old and strong tasting.

Do soak the potato in cold water for several hours before cooking if it is old and shrunken.

Do remove the thinnest possible layer of skin if the potato must be pared, and drop it into cold water.

Do cook in boiling salted water till tender.

Do drain thoroughly and pare immediately.

Do see that all steam is driven off so that the potato is dry and mealy.

Ways of Preparing to Insure a Minimum of Loss

Baked—Convert into stuffed potatoes if desired.

Boiled in Skins—While still hot remove peeling, and brown whole in a small amount of savory fat (bacon fat or fat from meat lesson) or vegetable oil.

"Stewed" Potatoes—Cut pared potatoes in thin slices, barely cover with water and add salt and butter to season. Boil until slices are tender but still whole and just enough water left to make them juicy. No water should be poured off.

Sweet Potatoes—These may be prepared in ways similar to those given for white potatoes.

Scalloped Sweets (Southern Style)—Peel 3 large sweet potatoes, cut into ¼ inch slices. Put into a buttered baking dish in three layers. Sprinkle between each layer 1 tbsp. sugar and dots of butter. Pour in gently ½ cup boiled syrup made of ½ cup brown sugar, ½ teasp. butter, 1 tbsp. water. Bake in a covered dish in oven until potatoes are done and syrup has boiled down some. Uncover and brown. The potatoes will have a candied coating and some syrup. Serve in the baking dish.

Sweet Potato Ham Balls—Beat into a stiff mixture 2 cups mashed sweet potatoes, ½ cup toasted bread crumbs, 2 well-beaten eggs, 1 teasp. chopped parsley, salt and pepper. Mold pieces of the mixture around small balls of minced ham or cooked pork. Drop these croquettes into boiling water. Boil 15 minutes, giving the balls time to swell and cook to the center. Drain, sprinkle with buttered toasted crumbs. Serve.

Glazed Sweet Potatoes—Wash, pare, put at once into cold water or they will discolor, soak 1 hour. Cook in boiling salted water until about done. Drain, cut in halves lengthwise. Make a syrup by boiling ½ cup sugar, 4 tbsp. water, 1 tbsp. butter. Put potatoes in a buttered pan, brush with syrup, bake brown, basting with syrup. Serve with roast pork or veal.

Browned Sweet Potatoes—Boil medium-sized sweet potatoes 45 minutes. Peel them and cut in halves lengthwise. Put them in a baking pan and baste with drippings, and season with salt. Cook them in a hot oven for 20 minutes.

Candied Sweet Potatoes—Peel the potatoes and boil until about half done. Cut in lengthwise slices and lay in shallow greased pan. Pour over a syrup of half a cupful of crushed maple sugar, ¼ cup of boiling water and 2 tablespoons of fat. Place in a moderate oven and baste frequently with syrup until potatoes are done and well candied.

Vegetable Chowder—Here is a vegetable chowder that is good. It makes a substantial dish. Rice and okra may be substituted for potatoes and carrots or almost any vegetables may be used.

Four potatoes, 3 carrots, 3 onions, 1 pint canned tomatoes, 2 tablespoons fat or a piece of salt pork, 3 level tablespoons flour, 2 cups skim milk, 2 teaspoons salt.

Cut potatoes and carrots in small pieces, add enough water to cover, and cook for 20 minutes. Do not drain off the water. Brown the chopped onion in the fat for 5 minutes. Add this and the tomatoes to the vegetables. Heat to boiling, add 2 cups of skim milk, and thicken with flour. Celery tops or green peppers give good flavor, too.

Hominy—Wash 1 cup hominy, soak overnight in 1 qt. cold water. In morning drain and cook in boiling salted water several hours. Serve with butter.

Fried Hominy Crescents—Scald 1 cup milk, 1 cup white stock or water, 1 tbsp. butter, 1 bay leaf. Stir in 2/3 cup soaked hominy. Cook 1 hour. Remove bay leaf. Add beaten yolks of 1 or 2 eggs. Pour out on buttered pan to cool. Cut into crescents or shape round. Dip into the beaten whites of egg, then into bread crumbs and fry in deep hot fat. Drain, serve hot.

Rice—Rice is more than ¾ starch. Starch gives heat and strength to the body.

Rice should be washed thoroughly in cold water, boiled rapidly for 20 or 30 minutes. To 1 qt. boiling water add ½ cup washed rice, 1 teasp. salt. When rice is tender drain in a colander, pour boiling water over and shake until the kernels separate. Serve hot with butter or gravy.

For rice steamed in a double boiler use half the amount of water.

Rice with Curry—To ½ cup fresh boiled rice use ½ teasp. curry powder diluted in hot water and combined with 1 cup white sauce. Pour this over the hot drained rice and serve with mutton or veal.

Rice, Eggs and Bacon—Beat 1 or 2 eggs into 1 cup boiled rice. Turn this into a griddle in which bacon has been fried. Brown on one side, turn and brown on the other. Serve with slices of crisp hot bacon.

Scalloped Rice with Tomatoes—Heat 2 cupfuls tomatoes with ½ small minced onion, dash of pepper, ¼ teasp. salt, ¼ teasp. sugar. Into a buttered baking dish spread a layer of tomatoes followed by rice with a sprinkling of minced pimentoes and dots of butter. Repeat these layers, sprinkle the top with 2 tbsp. bread crumbs. Bake 30 minutes in oven.

Rice and Meat Drop Cakes—Mix 1 cup boiled rice with 1 cup ground or devilled ham or left over meat. Stir it into a batter made of 1 teasp. baking powder sifted with ¼ lb. flour, 1 teasp. shortening, ¼ pt. milk. Beat all together. Drop batter from a large spoon on to hot griddle. Brown on both sides. Serve hot.

Creamed Peanuts and Rice—One cup rice (uncooked), 2 cups chopped peanuts, ½ teaspoon paprika, 2 teaspoons salt. White Sauce—Three tablespoons flour, 3 tablespoons fat, 3 cups milk (whole or skim).

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

Calcutta Rice—Two cups rice, 2 cups tomatoes, ½ pound cheese, 1 tablespoon salt. Peppers and celery or onions may be added, if desired.

Boil rice. Mix it with tomatoes, grated cheese and seasonings, and pour into baking dish. Bake half an hour. If peppers or celery are used, cut up and boil with rice.

Boiled Macaroni or Spaghetti—Break macaroni into pieces. Cook ½ cupful macaroni with ½ teasp. salt in rapidly boiling water 20 minutes. Drain, save the water to add to soup if desired. Pour cold water over macaroni in colander. Reheat and serve plain with butter, tomato sauce or cheese.

Macaroni Baked with Cheese—Arrange a layer of boiled macaroni in buttered baking dish, sprinkle grated cheese over. Repeat until ½ cup of cheese is used. Pour over all 1 cup white sauce. Sprinkle top with buttered bread crumbs. Bake until brown.

The white sauce may be omitted. Add instead ½ cup of the water macaroni was boiled in and dot each layer with butter as well as cheese.

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Maltese Macaroni — To 2 cups of parboiled drained macaroni, add 1 cup meat stock. Cook slowly, covered, until stock is absorbed. Add 1 teasp. butter, 2 tbsp. grated cheese, few grains pepper, ¼ teasp. onion juice and French mustard. Mix well. Cover top with crumbs. Bake until brown.

Italian Sauces for Macaroni and Spaghetti—(1) Fry 4 slices chopped bacon, add thin slice onion, 2 cups fresh stewed tomatoes, ½ teasp. salt, few grains cayenne and black pepper, ¼ teasp. allspice, ½ small bay leaf. Simmer 4 minutes. Pour over hot boiled spaghetti or macaroni.

2. Mix 2 cups canned tomatoes, 1 chopped onion, 1 sweet pepper, minced, salt, ½ teasp. butter. Simmer 30 minutes. Beat into hot boiled spaghetti 1 cup grated cheese, then pour over it the tomato sauce.

3. **Peanut Butter Sauce**—Heat 2 cups milk, add gradually ¼ cup peanut butter, ½ teasp. salt. Stir until blended. Pour over the spaghetti. Bake slowly 30 minutes, top with bread crumbs and brown.

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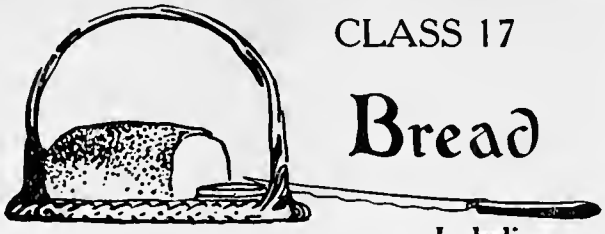

CLASS 17

Bread

Including
CEREAL FOODS

Care of Bread—Bread boxes should be thoroughly washed and scalded and dried over the fire before each new baking. When dry do not leave box open. Keep dry old rolls or bread in an earthen crock; they should be ground and used for crumbing, etc.

To Keep Bread Fresh—After baking bread let it cool, then put in paper bags and into bread jars.

To keep bread and butter fresh when cut, place in a cool place and cover closely with a clean cloth that has been wrung out of cold water.

To make old bread new, dampen it all over with milk, put in a hot oven about 20 minutes. It is better to do this the day before it is used.

When making bread boil 1 large potato until done, mash thoroughly and use along with the water it was boiled in. It makes lighter, finer bread, remains moist longer and makes one more loaf to each 3 qts. of flour.

The Importance of Good Bread—(Farmers' Bulletin 817, on "How to Select Foods")—Because bread is often really "the staff of life" it is very important to have it good. People's ideas may differ as to exactly how bread should taste or how it should be made, but in this country, all are agreed that yeast-raised bread should be light and spongy, with a crisp, tender, golden brown crust, and that it should be nutty and sweet in flavor. Heavy, soggy bread, when it is swallowed, forms tough lumps which the digestive organs cannot work upon properly, and, if eaten day after day, may do serious harm. Every housekeeper should try, therefore, to provide light, well-baked bread for her family.

Flour should be kept in a cool, dry place away from dust and also away from foods which have strong odors as flour absorbs flavors easily.

Yeast—(Farmers' Bulletin 807, on "Bread")—If yeast plants are well distributed throughout a mass of dough many bubbles with thin walls will be formed. If they are not well distributed there are likely to be no bubbles in some places and large bubbles with thick walls in others.

The kinds of yeast most commonly used are compressed, dry, and liquid yeast.

Compressed yeast is very convenient, for in this form the yeast plants are active and ready to begin their work. However, it is not easy to keep it long in good condition and so is commonly purchased fresh each time it is needed. When in good condition it is soft and yet brittle and is the same color throughout, a creamy white.

Dry yeast can be kept for a long time. It is, however, less active than compressed yeast, and for this reason is not convenient when the bread making must be hastened, but only in the long process or "sponge" method.

Liquid yeast, like compressed yeast, is in active condition. It is easily made at home, and in a cool place can be kept for about two weeks.

Milk—(Farmers' Bulletin 807, on "Bread")—Whole or skim milk may be substituted for part or all of the water used in making bread. It should be scalded thoroughly before use. When the long or overnight process is followed, it is well not to use milk in the sponge, for it is likely to turn sour.

Fat—(Farmers' Bulletin 807, on "Bread")—Fat, if used, may be butter, lard, beef fat, cottonseed oil, or any other of the ordinary fats used in cooking. It should, however, be wholesome, of good quality, and in good condition. Bread is so little improved by the addition of fat that it is a mistake to run the slightest risk of injuring its flavor by using fat of questionable quality.

Utensils—(Farmers' Bulletin 807, on "Bread")—The necessary utensils are mixing bowl, measuring spoons, measuring cup (of standard size, holding about half a pint), mixing spoon or knife, and baking pans. Utensils desirable under some circumstances, particularly when several loaves are to be made, are bread mixer for kneading, molding board, bread raiser, and bread rack.

Shaping the Loaves—When the dough has risen sufficiently, cut or tear it into the required number of loaves. Take each piece of dough in the hands and work it lightly in such a way as to stretch the underside, which is to become the top of the loaf. In forming the loaf, make no effort to fit it to the shape of the pan, for in rising it will fill out the corners. Strive merely to form it into an oblong piece with a smooth surface. (Same Bulletin.)

Baking—(Farmers' Bulletin 807, on "Bread")—Loaves made with 1 cupful of liquid each should be baked 50 minutes. They should begin to brown in about 15 minutes. After that time the temperature of the oven should be lowered so that the loaves will bake slowly. The temperature should be 400 or 425 F. to begin with, should be increased to 425 F., and then dropped gradually to about 380 F. The surest way to get these temperatures is by means of an oven thermometer or an oven gauge. In the absence of these the following test may be made: Put into the oven a small piece of white paper, a white cracker, or half a level teaspoon of flour spread in a layer ¼ or ⅛ inch thick on a tin plate. If it becomes a light golden brown in 5 minutes, the oven is about right in temperature to begin the baking.

If possible, pans should be so placed in the oven that the air will circulate around them. If they touch each other or the sides of the oven, the loaves will rise unevenly and be of unsightly shape. If the oven is crowded, it may be necessary to change the position of the pans occasionally to insure well-shaped loaves.

BREAD RECIPES

Proportions Used for Almost Every Kind of Simple Yeast-Raised Bread—(Farmers' Bulletin, 817, on "How to Select Foods")—1 cup liquid (water, milk, skim or whole, whey, or a mixture of two or more of them), 1 level teasp. salt, 1 level tbsp. sugar, 3 cups sifted flour (or a very little more or less), yeast (⅛ to ½ cake compressed yeast, depending on the length of time the dough is to stand. Liquid and dry yeast may be used, but the exact amount cannot be so easily stated); if more loaves are to be baked at one time, multiply the quantities given above by the number of loaves desired. (The above proportions are used for one loaf.)

Yeast-raised bread can be made using Graham, or the so-called whole wheat flour instead of the usual bread flour.

Short or Straight-Dough Process — (Farmers' Bulletin, 817, on "How to Select Foods")—Boil the water or scald the milk. Put the sugar and salt (and fat, if used) into a mixing bowl. Pour the hot liquid over it and allow it to become lukewarm. Mix the yeast with a little of the lukewarm liquid and add it to the rest of the liquid. If convenient, set this aside in a warm place, not over 86 F., for one hour; if not convenient to set aside, add the flour at once, putting in a little at a time and kneading until the dough is of such consistency that it sticks neither to the bowl nor to the hands. This requires about 10 minutes. Cover and allow to rise 1¾ hours at a temperature of 86 F.; it may be better to set it at a lower temperature, but the lower the temperature the longer the time required for the rising. Cut down the dough from

the sides of the bowl; grease the hands slightly. Knead a little and set aside to rise again for one hour. With a good bread flour, the dough would treble its bulk in each rising. With a soft wheat flour, it should not rise much beyond twice its volume. Divide into portions, mold, and place in greased pans. Allow to rise until a light touch will make a slight dent. Bake 50 minutes.

Short-Sponge Method (Same Bulletin)—Bread can be made during the day by what is known as the "short-sponge" method. All the ingredients are the same as for the "short or straight-dough" process, but only half of the flour is added at first. When this mixture, which is called a "sponge," is so light that it will fall at the slightest touch, it is ready for the addition of the rest of the flour.

Overnight Sponge Method—Use the same proportions as for the short process, except in the case of the yeast, which should be ⅛ cake of compressed yeast or 2 tbsp. of liquid yeast for each loaf. Use water rather than milk. In the evening mix the yeast with water, salt, and half of the flour, and beat thoroughly. Cover and place at a temperature of 65 to 70 F., or that of an ordinary room. In the morning add the sugar and the rest of the flour and proceed as in the case of the short process. (Same Bulletin.)

Overnight Straight-Dough Method (Same Bulletin)—Use the same ingredients as for the overnight sponge method, but put in all ingredients at night. If the following rules are observed, the bread is almost sure to be of good quality and to keep well:

(1) Keep everything clean, protect the flour from dust, and scald all liquid ingredients thoroughly.

(2) Keep the dough between 65 and 86 F., and do not allow it to stand longer than necessary.

(3) See that the dough, when placed in the oven, has three times the bulk of the dough when first made. Dough made with 1 cupful of liquid will reach the top of a 1½ qt. baking pan when it has tripled its bulk.

(4) Bake 45 to 60 minutes at about 400 F.

(5) Keep closely covered in a clean receptacle that is frequently scalded.

Ash Cake (Corn Bread)—(Farmers' Bulletin, 565, on "Corn-Meal")—1 qt. corn-meal, 2 teasp. salt, 1 tbsp. lard or other shortening, boiling water.

Scald the meal; add the salt and shortening, and when the mixture is cool form into oblong cakes, adding more water if necessary. Wrap the cakes in cabbage leaves or place one cabbage leaf under the cakes and one over them, and cover them with hot ashes.

South Carolina Yeast Corn Bread—(Farmers' Bulletin, 565, on "Corn-Meal"—1½ qts. fine corn-meal, 2½ qts. wheat flour, 2 teasp. salt, 1 pint mashed sweet potatoes, 1 cake yeast. Or: 2½ qts. fine corn-meal, 1½ qts. wheat flour, 2 teasp. salt, 1 pint mashed sweet potatoes, 1 cake yeast.

Mix 1 pint each of the corn-meal and the flour and add warm water enough to form a stiff batter. Add the yeast cake, mixed with a small amount of water. Keep this sponge in a warm place until it becomes light. Scald the meal with boiling water and as soon as it is cool enough add it to the sponge with the flour, potatoes, and salt. The dough should be just thick enough to knead without danger of its sticking to the board. Experience will teach how much water to use to secure this end. Knead well and put in a warm place to rise. When it is light form into loaves, put into bread pans, and let it rise until its volume is doubled. Bake in a moderate oven.

Apple Corn Bread (Same Bulletin)—2 cups white corn-meal, 2 tbsp. sugar, ¾ teasp. salt, 1 teasp. soda, 1 teasp. cream of tartar, 1 2/3 cups milk, 3 tart apples, pared and sliced.

Mix the dry ingredients, add the milk, and heat thoroughly. Add the apples. Pour into a well-buttered shallow pan and bake 30 minutes or longer in hot oven to soften the apples.

This could be made with dried apricots cooked in the usual manner by soaking and cooking slowly and adding a little sugar. The juice may be used as sauce.

This serves 6 or 8 people.

Sour Milk Corn Bread (Without Wheat)—(Same Bulletin)—2 cups corn-meal, 2 cups sour milk, 2 tbsp. butter, 2 tbsp. white or brown sugar, 1½ teasp. salt, 2 eggs, 1 teasp. soda, 1 tbsp. cold water.

There are two ways of mixing this bread. By the first the meal, milk, salt, butter, and sugar are cooked in a double boiler for about 10 minutes. When the mixture is cool, the eggs are added, well beaten, and the soda dissolved in the water. By the other method all the dry ingredients, including the soda, are mixed together, and then the sour milk and eggs, well beaten, and the butter are added. If the second method is followed, the cold water is not needed. The bread should be baked in a shallow iron or granite pan for about 30 minutes.

Since the bread made by the first method is of much better texture, that method is to be preferred, except in cases where there is not time for the necessary heating and cooling of the meal.

Buttermilk may be substituted for the sour milk, in which case the butter should be increased slightly; or sour cream may be used and the butter omitted.

This serves 6 people.

Corn-Meal and Hominy Bread (Without Wheat)—(Same Bulletin)—1 cup cooked hominy, 1 cup milk, 1 tbsp. melted butter, 1 cup white corn-meal, 2 eggs, 1½ teasp. salt.

Mix the ingredients and bake 30 minutes in a moderate oven.

This serves 6 people.

Boston Brown Bread—(Same Bulletin)—1 cup corn-meal, 1 cup rye-meal, 1 cup Graham flour, 2½ teasp. soda, 1 teasp. salt, ¾ cup molasses, 2 cups sour milk or 1¾ cups sweet milk.

Mix and sift the dry ingredients and add the molasses and milk. Beat thoroughly and steam 3½ hours in well-buttered covered molds. Remove the covers and bake the bread long enough to dry the top.

This may be made also with 1½ cups corn-meal and rye-meal and no Graham flour.

This serves 8 people.

Boston Brown Bread with Fruit—(Farmers' Bulletin, 565, on "Corn-Meal")—Follow the recipe for Boston Brown Bread, adding to the dry ingredients a cup of seeded and shredded raisins or prunes or a cup of Zante currants.

This serves 8 people.

Nut Bread—(Farmers' Bulletin, 807, on "Bread")—1 egg, 1 cup milk, ½ cup sugar, 3 cups flour, 3 teasp. baking powder, 1 teasp. salt, 1 cup English walnuts or pecan or hickory nut meats, cut into small pieces.

Sift together the flour, baking powder, salt, and sugar, and add the milk, the egg well beaten, and the nut meats. Place in a well-buttered pan and let rise one hour. Bake ¾ of an hour in a moderate oven.

Bran Bread—Combine 2½ pints flour, either white, whole wheat or Graham, and 1 cup sterilized bran. Dissolve 1/3 yeast cake, add 1¾ cups liquid (milk and potato water), 1 teasp. salt and 2 tbsp. molasses. Stir in the flour and knead well; let rise until light. Shape into loaves, let rise again, bake 45 minutes.

Raisin Bread—To 2 cups liquid, either milk, potato water or water, add ½ cake yeast dissolved in ¼ cup warm water, then add 2 tbsp. sugar, 2 teasp. salt, 2 tbsp. butter and 1 lb. raisins, and gradually add to 2 qts. sifted flour; knead well; let rise to double its size. Knead again, lightly and quickly, let rise again, then shape, put in oiled tins and when light bake in moderate oven.

Chopped nuts may be added if desired.

Virginia Egg Bread—Mix 1 pint corn-meal, 2 eggs, 1 tbsp. lard, ½ teasp. soda, 1 tbsp. sugar, 1 teasp. salt and enough buttermilk to make a thin batter. Put in greased pan, and bake in hot oven.

Batter Bread—Sift 2 cups corn-meal with 1 teasp. salt, and work in 1 tbsp. melted butter. Add 2 eggs, beaten light, to 1 qt. milk, and stir in the corn-meal. Bake in well-greased pie plates. Cut in squares, split open and butter. They should be eaten hot.

(Paste or Write Here Scraps or Memos. of Your Own)

STALE BREAD

(Farmers' Bulletin, 817, on "How to Select Foods")

DISCUSSION

It is generally admitted that more bread goes to waste in the average American home than almost any other kind of food. This happens mainly because many housekeepers do not know what to do with stale bread. Good fresh bread has a springy quality which disappears as it ages, probably because the water in it gradually passes from the center of the loaf out through the crust, leaving the bread drier and more crumbly. Many persons think bread is better when it has dried out a little, say for 24 hours, but almost everyone agrees that really stale bread is too dry to eat with enjoyment. Bread that has been cut grows stale more quickly than the uncut loaf, and unless the housekeeper plans very carefully, she is likely to find her bread box full of hard, dry slices and ends of loaves which are of no use on the table. To avoid this waste she may do two things: (1) Treat the bread so it shall not be unappetizing and (2) use the stale bread in cooking.

Toasting is the most common method for making stale or partly stale bread attractive, but it is by no means the only one. If partly stale bread is put into a very hot oven for a few minutes it grows softer, probably because the heat tends to drive the water from the crust back into the crumb. Such warmed-over bread is not as soft and springy as fresh, but some persons find it very appetizing. A good plan, therefore, when bread has lost its freshness, is to cut off what will be needed at a meal and place the slices in a hot oven for a few minutes just before serving. In this way bread can be used on the table which would ordinarily be considered too stale.

"Twice-baked Bread," which is cut bread placed in the warming oven, or in a pan on the back of the stove, and allowed to dry out very slowly until it is slightly brown and very crisp throughout, offers still another way of making stale bread attractive. If desired, this twice-baked bread may be crushed with a rolling pin and used like the ready-to-eat breakfast cereals; in some localities this dish has long been known under the name of rusks. The little fried cubes of bread called "croutons," which are served with soup, may be made with odds and ends of bread. To save time, bread simply broken into small pieces may be fried either in deep fat or in a pan (sauteed) and used for the same purpose. Sometimes bread crumbs are fried in a pan for use in a similar way as a seasoning or sauce for meat. French cooks frequently put pieces of stale bread in soups just long enough before serving for them to soften; the well-known one called "crust in the pot" (croute au pot) is simply a thin soup with bread in it.

There are many ways of using stale bread in cooking. Almost every good cook-book gives directions for preparing soft and dry crumbs for use in scalloped dishes, bread puddings, etc. The soft parts of the bread may be used in the place of flour or cornstarch for thickening soups, sauces, gravies, stewed tomatoes (either fresh or canned), etc. Bakers often use stale bread and dried, finely ground cake in place of part of the flour in making fancy breads, cakes, and cookies, and the housekeeper can often avoid waste by using them in this way in griddle-cakes, cakes, cookies, etc.

Stale crackers serve many of the same uses as stale bread. If they have lost their crispness, they, too, can usually be freshened by warming in the oven, and the fine crumbs may be used in the same way as dried bread crumbs.

The texture of stale cake and cookies is not so easily improved by heating, but they may be dried, crushed, and used like bread crumbs wherever their flavor and texture allow.

STALE BREAD RECIPES

Showing How Bread Crumbs May Be Used Instead of Flour in Various Dishes

Vegetable Skim Milk Soup—(Nearly all the materials used in this soup are those that are often thrown away—skim milk, the outside leaves of lettuce, and stale bread.)

One quart skim milk, 1 slice stale bread, 2 ozs. of the outer leaves of lettuce (6 large leaves), a few celery tips, or a thin slice onion, salt and pepper.

Chop the vegetables finely. A convenient way, particularly if the soup is being made in large quantities, is to use a food grinder and to put the bread through it with the vegetables to catch the juice. Cook the finely chopped vegetables and the bread in the milk in the double boiler for about 20 minutes. Season.

Bread and Cheese Fondue (Same Bulletin)—1 1/3 cups soft, stale crumbs, 6 ozs. cheese (1½ cups cheese grated fine or cut into small pieces), 4 eggs, 1 cup hot water or skim milk, ½ teaspoon salt.

Mix the water, bread crumbs, salt, and cheese; add the yolks thoroughly beaten; into this mixture cut and fold the whites of eggs beaten until stiff. Pour into a buttered baking dish and cook 30 minutes in a moderate oven. Serve at once.

Brown Bread made with Stale Bread—To 1½ cupfuls small pieces of stale bread add 1 pint cold water and soak overnight. Put through a sieve, add ¾ of a cup of molasses, 1½ cupfuls each of Graham flour, cornmeal and rye meal, 1½ teaspoons salt, 3 teaspoons soda, and 1¼ cup cold water. Prepare in usual way; steam 2 hours.

Crumb Gingerbread—One cupful molasses, ½ cup boiling water, 1 1/3 cupfuls fine bread crumbs, 2/3 cup flour, 1 teaspoonful soda, 1½ teaspoonfuls ginger, ½ teaspoonful salt, 4 teaspoonfuls melted lard or other fat.

Add water to molasses and combine with the dry ingredients mixed together, then add butter and heat. Bake for about 25 minutes in a hot oven.

Croustades of Bread—Cut stale bread into 4-inch slices, remove centers, leaving cases. Fry in deep fat and fill the centers with creamed fish, meat or vegetables.

Crumb Pancakes—One cupful crumbs, 2¼ cupfuls skim milk, ½ cup flour, 4 teaspoonfuls baking powder, 1 teaspoonful salt, 1 teaspoonful sugar, 1 teaspoonful melted fat, 1 egg.

Soak crumbs in milk for ¾ of an hour. Then add other ingredients and cook on a hot griddle like ordinary pancakes. If sour milk is used, substitute ½ teaspoon soda for the 4 teaspoons baking powder.

Crumb Cake—Sift 2 cupfuls flour, 1 teaspoon baking powder and 1 teaspoon mixed spices into a basin, rub in 1 lb. lard, add ¼ lb. currants, 1 lb. bread crumbs and ½ cup sugar and then add 1 beaten egg and enough milk to make a nice dough. Place in buttered tin and bake until a skewer will come out dry.

Bread Tartlettes with Breadcrumbs—Put 1 cup milk and 2 tablespoons butter into a saucepan, bring to a boil and pour over ¼ lb. white breadcrumbs; to this add 3 tablespoons sugar, 1 tablespoon lemon juice, 3 tablespoons currants and 2 beaten eggs. Line gem pans with pastry and put a spoonful of this mixture into each gem pan, and bake.

Indian Pudding Made with Crumbs—One cupful fine crumbs (corn bread or wheat bread), 1 quart skim milk, 1/3 cupful sugar, ¼ cup molasses, 2 tablespoonfuls melted butter or other fat, ¼ teaspoonful ginger, ¼ teaspoonful cloves, ¼ teaspoonful cinnamon.

Scald the crumbs in milk, add the other ingredients, and bake 1½ hours in a slow oven.

Toby Pudding—Cut stale bread into small pieces, put into a buttered mold and pour over it a jelly, heated; turn out of mold when firm and serve with whipped cream.

Royal Pudding—Whip 1 cup thick cream until stiff, then add the yolks of 3 eggs, ¼ teaspoon salt, 3 tablespoons sugar, 1 teaspoon vanilla extract and the whites of 3 eggs beaten stiff. Butter a mold and dust with browned bread crumbs, put in a layer of white breadcrumbs, then a layer of apricots and some of the mixture; repeat this until mold is full. Bake 30 minutes. Serve with whipped cream.

Marmalade Pudding—Mix well together ½ lb. breadcrumbs with 6 ozs. chopped suet, add juice of 1 lemon, 6 tablespoons orange marmalade, ½ cup milk, 2 well-beaten eggs and 3 ozs. of candied orange peel. Put in buttered mold and steam 3 hours.

Ham Timbales—Put 1 cup milk and 1 cup breadcrumbs into a saucepan, stir over the fire until a smooth paste is formed; add 1 cup chopped cooked ham, 3 tablespoons butter, salt and pepper to taste and stiffly beaten whites of 2 eggs; put into buttered molds not quite full, cover with buttered paper and place in pan that is half filled with hot water. Bake in moderate oven, until firm. When ready to serve, garnish with parsley and sliced hard boiled eggs.

Omelet with Breadcrumbs—Put 1 cup breadcrumbs and 1 tablespoon butter in a basin and pour over ½ cup hot milk. Add salt, pepper, 1 tablespoon chopped parsley and the yolks of 3 eggs well beaten, then the whites of the eggs beaten stiff. Pour into well-buttered omelet pan and cook until set and browned.

TOAST

Milk Toast—Toast stale bread until a golden brown, spread with butter while hot and dip into a small quantity of hot milk, seasoned to taste.

French Toast—Mix together 1 egg, ½ cup milk and a pinch of salt; beat a few minutes. Cut stale bread into slices, remove crusts, dip into mixture until soft; place on a shallow pan with plenty of butter in it; when butter is melted and very hot, fry on both sides; sprinkle with powdered sugar and serve hot.

Cinnamon Toast—Cut slightly stale bread ¼ inch thick, remove crusts and toast quickly so that it will be soft in the center; then spread with plenty of butter and sprinkle with a mixture of 1 teaspoon cinnamon and 1 cup powdered sugar.

Boston Brown Bread with Marmalade—Cut slightly stale Boston brown bread (with raisins if desired) into ½ inch thick slices, toast quickly in hot oven; spread with butter while hot and pile on marmalade. Serve hot.

This is a simple and delicious dish to serve with afternoon tea.

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Scraps or Memos.
of Your Own)**

U. S. FOOD ADMINISTRATION BREAD RECIPES

Using Barley, Rye, Rice and Potatoes

Barley Yeast Bread — Introductory statement: Bread may be made using wheat flour and barley flour in mixtures containing from 33 1-3 to 50 per cent. barley flour. The bread containing one-third barley flour is light, palatable, and of especially pleasant flavor. A larger percentage produces a heavier, darker bread of pronounced barley flavor. The manipulation for this bread is the same as for wheat bread. The conditions and time for baking are also the same. The loaf is smaller.

1 cup milk and water, or water (8 oz.), 1 tbsp. sugar (½ oz.), 1 tbsp. fat (½ oz.), 1 teasp. salt (¼ oz.), 1 1/6 cups barley flour (4 oz.), 2 1/3 cups wheat flour (9 1/3 oz.), ½ cake compressed yeast (¼ oz.).

Soften the yeast in part of the liquid. Combine ingredients. Mix into a dough. Knead and let rise to double original bulk. Knead again. Put in the pan, and when again double in bulk bake about 45 minutes.

Rye Yeast Bread—Introductory statements: Commercial rye breads are made of a mixture of wheat and rye flours, known in the trade as 50-50. Rye flour has much less expansion than wheat flour; hence the loaves are smaller. The manipulation is the same throughout as for wheat bread.

1 cup milk and water, or water (8 oz.), 1 tbsp. fat (½ oz.), 2 tbsp. sugar (1 oz.), 1 teasp. salt (¼ oz.), 2¼ cups rye flour (7 oz.), 2¼ cups wheat flour (9 oz.), ½ cake compressed yeast (¼ oz.), 2 tbsp. water (1 oz.).

Combine the ingredients. Mix into dough and knead. Let rise until double original bulk. Knead again. When again double bulk, bake about 45 minutes.

Rice Yeast Bread—Rice has many other uses, as in puddings, etc., and is much in demand among the allies. Therefore its use should not be stressed in connection with emergency breads.

Cooked rice, combined with wheat flour, makes delicious muffins and yeast bread. There are many ways of cooking the rice. The basic principles may be stated as follows: First, cook the rice so as to conserve all mineral matter and other soluble products.

Method: After the rice is thoroughly washed it should be put in a thick iron kettle or stoneware baking dish. cold water added so that the water stands ¾ of an inch to an inch clear above the rice. A heavy or weighted cover should be used to seal the dish. Cook slowly over direct heat or in the oven until all the water has been absorbed and the grains are soft and steam escapes from the vessel. This is the Japanese method. The second method, more frequently used in the United States, is to use a very large amount of boiling water to a small amount of rice, the rice being added slowly enough not to stop the boiling. The water is boiled briskly 20 minutes, or until the kernels are tender. Then it is drained in a colander or strainer, set on the back of the stove, or put in a slightly warm oven or in a pan over hot water, to dry off a bit. There results a fluffy mass of large, plump grains, each perfectly distinct in itself, instead of the gummy mush so often served as boiled rice.

The rice yeast bread is very white in color, is moister that wheat bread, and keeps moist longer. It is handled in much the same manner as wheat bread. The first dough, however, is much stiffer, and after once rising the light dough is so soft that it cannot be kneaded with the hands. It should be well stirred with a strong spoon and placed in the pans, looking much like a stiff drop batter. After baking, the upper crust is less smooth than that of our familiar wheat flour loaf.

Proportions and directions: These amounts make two or three small loaves of bread.

Rice Yeast Bread—½ cup milk and water, or water (4 oz.), 4 tbsp. sugar (2 oz.), 4 tbsp. fat (2 oz.), 1½ teasp. salt (⅜ oz.), 7 cups boiled rice, 8 cups flour (32 oz.), ½ cake compressed yeast (¼ oz.), ¼ cup warm water (2 oz.).

Scald liquid if milk is used. Pour over fat, sugar, and salt. Cool and add yeast, moistened in ¼ cup warm water. Add rice and flour and knead. After second rising, bake 45 minutes.

Potato Yeast Bread—Introductory statements: Boiled potatoes, mashed and combined with wheat flour, may be used in making a bread of good flavor and texture. The potato bread is slightly darker in color than patent flour bread and is also somewhat more moist. It is relished by persons who do not care for any but so-called "white bread." Two manipulations are satisfactory. Either all the flour may be added in the first mixture, making a dough which is very stiff and difficult to knead, or a part of the flour may be reserved and added with the second kneading. In either case, the dough is soft at the second handling, but after baking it produces a satisfactory loaf.

The following amounts make 3 loaves of bread:

Potato Yeast Bread—½ cup milk and water, or water (4 oz.), 4 tbsp. sugar (2 oz.), 4 tbsp. fat (2 oz.), 1½ teasp. salt (⅜ oz.), 4 cups boiled potatoes, 8 cups flour (32 oz.), ½ cake compressed yeast (¼ oz.), ¼ cup warm water (2 oz.).

FOOD ADMINISTRATION OATMEAL RECIPES

Oatmeal Muffins—(1) ½ cup milk (4 oz.), 1 cup cooked oatmeal or rolled oats, 1 egg (2 oz.), 2 tbsp. fat (1 oz.), 1½ cups flour (6 oz.), 2 tbsp. sugar (1 oz.), ½ teasp. salt (⅛ oz.), 4 teasp. baking powder (½ oz.).

Cook oatmeal, using one part oatmeal to two parts water. A larger proportion of water makes too soft a mush and gummy muffins. Mix milk, oatmeal, egg, and melted fat. Add dry ingredients after sifting them together. Bake 25 to 30 minutes. This makes 10 to 12 muffins.

Oatmeal Muffins—(2.) 1½ cups milk (12 oz.), 2 eggs (4 oz.), 2 tbsp. fat (1 oz.), 2 tbsp. sugar (1 oz.), 1 teasp. salt (½ oz.), 2 cups rolled oats (5½ oz.), 1 cup flour (4 oz.), 4 teasp. baking powder (1 oz.).

Pour milk over oats and let soak ½ hour. Add eggs and melted fat. Add to dry ingredients, which have been sifted together. Bake 25 to 30 minutes. This makes 10 to 12 muffins.

FOOD ADMINISTRATION CORN AND OAT MEAL YEAST BREAD RECIPES

Proportions and Directions:—All proportions are for one loaf. The amount of yeast provides for a very short process—3½ to 4 hours. One-half the yeast suggested will make bread in 5 hours.

One cake of dry yeast used as a starter should produce yeast for 6 loaves. In all cases the amount of liquid should be equal to that added with the compressed yeast in the recipe given.

Corn-Meal Yeast Bread—(1 loaf); 1¼ cups milk and water, or water (10 oz.), 2 tbsp. sugar (1 oz.), 1 tbsp. fat (½ oz.), 2 teasp. salt (½ oz.), 2/3 cup corn-meal (31/3 oz.), 2 1/3 cups flour (9 1/3 oz.), ½ cake compressed yeast (¼ oz.), ¼ cup warm water (2 oz.).

Add sugar, fat, and salt to liquid and bring to boiling point. Add corn-meal slowly, stirring constantly until all is added. Remove from fire, cool mixture, and add compressed yeast softened in ¼ cup warm water. Add 2 1/3 cups flour and knead. Let rise until about double its bulk, knead again, and put in the pan. When light, bake in a moderate oven for at least one hour.

In mixing the dough, the flour and corn-meal are to be used as separate ingredients, because the corn-meal must be scalded, or a grainy bread results. When the corn-meal mixture is removed from the stove, the housewife will doubt her ability to add the amount of flour called for. The flour will work in, as required, but a stiffer, stickier dough than that to which she is accustomed will result.

Oatmeal Yeast Bread—(1 loaf); 1 cup milk and water, or water (8 oz.), 1 teasp. salt (¼ oz.), 1 tbsp. fat (½ oz.), 2 tbsp. sugar (1 oz.), 1 cup rolled oats (2¾ oz.), 2½ cups wheat flour (10 oz.), ½ cake compressed yeast (¼ oz.), ¼ cup warm water (2 oz.).

Scald liquid and pour it over the rolled oats, sugar, salt, and fat. Let stand until lukewarm (about half an hour). Add yeast, softened in warm water. Add flour and knead. Let rise until double its bulk. Knead again and place in pan. When light, bake in a moderate oven from 45 to 60 minutes.

FOOD ADMINISTRATION CORN-MEAL RECIPES

All measurements are level, and flour is measured after sifting. Proportions are for Minnesota flour.

Corn-Meal Griddle Cakes or Waffles—1. 1 cup milk (8 oz.), ¾ cup flour (3 oz.), ¾ cup corn-meal (3¾ oz.), 2 teasp. baking powder (¼ oz.), ½ teasp. salt (⅛ oz.), 1 egg (2 oz.).

Add beaten egg to milk and add to dry materials, well mixed.

Corn-Meal Griddle Cakes or Waffles—2. 1 cup sour milk (8 oz.), ¾ cup flour (3 oz.), ¾ cup corn-meal (3¾ oz.), ½ teasp. soda (1/14 oz.), 1 teasp. baking powder (⅛ oz.), ½ teasp. salt (⅛ oz.), 1 egg (2 oz.).

Corn-Meal Muffins—1. 1 cup milk or water (8 oz.), 1 1/3 cups flour (5 1/3 oz.), 2/3 cup corn-meal (3 1/3 oz.), 1 to 2 tbsp. fat (½ -1 oz.), 1 to 2 tbsp. sugar (½-1 oz.), 1 egg (2 oz.), 4 teasp. baking powder (½ oz.), ½ teasp. salt (⅛ oz.).

Method—1. Mix milk, egg and melted fat, and add dry ingredients; mix well together.

Method—2. Scald corn-meal with the hot milk; add egg, melted fat, and dry ingredients.

Corn-Meal Muffins—2. 1 cup sour milk (8 oz.), 1 1/3 cups flour (5 1/3 oz.), 2/3 cups corn-meal (3 1/3 oz.), 1 to 2 tbsp. fat (½-1 oz.) 1 to 2 tbsp. sugar (½-1 oz.), 1 egg (2 oz.), ½ teasp.

soda (1/14 oz.), 2 teasp. baking powder (¼ oz.) ½ teasp. salt (⅛ oz.).

Combine as in corn-meal muffins 1, method 1.

Indian Pudding—¾ cup cornmeal (3¼ oz.), 1 qt. milk (32 oz.), 1½ teasp. salt (⅜ oz.), 3 tbsp. sugar (1½ oz.), or 1/3 cup molasses (4½ oz.).

Heat the milk. Sift in the corn-meal as in making mush. Add salt and sugar. Turn into buttered baking dish, put dish in pan of water, and bake very slowly 2½ to 3 hours. Serve with hardsauce, cream, or crushed fruit.

(Paste or Write Here Scraps or Memos. of Your Own)

CEREAL FOODS

(From "How to Select Foods," U. S. Department of Agriculture)

Where economy is especially needed cereals (the lower-priced ones, of course) should be used as freely as they can be without making the diet one-sided. In this they differ from such higher-priced foods as milk, meat, fruits, and vegetables, which, in case of need, must be cut down so far as they safely can be. To encourage the use of cereals housekeepers should—

(a) Provide the very best of bread; that is, bread that is well flavored, light, of good texture, and well baked.

(b) Take particular pains in cooking and salting the lower-priced breakfast cereals. The same rule applies to such foods as hominy, boiled rice, or macaroni, commonly served with meat or other protein-rich food at luncheon, dinner, or supper.

(c) Remember that, though large quantities of cereal foods may not seem attractive if served alone, they may be very appetizing if combined with small amounts of more highly flavored or seasoned foods. A well-seasoned soup may lead to the eating of a large quantity of bread. A little savory meat or fish (salted or smoked), or a small quantity of cheese, may be used to flavor a fairly large dish of rice or macaroni.

This bulletin discusses the way in which cereal foods may be wisely used in the diet.

The term "cereal foods" may mean: (1) The kernels of corn, oats, rice, rye, wheat, etc.; (2) the flours, meals, breakfast foods, starches, etc., manufactured from them; or (3) bread, crackers, cakes, pastry, etc., in which they form an important part. It will be easier to understand their use in the diet if these three general forms are borne in mind.

Kind of Cereals—The most common cereals are wheat, rye, corn, oats, and rice. They differ somewhat in appearance, taste, and food value, but all have many features in common.

The most abundant food material in cereals is starch, which serves the body as fuel. This makes up nearly three-quarters of most grains. The next most abundant material is protein, which supplies nitrogen for tissue building. This makes up about one-eighth of the grain. There is also a little fat, particularly in corn and oats; it is found chiefly in the germ. Another important material is the "roughage" or cellulose, which is most abundant in the skin of the grain and which gives bulk to the diet. The kernels also contain actually small, but relatively high, proportions of mineral matters needed for body building and other purposes and other substances very important for regulating body processes.

The protein is not alike in all kinds of cereals. Part of that in wheat is a tough, elastic sort, called gluten. It is because of this gluten, which can be expanded into air bubbles, that light, porous bread can be made from wheat. Rye is most like wheat in the character of its gluten, though light, porous bread can not be made from it alone. Barley, buckwheat, corn, oats, and rice are so lacking in gluten that they cannot be raised by yeast.

Prepared Cereals—By prepared cereals are meant such manufactured goods as flours and meals, cracked wheat, steamed and rolled oats, puffed or flaked grains of all kinds, macaroni and other pastes, cornstarch, etc. They may or may not contain all of the original grain, and for this reason they differ more widely than the grains themselves in appearance, composition and flavor. The cooking which some of them undergo during manufacture also causes changes. Of course, unless something is added to them, they contain no food material not present in the grains from which they are made.

Prepared cereals differ so much in form that their appearance gives little idea of the amount of nourishment they yield. For instance, the amount of flour which will fill a cup weighs 4 ounces; that of rice 8 or 9ounces; and that of flaked breakfast cereal, hardly half an ounce; and it is this weight rather than bulk or volume which indicates food value. Such differences in weight and volume must be remembered by those who wish to buy their food as cheaply as possible. Some breakfast foods retail at 48 cents a pound (15 cents for a 5-ounce package); others cost 5 or 6 cents a pound. The cheapest ones are usually those sold in bulk. The housekeeper, by grinding her own wheat, can get a cereal breakfast food for a still smaller sum. When wheat sells for $2 a bushel the cost per pound is between 3 and 4 cents. This wheat can be prepared by washing, drying, and then grinding in an ordinary coffee mill.

One of the important differences between these preparations depends on whether or not any of the outer coating of the kernel has been left in. This coating consists mainly of bulky cellulose, but it also contains a large part of the important tissue-forming mineral compounds and body-regulating substances found in the grain. When the bran is left in, the preparation is more bulky and contains more of some food elements. On the other hand, it does not always keep as well and (in the case of flour) does not make as light bread, and is not so thoroughly digested. Evidently, then, the choice of cereal foods should depend on the purpose they are to serve. If bread or breakfast cereals are used as the chief part of a meal or of a diet which does not include much of vegetables, fruits, milk and eggs, and which, therefore, may be lacking in bulk and mineral salts, it is well to choose the bran-containing preparations. This should be especially remembered in considering the diet of children, for they need more body-building mineral compounds and body-regulating substances than adults. If, on the other hand, the diet in general is varied and if flour is to be used for cakes, pastry, and general cooking, white flour is more useful than coarser whole wheat or Graham flour.

Dishes Made of Cereals—These include porridge and cereal mush, breads, cakes, puddings, pies, etc. There are even greater differences among this group of cereal foods as they appear on the table than among those from which they are prepared, because they are made in so many different ways and combined with so many different things. The cooking has made them pleasanter to eat. It is commonly believed that they are more readily digested cooked than raw.

Ordinarily more or less water or some other liquid is added in cooking cereals, and the water that they thus take up makes them much bulkier and at the same time more dilute. One cupful of uncooked oatmeal or rice, for instance, cooked with three cupfuls of water gives over four cupfuls when boiled, but the water, which chiefly causes the difference, does not give to the entire four cupfuls any more body fuel or building material than was in the original cupful. Hence we must not judge the food value of cooked cereals merely by the size of the finished dish, but must remember that the raw food material has been diluted, so that a cupful cooked may have only a quarter the food value of a cupful of the raw grain. The body-building protein, which makes up about one-eighth of the raw grain, makes up only about one-fiftieth of the weight of cooked porridge.

If the cereal were cooked in skim milk, which itself is rich in protein, this valuable material would be taken up by the cereal and the cooked dish would be by that much more nutritious than if cooked in water. A cupful of rice cooked slowly in a double boiler can be made to take up six cupfuls of skim milk, and the amount of tissue-building material the cooked dish contains is about four times as great as that of the rice alone.

In the same way the total food value of bread, cakes, etc., depends on all the materials from which they are made. If bread is mixed with water, its food value is about like that of the flour which goes into the loaf, for little besides water is added, and almost nothing is taken away in making the bread. Measured pound for pound, the bread has a

lower food value than the flour, because it is moister, owing to the water added in mixing the dough. If skim milk is used in the place of water in mixing bread, this makes the bread richer in body-building material. If a little sugar and fat are added, these make it more useful as body fuel. A cake made with two eggs provides more body-building material than one made with one egg, and if nuts and raisins are added, these add to the food value as well as to the flavor.

How Much Cereal Food Should be Used?—Cereal food of one kind or another forms a large part of almost every wholesomeand economical diet. As a general rule, the greater the part played by cereals the cheaper the diet. Up to a certain point one may cut down the quantity of meat, etc., eggs, butter, sugar, fruits, and vegetables used and substitute cereal foods, but there is a limit beyond which this can not be safely done.

Breakfast Cereals—Next to their use in bread, cakes, etc., in this country, the most common way of using the cereals for food is in the form of the so-called breakfast foods. Sometimes, as in the case of rice, cracked wheat, and old-fashioned or "Scotch" oatmeal, the grains are simply husked and perhaps slightly crushed before being cooked. Sometimes meals are used, as in corn meal mush. Sometimes the grains are ground rather finely and the outside parts sifted out, as in farina. In other cases, as in the rolled-oat preparations, the grain is cleaned, partially cooked by steam, and then run between rollers, which flatten it out. In still other preparations the partly cooked cereal is ground into fine, granular form, or pressed into thin flakes which are baked crisp, or the whole grains are cooked under pressure so that they puff or pop up somewhat as does popped corn, which may be used as a breakfast cereal as well as in other ways. Many of the devices used in preparing such breakfast foods are patented, and the products are often sold under proprietary names which may or may not suggest how the grains have been treated. What with all these methods of preparations, the list of varieties on the market is a long one, and the range of cost is great, especially when judged by the amount of food material actually supplied by a given quantity. All are wholesome foods.

As has been shown, one can not judge the real cheapness or dearness of different kinds merely by the price paid for a package of a given size. Housekeepers who wish to be economical should note the net weight, which the law now requires to be marked on every package, and from this and the price reckon how much it costs per pound of material. They will find that, judged in this way, the simple flours and meals and the uncooked cereals (cracked wheat, coarse hominy or samp, unsteamed oatmeal, etc.) are usually the cheapest. When a preparation (steam-cooked oats, for example) can be bought either in package or in bulk, the cost of the package goods is usually, and quite justly, a little higher. Each housekeeper must decide for herself whether the greater convenience and attractiveness of the package goods is worth the difference in cost. The larger her family is, and the more good storage space she has, the greater will probably be the advantage of buying in bulk. If she decides to do this, she should be careful to get cereals which have been kept in clean, closed bins or bags and to keep them as carefully after they reach her home.

Plain, uncooked cereals (cracked wheat, coarse hominy or samp, unsteamed oatmeal, etc.) usually cost less than the partially cooked preparations and the partially cooked ones less than the ready-to-eat kinds, as seems reasonable since fuel and labor are used in the factory where they are made. More or less fuel and labor are also needed to prepare cereals in the home, and a wise housekeeper reckons with these in deciding which kind is most truly economical in her own case. The coarse, uncooked ones need longer cooking than the partially cooked kinds, while the ready-to-eat kinds need no cooking, or only enough to make them warm and crisp. In a household where a coal fire is kept in the range all day no more fuel and not much more work are required for the long, slow cooking of cracked wheat or "Scotch" oatmeal than for factory cooked brands; or where a fireless

cooker is used such cereals may be easily and cheaply cooked. Where gas, electricity, or liquid fuel is used, and it is a matter of economy to plan for as short a use of the stove as possible, it may be cheaper to use steam cooked ones. In light housekeeping the convenience of the ready-to-eat preparations often more than compensates for their high cost. The pleasant variety given by the use of cereals manufactured in the more elaborate ways may seem to the housekeeper to be worth a few cents extra. It is worth remembering, however, that bread and milk, rusks and milk, and crackers and milk all have much the same food value as breakfast foods and milk, and often furnish a convenient and inexpensive variety.

There are several practical points to remember in cooking cereals. One is that there is more danger of not cooking them enough than of cooking them too much. Uncooked cereal preparations, like cracked wheat and coarse samp, need several hours' cooking, and are often improved by being left on the back of the stove or in the fireless cooker overnight. Cereals partially cooked at the factory, such as the rolled or fine granular preparations, should be cooked fully as long as the directions on the package suggest.

Flavoring is also an important part of cooking cereals. The flavor most commonly added is salt. Such added flavor is perhaps less necessary in some of the ready-to-eat kinds which have been browned at the factory and have thus gained the pleasant flavor which also appears in the crust of bread and cake or in toast, but in the plain boiled cereals or mushes the careful use of salt in cooking them may make all the difference between an appetizing and an unpalatable dish. A good general rule is 1 level teaspoonful of salt to each quart of water used in cooking the cereal.

Milk, cream, butter, sugar, or syrup are often added to breakfast cereals when they are eaten and make them more palatable to most persons. The materials also add to the food value of the whole dish.

Cereal Left-Overs—Remnants of cereal breakfast foods may often be utilized to make palatable dishes, to thicken soups or other foods, and in similar ways. For instance, small quantities of cooked cereal left over from a meal can be molded in cups and reheated for later use by setting the cups in boiling water. Another way to economize cereal mushes is to add hot water to any mush left over so as to make it very thin. It can then easily be added to a new supply. The practice of frying the left-overs of boiled hominy or of corn meal mush is as old as the settlement of this country, and the nursery song about the "bag pudding the queen did make" from King Arthur's barley meal shows us that for centuries other cereal puddings have been treated in the same way. In so-called oatmeal oysters, left-over cereal is dipped in eggs and crumbs and fried. The use of left-over rice and other cereals in croquettes, puddings, and so on is too well known to need more than mention.

Cold Cooked Farina or similar cereal may be utilized in the following ways: The second recipe is less economical because of the use of egg and more milk.

Farina Pudding No. 1—One cup cold, cooked farina, ½ cup milk, 1/3 cup sugar, ½ cup seeded raisins, ⅛ teaspoon cinnamon, a speck of ground cloves.

Bake until brown, or heat on top of the stove.

No. 2—One cup cold, cooked farina, 1 tablespoon cornstarch, 1 egg, 1 cup milk, 1/3 cup sugar, ½ cup seeded raisins, ⅛ teaspoon cinnamon, a speck of ground cloves.

Bake in a medium oven until brown, or heat on top of the stove. Dried figs or dates or stewed fruit may be substituted for the raisins in either of these puddings.

Boiled Rice and Pearl Barley are often used in soup, and there is no reason why small quantities of coarse samp or any other cereal which will keep its shape fairly well, should not be used up in the same way. Similarly, remnants of macaroni broken into small pieces may be used in the place of vermicelli or other special soup pastes. Such practices serve

the double purpose of using material which would otherwise be wasted and of giving a little variety to a simple diet by inexpensive means.

Home Ground Wheat Cereal—In many places good, clean, whole wheat can be obtained quite as easily and cheaply as the common cereal preparations. It is possible to grind this in a mill like an ordinary coffee grinder so that it is as fine as old-fashioned cracked wheat, or even to a meal fine enough for bread making. When coarsely ground, such home-ground wheat makes an excellent breakfast cereal. Bread can be made entirely of the home-ground meal, but it is lighter and more delicate in flavor if half ordinary flour and half wheat meal are used. Grinding the grain, of course, takes time, and such home products are not recommended to take the place of others entirely. Occasionally, however, and especially when bran is needed in the diet they may furnish a wholesome variety at low cost.

If other cereals cost less than wheat flour, the cost of bread may be lessened by using some of them in place of part of the flour. It has been found that good yeast bread can be made with corn meal, rice, oatmeal, potatoes, etc., in place of at least one-third of the flour.

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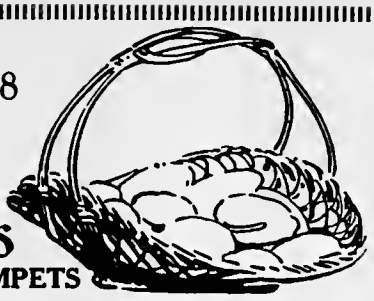
CLASS 18



Rolls

BUNS, CRUMPETS

Breakfast Rolls—Take 1 pint flour, 1 teasp. baking powder, 1 tbsp. sugar, and a little salt and sift together; to this add ½ pint milk and a piece of butter, working it in carefully so as to make a smooth dough; roll out and cut with a biscuit cutter, spread a little butter on each piece and lap together. Bake in very hot oven.

Vienna Rolls—Sift very well 1 qt. flour, 2 teasp. baking powder, and ½ teasp. salt; into this work in 1 tbsp. butter, then add 1 pint milk, stir into a dough. Roll out about ½ inch thick, cut into circular forms and fold over once. Put into well-buttered baking pan, moisten the tops of the rolls with a little milk or butter, and bake in hot oven.

Sweet Luncheon Rolls—Take 1 cupful scalded milk and when lukewarm add 1 yeast cake dissolved in ¼ cupful of lukewarm water; then add 1½ cups flour, beat thoroughly, cover and let rise until light. To this add ¼ cup sugar, 1 teasp. salt, yolk of 1 egg, a little grated lemon rind, ½ teasp. lemon extract, ¼ cup melted butter, and enough flour to knead. Put on a floured board, knead well and return to bowl, cover and let rise; then roll out in a long strip, about ¼ inch thick, brush over with butter, roll up like a jelly roll and cut in small pieces. Put in a pan, flat side down, let rise; bake in hot oven.

Parker House Rolls (Farmers' Bulletin No. 807, U. S. Dept. of Agri., on "Bread")—Two cups milk, 3 tbsp. butter, 2 tbsp. sugar, 1 teasp. salt, 1 cake compressed yeast, flour.

Put the butter, sugar, and salt in a mixing bowl. Scald the milk and pour it into the bowl. When it is lukewarm, add the yeast, mixing it with a little of the liquid first. Add 3 cups of flour, beat thoroughly, cover, and let the dough rise until it doubles its bulk. Cut down the dough and add flour gradually until the mixture can be molded without sticking either to the hand or to the bowl. Let it rise again until about twice its original bulk and roll it on a floured board and cut it with a biscuit cutter. Brush the pieces over with fat, crease each piece through the center with a knife, and fold it over. Let it rise again and bake in a hot oven about 15 minutes.

Rice Rolls—Heat 1 cup cooked rice and 1 cup milk, and press through a sieve. When lukewarm, add 1 tbsp. sugar, 1 teasp. salt, 1 cup flour, and 1 cake yeast softened in ¼ cup warm water. Let rise in warm place, until double its size, then add 1 well-beaten egg and enough flour to knead. When smooth, allow to rise again, then shape into balls. Put into greased pan, brush tops with butter, cover, and let rise once more. Bake 15 to 20 minutes.

Potato Rolls (Farmers' Bulletin No. 807, on "Bread," U. S. Dept. of Agri.)—Very palatable rolls can be made from a similar mixture of boiled potatoes and flour by adding fat and sugar. The following proportions will yield about 1 doz. small rolls:

8 oz. boiled and peeled potatoes, 6 oz. or 1½ cups sifted flour, ½ cake compressed yeast, ¾ level teasp. salt, 2 tbsp. lukewarm water, milk, or cream, 2 tbsp. sugar, 2 tbsp. butter.

Boil, peel, and mash the potatoes as directed for bread making. Add to this the salt, the yeast, rubbed smooth and mixed with the water, or other liquid, and, lastly, 2 tbsp. flour. Set this mixture to rise at about 86° F., and allow it to rise till a touch will cause it to fall. Add to this sponge the butter, the sugar, and the remainder of the flour, and, if necessary, enough more flour to make a very stiff dough. Knead thoroughly until a smooth dough has been formed which is no longer sticky. Set back to rise again, and, when the dough has trebled in volume, knead lightly, form into small balls, and place, not too close together, in greased pans. Let rise until double in volume and bake 20 minutes in a moderately hot oven (about 400° F.).

Cinnamon Rolls—Put a baking powder mixture on floured board and roll out to ¼ inch in thickness. Brush over with melted butter, then sprinkle with a mixture of 2 tbsp. sugar, ½ teasp. cinnamon, 1/3 cup raisons cut in small pieces, and 2 tbsp. chopped nut meats. Roll like a jelly roll and cut into pieces 1 inch in thickness. Put on buttered tin cut side up and bake in hot oven 15 minutes.

Christmas Rolls—Add 1 cake yeast dissolved in warm water to 2 cupfuls scalded milk, and stir in 3 cups flour. Let rise till spongy, then add ½ cup melted butter, ½ cup sugar, 2 eggs, 1 tbsp. powdered cardamon seeds and flour to

knead; let rise till double its size, shape into 8-inch strips and fold into rings, or tie into knots; brush over with beaten egg white diluted with a little water and sprinkle with a mixture of sugar, chopped nuts and shredded candied cherries. Bake in moderate oven.

Bread Sticks—Ordinary bread dough can be used. When the dough is light, cut pieces from the side and roll under the hands to the length of your pan and thickness of a lead pencil. Let rise until light. Bake in hot oven and when nearly done, brush white of an egg over them.

Oliver Twists—Roll a piece of light bread dough into a thin sheet about ¼ inch thick and cut into narrow strips about 8 inches long; twist, put on greased pan and let stand 15 minutes. Fry in deep hot fat until they puff light and turn a golden brown. Sprinkle with sugar and serve hot.

Buns—Stir to a thick batter 1 cup yeast, 1 cup sugar, and 3 cups milk and let rise; then add 1 cup sugar, 1 teasp. soda, ½ teasp. nutmeg, and 1 cup butter, 1 cup currants. Knead until thoroughly mixed; let rise until double its size. Shape, brush with melted butter, cover and rise till light. Bake in quick oven 20 or 25 minutes.

Crumpets—Put 1 teasp. sugar, ½ teasp. salt, and 3 tbsp. melted butter in a mixing bowl, add 2 cups scalded milk. When lukewarm, add ½ cake yeast; when yeast is thoroughly dissolved, add 3 cups flour slowly, beating constantly. Let stand in a warm place 2 or 3 hours. Bake in greased muffin rings on a hot griddle. Fill pans half full.

Prune Kringles—Into 1 lb. dough, knead 1 tbsp. each of butter and sugar. Chop 6 or 8 prunes, mix with 4 tbsp. sugar. Shape the dough into sticks about the size of little finger, then roll in the prunes and bake in oblong rings.

Sugar Kringles are made in the same way, using instead of the prunes 1 doz. blanched and chopped almonds; roll the sticks smaller, make oblong rings with one end crossing at the middle to the opposite side.

(Paste or Write Here Scraps or Memos. of Your Own)

CLASS 19
Biscuit

Including CRULLERS, SHORTCAKE MUFFINS, PANCAKES, WAFFLES

In making biscuit handle the dough as little as possible; do all the mixing with a spoon.

Biscuits will bake much quicker if put on top of the stove in a skillet. This is especially convenient in the summer time, as it makes so much less heat.

With the increasing use of buttermilk by doctor's orders, there has come back in some measure the practice of using it in cooking. Cakes and biscuits are delicious prepared with buttermilk. Use one and one-half more buttermilk than the meal or flour, mix thoroughly and when smooth add a salt spoon of soda or more if a larger quantity of cakes are to be made. Cakes can be made in this way with white flour, buckwheat or rye meal. Always use enameled ware for the mixing, as the acid of the buttermilk easily affects metal.

RECIPES

One Egg Muffins—Sift together 1½ cup flour, 1 tbsp. sugar, 3 teasp. baking powder, and ½ teasp. salt; add 1 cup milk, 1 beaten egg, and 1 tbsp. melted butter, beating vigorously. Half fill well greased muffin tins and bake in hot oven 20 or 25 minutes.

Graham Muffins—Sift together 1 cup Graham flour, 1 cup white flour, ¼ cup sugar, 3 teasp. baking powder and 1 teasp. salt, and add gradually 1 cup milk, 1 well-beaten egg, and 1 tbsp. melted butter. Put in hot buttered gem pans; bake 25 minutes.

Raised Muffins—Put into mixing bowl 1 tbsp. sugar, ½ teasp. salt, 2 tbsp. butter, and scald with 2 cups milk. When lukewarm, add 1 cake yeast, broken in bits, stir until yeast is dissolved, and make a sponge with 3 cups flour, beating well. When light, add 2 well-beaten eggs, 1 cup flour, and let rise until light. Bake in greased gem pans 20 or 25 minutes in quick oven.

One Minute Sour Milk Muffins—Mix 1 pint sour milk or buttermilk with 1 teasp. soda, 1 teasp. butter, and enough flour to make a soft dough. Roll and cut out rapidly; handle as little as possible. Bake in quick oven.

Corn Muffins with Dates—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—1 cup white corn-meal, 2 tbsp. brown sugar, 1 teasp. salt, 2 tbsp. butter, 1¼ cup milk, 1 cup wheat flour, 4 teasp. baking powder, 1 egg, ½ cup dates cut into small pieces.

Cook together the first 5 ingredients for 10 minutes in a double boiler. When cool, add the eggs, the dates, and the flour sifted with the baking powder. Beat thoroughly and bake in muffin pans in a quick oven or bake in a loaf. The bread will keep in good condition longer if the dates are cooked with the corn-meal and other ingredients in the double boiler.

This serves 6 people.

Rice Muffins—Mix thoroughly 1 cup boiled rice, ½ tbsp. sugar, and 1 tbsp. melted butter. Use 1 cup scalded milk and when lukewarm dissolve ½ cake yeast in it and add to rice mixture. Use enough flour to make a stiff dough. Let rise until light and then add 2 well-beaten eggs. Half fill well-buttered muffin pans, raise until very light. Bake 10 minutes in hot oven.

English Penny Muffins—Dissolve 1 cake yeast in 1 cup warm water mixed with 1 cup milk, then add ¾ teasp. salt and enough flour to make a thin batter. When light, add ½ cup sugar, 1 egg, 2 tbsp. melted butter and beat vigorously. Stir in flour to make a soft dough. When light, knead it, let rise again, then form into round biscuits, put in well-greased gem pans and when very light bake 12 minutes in hot oven. This recipe makes 30 muffins.

Molasses Muffins—Mix and sift well together 1½ cup corn-meal, ½ cup flour, 1 teasp. soda, ½ teasp. salt, then add 1 cup sour milk and ¼ cup molasses and beat thoroughly. Pour into well-greased muffin pans and steam 2 hours.

Apple Muffins—Add 1 cup milk and ¼ cup water to 1 well-beaten egg yolk, then add 2 tbsp. melted lard. Sift together 2 tbsp. sugar, 1 teasp. salt, 2 cups flour and 3 teasp. baking

powder and add to the liquid and mix in 1 cup finely chopped apple. Beat thoroughly, then fold in white of egg, well beaten. Put in greased muffin tins and bake 30 minutes in moderate oven.

Sweet Corn Muffins—Mix together and rub through a sieve 1 heaping cupful corn-meal, 1½ cups flour, 2 teasp. cream of tartar, and ½ teasp. salt. Beat 2 tbsp. butter and 4 tbsp. sugar together until creamy, then add the yolks of 3 eggs and beat well. Dissolve 1 teasp. soda in 2 cups milk, then mix with egg mixture thoroughly and add the sifted ingredients. Beat well together and stir in the well-beaten whites of the eggs. Put into buttered muffin tins and bake ½ hour in quick oven.

Drop Biscuits (Farmers' Bulletin No. 817, on "How to Select Foods," U. S. Dept. of Agri.)—2 cups white or whole-meal flour, 1½ teasp. salt, 2 tbsp. lard or other fat, 1½ cups sour milk, ¾ level teasp. soda.

Sift the flour with the salt. Rub the lard or other fat into the flour by means of a fork or the fingers. Dissolve the soda in a little of the milk and add it, with the remainder of the milk, to the flour until a mixture is obtained that can be dropped from the end of a spoon. Bake on greased tins in a hot oven until brown.

Bran Biscuits—Sift together 1½ cups whole-wheat flour, 3 teasp. baking powder and ½ teasp. salt; stir thoroughly into this 1½ cups bran and rub 3 tbsp. butter in, and enough milk to make a soft dough. Roll out, handling as little as possible. Cut into biscuits and put in well-greased baking tins. Spread a little butter on top each biscuit and bake in quick oven.

Cinnamon Tea Biscuits—Sift together about 2 cups flour, ½ cup sugar, ½ teasp. ground cinnamon, and a pinch of salt; rub in ½ cup butter; then add 2 eggs and mix into a stiff paste. Roll out thin and cut into rounds. Bake 15 minutes.

Beaten Biscuit—Mix and sift 3 pints pastry flour with 1 teasp. salt and rub and cut 1 cup lard into it. Make a stiff dough with milk, or milk and water; knead and beat with rolling pin or mallet for 1 hour. The dough should be smooth and glossy. Shape into thin flat cakes, prick all over with a fork, and bake in moderate oven to a delicate brown, until the edges crack a little. They will be heavy in the middle if not given enough time to bake.

Sour Milk Biscuit—Sift 1 qt. flour with 1 tbsp. salt and 1 teasp. soda; rub in 1 tbsp. butter and add about 1 pint sour milk or enough to make a soft dough. Shape biscuits quickly, put into floured baking pan and bake about 20 minutes in very hot oven.

Parched Corn-Meal Biscuits (Without Wheat)—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—½ cup yellow corn-meal, 1 teasp. salt, 1 cup peanut butter, 1½ cups water.

Put the meal into a shallow pan, heat in the oven until it is a delicate brown, stirring frequently. Mix the peanut butter, water, and salt, and heat. While this mixture is hot, stir in the meal, which also should be hot. Beat thoroughly. The dough should be of such consistency that it can be dropped from a spoon. Bake in small cakes in an ungreased pan. This makes 16 biscuits, each of which contains 1/6 oz. of protein.

Parched Corn-Meal Biscuits, Frosted—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—Cover the biscuits prepared according to the above recipe with a frosting made as follows. Over the top spread chopped peanuts or peanut butter:

1/3 cup boiling water, ¾ cup granulated sugar, 1 egg white, ½ teasp. vanilla.

Boil together the sugar and water until the syrup forms a thread when dropped from a spoon. Pour slowly into the well-beaten egg white and beat until it will hold its form. Add flavoring.

Popovers—Mix 1 cup flour with ¼ teasp. salt and sift well; add 1 light beaten egg and beat together 5 minutes. Have gem pans well greased and very hot and fill half full with mixture. Bake 30 or 35 minutes in hot oven.

Corn Popovers—Take 1¼ cups sifted corn-meal and scald with 2 cups milk; then add 1 tbsp. melted butter and ¼ teasp. salt; beat thoroughly. When cold add 3 well-beaten eggs and pour into hot iron gem pans. Bake 30 or 35 minutes in hot oven.

Corn-Meal Puffs (Without Wheat)—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—1 pint milk, 1/3 cup corn-meal, 4 tbsp. sugar, ½ teasp. salt, 4 eggs, grated nutmeg (if desired).

Cook the milk and meal together 15 minutes with the salt and sugar. When cool, add the eggs, well beaten. Bake in cups. Serve with stewed fruit or jam.

This serves 6 people.

Wafers—Mix and sift 2 cups whole-wheat flour and ½ teasp. salt and rub in 2 tbsp. butter; add enough milk to make a stiff dough. Take pieces of dough double the size of a walnut and roll them the size of a breakfast plate. Bake in quick oven till lightly browned.

Griddle Cakes—1 teasp. butter added to griddle or batter cakes will keep them from sticking to the griddle; it is much better than putting it on the griddle, where it burns and fills the house with smoke. Turn the griddle often to keep heat even. Let each cake bake until full of holes and dry at the rim; turn only once.

Mix and sift 2 cups flour with 3 teasp. baking powder and ¼ teasp. salt; add 1½ cups milk and 2 beaten eggs; beat well; then add ¼ cup melted butter; beat again. Put on hot griddle by spoonfuls and bake. Serve with syrup.

Crumb Griddle Cakes—Soak overnight 1 cup dry crumbs in 1 pint sweet or sour milk; then mash well, add ½ teasp. salt, ½ teasp. sugar, and, if sour milk was used, add 1 teasp. soda dissolved in a little hot water. If sweet milk was used, add 1 teasp. baking powder. Add enough flour to make batter to pour. Bake as for griddle cakes.

Buckwheat Cakes—Mix ½ cup corn-meal with ½ teasp. salt and scald with 2 cups boiling water. Beat well, and when cool, add ½ cup flour and 1 cup buckwheat; then add ½ cake yeast, dissolved. Let stand overnight and in the morning pour off discolored water that lies on top of batter and dilute with ½ cup milk in which ¼ teasp. soda is dissolved. Bake in small cakes on lightly buttered griddle.

1 tbsp. molasses may be added to this mixture.

If 1 cup batter is left, keep it for next day and use as yeast.

Dodgers—Scald 1 cup corn-meal with 1 cup boiling water, beat until smooth and cook in double boiler 1½ hours. Drop by spoonfuls on buttered griddle and put small piece of butter on each before turning.

French Pancakes—Mix and sift together 2 cups flour, 1 tbsp. sugar and ¼ teasp. salt; add slowly 1 cup milk and 3 beaten eggs. Beat together 5 minutes and fry in hot butter, then roll up and fill with fruit or jelly and sprinkle with powdered sugar. Serve hot.

Potato Pancakes—Mix 2 cups grated potato with ½ teasp. salt, 1 tbsp. flour, a little pepper and 2 well-beaten eggs. Bake in thin cakes until brown. Serve with apple sauce, together with meat.

Pancakes with Rice — Mix together 2 cups boiled rice, 2 tbsp. melted butter, ½ cup milk, ½ cup flour, and 2 eggs; beat thoroughly. Bake like griddle cakes.

One Egg Waffles—Mix together 1½ cups flour, 1½ teasp. baking powder and ¼ teasp. salt; add slowly 1¾ cups milk, 1 egg, beaten very light, and 2 tbsp. melted butter. Beat batter 2 minutes and drop by spoonfuls on well-greased, hot waffle iron. Serve with maple syrup.

French Waffles—Cream 1 cup butter, add 1 cup sugar, yolks of 7 eggs and grated rind of ½ lemon; then add alternately 3 cups flour and 2 cups milk, beating until full of bubbles. Add 1 dissolved yeast cake and stiff beaten whites of the eggs. Let rise 3 hours and bake like plain waffles.

Buttermilk Waffles—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—3 cups water, 2 cups corn-meal, 2 cups wheat flour, 1 cup sweet milk, 4 eggs, 2 tbsp. butter, 2 teasp. salt, 1½ teasp. soda, buttermilk or sour milk enough to make a thin batter.

Cook the meal, water, salt, and butter together in a double boiler for 10 minutes. When the mush is cool add the eggs, beaten separately until very light. Sift the flour and soda together. Add the flour and the sweet milk alternately to the corn mixture. Finally add the buttermilk. This mixture is improved by standing a short time.

This serves 10 people.

Doughnuts—Mix together 1 cup sugar, 1 cup sour cream, 1 teasp. soda, ½ teasp. salt, ¼ teasp. grated nutmeg, 1 egg and enough flour to make stiff dough to roll. Put 1/3 of mixture on floured board, knead slightly; roll out to ¼ inch thickness and cut with doughnut cutter. Fry in deep fat; take up with a skewer and drain on brown paper. Add trimmings to remaining dough and treat the same way. Roll in powdered sugar.

Dropped Doughnuts—Make batter of ½ cup milk, ½ cup sugar, grated rind of 1 lemon, 1½ cups flour, 1 beaten egg, 1/3 teasp. salt, 1/3 teasp. nutmeg, and 1 heaping teasp. baking powder. Hold teasp. of batter close to deep pan of hot fat and the doughnuts will come up in round balls.

Indian Meal Doughnuts—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—In making doughnuts there is a decided advantage in substituting corn-meal for part of the flour, for doughnuts so made are much more likely to be tender than those made with wheat flour alone.

¾ cup milk, 1¼ cups wheat flour, ¼ cup butter, ¾ cup sugar, 2 eggs well beaten, 1 teasp. cinnamon, 2 teasp. baking powder, 1 level teasp. salt.

Put milk and meal into a double boiler and heat together for about 10 minutes. Add the butter and sugar to the meal. Sift together the wheat flour, baking powder, cinnamon, and salt. Add these and the eggs to the meal. Roll out on a well-floured board; cut into the desired shapes; fry in deep fat; drain and roll in powdered sugar.

This makes 30 medium-sized doughnuts.

Crullers—Put into mixing bowl 1 cup sugar, 1 small tbsp. butter, ¼ teasp. salt and ⅛ teasp. nutmeg and beat with a wooden spoon until creamy; then add gradually 2 well-beaten eggs. Sift 3½ cups flour and 2 teasp. baking powder together and add to mixture while beating constantly, alternate with 1 cup milk. Roll out on floured board and cut with cruller cutter. Fry

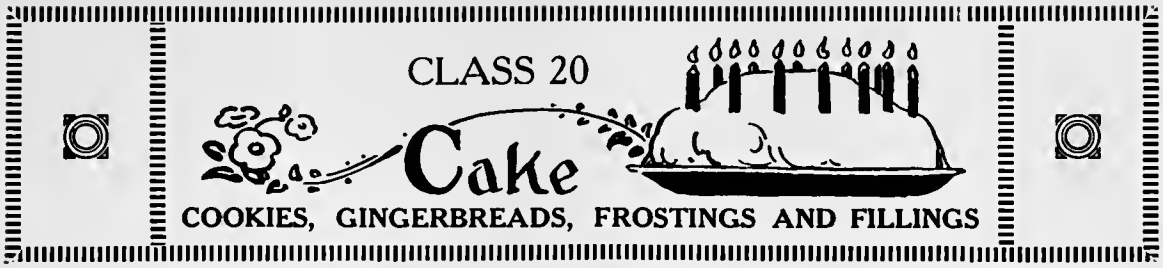
in deep hot fat, drain and sprinkle with powdered sugar.

Chocolate Crullers—Beat 2 eggs until creamy and thick; add 1 cup sugar, 1 tbsp. melted butter, 1 teasp. salt, 1 teasp. cinnamon and 1 tbsp. melted unsweetened chocolate; mix well together, then add 1 cup milk and 3 cups flour sifted with 2 teasp. baking powder. Roll out ¼ inch thick on a floured board, cut, and drop into very hot fat. Cook a golden brown, drain and sprinkle with sugar.

Shortcake—Mix and sift thoroughly 2 cups flour, ½ teasp. salt, and 2 teasp. baking powder; into this rub ¼ cup butter; add ¾ cups milk and 1 beaten egg. Spread mixture on a buttered biscuit tin and bake in a quick oven. Split apart at edge, cool 5 minutes, spread with butter and fill with a sweetened fruit mixture. Put same mixture on top and garnish with whipped cream.

Old Fashioned Shortcake—Mix and sift thoroughly 2 cups flour, ½ teasp. salt, ½ teasp. soda, and add 1 cup sour cream slowly; beat well 2 minutes, pour into hot buttered frying pan. Cover with a tin and set hot griddle over. Turn in less than 10 minutes, being careful not to burn. When done break in pieces and serve on folded napkin.

(Paste or Write Here Scraps or Memos. of Your Own)



In making cake use only the best of material. Have all utensils ready; an earthen bowl, a wooden spoon for mixing, a half-pint measuring cup, a dover beater for egg yolks, a wire egg whip for the whites and a flour sifter for dry ingredients.

All measurements are used level. Dry ingredients should be sifted before measuring. Sift flour and baking powder after measuring two or three times before using.

Never grease pans when baking sponge or angel food cake. Large loaf cakes or fruit cakes should be baked in pans lined with greased paper. For other cakes the pan should be greased, using cold lard or butter, dusted over with flour.

To remove cake from pans, invert pans as soon as taken from the oven into a wire netting. If cake sticks to the pan turn upside down and put a damp cloth over the bottom for a few minutes.

To keep cake from burning, sprinkle salt on the bottom of the oven.

The oven should be ready. The tests are: If a piece of white paper turns a deep yellow in 5 minutes the oven is right for cakes with butter; if it turns a light yellow in 5 minutes it is right for sponge cake.

To Frost Cake—When cooked frostings are used the cake may be spread when hot or cold; when uncooked frostings are used it is best to spread when warm.

To spread icing smoothly on cake dip the icing knife frequently into hot water. When making icing which requires a great deal of beating use a wide mouth pitcher, straight from the bottom up, just the right height for the egg beater. Break the whites of the eggs into the pitcher, beat until stiff; cook the syrup and gradually pour on the beaten whites and stir vigorously with a long spoon. The pitcher is easy to hold and the icing pours evenly over the cakes. The pitcher is also good to use for waffles and griddle cake batter.

SUGGESTIONS *for* CAKE MAKING

(Iowa State College of Agriculture)

1. Measure or weigh out the exact quantities of all the ingredients to be used before beginning to mix the cake.

2. Sift the flour before measuring.

3. Add leavening agents to the measured sifted flour. Sift together before adding to cake liquids.

4. Have pans buttered and floured or lined with plain white buttered paper.

5. Break the eggs into a small bowl, separating the whites from the yolks when necessary.

6. Beat the white of the eggs just before adding the flour to the cake, then at the last, fold in the beaten whites.

7. Test the oven just before mixing the cake.

MATERIALS

The choicest materials are necessary:

1. The fats must be sweet and pure.
2. Fresh eggs.
3. Fine granulated sugar.
4. Choice nuts, fruits and flavorings.
5. Pastry flour or a fine quality of bread flour or combination of bread flour and corn starch. (Use 1 part corn starch to 7 parts bread flour, or to make one cup of pastry flour use 2 tbsp. corn starch plus 14 tbsp. of bread flour.)

DIRECTIONS FOR BAKING CAKE

Sponge cake—40-50 minutes, 340 degrees F.

Butter cake—40-50 minutes, 380 degrees F.

Small cakes and layer cakes—25-30 minutes, 425 to 450 degrees F.

Molasses drop cakes—25-30 minutes, 380 degrees F.

EXPERT INTERPRETATION OF OVEN TEMPERATURE

Slow (meringues and custards)—250 to 300 degrees F.

Slow to medium—300 to 350 degrees F.

Medium (bread, 20 oz. loaf)—350 to 360 degrees F.

Medium to hot—360 to 400 degrees F.

Hot—400 to 450 degrees F.

Very hot—450 to 500 degrees F.

DIVISION OF TIME

First quarter—Rise, not brown.

Second quarter—Rise, and begin to brown.

Third quarter—Brown, not rise.

Fourth quarter—Neither rise nor brown, grow firm and shrink away from pan.

POINTS OF A GOOD CAKE

A good butter cake is smooth on top and evenly browned. Bursting and crackling indicate too much flour or too rapid baking.

Inside of loaf should be slightly moist but not sticky.

Cake should be fine grained and of uniform lightness.

Coarse grained cakes indicate a lack of beating, too low an oven temperature, or too much baking powder.

SOME CONVENIENT SUBSTITUTES

Baking Powder

Use 2 level teasp. baking powder for each cup of flour if no eggs are used.

When eggs are used, the baking powder is decreased. One egg replaces from ¼ to ½ teasp. baking powder.

Soda

Use 1 teasp. soda to 2 cups thick sour milk.

Use ¼ teasp. soda to 2 tbsp. lemon juice.

When sour milk is to be substituted for sweet milk, use ¼ teasp. soda to each cup of sour milk for sweetening, then use amount of baking powder (less 1 teasp. for each cup of milk used) given in recipe.

Sugar

Brown or powdered sugar should be substituted for granulated sugar by weight instead of measure.

Chocolate and Cocoa

Cocoa should be substituted for chocolate by weight instead of by measure.

When cocoa is substituted for chocolate, butter (½ tbsp. butter for each oz. or ¼ cup cocoa) should be added.

Bread and Pastry Flour

To change bread flour to pastry flour, use 2 level tbsp. cornstarch to replace 2 level tbsp. flour in each cupful.

Fats

Other fats may be substituted for butter and the cost of the cake considerably reduced.

Equivalent of ½ Cup Butter—½ cup chicken fat; ½ cup lard, less 1 tbsp.; ½ cup lard substitute, less 1½ tbsp.; ¼ cup butter, plus 3 tbsp. lard; ¼ cup butter, plus 3 tbsp. lard substitute; ½ cup cottonseed oil, less 1 tbsp.

Use ⅞ cup lard or vegetable oil or drippings from which water has been driven off, to take the place of 1 cup butter in a recipe.

If ½ cup nuts is added to a recipe which calls for 1 cup butter, use only 8 2-3 tbsp. butter.

If one square chocolate is added to recipe which calls for 1 cup butter, use 13 tbsp. butter.

The foregoing suggestions for substitutions are compiled from the Cornell Reading Circle leaflet on cake making and from various Government publications.

USES FOR LEFT-OVER CAKES

Cake that is dry may be used in place of bread crumbs in a pudding recipe. Less sugar should be used if cake crumbs are substituted for bread.

Slices of stale cake may be arranged in alternate layers with sliced fruit and covered with a soft custard.

Dry cake may be steamed until moist and served hot with a pudding sauce.

CAKE RECIPES—GENERAL

Boiled Frosting—Boil together 1/3 cup water, 1 cup sugar, and 1/8 teasp. cream of tartar until a soft ball forms in cold water; pour this mixture very slowly on 1 egg white beaten very stiff; beat as you pour until stiff and smooth. Spread on a cold cake.

Orange Icing—Grate the rind of an orange and soak it ½ hour in 3 teasp. lemon juice; then squeeze through a fine muslin. Stir together the white of 1 egg, 1 teasp. of the orange and lemon mixture and 1 cup powdered sugar until the sugar is all wet; beat with a fork 5 minutes. Spread on cake while warm.

Lemon Frosting—Stir together the white of 1 egg, 1 teasp. lemon juice and 1 cup powdered sugar until the sugar is all wet; beat with a fork 5 minutes. Spread on cake while warm.

Chocolate Icing—Into the boiled icing melt 1 oz. chocolate and 1 teasp. powdered sugar.

Vanilla Icing—Beat the whites of 2 eggs very stiff; add 1½ cups powdered sugar gradually and flavor with 1 teasp. vanilla.

White Icing—Boil 3 cupfuls sugar and ½ cup water until thick; then pour it on whites of 3 eggs, well beaten. Beat all together. Use when cool.

Maple Fondant—Boil together 1 cup maple sugar and ½ cup thin cream for 15 minutes; then take from fire and stir constantly until it stiffens and spread on warm cake quickly as it hardens very fast.

Sugar Glaze—Beat thoroughly 1 cup powdered sugar, 1 tbsp. lemon juice and about 1 tbsp. boiling water until very smooth. Spread on cake as soon as taken from oven.

Chocolate Glaze—Beat thoroughly 1 cup powdered sugar, 1 tbsp. boiled water, 3 tbsp. pulverized chocolate and 1 teasp. vanilla until very smooth. Use the same way as sugar glaze.

Mocha Frosting—Cream together 1 teasp. butter, 1 tbsp. hot strong coffee, 1 teasp. cocoa and ½ teasp. confectionery sugar; then stir in ½ teasp. vanilla. Do not make frosting too stiff.

Chocolate Filling—Boil together 5 minutes 1 cup sugar, 2 squares chocolate, grated, 2 tbsp. butter and ¾ cup milk; add 2 tbsp. cornstarch in ¼ cup milk and boil 3 minutes more. Beat until cool, then add 1 teasp. vanilla.

Fruit Filling—Chop fine and mix together 1 cup raisins, ½ lb. blanched almonds, ½ lb. figs, and ½ lb. citron. Add enough frosting to make a soft paste.

Lemon Filling—Cook together 1 cup sugar, the grated rind and juice of 1 lemon, 2 eggs, and 1 tbsp. butter over boiling water. Let cook until thick, and use when cool.

Almond Cream Filling—Beat the whites of 2 eggs stiff, add 2 cups sugar, 1 teasp. vanilla, and 1 pint blanched chopped almonds. Mix well together.

Cream Filling—Beat together 2/3 cup sugar, ¼ cup flour, 2 eggs, and ¼ teasp. salt; then stir in 1½ cups scalded milk and cook 15 minutes, stirring often. Flavor with vanilla when cold.

Custard Filling—Put ½ cup butter into 1 pint milk and let come to a boil; then stir in 2 eggs, 1 cup sugar and 2 teasp. cornstarch. Stir all well together.

Raisin Filling—Stir together thoroughly ½ cup sugar and 2 tbsp. flour; add ½ cup water and cook until thickened; then add juice of ½ lemon and ½ cup raisins and 1 doz. walnuts, chopped fine. Use when cool.

Sponge Cake—Mix slowly 1 cup sugar to 6 beaten egg yolks; add juice and grated rind of 1 lemon, whites of 6 eggs, beaten very stiff, and fold in 1 cup flour and ¼ teasp. salt, sifted. Bake in deep tin about 50 minutes.

Sunshine Cake—Beat 11 egg whites very stiff, add ¾ cup sugar; beat 6 egg yolks very light, add 1 teasp. orange extract and ¾ cup sugar. Combine the yolks and white mixture, then fold in 1 cup flour and 1 teasp. cream of tartar sifted together. Bake 50 to 60 minutes, using angel cake pan.

Angel Cake—Beat 11 egg whites until frothy, add 1 teasp. cream of tartar, continue beating till eggs are stiff; then sift in 1½ cups sugar gradually, fold in 1 cup flour and ¼ teasp. salt, sifted thoroughly, and add 1 teasp. vanilla. Bake 45 to 50 minutes in angel cake pan. Stand upside down till cake drops out.

Jelly Roll—Mix and sift 1 cup sugar, 1 cup flour and 1½ teasp. baking powder; add 3 well-beaten eggs and beat well together; pour into a well-greased pan. Bake slowly. When done, put cake on brown paper dusted with powdered sugar; spread with jelly and roll up. If allowed to cool before rolling the cake will break.

Cup Cake—Put 1 cup butter into bowl and beat till creamy, add slowly 2 cups sugar and 4 well-beaten egg yolks; then add 3½ cups flour and 3 teasp. baking powder, sifted, to the mixture, alternating with 1 cup milk. Fold in the whites of 4 eggs, beaten stiff; do not stir after the whites are added. Bake about 40 minutes.

A plain cup cake that is useful for layer cakes is made with ½ cup butter and a scant measure of sugar.

A heaping tbsp. of yellow ginger makes this cake a delicious ginger bread.

Omit the milk and add enough flour to roll out and it can be baked as jumbles, or with half the milk and flour to roll out, as cookies.

Sour Cream Cake—Beat 1 egg and add it to 1 cup brown sugar; then add ¼ cup butter and ¾ cup sour cream; sift together ½ teasp. salt, mace and 1 2/3 cups flour, add to the other ingredients, then add ½ teasp. soda. Bake in moderate oven.

Custard Corn Cake—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—2 eggs, ¼ cup sugar, 1 teasp. soda, 1 teasp. salt, 1 cup sour milk, 1 cup sweet milk, 1 2/3 cups corn-meal, 1/3 cup wheat flour, 2 tbsp. butter, and 1 cup cream.

Beat the eggs and sugar together thoroughly. Sift the flour, soda and salt together and mix with the meal. Mix all the ingredients but the cream and butter. Melt the butter in a deep pan, using plenty on the sides. Pour in the batter, add (without stirring) a cup of cream, and bake 20 to 30 minutes. When cooked, there should be a layer of custard on top of the cake or small bits of custard distributed through it.

For economy's sake, milk may be used in place of the cream in this recipe.

This serves 6 people.

Pound Cake—Cream 1 lb. sugar and ¾ lb. butter together, add the yolks of 8 eggs, well beaten, then the whites, well beaten; flavor to taste and combine this mixture with 1 lb. flour, beating the whole well together. Line a cake pan with buttered paper, pour the batter into it and sift powdered sugar over the surface. Bake about 1½ hours in very slow oven.

Chocolate Cake—Cream ½ cup butter, add 1 cup sugar, 3 egg yolks, beaten, 1 1/3 cups flour, and 3 teasp. baking powder sifted, and alternate with ½ cup milk; melt 2 oz. chocolate and stir into mixture; add 1 teasp. vanilla and fold in 3 egg whites, beaten stiff. Bake in shallow cake tin. Frost with fondant. When frosting is cold, spread with melted unsweetened chocolate.

Chocolate Cake without Eggs—Cook together 1 cup brown sugar, ½ cup cocoa and 1 cup milk; when cool, add ½ cup white sugar and ½ cup butter, well creamed together; then add 1 cup milk, 1 teasp. soda and 2 cups flour sifted. Bake in shallow cake tin, and when done spread with frosting.

Molasses Cake—Cream 1 cup butter and 1 cup brown sugar, add 1 cup milk, 1 egg and ½ cup molasses; stir in 1½ pints flour sifted with 1½ teasp. baking powder and mix into a firm batter. Bake 40 minutes.

Molasses Corn Cake—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—2 cups yellow corn-meal, ½ cup molasses, ½ cup sugar, 2 tbsp. butter, 1 teasp. salt, 1 cup sour milk, 1½ cups sweet milk, 1 cup wheat flour, 1½ teasp. soda, 1 egg.

Mix the first seven ingredients in a double boiler and cook over hot water. Cook for about 25 minutes after the mixture has become hot. After it has cooled, add the wheat flour and soda, thoroughly sifted together, and the egg well beaten. Bake in a shallow tin.

This serves 6 people.

Corn-Meal Gingerbread—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—To the above recipe add 1½ teasp. ginger, 1½ teasp. cinnamon, and ½ teasp. cloves, sifting them with the flour.

This serves 6 people.

Gingerbread—Mix together ½ cup butter and 2 tbsp. sugar, then rub it into 2 cups flour until fine; add 1 cup molasses, yolk of 1 egg, and beat well; then add 1 cup boiling water and stiff beaten white of 1 egg. Bake in a dripping pan, 30 to 40 minutes in moderate oven.

Warm gingerbread makes a nice luncheon dessert served with whipped cream.

Cinnamon Cake—Make a light bread dough, amount equal to that required for one loaf of bread, and add 1 beaten egg, ¼ cup sugar, 2 tbsp. melted butter, 1 cup seeded raisins; mix thoroughly and put in shallow greased pan. Let stand until light, sprinkle top with a mixture of sugar, cinnamon and chopped almonds and dot with butter. Bake 20 minutes in hot oven.

Coffee Ring—Mix 1/6 cup sugar and ¼ teasp. salt in ½ cup scalded milk and when lukewarm add ¼ cake yeast dissolved in a little warm water; add ¾ cup flour, beat, and stand in a warm place until spongy; then add 2½ tbsp. melted butter, 1 beaten egg and 1 cup flour and knead 2 or 3 minutes, and let stand until light. Roll on floured board into a long, narrow, thin sheet. Spread with butter, cover with ½ cup raisins and ¼ cup shredded citron; sprinkle with plenty of sugar and cinnamon, roll lengthwise, twist, and bring ends together. Put in a greased round shallow tube pan, let stand until light. Bake in hot oven, 35 minutes. Spread with frosting.

Apple Cake—Bake shortcake dough in 2 layers; grate 1 large tart apple, mix with 1 cup sugar, 1 egg white and beat together thoroughly. Spread between layers and on top.

Dutch Apple Cake — Mix together 2 teasp. baking powder and ½ teasp. salt and work in ¼ cup butter. Add 1 well-beaten egg to 1 cup milk and stir into the flour mixture. Put into buttered pie tin, then press into the dough 4 apples that have been peeled, cored and quartered. Sprinkle over this a mixture of 3 tbsp. cinnamon and 1 tbsp. sugar, or more if apples are tart. Bake until fruit is soft and a golden brown crust is formed.

Peaches may be used in the same way.

Blueberry Tea Cake—Mix and sift 4 cups flour, 1 teasp. salt, 4 teasp. baking powder, and 1 cup sugar; add slowly 2 cups milk, ½ cup melted butter, and 2 well-beaten eggs; beat altogether thoroughly, dredge blueberries with flour and fold into batter. Fill greased gem pans ¾ full and bake ½ hour in moderate oven.

Layer Cakes—For all kinds of layer cakes use the same rule as for shortcake in making the layers; spread filling or icing between layers and on top.

Wedding Cake—Beat 2 cups butter and 2 cups sugar to a soft cream, add 5 cups flour, then add a mixture of 1 cup currants, 3 cups raisins, ½ cup glace cherries cut in quarters, 1 cup blanched almonds finely chopped, and grated rind of 2 lemons; mix thoroughly and add 1 cup brandy. Put this mixture into a large, round, buttered cake tin lined with buttered paper, smooth the top with a knife dipped in hot water and stand the cake on a baking tin on which is spread a thick layer of salt to prevent cake from burning underneath. Bake 5 hours in moderate oven; lower the heat gradually so that it is cooked thoroughly without getting burnt.

When cold wrap in waxed paper, then in several layers of soft paper and pack away in a dry tin tightly closed. Store it in a dry, cool but not cold place. It should be kept 8 weeks before being used. The day before the wedding cover the cake with 2 coats of boiled frosting, and decorate with candles, white ribbon, etc.

Fruit Cake—Cream 1 cup butter with 2 cups brown sugar, add yolks of 4 eggs; stir 1 teasp. soda in 1 cup strong coffee, then pour in 1 cup molasses and add 1 teasp. cinnamon, 1 teasp. cloves, 1 grated nutmeg and 4 cups flour, sifted; then add 1 lb. raisins and 1 lb. currants; citron and dates if desired; stir mixture well together, and put into round cake pan lined with greased paper. Bake slowly 3 hours.

Hickory Nut Cake—Cream 4 oz. butter with 1½ cups sugar, add 2 cups flour and ¾ cup water and stir until smooth; then add 2 well-beaten whites of eggs, 1 cup hickory nut kernels, 2 more well-beaten whites of eggs and 1 teasp. baking powder. Pour into flat tins lined with greased paper and bake 45 minutes in moderate oven.

Fruit Gems—(Farmers' Bulletin, 565, on "Corn-Meal," U. S. Dept. of Agri.)—½ cup corn-meal, 1 cup wheat flour, 3 teasp. baking powder, 6 tbsp. sugar, 2 tbsp. melted butter, 1 teasp. salt, 1 cup milk, 1 cup currants or raisins, 2 eggs, 1 tbsp. flour reserved for flouring currants or raisins.

Mix and sift the dry ingredients; add the milk gradually, the eggs well beaten, melted butter, and raisins, which have been floured. Bake in a hot oven in buttered gem pans 25 minutes.

This makes 12 cakes.

Cookies—To roll out the dough very thin, especially when raisins or citron are used, put a piece of Japanese parchment paper between the rolling pin and the dough and then roll forward toward the dough lump. Also cut the dough into small pieces before beginning to roll.

Ginger Cookies—Mix together 1 cup molasses with 2 tbsp. warm milk or water, 1 tbsp. ginger, ½ cup soft butter, 1 teasp. soda dissolved in a little milk, and enough flour to make soft dough. Put on floured board and shape the cookies an ⅛ inch thick. Bake in moderate oven.

Sour Milk Cookies—Cream ½ cup butter with ½ cup sugar; add 1 cup sour milk in which ¾ of a teasp. soda has been dissolved, 2 cups flour sifted with ½ teasp. cloves, ½ teasp. cinnamon and 1 teasp. salt; mix well together. Roll out thin and chill the dough before cutting the cookies.

Oatmeal Cookies—Combine 2 cups medium fine oatmeal, 1½ cups flour, ½ cup butter, ½ cup sugar, 2 teasp. yeast powder, and enough milk or water to mix well. Roll out and cut with round cutter and bake 20 minutes in very hot oven.

Spiced Oat Cookies—Cream ½ cup butter, add 1 cup sugar, ½ teasp. salt, ½ teasp. allspice, ¾ teasp. soda, 1½ cups rolled oats, 1 beaten egg, and ½ cup milk; mix well, then add 1½ cups chopped figs or dates and about 2¼ cups flour. Mix all thoroughly together. Drop from tip of spoon on greased cookie sheets and flatten with a fork. Bake in moderate oven 15 minutes. These cookies keep for several weeks.

Honey Bran Cookies—Mix 3 cups bran with ½ teasp. soda and 1 teasp. spice mixture and combine with ½ cup sugar, ½ cup honey, ½ cup milk and ½ cup melted butter. Bake 15 minutes.

Scotch Cookies—Cream ½ cup butter, add 1 cup sugar gradually, 3 well-beaten eggs, 4 tbsp. cinnamon and enough flour to roll out very thin. Bake in quick oven.

Sugar Cookies—Cream together 2 cups butter and 1 cup sugar; stir in 2 egg yolks, rind and juice of ½ lemon, 1 cup finely chopped almonds, and 2 cups flour sifted with 1 teasp. baking powder. Work in enough flour to roll out thin. Cut into cookies and sprinkle with sugar. Bake in moderate oven.

Macaroons—Beat 1 egg until light, add ½ cup sugar, 2/3 tbsp. melted butter, 2/3 cup rolled oats, 1/3 cup shredded cocoanut and a little salt; flavor with ¼ teasp. vanilla. Drop from teasp. on to buttered pan; bake in a very slow oven 20 minutes.

Chocolate Macaroons—Beat white of 1 egg until stiff; then add ½ cup powdered sugar, 2 tbsp. cocoa, ½ cup raw oatmeal, pinch of salt and ¼ teasp. vanilla. Drop from teasp. on to buttered pan and bake in moderate oven.

(Paste or Write Here Scraps or Memos. of Your Own)

SOME INEXPENSIVE CAKES

(Iowa State College Bulletin)

Soft Molasses Cookies—1 cup molasses, 1¾ teasp. soda, 1 cup sour milk, ½ cup shortening, melted, 2 teasp. ginger, 1 teasp. salt, flour.

Add soda to molasses and beat thoroughly; add milk, shortening, ginger, salt and flour. Enough flour must be used to make mixture of right consistency to drop easily from a spoon. Let stand several hours in a cold place to thoroughly chill. Toss one-half mixture at a time on slightly floured board and roll lightly to ¼ inch thickness. Shape with a round cutter first dipped in flour. Bake on a buttered sheet.—Fannie Merrit Farmer.

Oatmeal Cookies—2 cups rolled oats, ½ cup flour, 1 cup sugar, 1 egg, 2 teasp. baking powder, 2 tbsp. fat, ⅛ teasp. salt, 3 tbsp. milk.

Beat egg, add milk and add mixed and sifted dry ingredients. Drop on greased pan and bake in moderate oven.

Crumb Gingerbread—1 cup molasses, ½ cup boiling water, 1 1/3 cups fine bread crumbs, 2/3 cup flour, 1 teasp. soda, 1½ teasp. ginger, ½ teasp. salt, 1 tbsp. fat.

Add water to molasses and combine with the dry ingredients, then add fat and beat thoroughly.

Gingerbread—½ cup butter, ½ cup sugar, ½ cup sorghum, ½ cup sour milk, 2 eggs, 1 teasp. soda, 2 cups flour, 1 teasp. cinnamon, 1 teasp. ginger.

Cream butter and sugar, add sorghum, milk and beaten eggs. Sift dry ingredients together and add to liquids, beat thoroughly and bake in a moderate oven.

Molasses Drop Cake—½ cup sugar, ½ cup molasses, ½ cup shortening, ½ cup boiling water, ½ teasp. cloves, ½ teasp. cinnamon, ½ teasp. nutmeg, 2½ cups flour, 1 egg, ¾ teasp. soda.

Mix and sift dry ingredients. Add boiling water to sugar, shortening and molasses. Add dry ingredients gradually. Add egg last and beat thoroughly. Bake in a moderate oven (about 215 degrees F.).

Little Brown Cakes—2 cups brown sugar, 1 cup shortening, 3 eggs, 1 cup sour milk, 1 teasp. soda, 1 teasp. salt, ½ teasp. cinnamon, ½ teasp. cloves, 1 cup raisins, ½ teasp. nutmeg, 3 cups flour.

Cream the shortening and sugar and add well-beaten eggs and milk. Sift flour, soda and spices together, add raisins and add dry ingredients to first mixture. Bake in small buttered muffin pans in a moderate oven.

Spice Cake—No Eggs, Butter, or Milk—1 cup brown sugar, 2 cups raisins (figs, prunes or dates), 1 cup water, 1/3 cup lard, ¼ teasp. nutmeg ¼ teasp. cloves, 1 teasp. cinnamon, ⅛ teasp. salt.

Boil 3 minutes. Let cool and add 2 cups flour, 1 teasp. soda, ½ teasp. baking powder sifted together. Bake 35 to 40 minutes.

Apple Sauce Cake (Without Eggs)—1/3 cup fat, 1 cup sugar, 1 cup apple sauce pulp (sweetened), 1¾ cups flour, 1 teasp. soda, 1 teasp. cinnamon, ½ teasp. cloves, ¼ teasp. salt, ¾ cup raisins.

Cream fat, add sugar and continue creaming. Add apple sauce and dry ingredients, mixed and sifted. Beat vigorously 1 minute. Add raisins. Fill a loaf cake pan and bake 40 minutes in moderate oven.

NOTE.—Apricot, rhubarb, or cranberry pulp may be used.

Dried Apple Cake—1 cup dried apples, 1 cup molasses, ½ cup fat, 1 teasp. soda, 1 cup sour milk, 1 egg, 1 cup sugar, 3½ cups flour, 1 teasp. cinnamon, cloves, nutmeg, 1 cup raisins, ½ teasp. salt.

Soak apples overnight. Drain, add molasses, and cook until thickened. Add fat and cool mixture. Add mixed and sifted dry ingredients and the raisins, which have been stewed in small amount of water until water is absorbed. This makes the raisins plumper and better cooked and will help to prevent them going to the bottom of the loaf in baking.

Plain Cake—1 cup sugar, 1-3 cup fat, 2 eggs, ½ cup milk, 2 teasp. baking powder, 1½ cups flour, 1 teasp. lemon extract.

Cream fat, add the sugar and beaten eggs. Add the milk alternately with the sifted flour and baking powder. Add the lemon extract. Bake in a loaf or in layers. Serve freshly made.

Tea Cakes—2 eggs, sour cream (thin), 1 cup sugar, ½ teasp. salt, 1½ cups flour, ¼ teasp. soda, 1 teasp. baking powder, 1 teasp. lemon extract.

Break eggs in a cup. Add sufficient thin, sour cream to fill the cup, add to sugar. Beat thoroughly, add flour sifted with salt, soda and baking powder. Beat very thoroughly. Bake in gem pans or layers. This may be varied by adding ½ cup raisins or ½ cup shredded cocoanut.

Hot Water Sponge Cake—Yolks 2 eggs, 1 cup sugar, 6 tbsp. boiling water, 1 cup flour, 1½ teasp. baking powder, ¼ teasp. salt, whites 2 eggs, ¼ teasp. lemon extract.

Beat egg yolks until thick and lemon colored, add one-half of the sugar gradually and continue beating. Add the boiling water, the remaining sugar, flavoring, beaten egg whites, and sifted dry ingredients. Bake in a moderate oven in a buttered and floured pan.

(Paste or Write Here Scraps or Memos. of Your Own)

CLASS 21

Pastry

PIES, TARTS, DUMPLINGS

Pastry flour makes a much more tender crust than bread flour and will require less shortening.

Lard makes a very tender crust, but butter gives a better flavor.

Shortening should be thoroughly chilled before using. When it is worked into the dough it makes the pastry short and tender, but that which is spread over the pastry when rolling out makes it flaky.

In very warm weather it is better to use a knife or fork to cut or rub shortening in, rather than to use the fingers, as the heat from the hands often softens the shortening and makes the pastry sticky.

When rolling out pastry use only enough flour to keep dough from sticking to the board and pan.

While mixing pastry keep it as cool as possible; use ice-water when it can be obtained. Handle as little as possible.

RECIPES

Puff Paste—Use 1 lb. flour and 1 lb. unsalted butter. Chop fine with a knife in an earthenware bowl; to make a stiff paste add a little ice water; then turn out of bowl on to baking board or marble slab. Beat until flat with rolling pin; do not touch with the hands; cut in three, place in a pile, one on top of the other, beat flat again, and cut a second time; repeat a third time. Put in ice chest 6 hours, when it is ready for use.

Pie Crust—Rub half a cupful of equal parts of lard and butter into 2 cupfuls of flour and mix the whole as lightly as possible into a stiff paste with a little ice water; roll it out, folding the paste over each time.

Apple Pie—Peel and core 5 or 6 apples, cut into eighths. Line pie tin with half of pie crust, then pile on the apples. Cover with a mixture of ½ cup of sugar, few gratings of nutmeg, ½ teaspoon cinnamon. Dot with butter. Lay top crust over and press edges firmly together. Bake 40 to 45 minutes in moderate oven.

To glaze top crust brush it over with the yolk of an egg to make it a deep brown; yolk and white mixed for a lighter brown; milk with a little sugar in it for very light glaze.

Peach Pie—Line a pie pan with crust and fill it with sliced canned peaches. Pour over the peaches a mixture of 1 tablespoonful sugar, ½ teaspoonful finely chopped lemon peel, 1 tablespoonful lemon juice and 2 or 3 tablespoonfuls of peach juice. Cover with crust and bake in hot oven 20 or 30 minutes or longer if necessary. Fresh peaches can be used in the same way, after they are peeled and sliced, but more sugar should be used if peaches are sour.

Glazed Peach Pie—When nearly done take the pie out of oven and brush the top with the white of an egg beaten to a froth, sprinkle a little sugar and a few drops of water on it. Put the pie back in oven and finish baking; be careful not to burn as it is liable to do when crust is glazed. Serve hot or cold.

Cherry Pie—Line a pie pan with crust and fill with ripe cherries, stoned. Use sugar to taste. Cover with crust and bake 20 to 30 minutes.

Raspberry, blackberry and plum pie are made in the same way.

Lemon Pie—Mix 1 cup sugar with 3 tablespoonfuls cornstarch, add 1 cup boiling water slowly and cook until clear; then add 1 teaspoonful butter, 2 beaten egg yolks and grated rind of ½ lemon; cool. Line pie plate with crust, prick the bottom with a fork, or use perforated pie pan. When crust is light brown pour in the lemon mixture. Whip the whites of 2 eggs stiff, add 2 tablespoonfuls powdered sugar; spread this mixture over the top for a meringue; return to oven and brown lightly.

Custard Pie—In making custard pies, heat the milk for the custard to the boiling point before adding to the eggs, and the undercrust will always be crisp and light. While pouring the milk into the beaten eggs, stir briskly and put into the crust while hot.

Line a deep pie plate with paste. Rub 1 teaspoonful flour with ½ cup cold milk until smooth; then add it to 1½ cupfuls scalded milk. Cook 5 minutes. Beat 3 eggs and combine with ½ cup sugar, ¼ teaspoonful salt. Pour milk mixture over this, stirring briskly, add ½ teaspoonful flavoring

extract, strain into pie plate. Bake slowly. It is done when a knife blade makes a clean cut.

Lemon Custard—Line a deep pie plate with paste, prick it well with a fork and bake in hot oven. Set away to cool. Make a filling of 1½ tablespoonfuls cornstarch dissolved in a little cold water, mix it with 2 eggs, 1 cup sugar, a pinch of salt and stir it all into 2 cupfuls of boiling water. When thickened add the juice of 2 lemons and the grated rind of one. When mixture has cooled pour it on pie crust.

If spread on top with a meringue brown it very lightly in a slow oven. It is also delicious served with whipped cream.

Cocoanut Custard—Beat 2 eggs and ½ cup sugar together until light, then add 1 pint milk, ½ grated nutmeg and 1 cup grated cocoanut. Line 2 pie dishes with paste, fill with mixture and bake in a quick oven 30 minutes.

Pumpkin Pie—Mix 1 cup sifted pumpkin, ½ teaspoonful salt, 1 saltspoonful mace and ½ teaspoonful cinnamon together; beat 1 egg and mix with 2/3 cup sugar; pour ½ cup scalded milk and ½ cup scalded cream slowly into the egg and sugar and then combine with pumpkin mixture and pour into a deep pie plate lined with paste. Bake 35 to 40 minutes. Squash may be used instead of pumpkin.

A good substitute for eggs in pumpkin pies are soda crackers rolled fine, allowing two for each pie.

Cranberry Pie—Cook 1½ cupfuls cranberries in ½ cup water and ¾ cup sugar for 10 minutes, then cool. Line pie pan with crust, fill with cranberries, and place strips of crust across the top. Bake 30 minutes in moderate oven.

Mince Pie—Cook 4 lbs. lean beef 3½ hours. Remove gristle and bone and chop fine when cold. Add 1 pint of the liquor to chopped meat; mix this with 1½ pounds finely chopped suet, 4 teaspoonfuls salt, 2 pounds sugar, 2 pounds raisins, 1 pound currants, ½ pound shredded citron, juice and grated rind of 3 oranges and lemons, 4 teaspoonfuls cinnamon, 2 teaspoonfuls mace, 1 teaspoonful cloves, 1 quart boiled cider, 5 quarts chopped apple. Cook together 30 minutes. Seal in jars and keep in cool place. This makes 8 quarts of mince meat.

When ready to use, make upper and lower crust, fill, and bake in moderate oven.

Apple Tarts—Peel and core apples and dice thin; sprinkle with sugar and cinnamon and pile on pans lined with puff paste about ¼ inch thick; then dot with bits of butter. Cover the top with strips of paste and bake in moderate oven until browned.

Instead of the strips of paste, a meringue may be heaped on top and lightly browned in oven. Most fruit tarts may be cooked in this way.

Creamed Apple Tart—Line a deep pudding dish with pastry, add 3 cups sliced apples, ¾ cup brown sugar, and grated rind of ½ lemon; then cover with paste and bake 40 minutes. Lift the crust when done and pour in 2 cups boiled custard; cover, and serve cold.

When whipped cream is used for filling, heap it high and do not put cover on again.

Cherry Tart—Line a deep pie dish with plain paste; turn a tiny cup upside down in the middle, fill around with carefully picked and washed cherries and add sugar to taste. Lay a wide strip of paste around the edge of the dish, cover and press the edges firmly together with a pastry jagger. Bake in hot oven. Serve with powdered sugar sprinkled thickly on top.

All berry tarts are excellent cooked in this way.

Jelly Tarts—Roll puff paste ¼ inch thick, cut with fluted cutter. Bake, then fill with jelly or jam.

Almond Tart—Beat yolks of 2 eggs until thick and lemon colored, add ½ cup powdered sugar gradually, then fold in the whites of the eggs beaten stiff and dry; add 2 tablespoonfuls grated chocolate, ½ cup blanched and finely chopped almonds, ½ teaspoonfuls baking powder, ½ cup very fine cracker crumbs and a little salt. Bake in buttered gem pans. When cool, remove centers and fill with whipped cream that has been sweetened and flavored.

Mocha Tart—Beat the yolks of 4 eggs and 1 cup sugar to a cream, add 1 cup flour that has been mixed with 2 scant teaspoonfuls baking powder, 1½ teaspoonfuls Mocha extract and then add the well beaten whites of 4 eggs. Bake in 3 layers in hot oven. Make a filling of 3 tablespoonfuls powdered sugar, 3 teaspoonfuls Mocha extract mixed with 1 pint cream. Whip until stiff and spread between layers and on top.

Baked Apple Dumplings—Core and pare 6 large tart apples. Divide pie crust into 6 parts and roll and shape each piece to cover an apple; place an apple on each piece, fill up the center with sugar, a little cinnamon and a lump of butter about the size of a hazelnut. Draw the paste over the apple and press the edges together. Put them in a well-buttered baking pan, the rough side down and bake in a moderate oven ½ hour. Serve hot with a cold sauce.

Peach Dumplings—Roll out pastry ½ inch thick, cut 3 inch rounds, and make a large hollow in the center with a cup, leaving just the rim around the edge, fill with fresh peaches cut in quarters or canned peaches, sprinkle well with sugar on top and put in a pan. Bake 30 minutes in moderate oven; put 1 pint boiling hot syrup over them 10 minutes before removing from oven; use juice from can, baste twice and increase heat to glaze.

Charlotte Russe—Line a plain round mold with lady fingers, putting them close together. Mix a little sugar and gelatine dissolved in a little water, with a pint of cream and whip well, then put in hollow made by the cakes. Serve in mold. The cream may be flavored with an essence if desired.

Cream Puffs—Boil 1 cup water to which has been added ¼ teaspoonful salt and ½ cup butter. When boiling add 1 cup flour stirring constantly until the mixture leaves the side of the pan, then remove from fire and add 4 eggs, one at a time, beating the mixture continually. Drop by spoonfuls into a buttered pan. Bake 25 minutes in moderate oven. When cool make a cut in the top or side and fill with a cream filling.

Chocolate Eclairs—Cut cream puff mixture in oblong pieces 4 inches long and 1½ inches wide and place on buttered sheets 4 inches apart. When done cover with chocolate or vanilla frosting and let cool; then cut the eclairs on the side and fill with whipped cream, a custard or preserved fruits.

Mirlitons—Pound and sift 6 macaroons, add 1 tablespoonful grated chocolate and 2 cups scalded milk. Let stand 10 minutes, then add the yolks of 2 eggs, 1 tablespoonful sugar and 1 teaspoonful vanilla. Line patty tins with puff paste, fill with mixture and bake 20 minutes in a quick oven.

Cheese Cake—Mix 1 cup grated cocoanut with 1 cup milk curds, 1 cup cream, yolks of 5 eggs, 1 cup sugar, 1 teaspoonful almond extract well together. Boil until thick, then pour into tart tins lined with puff paste. Bake 10 minutes.

Orange and lemon rind, grated, can be used instead of the cocoanut; use as much as desired.

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**(Paste or Write Here
Scraps or Memos.
of Your Own)**

CLASS 22
Puddings
and PUDDING SAUCES

SAUCES

Pudding Sauce—Cream ½ cup butter, add 1 cup sugar, beat 15 minutes, add 2 eggs, beat to a froth. Just before serving stir in ¼ cup boiling water; add 2 tablespoonfuls wine and ½ teaspoonful vanilla; beat to a foam and serve.

Apple Sauce—Peel, core and slice the apples, stew in enough water to cover and let cook until they break in pieces. Add plenty of sugar, the juice of lemon to taste, and the grated rind of lemon. Beat well together. Serve hot or cold.

Peach sauce is made the same way.

Cranberry Sauce—Wash a pint of cranberries thoroughly and cook in ½ cup water 10 minutes, then add 1 cup sugar and cook 10 minutes more. Put through a colander and pour into dish or into molds.

Lemon Sauce—Mix together 1 cup sugar, ⅛ teaspoonful salt and 1 tablespoonful corn starch; add 1 cup boiling water gradually; boil 5 minutes, stirring constantly. Remove from fire and add 1 tablespoonful butter and 1½ tablespoonful lemon juice.

Strawberry Sauce—Beat 1 large tablespoonful butter to a cream. Add gradually 1½ cups powdered sugar and the beaten white of 1 egg. Beat 'till very light; add 1 pint mashed strawberries just before serving.

Fruit Sauce—Cook peaches, berries, prunes or other friut and put through a coarse sieve. To every cup of this pulp add ½ cupful of water and sugar to taste. Boil 3 minutes, cool and serve.

This sauce is very good served with rice, bread, tapioca or other simple puddings.

Mint Jelly Sauce—Beat well 1 cup currants or any tart jelly, mix with the juice of 1 orange and ½ cup minced mint. Put away in a cold place before serving.

Hard Sauce—Put ¼ cup butter in a warm bowl and beat to a cream. Add ½ cup confectionery sugar gradually and flavor with ½ teaspoonful vanilla. Put in dish and grate nutmeg over it. Let stand on ice and when ice cold serve with pudding.

Brandy Sauce—Put ¾ oz. butter and 1 tablespoonful flour together in a small saucepan and put over a very small burner, stir in ¾ of a pint boiling water gradually; add 1 tablespoonful sugar and boil gently 10 minutes. Add 1 wine-glassful brandy just before serving.

Wine Sauce—Stir 2 oz. butter and 1 teaspoonful flour together over a small flame, stir in slowly 1/3 pint milk until it boils. Add 1 wine-glassful of sherry before serving.

Creamy Sauce—Cream ¼ cup butter and 2 cups powdered sugar together, then add ½ cup thick cream, 1 well-beaten egg and 1 teaspoonful vanilla. If it should separate, set it over hot water and stir until smooth. Serve cold.

Caramel or Browned Sugar Sauce—Brown 1 cup sugar and dissolve in ½ cup hot water. This sauce or syrup is very good served with waffles.

Maple Sugar Sauce—Boil together ¼ lb. maple sugar with ½ cup water 'till it will spin. When boiling hot put it into the beaten whites of 2 eggs, ½ cup thick cream and lemon juice to taste.

Molasses Sauce—Stir 1 large tablespoonful flour into 1 cupful molasses until smooth. Pour over this 1½ cups boiling water stirring continually. Boil slowly 5 minutes, then add 1 tablespoonful butter, 1 tablespoonful vinegar cider and nutmeg or cinnamon to taste. Stir together and just before serving boil a few minutes.

Chocolate Sauce—Boil 2 oz. grated chocolate in ½ pint milk; beat 2 egg yolks with ½ cup sugar and stir all together until quite thick; flavor with vanilla.

Egg Sauce—Beat the yolks of 3 eggs with 3 tablespoonfuls powdered sugar until creamy. Just before serving fold in the whites of 3 eggs beaten stiff.

PUDDINGS

Rice Pudding—Wash 1 cup rice thoroughly, mix with ¼ cup sugar, 1 quart milk, ½ teaspoonful salt and ¼ teaspoonful cinnamon. Bake very slowly 3 or 4 hours in a well-buttered pudding dish. Keep covered until the last 15 minutes when pudding may be browned on top. Stir twice during the first hour. Grated lemon rind can be used instead of the cinnamon. Serve hot or cold.

Stewed fruit, preserves or custard is very nice served with this pudding.

A meringue made of whites of eggs and powdered sugar can be piled on top when pudding is done; put back in the oven for a few minutes to brown.

Tapioca Pudding with Fruit—Boil 1 quart water in a 2 quart pan. Add a small stick of cinnamon, pinch of salt and 1 cup sugar. While this is boiling stir in rapidly 3 tablespoonfuls tapioca. Cook

until clear or transparent. Core, peel and slice as many apples as desired, put in pan and bake ½ hour. Serve with cream.

Peaches, pineapples or any other fruit may be substituted for the apples.

Bread Pudding—Cut 1 loaf bread in thin slices. Put a slice on bottom of pudding dish, dot with butter, then a sprinkling of raisins, and so on until all the bread is used. Add 4 eggs and ½ cup sugar beaten light, then add gradually 1 pint milk, and a little grated nutmeg. Let this stand 15 minutes, then bake in moderate oven 30 minutes. Serve cold with cream sauce.

Cottage Pudding—Mix ½ teaspoonful salt with 2 teaspoonfuls baking powder, add 1 egg well beaten, then ¾ cup sugar and 2 tablespoonfuls melted butter and stir in 2 cupfuls pastry flour. Bake ½ hour in shallow dish. Serve with lemon or wine sauce.

Chocolate Pudding—Melt 2 oz. sweet chocolate and stir in 1 quart hot milk; let mixture cool. When nearly cool add the yolks of 6 eggs and 4 tablespoonfuls sugar; mix well. Bake in earthen dish set in a pan of hot water for 20 minutes. Then make a meringue of the whites of 6 eggs and 12 tablespoonfuls powdered sugar; pile on pudding and let brown for a few minutes.

Chocolate Pudding with Stale Bread—Take ¾ of a cupful of bread crumbs and pour 1 pint scalding milk over it, and in this melt 3 squares of grated chocolate. When cool stir in 2 eggs, season with a pinch of salt, ¾ cupful sugar and 1 teaspoonful vanilla, and last of all stir in 4 tablespoonfuls cold milk. Bake 1 hour, stirring twice.

Caramel Apples with Raisins—Pare, core and halve 6 tart apples and place in broad saucepan. Cover over with ½ cup raisins and 1 cup light brown sugar; dot with butter, using about 2 tablespoonfuls, add 1/3 cup water and stew gently until apples are tender and rich caramel is formed of the sugar and butter.

Cheese Pudding (Farmers' Bulletin 565, on CORN MEAL, U. S. Dept. Agriculture—One quart boiling water, 1 tablespoonful salt, ½ cup milk, ½ pound yellow corn meal, ½ pound cheese.

Into the boiling, salted water pour the corn meal slowly, stirring constantly, and allow to boil 10 minutes; then add most of the cheese and cook 10 minutes more, or until the cheese is melted. Add ½ cup of milk and cook a few minutes. Pour into a greased baking dish. Brown in the oven. This dish is improved by grating a little hard cheese over the top just before it is baked.

This pudding can be cut into slices when cold and fried.

This serves 4 to 6 people.

Suet Pudding—Mix 1 cup suet chopped fine, 1 cup milk, 2 cups seeded raisins, 1 cup molasses, 2 cups flour, 1 cup currants, ¼ cup each citron, lemon and orange peel, and 1 teaspoonful each soda, cinnamon, cloves and nutmeg. Steam 2 hours. Serve with hard sauce.

Corn Meal and Fig Pudding (Farmers' Bulletin 565, on CORN MEAL, U. S. Dept. Agriculture)—One cup corn meal, 1 cup molasses, 6 cups milk (or 4 of milk and 2 of cream), 1 cup finely chopped figs, 2 eggs, 1 teaspoonful salt.

Cook the corn meal with 4 cups of the milk, add the molasses, figs and salt. When the mixture is cool, add the eggs well beaten. Pour into a buttered pudding dish and bake in a moderate oven for 3 hours or more. When partly cooked add the remainder of the milk without stirring the pudding.

This serves 8 or 10 people.

Corn Meal and Apple Pudding—For the figs in the above recipe substitute a pint of finely sliced or chopped sweet apples.

Plum Pudding—Mix ¼ lb. suet chopped fine, ¼ lb. currants, ¼ lb. seeded raisins and ¼ lb. citron or orange peel cut small; then add grated rind of 1 lemon, ¼ lb. sugar, ½ teaspoonful cinnamon, ¼ teaspoonful each of cloves, nutmeg and ginger, and 1/8 lb. flour, ¼ lb. stale bread crumbs and 3 well beaten eggs. Put into well greased bowls or pudding molds and steam or boil 8 hours. These puddings will keep a year, but should be boiled 1 hour before serving. Serve with hard sauce.

Fruit Pudding—Mix thoroughly 1 cup chopped raisins, 2/3 cup butter, 1 cup milk, 2/3 cup molasses, a little salt, 1 teaspoonful soda and 4 cups pastry flour. Steam 3 hours. Serve with a sweet sauce or whipped cream.

Apple Charlotte—Peel, core and stew 6 or 8 cooking apples with sugar to sweeten and grated rind of 2 lemons. Cut slices of stale bread about ¼ of an inch thick, into small rounds; fry them in hot butter to a light brown, then line a buttered mold with them. When apples are soft stir in the yolks of 2 eggs and pour into the mold and cover with a round of the fried bread. Bake 40 minutes in moderate oven. Serve with cream or whipped cream.

Apple Strudel—Put 1 well beaten egg into a cup, add ¼ teaspoonful salt and ½ tablespoonful butter and enough warm water to fill the cup. When the butter is melted pour the contents into a mixing bowl; add flour to make a soft dough, knead well. Roll out pieces of the dough as thin as paper, cover with a layer of peeled, sliced apples, seedless raisins, chopped blanched almonds and sprinkle with sugar, cinnamon and nutmeg. Roll up carefully and press the edges tightly together. Put into a well-buttered round baking pan. Bake in a moderate oven about ½ hour or until nicely browned. Serve hot or cold.

Prune Souffle—Wash thoroughly 1 lb. prunes and soak over night in warm water, then add ½ cup sugar and let simmer slowly until soft and tender; stone and put through a sieve. Crack the pits, chop kernels and add to prune pulp. Beat the whites of 3 eggs until stiff, fold in and place in buttered baking dish and bake in moderate oven 20 minutes or until puffed up. Serve with whipped or plain cream.

Apricot Souffle—Take canned apricots and rub through a sieve; use a little of the syrup so as not to make puree too thick. Dissolve 1 tablespoonful gelatine in 2 tablespoonfuls of the syrup and add to the puree; then add 1 teaspoonful lemon juice, 2 tablespoonfuls sugar, beaten whites of 3 eggs and ½ cup whipped cream. Put into dainty dishes and when set place half an apricot on top of each dish.

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Peach Souffle—Put 2 tablespoonfuls butter and two tablespoonfuls flour together in a saucepan, cook until smooth, not browned; then add 1½ cups milk, stir until thick and add 3 tablespoonfuls sugar and 2 cups mashed peaches. Beat the yolks of 3 eggs, add to mixture and then fold in the whites beaten stiff. Bake in a deep dish 35 minutes. Serve hot with hard sauce.

Brown Betty—Put a layer of stale bread crumbs into a well-buttered dish, then a layer of pared, cored and thinly sliced apples, sprinkle with plenty of sugar, a grating of nutmeg and dot with butter. Repeat this until dish is full, finishing with buttered crumbs and sugar. Bake brown. Serve with hard sauce.

Peach Betty is made in this way, substituting peaches for the apples.

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CLASS 23

Custards and Creams

Custards—Allowing 4 cups milk to each quart; use to 1 cup milk, 1 egg, 1 tablespoonful sugar, ¼ teaspoonful flavoring, pinch salt, ¼ teaspoonful cornstarch. This makes a rich custard.

Boiled Custard—Scald 1 quart milk in double boiler, stir in 1 teaspoonful cornstarch mixed with 1 tablespoonful cold water. Cook 10 minutes, add 3 or 4 eggs beaten with 4 tablespoonfuls sugar, stir and cook until custard will coat the spoon. Remove at once, set in cold water, stir to prevent thin skin forming on top. When cooling add vanilla or almond flavoring 1 teaspoonful. Strain into a serving dish. This may be made the basis for many custard desserts.

Cocoanut Custard—Use 1 cup grated cocoanut, add to the above custard after straining.

Coffee Custard—To plain boiled custard add 1 cup strained, strong coffee. Stir until blended, then fill custard cups and put them in shallow pan surrounded with boiling water for few minutes. Cool and serve sprinkled with ground nuts.

Chocolate Custard—1. Heat 3 oz. grated chocolate in 1 cup milk 'till dissolved. Add 3 cups more of milk, boil up once. Simmer very slowly for 5 minutes, sweeten with 3 or 4 tablespoonfuls sugar and stir while adding slowly 3 beaten eggs. Do not boil, but keep hot, stirring until custard thickens. When cold serve with cream.

2. Melt 1 to 3 oz. chocolate over hot water, add this to a plain 1 quart custard before straining.

Canned Milk Custard—Heat ¾ cup canned milk with 1¼ cups water. Beat yolks of 3 eggs, ¼ cup sugar, pinch salt. Add this slowly to the hot milk, stirring. Flavor with 1 teaspoonful vanilla. Cook in double boiler until custard masks the spoon. Serve with whipped whites of the eggs sweetened and spread on top.

Meringue for Custards—Beat a long time, until fine and dry, the white of 1 egg with 1 tablespoonful very cold water. The water doubles the quantity of the meringue and makes it more tender. Drop this, when stiff, onto cooled custard, and brown quickly in oven; or, spread meringue on a small clean board, brown in oven, remove it with a pancake turner to the custard.

Fruit with Tapioca Sauce—Soak 1 tablespoonful tapioca, add 2 cups hot milk. Cook in double boiler 15 minutes. Stir in 2 beaten eggs, 2 tablespoonfuls sugar, pinch salt. When thick flavor with vanilla and chill. Pour this sauce over cooked fruit and top with whipped cream.

Apple Dessert with Custard Sauce—Pare, halve, and core, tart apples or peaches; make a syrup of 2 cups sugar, 2 cups water, boil 10 minutes. Add apples, simmer until tender. Take apples out with a strainer spoon and lay in a dish. Add water to syrup to make 2 cups, flavor with lemon, vanilla, or almond extract. Dissolve 1 tablespoonful gelatine in cold water, stir this into the syrup with 2 tablespoonfuls ground nuts. Pour this jelly over the apples and chill. When firm, turn out of mold and serve with soft custard sauce.

Caramel Custard—Put 2 tablespoonfuls sugar in a smooth saucepan, stir constantly over hot fire until of the color and consistency of maple syrup. Pour 2/3 cup hot milk on the sugar a little at a time until sugar is dissolved. Add 1 beaten egg, pinch salt, 1 teaspoonful flavoring vanilla. Pour into mold, set in pan of hot water and bake. Serve with the following sauce:

Melt 3 tablespoonfuls sugar in pan over fire, when brown add 3 tablespoonfuls water. Cook 5 minutes, cool and pour over caramel custard.

Baked Vanilla Custard—For a large mold of custard use 1 quart milk, ½ cup sugar, ⅛ teaspoonful salt, 6 beaten eggs, 1 teaspoonful vanilla. For a smaller custard take 3 cups milk, 1/3 cup sugar, ¼ teaspoonful salt, 3 eggs beaten, ½ teaspoonful vanilla. Scald milk, add eggs, sugar, salt. Mix well, strain, add vanilla. Bake in one large buttered mold or several small ones. Set in pan of hot water in moderate oven; should the water boil during the baking the custard will be of a porous consistency.

Baked Custard with Canned Milk—Dilute 1 cupful of canned milk with equal amount of water. Mix in 2 beaten eggs, 3 tablespoonfuls sugar. Pour this into a buttered pan, grate nutmeg over top, and set in a large pan of boiling water. Bake in moderate oven. As soon as a silver knife blade inserted into the custard comes out clean, the dish is done.

Orange Custard—Shred pulp of sweet oranges or any fresh fruit. Pile in dish, sprinkle sugar through, and pour a thick orange flavored custard over the fruit.

Custard Sauce—Make a thin custard of 1 pint milk, 1 egg, ¼ teaspoonful cornstarch, 1 teaspoonful vanilla, almond or orange extract. Chill and serve poured over fruits or desserts requiring plain cream. This is not as expensive as cream and is a delicious substitute.

Melted Ice Cream—All left over frozen desserts should be removed from the freezer before they melt. Instead of throwing away this left over, add a little dissolved gelatine and chill in ice box. Melted ice cream may also be used in cakes or cookies by leaving out the milk in the cake recipe and lessening the quantity of sugar and butter.

Party Bavarian Cream—One pint cream should make about 2 quarts when whipped. Mix the cream drained from the whip with milk to make 1 pint. Cook in double boiler with yolks 4 eggs, 1 cup sugar, 1 teaspoonful flavoring; stir until it thickens, add 2 tablespoonfuls gelatine, dissolved in ½ cup boiling water. Pour out into a dish set in cold water, as it thickens fold in the whipped cream as for an omelet. If other flavorings are to be used add in the following proportions:

For Coffee Bavarian Cream: add 1 cup clear, strong coffee.

For Chocolate Cream add 1 ounce melted chocolate.

Cocoa Cream—To ½ cup cocoa add 4 tablespoonfuls sugar, 2 beaten egg yolks, 1 cup cream, small piece of cinnamon stick. Cook in double boiler, when begins to thicken add 2 tablespoonfuls gelatine dissolved in ¼ cup boiling water, a pinch of salt, 1½ teaspoonfuls vanilla, whipped whites of 2 eggs. When cool add 2½ cups whipped cream. Strain into a wet ring mold and chill.

Spanish Cream—Dissolve ½ box gelatine in 1 quart scalding milk. Beat lightly yolks 3 eggs, 1 cup sugar. Add this to the hot milk, stir until thickens. Do not allow it to boil or it will curdle. Remove from fire, strain, flavor. Pour in hot mold set aside in pan of cold water to harden.

Bavarian Fruit Cream—Mash fine, 3 pints berries, or other fruit, strain the juice, add 1 cup sugar, ½ box gelatine soaked in cold water and dissolved in 1 cup boiling water. Add 1 pint cream whipped stiff. Pour into mold and set.

If fresh peaches, etc., are used, add to the above 1 pint of sifted pulp in place of 1 pint milk.

If almonds or any nuts are used, add 1 pint of blanched nuts ground to a paste.

Orange Gelatine Cream—Make a custard of eggs, cream or rich milk, sugar; add gelatine and orange juice. Cool and fold in whipped cream.

Dried Fruit Cream (made with canned milk)—Wash 1 lb. dried apricots or any dried fruit, soak over night in water to cover. Stew in the same water. When tender drain off the juice and to it add water to make 1 pint. Cook 5 minutes with 1 cup sugar until a thick syrup. Put apricots through a sieve and pour on enough syrup to make a soft pulp with the fruit. Whip canned milk to 2 cups, add to the fruit pulp. Serve with cold whipped, canned milk flavored with a little fruit juice or extract.

Prune Whip—1. Make a creamy custard of 1 cup milk, 1 tablespoonful sugar, pinch salt, beaten yolk of 1 egg. Press prunes through sieve. Take several tablespoonfuls fruit pulp, fold it into the custard with stiff white of egg. Add 2 tablespoonfuls sugar and few drops lemon juice. Serve at once.

2. Soak 2 tablespoonfuls gelatine 30 minutes in ½ cup cold water. Stew slowly 1 pint prunes in pint water 30 minutes, remove seeds. Combine gelatine, prunes, ½ cup sugar, 1 pint boiling water. Beat slowly and hard until prunes are pulp. Pour into molds and harden.

3. Steam ¼ lb. dried, soaked prunes or dried fruit, seed and chop pulp fine. Beat very stiff the whites of 4 eggs. Beat in 1 cup sugar and gradually the fruit. Pour into buttered baking dish. Bake very slowly and carefully to prevent whip from falling. When light and firm, serve at once with cream.

Canned Fruit Sponge—Drain syrup from 1 can pineapple, or peaches, apricots, pears. To 2 cups syrup add juice of 2 oranges, 1 lemon, ½ cup sugar. Heat this. Soak 2 tablespoonfuls gelatine in 1 cup cold water, add to the hot syrup, mix well and pour into a wet mold set in cold water. When it thickens add the dry whipped whites of 3 eggs. Beat until stiff. Drop into individual dishes, garnish the whip with pieces of canned fruit.

Lemon Cornstarch Cream—Boil 2 cups water, juice and grated rind of 1 lemon, 2 tablespoonfuls corn starch wet with cold water. As this thickens stir in 2/3 cup sugar, beaten yolks 3 eggs. Remove from fire, add the stiff whites. If it seems thicker than soft custard add sweet orange juice.

Lemon Jelly—Soak 1 envelope gelatine in 1 cup cold water for 5 minutes. Dissolve with 2 cups boiling water. Add ¾ cup sugar and stir until dissolved and cool. Add ½ cup lemon juice and strain. This may be strained into a wet mold over a quantity of shredded fruit or fruit pulp. Serve with whipped cream.

Fruit Sago—Use the juice of berries, grapes, oranges, pineapples or any fruit. To 3 cups fruit juice add 1 cup water. Heat, bring to boil, add 4 heaping tablespoonfuls well-washed sago. Stir until it thickens and is clear, about 15 minutes. Sweeten if necessary and fill jelly glasses.

Farina Jelly Cream—Heat 1 pint milk and 1 tablespoonful farina over slow fire, stirring until farina softens and thickens the milk. Soak 2 tablespoonfuls gelatine 5 minutes in ½ cup cold water. Stir gelatine into farina and milk, mixing well.

Add ¾ cup powdered or granulated sugar, stir, set off to cool. As it thickens fold in 1 quart, whipped cream until mixture is smooth and light. Flavor with 1 tablespoonful orange juice, or 1 teaspoonful vanilla, or ½ cup sherry. Turn into molds and chill.

2 tablespoonfuls chopped and floured raisins, figs or dates may be added to the scalded milk and farina.

Blanc Mange—1. With Irish Moss: Wash 1 cup Irish moss in warm water. Put in double boiler with 1 quart sweet milk. Boil till it thickens when dropped on a cold plate. Add pinch salt, strain carefully, add any flavoring desired. Turn into a cold wet mold.

2. With Sea Moss Farina—Use 1 teaspoonful to 1 quart milk. Heat slowly, stir, cool.

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3. With Gelatine—Soak ½ box or 1 envelope gelatine in cold water, 5 minutes. Boil 1 quart milk, 2/3 cup sugar, pinch of salt, flavoring chocolate or orange. After 5 minutes stir in the gelatine, add vanilla last and pour into mold.

4. With Cornstarch—Dissolve 2 tablespoonfuls cornstarch in cold water. Add 1 quart milk and cook in double boiler 10 minutes, to overcome the raw cornstarch flavor. Stir often, add ½ cup sugar, ¼ teaspoonful salt, 2 beaten eggs. Cook one minute stirring; add 1 teaspoonful vanilla. Serve cold.

The eggs may be omitted and 1 oz. melted chocolate added, or served with grated nutmeg and whipped cream over it.

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of Your Own)**

Ice Creams and Ices

CLASS 24

Ice cream is one of the most nutritious of desserts and easy of digestion.

The term "ice cream" covers a large number of mixtures of different food value. Pure plain ice cream without eggs or fruit contains a high percentage of fat and sugar, but low in protein, while some so-called ice creams have no milk or sugar in them. If the housewife would know what proportion of fat, sugar or protein she is serving her family in her iced desserts, they would be made at home; and because of the large variety of frozen dishes which is limited only by the imagination, the food contents of her dessert may be selected in relation to that of the meal with which it is to be served.

When made at home ice cream is more economical than when bought from a caterer, and the housewife can be sure also of the purity and cleanliness of the ingredients.

A freezer of standard make and of simple design, together with the habit of following a few simple rules will greatly lessen the trouble of frozen desserts. Have the freezer can and the mixture to go in it **cold**; the ice crushed and mixed with coarse salt to the proportion of one salt to two of ice. Pour cold mixture into cold can, cover tightly, adjust can in freezer, pack around the sides with ice and salt. If freezer is packed ½ hour before mixture is put in, the can is ice cold and the freezing is much speedier. Turn crank constantly until cream is nearly frozen. Put in any fruit or extra flavoring, as grapefruit. Have the fruit crushed and stir in well. Cover can, finish freezing. Remove dasher, pack ice cream with a spoon, cover. Add extra ice, draw water off, replug, cover freezer with newspaper and set aside until time to serve.

When ready to clean freezer, wash the can and dasher with boiling soapy water; rinse in hot water adding 1 teasp. borax. Dry thoroughly, air, and put away from dust until ready to use again.

RECIPES

Plain Ice Cream—1 qt. of ice cream swells in freezing to about 1½ qts.; 1 tbsp. of extract will flavor 1 qt. of mixture.

Mix 1 pint cream, 1 pint milk, 1 teacup sugar, 1 tbsp. good vanilla. Freeze.

Vanilla with Whipped Cream—Whip 2/3 pt. cream. Mix 1 pt. rich milk with 1/3 pt. cream, 1 tbsp. vanilla. When partly frozen beat in the whipped cream. Freeze fast for a few minutes. Remove dasher, pack, and let stand 30 minutes. Serve plain or with crushed and sweetened fresh fruit.

Frozen Canned Milk—Canned milk of the best brands makes a rich smooth ice cream. Simmer for 5 minutes 2 cups canned milk, 1½ cups sugar. Cool, add 2 cups more of milk mixed with 1 cup water, 1½ tbsp. vanilla. Freeze. Pack. Serve with fruit sauce or maple or chocolate sauce.

Frozen Custard—Scald 1 qt. milk in double boiler. Mix 1 cup sugar, 1 teasp. flour or cornstarch, ¼ teasp. salt. Add scalded milk slowly. Cook, stirring for 15 minutes. Mix into this 2 well beaten eggs. Stir 5 minutes. Remove from fire, cool. Add 1 pt. cream, 1½ tbsp. flavoring and freeze.

A good substitute for almond flavoring for the country woman is peach leaves. Wash several leaves and cook in with the mixture. Remove leaves before freezing.

Maple Cream—Make a custard as in Frozen Custard using 1 cupful maple syrup instead of the sugar and flavoring. 1 cupful of honey added to plain custard without sugar, together with Maraschino cherries makes a novel flavored ice cream.

Frozen Cherry—A light custard is a comparatively economical ice cream and may offset the

expense of the candied cherries in this recipe: Scald 2 qts. milk, 2 cups sugar, pinch salt, 1 tbsp. cornstarch, 3 beaten eggs. Stir constantly until cooked smooth and thick enough to coat the spoon. Cool, add 2 tbsp. vanilla, or 1 tbsp. vanilla, and 1 tbsp. cherry extract. Freeze until nearly done, remove dasher; stir in 2 cups minced candied cherries. Pack and set aside ½ hour to "ripen." Serve on St. Valentines with tiny heart-shaped pink cakes. This recipe will make about 2½ qts. of ice cream.

Coffee Ice Cream—1. Make good fresh coffee, 2 tbsp. in 1½ cup boiling water. Boil up 3 times, settle, strain off 1 full cup. Combine with 3 cups milk in double boiler. Beat 2 eggs, add pinch salt. Beat these into the milk and coffee; add 1 cup sugar. Stir until like custard, cool, add 1½ cups cream. Freeze and serve with frosted ginger bread, sweet chocolate doughnuts, sponge cake or light wafers.

2. Boil 1 cup water, 1 cup sugar for 5 minutes. Pour this syrup over beaten whites of 2 eggs, stirring well; cool, add 1 cup fresh strong coffee cold. Blend into the whole 1½ cup whipped cream. Pour into mold, cover. Pack in ice for several hours.

Chocolate Ice Cream—To a plain vanilla ice cream recipe add grated or melted chocolate to the proportions of 1 tbsp. to every qt. of milk. It is best boiled in a little water 5 minutes before adding to the milk. Add 1 teasp. cinnamon to the whole or serve with cinnamon sauce.

Cinnamon Sauce—Dissolve 3 cups sugar in ¾ cup water, add ½ teasp. cinnamon extract or 2 teasp. ground cinnamon. Boil gently 2 minutes. Cool; serve on chocolate ice cream.

Caramel Sauce—Melt 2 cups granulated sugar in pan over a slow fire. When light brown stir in gradually ½ cup water, ¼ cup chopped nuts. Stir 1 minute, cool. Pour over individual dishes of ice cream.

Chocolate Sauce—Boil 3 minutes 1 cup water, 1 cup vinegar, 2 tbsp. corn syrup. Add 2 tbsp. melted chocolate. Serve on ice cream.

Nut Creams—Almonds, pistachio, filberts, walnuts, pecans, should be blanched by directions under "Nuts and Sandwiches." Blanch, pound fine and either simmer in the milk of the recipe chosen, or add at the same time with the flavoring, or sprinkle on the syrup, or in each dish of frozen creams.

Peach or Strawberry Ice Cream—Use double boiler. Scald 1 pt. milk, add pinch of salt, 2 cups sugar, then 2 cups cream, cool, add flavoring. If crushed peaches are to be used, add ½ teasp. Maraschino or almond extract; if strawberries, add 1 teasp. strawberry extract or 2 tbsp. juice. Freeze half done, then stir in 2 cupfuls crushed fresh peaches or strawberries, or preserved chopped fruit. Finish freezing.

Peppermint Whip—Make a syrup of 1 cup sugar, ½ cup water, ½ teasp. peppermint extract. Simmer 3 minutes, cool, add 2 cups milk. Whip 1 pt. cream, and 2 egg whites, pinch of salt. Combine these two. Pour the peppermint syrup slowly into the eggs and cream, beating constantly. Freeze; serve with angel food cake or white cake.

Gelatine Ice Cream—When the ice cream is to be served in a fancy form it will hold its shape better and will not melt so soon if a little gelatine is added to the recipe desired.

Soak 1 teasp. gelatine in 2 tbsp. cold milk. Scald 1 qt. milk, 1 cup sugar, 1 pinch salt. Pour this over mixture, strain, cool; add 1 tbsp. vanilla, 1 pint cream plain or whipped. Freeze.

Frozen Pudding—This may be prepared with the recipe of Gelatine Ice Cream as a foundation, using extra, 2 eggs to each qt. Make the custard of eggs and milk, pour it over the gelatine, freeze. When half frozen add wines or other flavorings, nuts or fruits, preserved or candied fruit, ginger, macaroons or cake crumbs. If the pudding is to be poured into a mold and packed in ice, combine the fruits or flavorings with the custard and gelatine.

Grape Jelly Pudding—Make 1 qt. rich plain ice cream, freeze soft, stir in ½ cup coarsely ground nuts, ½ cup grape jelly, ½ cup powdered stale cake. Freeze, serve, sprinkled with nuts.

A Macaroon Ice—Boil 1 cup water, 1 cup sugar, together until it strings from the spoon. Beat 3 eggs. Beat a few drops of hot syrup at a time into the eggs until all is used. Stir in gradually 2 cups milk in which 1 teasp. gelatine has been dissolved. Add 1½ teasp. vanilla. Stir in 1 cup whipped cream, 1 doz. dry pounded macaroons. Put the pudding into a mold, pack in ice 6 hours.

Pineapple Pudding—1. Line a 2 qt. mold with slices of canned pineapple. Heat together 1 cup pineapple juice, 1 cup sugar, 3 beaten egg yolks. Stir till smooth; add 1 cup chopped pineapple, ½ cup minced shredded cocoanut. Fold in 2 cups of cream whipped. Pour into mold. Pack with ice and salt, stand 4 hours. When ready to serve remove mold, heat it slightly by allowing tap water to flow over it. The ice cream should slide easily out in form from the mold.

2. Add to the above recipe the 3 beaten whites of eggs and ½ cup chopped bananas, ½ cup shredded orange pulp sweetened with ½ cup sugar dissolved in 1 cup water.

Orange Mousse—Fill a mold with a mixture of 2 cups sweet orange juice, ¼ cup lemon juice, ¼ grape fruit juice, 2 cups sugar, 1 pint cream whipped, 1 cup ground nuts. Pack the covered mold in ice. After 4 hours serve in small glasses. Pass orange wafers, and candied orange peel.

Orange Ice—Boil 1½ qts. water with 2 cups sugar for several minutes. Add pinch of salt, 1 cup orange juice, 2 tbsp. lemon juice, 1 teasp. grated rind. When cool, freeze. Serve in small glass cups, top each with Maraschino cherries.

Blueberry Parfait—To every qt. blueberries use 1 cup sugar; crush blueberries, mix with ½ amount of sugar, stand 2 hours, then press through strainer. Make syrup of remaining half of sugar and a little water. When it spins a thread, pour syrup over beaten whites of eggs, 2 eggs to every qt. of berries. Cool, fold in ½ pint whipped cream and the strained blueberries with 1 tbsp. grape juice. Freeze.

Strawberry or Raspberry Ice—1. Wash and hull berries, adding 1 cup water to every qt. Crush the fruits; add to this the juice of 1 lemon, 1 cup sugar. Let stand 1 hour; strain, freeze; or:

2. When lemon juice is added put in also juice of 2 oranges, ½ cup sugar and do not strain. Serve when frozen in punch glasses.

Canned Fruit Sherbet—Use canned apricots, peaches, pears or grapes. Make a plain lemon sherbet mixture using either lemon juice or grape fruit juice. For apricots or peaches add ½ cup sugar. For pears or grapes use ½ cup less of sugar. Freeze lemon sherbet slightly; add the canned fruit crushed. Fold in stiffly beaten white of egg. Finish freezing.

Lemon Sherbet—Boil 2 cups sugar with 1 qt. water 6 minutes. Add 1 cup lemon juice. Strain, freeze slightly; add stiffly beaten white of 1 egg. Cover, freeze. This will serve 10 or 12 glasses.

Orange Cream Sherbet—1. Make a syrup of 3 cups water, 2 cups sugar, add ½ cup orange and lemon juice each. Cool, freeze. When half done, add 1 cup whipped cream. Finish freezing.

2. An easier way is to mix lemon and orange juice with sugar in the proportions in No. 1. Stir in milk instead of water, very slowly. Add the cream, freeze. Serve in tall glasses. To make it less expensive omit the cream.

Grape Juice Sherbet—Make as cream orange sherbet No. 1, omitting orange juice; adding instead 1½ cups rich grape juice.

Apple Sherbet—Peel 1 doz. tart apples, core and quarter them. Boil the parings in 1 qt. water, covered, until juice is extracted. Press through a colander. Put apples in same water, boil gently till tender. Press through strainer. There should be 1 pint or more of apple juice. Add this to a syrup made of 2 cups sugar, 3 cups water, juice of 1 lemon. Freeze.

Pineapple Sherbet—To make about a gallon, use 1 large can of pineapple, chop fine, add juice of 4 lemons. Boil 1 qt. water with 4 cups sugar, add the pineapple juice from 1 can. Cook 5 minutes. Pour this over chopped pineapple and lemon juice. Add cold water to make 3½ qts. Freeze. When half done add stiffly beaten whites of 4 eggs.

Gelatine Cream Fruit Sherbet—Make a 5 minute syrup of 2 cups water, 1 cup sugar. Dissolve 1 teasp. gelatine in juice of 2 oranges and 1 lemon. Pour syrup over gelatine juices. Strain, cool. Whip whites of 2 or 3 eggs, fold into the cooled fruit gelatine syrup. Freeze. When half frozen add ½ cup grape juice or crushed fruit, and if desired, 2 cups whipped cream or top each sherbet glass with spoonful whipped cream.

California Coupe—Pineapple, orange pulp, banana, each chopped separately and combined with their juices, a little lemon juice and shredded cocoatnut, make a delicious fresh fruit dessert with powdered sugar sprinkled over. Let this fruit pudding stand in its juices and sugar 2 hours in ice box. Then fill thin glasses half full with it and top with a berry ice or orange mousse.

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CLASS 25

Pickles and Catsup

PICKLES

(Food Preservation: A National Challenge, Cornell Reading Course)

It is the custom with such vegetables as tomatoes and cucumbers to soak them in brine before putting them through the regular pickling process. The brine is probably used because it withdraws moisture from the tissue of the vegetable and makes it possible to obtain a firmer product, renders a milder flavor, gives the desired salt taste, and adds to the keeping quality of the pickle. Some persons prefer to omit the treatment with brine. The strength of brine required depends on the length of time the vegetable to be pickled is to remain in the brine. Too strong a brine softens and spoils the vegetable. Brine may be made by adding 1/3 to ½ cupful of salt to 1 qt. of water. Such brine should be strong enough to float a fresh egg.

Grape leaves and cabbage leaves are said to help in retaining the natural green color of cucumbers and unripe tomatoes. The bottom and sides of the kettle are lined with leaves, the kettle is then filled with the mixture to be pickled, and the top of the mixture is covered with leaves. "Greening" vegetables by cooking them in copper kettles is dangerous. If copper utensils are used at all, they must be scrupulously clean.

RECIPES

TWO VINEGAR MIXTURES for pickles are as follows:

Recipe 1.—1 qt. vinegar, 1½ teasp. whole black peppers, 1½ teasp. celery seed, 1½ teasp. allspice, 1 tbsp. sugar, ¾ teasp. whole cloves, ¾ teasp. mustard seed, 1½ tbsp. cinnamon bark, ¾ teasp. grated horseradish.

Recipe 2.—1 qt. vinegar, ½ oz. ginger, 1 teasp. mace, 1 oz. small onions, 1/3 oz. mustard seed.

If pickles have not been soaked in brine, use 2 oz. of salt.

Cucumber Pickles—Soak cucumbers in brine for 24 hours, then rinse and drain them. Cover them with vinegar or vinegar mixture to which has been added 1 tablespoonful of brown sugar for each quart of vinegar. Bring them slowly to the boiling point. Pack the pickles in a jar, and cover them with vinegar.

Sweet Cucumber Pickles—Soak cucumbers in brine for 24 hours. Rinse, drain, and wipe them dry. Place them in a kettle, and cover them with the following vinegar mixture: 1 quart vinegar, 1 cupful sugar, 8 whole cloves, 6 allspice, 6 blades mace, 8 whole black peppers. Heat the pickles slowly to the boiling point, and pack them at once.

Quick Pickles—Put cucumbers in strong brine (½ to ¾ cupful of salt to 1 quart of water). Bring them slowly to the boiling point, and simmer them for 5 minutes. Drain off the brine, cover them with cold water, and change it as it becomes warm. Keep changing the water until the pickles are crisp and cold. Cover them with a vinegar mixture made by either of the two preceding recipes.

Mustard Pickle—2 qts. cucumbers, 2 qts. green tomatoes, 2 qts. cauliflower, 2 qts. small onions, ½ lb. mustard, ½ cupful flour, 6 cupfuls brown sugar, 1 green pepper, cut fine, 2 qts. vinegar.

Cut up the vegetables, and scald them in salt water (1 qt. water to ¼ cupful salt), then drain them well. Mix the mustard, the flour, the sugar, and the pepper, add the vinegar, and boil the mixture for 10 minutes. Pour the mixture over the chopped pickle while it is boiling hot, and seal the pickle in scalded jars.

Dill Pickles—To each qt. of water allow 2 tbsp. salt; boil 5 minutes. When cold pack the pickles in jars with dill between. Fill with the brine, cover and keep in a cool place. It may be necessary to wash the pickles and pour fresh brine over at intervals.

Green Tomato Pickles—Chop together fine, ½ bu. green tomatoes, 6 large onions, 6 large peppers, ¼ lb. white mustard seed and 2 tbsp. celery seed. Put in layers, one of the mixture and one of salt, using in all ½ cup salt, and let stand over night. Then squeeze dry, add 2 qts. vinegar and boil together until tender; when nearly done add 1 lb. sugar and put in cans.

Watermelon Rind Pickles—Cut rind in small pieces, peel and remove all the red parts; cover with cold water and let stand several hours, then boil till clear and drain well. Make a syrup by boiling equal quantities of vinegar and sugar, a stick of cinnamon and race ginger. For 3 days in succession pour this mixture, boiling hot over the rind. Put in stone jars.

Pickled Onions—Select small white onions, peel, cover with cold water and let stand two days, changing the water on the second day. Wash well and place in brine four days, changing the brine at the end of the second day. Take onions out of brine, put them in boiling water for 10 minutes; then put them in cold water 2 hours. Drain, pack in jars, add a few small red peppers and garnish with sprigs of mace. Fill jars to over-flowing with spiced vinegar. See Recipe No. 1, Vinegar Mixtures.

Pickled Beets and Carrots—Boil the beets until tender and remove the skins, slice while hot; cover with hot spiced vinegar. Prepare carrots the same way. See Recipe No. 1, Vinegar Mixtures.

Pickled Green Walnuts—Wipe green walnuts with a dry cloth, put into wide necked bottles or jars, and cover with cold vinegar. Cover the jars closely and let stand in cool, dry place four months; then drain off vinegar. Boil enough vinegar to cover them. Allow 1 oz. of salt and ½ oz. each of allspice, peppercorns, cloves and whole ginger to 3 pints of vinegar, combine with vinegar and pour boiling hot over the walnuts. Cover tight and put away in cool dry place. They will be ready to use in 3 weeks.

Tomato Catsup—One bushel of ripe tomatoes cooked tender and pressed through sieve. Add 1½ pints salt, 2 oz. whole cloves, ½ oz. whole allspice, 1½ oz. whole black pepper, 5 beads of garlic, 1 lb. celery seed, ¼ oz. ground mustard (in a bag) and 2 qts. vinegar. Boil until reduced about half; then add cayenne to suit. Bottle when cold.

Cabbage Relish—Remove seeds from 1 green and 1 red pepper; then with ½ head small cabbage put through meat chopper and mix with 1 tbsp. celery seed, then pour vinegar over, and salt to taste. Put in fruit jars and keep in refrigerator.

Beet Relish—Put 1 qt. cooked beets and 1 small head cabbage through food chopper and add 1 cup grated horseradish, 2 cups sugar, 2 tbsp. salt, 2 teasp. mustard, 2 teasp. celery seed and 1 pint vinegar; let stand about 24 hours before using. Will keep indefinitely.

Pepper Relish—12 red peppers, 12 green peppers, 12 onions, 1 pint vinegar, 2 cupfuls sugar, 3 tbsp. salt. Chop the peppers and the onions. Cover them with boiling water, and let them stand for 5 minutes. Drain off the liquid. Add the vinegar, the sugar, and the salt, and boil the mixture for 5 minutes. Pour it into scalded jars, and seal them.

Chile Sauce—Recipe I—12 large tomatoes, chopped, 2 medium-sized onions, chopped fine, 3 green peppers, chopped fine, 2 tbsp. salt, 3 cupfuls vinegar, 1 tbsp. mustard, 1 teasp. cinnamon, 1 teasp. nutmeg, 2 tbsp. sugar. Cook the sauce until it is of the right consistency, or about 1½ hours, and seal it in scalded jars or bottles.

Recipe II—12 tomatoes, 2 onions, 1 green pepper, ¾ cupful brown sugar, 1 teasp. cloves, 1 teasp. cinnamon, 1 tbsp. salt, ½ cupful vinegar. Peel the tomatoes, and slice them. Chop the onions and the pepper. Combine the ingredients, and cook the mixture until it is thick. Seal it in bottles or jars.

Chutney—2 dozen ripe tomatoes, medium size, chopped, 6 onions, medium size, chopped, 3 red peppers, chopped, 3 green peppers, chopped, 1 dozen tart apples, chopped, 1 lb. seedless raisins, 1 cupful celery, cut fine, 2 qts. vinegar, 3 cupfuls sugar, salt. Combine the ingredients, and cook the chutney until it is thick and clear. Pour it into hot sterile jars, and seal them.

Very Hot Chutney—¼ lb. garlic, ½ lb. onions, ½ lb. raisins, 13 large sour apples, chopped, 13 ripe tomatoes, medium size, chopped, ½ lb. salt, 1 lb. sugar, ½ oz. cayenne, 3 pints vinegar, ¼ lb. mustard. Boil the vinegar until it is reduced one-half, add to it the apples and the tomatoes, and boil the mixture until the apples are soft. Chop the garlic, the onions, and the raisins together, and add them with the other ingredients except the mustard, to the boiling mixture. Cook it until it is thick, or for about 2 or 3 hours. Add the mustard just before taking the chutney from the fire. Pour it into hot sterile jars, and seal them.

Cherry Relish—Remove the pits from cherries and drain them. Cover them with a vinegar solution made in the proportion of ¾ cupful of vinegar to 1 qt. of water. After 5 or 6 hours drain the cherries, weigh them, and add an equal weight of sugar. Allow the cherries to stand overnight. Seal them in glass jars and keep them in a cool dark place. The vinegar solution that has been drained off may be used in making various kinds of sweet pickles.

Mock Mincemeat—3 lbs. green tomatoes, 3 lbs. apples, chopped, 5 lbs. brown sugar, 2 lbs. raisins, chopped, 2 tbsp. salt, 1 cupful suet. Separately: 1 cupful vinegar, 2 tbsp. cinnamon, 2 tbsp. cloves, 1 nutmeg, orange peel, if desired. Chop the tomatoes, and drain them well. Measure the juice, and add the same amount of water to the pulp. Scald the mixture, and drain off the liquid. Repeat twice this process of adding fresh water, scalding, and draining. Add the remaining ingredients in the first list, above, to the pulp, and cook the mixture until it is clear. Add the second list of ingredients above together, and cook the mixture until it is thick. This mincemeat will keep in a covered stone jar.

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Scraps or Memos.
of Your Own)**

Seasonings and Their Uses

CLASS 26

It is a wise economy to purchase spices of the highest quality only, as the ground spices in particular offer a tempting medium for adulteration. Only a very small quantity of a pure spice will be required to impart a fine, delicate fragrance to food.

Mustards and peppers should not be used to excess. Cloves, cinnamon, cassia, allspice, nutmeg, mace, caraway, aniseed, etc., when used in moderation encourage appetite and relish for food and also help digestion. Physiologists state that the aromatic bodies when absorbed into the blood relieve and prevent nervous depression and "lowness" of spirits.

RECIPES

Fines Herbes—A combination of herbs, minced together, made up of a teasp. of parsley and ½ teasp. each of marjoram, savory, chervil, and a little sage. Sprinkle over broiled or planked fish, place in the fold of an omelet, strew over shirred eggs, or serve with lettuce or romaine. Use in stuffing for baked cabbage, tomatoes, or game.

Mint—Use fresh in mint sauce, cabbage-and-mint salad, drinks as orange-mint ade, or angel tip, orange-and-mint salad, lemonade, fruit cocktails, or hot or iced tea, and fresh or dry in a casserole of duck, apple jelly or gelatin, canned or dried pea soup, and with peas.

Parsley—Use sparingly fresh, or dried and freshened, with omelets, shirred eggs, any chopped meat, broiled tomatoes, mushrooms, buttered potatoes, in butter sauce for fish, and in soups and salads.

Dill—Use fresh or dried and freshened, in egg salad, plain salads, cream soups, and on broiled fish.

Dried Mushroom Trimmings—Use as a basis for mushroom soup, mushroom sauce, and in cream or brown sauce for oysters, veal, fish, chicken, and any place where a mushroom flavor is desirable.

Sage—Use fresh or dry with beef, chopped meats or pork, stirred into plain corn meal mush for frying, and occasionally with cabbage, string beans or spinach cooked with salt pork; also in bread dressings for pork, beef, or ham.

Thyme and Marjoram—Use with light meats, such as turkey, broiled squab, pan-cooked chicken; with fish, in bread dressings, and with boiled beans.

Tarragon—When fresh, mince and sprinkle on plain salads, use in chicken, fish, and veal salads, or sparingly on broiled fish. Use fresh or dry in making tarragon vinegar.

Horseradish—Use with heavy meats mixed with a little vinegar and sugar, or as a sauce made with stock and crumbs; beat into butter and spread on broiled or planked fish, or use in sandwiches; add to pickled beets or beet and cabbage salad. Dried horseradish may be freshened and used in the same way.

Bay Leaves—Use sparingly in meat soups, bisques made of haddock and cod, cream of tomato soup, and cream of celery soup. Boil with veal, ham, game, and fish. Use in baking fish, carrots en casserole, stewed tomato, in white sauce for meat or fish, or in brown and tomato sauce.

Celery Tips—Use for celery soup, bouillon, in sauce for fowl, for creaming oysters, lamb, or chicken, in making chicken jelly, boiling veal for a loaf, and in potato soup and oyster stew.

Mixed Pickle Spice—Use a teasp. in making 2 qts. of soup-stock, boiling mutton, fish, corned beef, ham, or tongue, making tomato soup, pickling beets, cauliflower, and carrots for immediate use. To use, tie loosely in cheese cloth.

Whole Cloves—Use in making soup-stock, sweet-sour sauces, baked carrots, in boiling beans, spiced beets, and fish, and in baking ham in cider or grape juice. Use in spiced grape juice, coddled apples or pears, and spiced punch.

Mustard—Sprinkle sparingly on lettuce to be dressed at the table, in mustard sauce for potatoes, beef, and so on, combine with minced ham and tongue for sandwiches, and add occasionally to cheese dishes.

Mace—Use sparingly with spiced beef, oysters, veal, in mayonnaise for shellfish, occasionally in sauce tartare, French oyster soup, scalloped oysters, sauce for asparagus, potato croquettes, and so on; use in rich cookies, berry pies, and pound cake to produce the old fashioned flavor.

Nutmeg—Use very judiciously, as its flavor is pronounced, with spinach, mushrooms, or in place of mace. It may be combined with pickled beets or carrots, also sweet potatoes, stuffed baked potatoes, scalloped fish, and the like. Grate over custard pie or junkets, use in custards, any apple dish, occasionally with cooked peaches or pears, or whenever a blend of spices is desirable.

Stick Cinnamon—Use with pickle spice, in boiling corned or spiced beef, ham, smoked or fresh tongue, occasionally with fish, and in making court bouillon. A little is delicious with chocolate either hot or iced, in chocolate corn starch pudding, or chocolate frappe. It combines well with boiled apples, scalloped pears either fresh or dried, and stewed figs or prunes.

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Ground Cinnamon—Use in apple and squash pies, doughnuts, apple rolls, Dutch apple cake, in the syrup for basting baked apples, currantade, spice cakes, toast, cinnamon loaf, and so on.

Caraway Seed—Use with pork, sausage, in red cabbage salad, for caraway vinegar, in old time seed cakes, rye and sweet breads, etc.

Coriander Seed—Use in pickling fish, in candies, sparingly sprinkled on cookies, ground in cakes, sweet rolls, or bread.

Curry—Use with meats which need livening, as soup meat, boiled chicken, sweetbreads, and the like, or in sauce for ham, tongue, or fish, in boiled or mayonnaise dressing to be used with veal, lamb, or vegetables. Serve curried rice or potatoes with chicken, veal, or lamb, either plain or creamed. Curry sauce may be used with quickly boiled cabbage, cauliflower, carrots, or onions.

CLASS 27
Sandwiches and Nuts

To make dainty appetizing sandwiches takes less time and material than some housewives realize.

For the home luncheon, sandwiches offer the opportunity of both using an occasional left over and of providing a very substantial addition to the meal, and for tea or luncheon they may be made to add the spice or relish so necessary to the menu.

Besides the most convenient white bread for sandwiches, there is brown, Graham, whole wheat, rye, raisin, nut bread, rolls, beaten biscuit, crackers and even cornbread, and for a filling foundation, fish, meats, some vegetables, eggs, cheese, nuts, sweets, spices and pickles.

Some sandwiches require that the bread used be fresh, others are better made with bread a day old. A very sharp knife is needed for slicing either. For rolled sandwiches take a long slim loaf of fresh bread, stand on end and slice thin, lengthwise. If a round or fancy shaped cutter is used more sandwiches may be gotten from bread sliced lengthwise than crosswise; but for square shapes, cut across the end of a loaf.

For home luncheon if bread is very fresh it need not be trimmed of crusts, but it must be remembered that crusts may always be used to advantage either chopped into small pieces and browned for soup croutons, or dried, and ground into crumbs.

A quick way to trim off crusts is to go around each slice with large scissors, or with a sharp knife, trim down a pile of slices all about the same size. This should be done before the filling is put in as bits of the filling left on the crusts will prevent them from being used to advantage.

Time is also saved by creaming the butter and either spreading on each slice before it is cut from the loaf, or by using a small flexible knife to spread it on the trimmed cut slices.

When creaming the butter any flavoring intended to be used in the filling may be combined at this time, either chopped olives, anchovy essence, sardine or salmon, chives, parsley, paprika or caviar.

When making a meat sandwich it is sometimes well to remember just which relish is most suitable for the meat to be used. Cold roast beef is always nicer with a bit of grated horseradish; cold pork, chili sauce; cold lamb, chopped capers; veal, tomato sauce; chicken and other fowl, salad dressing.

Sandwiches to which French dressing is added should be eaten directly after they are put together before the dressing soaks into the bread. Other sandwiches may be kept fresh for several hours by wrapping them in waxed paper or in a dampened napkin and placing where it is cool.

APPETIZING SANDWICHES

(Iowa State College Bulletin)

Bread for sandwiches should be at least 24 hours old, cut in slices of uniform thickness and spread with creamed butter. Both slices should be buttered, as butter keeps the bread moist and prevents filling from soaking into the bread.

The filling material adds to the food value of the sandwich. Any food capable of being mashed, finely ground, or thinly sliced is suitable for filling. It should be spread on one side of the buttered bread, the other side fitted to this and the sandwiches cut in dainty, convenient shape.

The crusts should not be removed from noon lunches. For afternoon functions the sandwiches are more dainty with crusts removed.

Sandwiches are served at noon and school luncheons, afternoon and evening parties, picnics, and informal entertainments.

Materials used in sandwiches:

Raw Vegetables—Lettuce, cucumbers, radishes, onions, green peppers, nasturtium leaves, romaine, endive.

Cooked Vegetables—Kidney beans, beets, peas, beans, pimientoes.

Eggs—Cold, boiled, scrambled.

Meat—Chicken, veal, beef, pork, ham, bacon.

Fish—Halibut, salmon, bass, pike, sardines, tuna.

Nuts—Peanuts, English walnuts, Brazil nuts, Hickory nuts.

Cheese—Camembert, American, Cream, Neufchatel, Parmesan, Cottage.

Fruit—(Preserved fruits, marmalades, jellies and jams)—Apples, Cherries, Currants, Grapes, Oranges, Grape Fruit, Peaches, Pears, Pineapples, Figs, Dates, Raspberries, Strawberries, Blueberries, Quince, Guava, Apricots, Raisins, Rhubarb, Gooseberries, Blackberries.

IOWA STATE COLLEGE SANDWICHES

Brown Bread Sandwiches—Cut Boston brown bread in thin slices, spread with butter and sprinkle with chopped nuts seasoned with salt. Grated cheese may be mixed with the nuts.

Noisette Sandwiches—To whole wheat bread sponge add 2 tbsp. molasses and 1 cup nutmeats. When bread is 24 hours old, cut in thin slices, spread with creamed butter and orange marmalade. Cut in fancy shapes and garnish with nut meats.

Colonial Sandwiches—To one-half the recipe of whole wheat bread, add 1 tbsp. molasses, and while kneading, work in ½ c candied orange peel, and ½ c chopped nuts. Bake in 1 lb. baking powder cans. When cool slice thinly and spread with butter.

Windsor Sandwiches—⅓ c butter, ½ c boiled ham, ½ c boiled chicken, 2 tbsp. chopped green pepper. Cream the butter, add the finely chopped ham and chicken. Season with salt and paprika. Spread between thin slices of unbuttered bread.

Bacon Sandwiches—6 slices of bacon, 12 thin slices toast. Fry bacon, drain and place between slices of hot buttered toast.

Corned Beef Sandwiches—Put corn beef thru meat grinder, moisten with salad dressing and cream and season with finely chopped pickles. Spread between slices of buttered bread.

Chicken Cream Sandwiches—3 tbsp. fat, 3 tbsp. flour, ½ tsp. salt, ⅛ tsp. pepper, 1 c milk, 1 c chopped cold boiled chicken, ¼ c chopped celery, ¼ c chopped cold boiled onion, 1 tbsp. lemon juice, whites of two eggs. Melt fat, add flour, salt and pepper and blend. Cook thoroly, add milk and cook until smooth and glossy. Add chicken, celery, lemon juice and onion. Fold in beaten egg whites. Turn into a mould and chill. Cut in thin slices and place between slices of buttered bread. Cut in fancy shapes if desired.

Nut and Cheese Sandwiches—Mix equal parts of grated cheese and finely chopped nuts. Season with salt and pepper and moisten with salad oil or salad dressing.

Cheese Sandwiches—2 tbsp. butter, ¼ c grated cheese, 1 tsp. lemon juice, ¼ tsp. salt, ⅛ tsp. paprika, ¼ tsp. mustard. Cream butter, add cheese and other ingredients and spread between slices of unbuttered bread.

Toasted Salad Sandwiches—Mash cream cheese and moisten with French dressing. Cut Graham bread in ¼ inch slices, spread with cheese mixture and sprinkle with chopped nuts. Put together in pairs, remove crusts and cut in finger-shaped pieces. Toast, pile log cabin fashion on a fancy plate and serve as an accompaniment to a dinner salad. —Fannie M. Farmer.

Fruit Sandwiches—Chop figs, add a small quantity of water and cook in double boiler until paste is formed and add a few drops of lemon juice. Cool before spreading. Finely chopped peanuts may be mixed with the paste if desired.

Dates and prunes may be used in the same way.

NOTE—Nuts ground with figs, dates, raisins or stewed prunes make good fillings.

Ginger Sandwiches—Cut preserved ginger in very thin slices and sprinkle between slices of buttered bread.

Egg Sandwiches—I. Mix chopped, hard cooked eggs with equal or less amount of chopped boiled ham. Moisten with salad dressing.

II. Scramble eggs with bits of crisp bacon and place between thin slices of buttered toast.

Horse Radish Sandwiches—Fit two rounds of bread together. Cut the upper round with a doughnut cutter. Place sandwich filling between and fill the cavity with chopped olives.

Horse Radish Dressing—½ c heavy cream, ¼ tsp. salt, 2 tbsp. grated horse radish , 1 tsp. gelatine, 3 tbsp. vinegar, few grains pepper. Beat cream until thick. Add softened gelatin to vinegar and add seasonings and horse radish. When the mixture begins to thicken, fold in whipped cream gradually.

Mexican Sandwiches—1 qt. small sweet cucumber pickles, 1 can pimientoes (small). Chop finely and moisten with salad dressing when ready to use.

American Sandwiches—1 c finely chopped roast beef, 1 tbsp. horse radish, 2 tbsp. chopped cucumbers, ½ c mayonnaise.

English Sandwiches—1 c grated cheese (sharp), 1 c creamed butter, 1 tsp. Worchestershire sauce, ⅛ tsp. paprika. Spread on brown bread.

Pepper Sandwiches—Chop and drain sweet red or green peppers, and moisten with salad dressing.

Relish Sandwiches—Equal parts chopped parsley, onion and horseradish. Moisten with creamed butter.

Sandwich Filling—Pea or bean pulp.
Variations in seasoning of pulp:

1. Cheese, salt and pepper.
2. Chopped onions and parsley, salt and pepper.
3. Celery, nuts, lemon juice, salt and pepper.
4. Butter, lemon juice and green peppers, salt.
5. Parsley, pimientoes, salt and pepper.

RECIPES—GENERAL

Salmon Layer Sandwich—Make a paste of the salmon, mixing in the oil if canned, if fresh cooked use melted butter, salt and pepper to taste, 1 teasp. lemon juice to 1 cup fish. Mash yolks of 4 hard boiled eggs with a little oil or butter. Chop crisp lettuce and sprinkle with salt.

Slice thin one large square loaf of white bread. Put 4 slices together, trim crusts, spread bottom slice with salmon mixture, the second slice with egg yolk, the third with chopped lettuce. Top with buttered bread, press all together gently and cut this square diagonally into 2 sandwiches.

Fish Rolls Sandwich—Mince well salmon or tuna fish from 1 small can, or any cold cooked fish. Mix with ½ cup mayonnaise and 2 hard boiled eggs chopped. Remove soft crumb from long crusty rolls, fill with the fish and egg mixture, lay on top tiny strips of cucumber pickle. The crumb may be used in bread pudding or if carefully removed it is delicious brushed with butter, quickly browned and served hot.

Shrimp Sandwich—Use either canned or fresh cooked fish. Break shrimp into bits, add minced pickle, mix with enough mayonnaise to hold together. Spread on slices of buttered bread with lettuce between. If the pickle is omitted add enough grated lemon rind to highly flavor the mayonnaise.

Crab Meat Sandwich—Cream 4 tbsp. butter, add ½ teasp. mustard, 1 teasp. salt, vinegar or lemon juice, pinch of paprika, 2 tbsp. chopped olives or 1 pickle, ½ cup grated cheese, 1 cup crab meat. Mix together thoroughly, spread on Graham bread, top with buttered white bread.

Salad oil can be used instead of butter and 1 teasp. anchovy essence in place of crab meat.

Oyster Sandwich—Chop 2 doz. large oysters, mix with a cream sauce made of 2 tbsp. butter blended with 1 teasp. flour, ¼ pt. top milk or cream, ¼ teasp. salt and pepper mixed. Cook slowly together oysters, sauce and 4 tbsp. powdered crackers stirring until smooth. Stir in 2 tbsp. grated cheese. Cool, and add 6 chopped olives or 1 teasp. parsley. Spread on thin buttered bread or crackers.

Sardine Sandwich—1. Mash sardines from 1 can and mix with 2 hard boiled eggs, add few drops lemon juice, pepper, salt and mustard. Spread between crackers.

2. Skin and bone sardines, mix with equal amount cream cheese, spread on rye bread.

Chicken Sandwich—Chop cold cooked chicken very fine, add chopped celery and nuts. Combine altogether with mayonnaise dressing. Spread between rounds of thin buttered white bread. Add chopped parsley, watercress or lettuce if desired.

Chicken Giblet Sandwich—After a roast chicken dinner, chicken giblet sandwiches are convenient for next day's luncheon. Grind the giblets with a few bits of left over dark meat. Mash a large slice of canned pimento. Mix both with a little chicken stuffing highly seasoned. Spread on beaten biscuit, crackers, or Graham bread.

Deviled Ham Chicken Sandwich—Slice cold cooked chicken very thin, lay on small crisp lettuce leaves, sprinkle with salt, place in between slices of rye bread on which ham paste has been spread.

To make ham paste, grind ham, mix with oil, vinegar, mustard and paprika; or use canned deviled ham.

Ham Sandwiches—Ham sandwiches are best and easiest made when ham has been ground. It can be mixed with mayonnaise dressing, or mashed or chopped egg highly seasoned.

Fresh loaf corn bread made with 2/3 flour will slice fairly thin and makes a wholesome foundation for a highly seasoned ham mixture.

Left over bits of rice or potatoes, mashed with the ham serve to hold the ground ham together, seasonings of salt, paprika, lemon juice, chopped pickle or watercress add to the relish of the sandwich.

Cold Meat and Vegetable Sandwich—Any left over vegetables, such as asparagus tips, beans, peas or chopped spinach may be made into a seasoned paste and spread on one slice of bread, the ham

or cold meat paste on another slice. Press the two slices together with a lettuce leaf or watercress between.

Ham Toast Sandwich (using left overs)—Mix ground seasoned ham with just enough cooked potatoes or cereal from breakfast to hold the ham together. Spread on small slices of whole wheat bread cut ¼ inch thick. Cover with bread. Brown the sandwiches quickly on both sides in a skillet greased with ham or bacon fat; or dip sandwiches in a batter made of 1 egg, 1 cup milk, salt and pepper. Brown and serve hot.

Croquette Sandwich (using left overs)—Left over croquettes or meat balls make a quick and good sandwich filling. Mash to paste with cream or mayonnaise, add salt and lemon juice or chopped pickle if more seasoning is needed. Spread between buttered bread or crackers.

Roast Beef Sandwich—Slice cold roast beef very thin, spread lightly with grated horseradish, place on lettuce between thin slices buttered whole wheat bread.

Chipped Beef Sandwich—Mince chipped beef very fine; mix with mayonnaise, spread on Graham bread, add a slice of cucumber or tomato if desired.

Creamed Tongue Sandwich—Use tongue or ham, chicken or veal, minced and heated in a little thick cream sauce. Bake cracker thin biscuit cut out with a small round cutter, open them when done crisp, butter and spread with creamed tongue. Serve hot.

Cold Tongue Sandwich—Slice cold tongue thin, or pound to a paste. Mix with mayonnaise seasoned with Worchestershire sauce, spread between buttered slices of white bread.

Roast Pork Sandwich—Cut off fat and slice roast pork, or cooked link sausage, spread with thin layer chili sauce, lay on lettuce leaf between buttered slices rye bread.

Hot Vegetable or Novelty Sandwich—Cook 2 tbsp. minced onion in 2 tbsp. bacon fat or oil; chop 4 green peppers, 4 peeled tomatoes and cook with onion till nearly dry, about 30 minutes. Season with salt and pepper. Spread on hot toast or crisp hot biscuit or between bread slices buttered. Serve with cold ham or sliced meat or add the meat or fried bacon to the sandwich.

Tomato Sandwich—Take plain peeled tomato slices with mayonnaise dressing, lay on lettuce leaf between buttered rye or Graham bread. Watercress or grated cheese may be sprinkled over the dressing, or the top slice of bread spread with deviled or highly seasoned ham paste.

Tomato puree thickened into a paste and combined with ground ham or pork or veal or egg makes a spicy filling for rye bread sandwiches.

Egg Sandwiches—Slices or mashed hard boiled eggs add to the desirability of any meat, cheese or vegetable sandwich.

Boil 6 eggs 15 minutes, cool, remove shells, pound smooth, add salt, pepper paprika, 2 tbsp. butter or oil, few drops lemon juice or vinegar or chopped olives or pickle. Spread on crackers or thin slices of white bread.

Scrambled Egg Sandwich—For 6 sandwiches break 6 eggs into bowl. Beat in 6 teasp. cream, ¼ teasp. salt, dash of pepper. Broil 6 thin slices bacon until slightly crisp. Remove bacon, turn eggs in and scramble quickly. Pile eggs lightly on whole wheat bread slices, top each with 1 slice bacon, cover with buttered bread. Serve hot.

Rolled Sandwiches—For these a paste filling is needed. Stand a long slim loaf of bread on end, slice downward, trim crusts and spread slices with paste. Roll carefully and tie with ribbon, wrap in waxed paper to keep fresh. The filling or paste for these French rolled sandwiches may be made of:

1. Ground chicken, ground nuts and pimentoes mixed with mayonnaise.
2. Cottage cheese and minced olives.
3. Deviled ham, ground walnuts, or tomato paste.
4. Ground meat or mashed eggs, finely chopped celery, few drops onion, mayonnaise.
5. Peanut butter and minced watercress.
6. Jelly, jam or chopped dates, figs and nuts.
7. Canned peaches, mashed with powdered sugar
8. Fresh fruit, strawberries, etc., sprinkled with powdered sugar, spread on buttered white bread and rolled.

Coffee Cheese Rolls—Select small long French rolls with tender crusts, cut off the tops. Remove some crumb and fill with grated cheese mixed with whipped cream and lemon extract flavoring; or: Fill rolls with stiff lemon meringue pie filling with grated cheese on top; or: with egg custard. Replace the tops of the rolls and serve with hot coffee or chocolate or a sweet iced drink.

Celery, Nut, Cheese, Olive Sandwich—Grind nuts, chop celery and olives. Combine with grated or crumbled cheese and either creamed butter or mayonnaise. Spread between thin slices of white bread.

Cheese Chow Chow Sandwich—Chop fine 1 green pepper, ½ small onion, 12 olives, 1 cup

grated cheese, 1 mustard pickle. Combine with sour cream or mayonnaise, enough to hold ingredients together. Spread on whole wheat bread cut in fancy shapes.

Peanut Butter with Cottage Cheese Sandwich—Spread peanut butter and cottage cheese on thin slices of bread, sprinkle with minced watercress or lettuce heart leaves, cover with nut bread slices.

Cream Cheese and Whole Wheat Sandwich—On round thin slices whole wheat bread spread cream cheese moistened with cream mixed with chopped olives.

Rye Bread and Swiss Cheese Sandwich—Spread rye bread with deviled ham or tongue, top with thin slices Swiss cheese, cover with buttered slices rye bread.

Boston Brown Bread Sandwich—Cut slices of bread ¼ inch thick, spread with thick mayonaise sprinkled with chopped nuts, lay lettuce leaf on and cover; or: spread Boston brown bread with ground nuts and chopped ginger mixed with creamed butter.

Peach Delight (Sandwich)—Spread thin white bread slices buttered, with peach marmalade; cover with a slice of whole wheat bread spread with cream cheese, top with white bread buttered.

Nuts—Nuts contain a great deal of fat and protein, but very little water, so the finer nuts are chopped and mashed the more rapid will be their digestibility.

To crack pecans and walnuts, let them stand in boiling water several hours. Crack the nuts gently around the sides, the meats will generally come out whole and without the bitter dark skin.

To blanch almonds, shell and throw kernels into boiling water 5 minutes. Drain, pour cold water over. The skins will then rub off easily. Wipe dry, and cool before chopping.

The Soy Bean, being so rich in fat responds satisfactorily to roasting. If carefully and properly done it is found to have a sweet nutty flavor and may be used in recipes in the place of almonds and peanuts.

To roast soy beans, soak over night or longer in salted water. Drain and parboil in other water 1 hour. Drain again and place in a roasting pan in a hot oven with the door open. Watch constantly and stir to keep from scorching. When done they are a rich brown.

Nut Sandwiches—Almost any kind of sandwich is improved by the addition of nuts.

1. Almonds or walnuts combine pleasantly with minced chicken, olives and celery.
2. Walnuts with mayonnaise and lettuce or with candied ginger or candied orange peel.
3. Chopped butternuts, cottage cheese and lettuce.
4. 2/3 walnuts, 1/3 lb. grated Parmesan cheese with buttered brown bread.

Almond Whip Sandwiches—Beat whites of 2 eggs, very stiff, add 2 tbsp. confectioners sugar, 1 teasp. almond or orange extract or 1 spoonful candied orange peel. Spread on thin crackers, sprinkle minced almonds on top. Bake until brown. Serve.

Cocoanut Prize Sandwich—Soak dry shredded cocoanut in a little sweet milk, a few minutes. Drain, lay on unsalted buttered crackers or homemade cracker-thin squares of pastry. Spread with sweet butter. Sprinkle powdered sugar over cocoanut. Top with a marshmallow and melt it under oven flame; or; mix the sweetened cocoanut with marshmallow cake filling, spread on the pastry, and serve uncovered.

Preserved Ginger and Nut Sandwich—Chop, very fine, preserved Canton ginger. Make a smooth thick syrup of white sugar, 1 teasp. vinegar, 1 teasp. ground ginger, lump of butter. When partly cool add chopped nuts and minced preserved ginger. Spread before it cools on crackers or sweet wafers.

Stewed Fruit Sandwiches—1. Thick stewed rhubarb sweetened and spread when cool on thin white buttered bread is delicious. This is improved by adding a slice of whole wheat bread covered with cream cheese. Top with white bread.

2. Stewed apricots, prunes or any stewed fruit mashed, laid on thin bread slices, sprinkled with sugar and topped with whipped cream make a dainty afternoon sandwich.

Apple and Date Sandwich—Mince raisins or dates, dust with powdered sugar, mix with ground nuts and chopped apples. Lay on slices of buttered whole wheat bread. Sprinkle lemon juice over, or mayonnaise; top with buttered bread.

The raisins, nuts and apples may be combined with a stiff syrup made of brown sugar, butter and flour creamed, and a few drops lemon juice. Cook the syrup 3 minutes. When nearly cool add the filling, spread on bread, serve at once.

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Scraps or Memos.
of Your Own)**

Fruits and Berries (fresh)

CLASS 28

The importance of plenty of fruit for every day food the year around cannot be too greatly emphasized. The health of the body is dependent on their phosphates, fruit sugars and organic acids, which no other food supplies so well.

Some fruits, as oranges and lemons, may be found on the market every season, other fruits if not always found fresh may be had canned or dried. The valuable elements of both the orange and lemon are similar. Lemon juice is more acid, it is cooling, quenches the thirst and enters the blood in alkaline citrates. Its aroma and flavor make it especially liked as a basis of many fruit drinks and desserts.

The orange is a rapid upbuilder and cleanser and has an even more delicious flavor and aroma. It contains citric acid, which is a liver stimulant and a gentle laxative. It also has a large supply of phosphates, a direct nerve food.

The pineapple, rich in sugars, fragrance and a certain ferment which is a great aid to digestion, combines most pleasantly with other fruits. It is to be had at any time either fresh or canned and unlike some others it loses very little, if any of its natural flavor by canning.

Bananas when unripe are rich in starch and best for cooking; ripe bananas are very nourishing.

Cranberries and rhubarb, next to the lemon, contain so much acid that a very little of their juice is needed to impart a high flavor to desserts. Their qualities are especially favorable to prevent excessive bacterial growth in the intestines, the great enemy to good health.

The strawberry, raspberry, blackberry, peach, pear, and sweet apple all yield a fragrant cooling sub-acid juice, laxative and tonic in effect and add variety to a drink or fruit dish by their penetrating and pleasing flavor and color.

The juice of the grape, containing 10 to 26 per cent of sugar is a source of energy, because of this high sugar percentage, and is easily digested since all fruit sugars, unlike cane sugar, is predigested.

Raisins are the fruit of the grape dried. Lacking the water of the fresh grape, they are a concentrated food filled with fattening, easily digested sugars, and minerals and organic acids in fair amounts. These tend to check intestinal fermentation and are highly influential in maintaining good health. Raisins of good quality are a wholesome addition to any meal, served either as a seperate dish or incorporated in a dessert.

In preparing such fruits as plums, peaches, etc., for the table, the skin may be readily removed without injury to the flavor by first immersing them for a short time in boiling hot water.

A silver knife should always be used for paring apples, pears and other fruits; if a steel knife is used the acid of the fruit acts on the iron of the knife and frequently causes a black discoloration, and there is also a noticeable metallic flavor.

RECIPES

Fruit Cocktail—To make a fruit cocktail use the fresh fruits in season. Skin the grapes and seed them, peel apples, slice, remove the white skin from oranges and shred the pulp. Cut all fruit used into small pieces, soak 1 hour combined with their own juices sweetened with sugar, and Maraschino juice. Chill and serve in cocktail glasses as a first course for luncheon or dinner.

Cherry Cocktail—Soak 1 cup large dried currants in ½ cup water until soft. Mix with 2 cups canned black cherries ½ cup orange juice, ½ cup sliced bananas, sugar to taste. Chill for 1 or 2 hours. Serve in cocktail glasses.

Jelly Cocktail—Prepare ½ cup sliced orange pulp and bananas, ⅓ cup shredded pineapple, 1 cup strawberries. Melt 2 cups sugar in 3 tbsp. apple or currant jelly and juice of 2 lemons. Pour this over fruit, set aside to chill. Serve as a cocktail.

Syllabub—Whip 1 pint cream, add 1 small cup powdered sugar, the whipped white of 2 eggs. Mix 1½ cups grape juice. Pour over shredded orange and bananas. Serve in sherbet glasses.

Apples—A well cooked cut of meat is doubly enjoyed if the certain sauce which seems to suit its particular flavor is served with it. Apples are

one of the few accompaniments that seems delicious with all kinds of meat. Its acid is especially acceptable with roast pork. Small apples peeled and baked with nutmeg may be served with pork or veal; fried apples and bacon for breakfast; apple sauce or baked or apple fritters with poultry or game.

Apple syrup flavored with mint poured over baked apples add to the enjoyment of a dish of roast lamb.

Oranges—Oranges too, may be incorporated into a salad with any additional flavors as seems to best suit the meats of the same meal. Serve orange, celery, French dressing with poultry; orange, mint, celery, French dressing with lamb or game; orange, chestnut, raisins, celery, French dressing with wild game or chicken; orange, grape fruit, tart apple, French dressing with fish or roast pork; orange, prunes, nuts, mayonnaise with chicken; orange, grapes, ginger, celery, French dressing or orange, pineapple, grape fruit, French dressing with veal.

Baked Apple (Plain)—Wash and core 6 apples. Place in a casserole, sprinkle with 1 cup brown or white sugar, ½ teasp. cinnamon or nutmeg, dot with 1 tbsp. butter creamed with 1 tbsp. flour, or make sugar, flour, butter and cinnamon into a paste and stuff the apple centers with it. Add 1 cup water to the casserole, and bake in moderate oven, uncover when done, to brown.

Stuffed—Fill the cored cavity of each apple with a mixture of butter and sugar creamed together with 1 tbsp. lemon juice, adding chopped raisins and nuts if convenient.

Party Apples (with Custard Sauce)—Make a plain custard not too rich, and serve with this dessert. Core 6 large apples. Remove more pulp from centers and chop it with ½ cup minced floured raisins, ½ cup chopped dates or figs or candied orange peel, ½ cup ground nuts, ½ cup sugar, grated rind 1 lemon, ½ teasp. cinnamon. Stuff the apples, pour on a little water and bake gently until tender but with unbroken skin cases. Serve with cream or light custard poured over, or lemon sauce.

Baked Apples (with Caramel Sauce)—Bake apples without peeling or coring. Melt and brown ½ cup sugar to caramel. Add 1 cup boiling water, 1½ cups white sugar, 1 teasp. cream of tartar. Do not stir. Boil until it will harden in ice water. While hot pour a little over each baked apple on individual plates.

Stewed Candied Apples—Boil equal amounts sugar and water together until it spins a thread. Pour this over apples, peeled, cored and cut in quarters. Add grated rind or bits of lemon peel. Simmer until apples are clear. When apples are tender but not broken remove gently. Boil syrup down to jelly and pour over apples.

Southern Pippin—Bake cored apples with skins on in covered baking dish with 1 tbsp. sugar, ½ teasp. butter to each apple, add water to cover bottom of pan. When water has boiled down and apples are done, gently spread open the apples and sprinkle over each a few finely grated bread crumbs sweetened with sugar, cinnamon and butter, or use cake crumbs mixed with ground nuts. Return to oven and brown the crumbs quickly. Serve with whipped cream.

Steamed Prunes—Wash 1 lb. large best prunes. Soak in lukewarm water 1 hour until soft to touch. Steam without adding sugar until fruit is tender but skins unbroken. The best prunes steamed will be sweet enough when done to serve to children without sugar.

Baked Prunes—Prepare 1 lb. prunes, soak 2 hours. Place in baking dish, add several cloves and cinnamon. Pour boiling water on to just cover, add juice of lemon, ¾ cup sugar. Cover closely and bake slowly about 45 minutes. Uncover, dot fruit with butter. Cook 10 minutes longer until prunes are almost candied. Serve either hot or cold with light dry cake, as lady fingers, orange cake or lemon wafers. Any dried fruit, apricots or peaches may be prepared in this way.

Stuffed Prunes—Steam large prunes until tender, but not broken. Remove seeds and fill prunes as dates are stuffed, with chopped nuts, raisins or dates. Boil down to a syrup the water prunes were cooked in. Stir into it ⅓ box gelatine dissolved in ⅓ cup cold water. Pour this gelatine syrup around prunes in individual molds. Place on ice. Serve on slices of light cake and top with whipped cream.

Fruit en Casserole—Slice several bananas into a baking dish. Cover with thick layer of sliced apples. Put in last 2 cups washed cranberries. Sprinkle with 1 cup sugar. Cook until fruit is tender. Serve with whipped cream.

Bananas Baked Whole—Select firm ripe bananas, peel, place whole in baking pan. Spread butter over the fruit, squeeze lemon juice over, add sugar and little water. Cook in moderate oven until soft through and candied on top. Be careful not to cook too long. Serve immediately.

Fresh Banana Crush—Just before serving time crush bananas in individual dishes using a silver fork. Squeeze lemon juice over fruit, sift on powdered sugar. Garnish with quartered Maraschino cherries.

Fruit Whip—Beat whites of 3 eggs very stiff, add ½ cup powdered sugar, ⅛ teasp. cinnamon. Beat until stiff and smooth, fold in 3 ripe pears which have been peeled, cored and cut in dice. Turn this into individual dishes or glasses. Chill and when ready to serve top with whipped cream and a small piece of fruit. If peaches are used flavor with ½ teasp. almond extract; if bananas, 1 tbsp. orange juice or 1 teasp. lemon; fresh apricots use bits of candied ginger. Serve with light cake.

Stewed Peaches—Peel fresh peaches, stew whole in a little water to nearly cover, with sugar and cloves, until done but firm. Serve in their juice with cloves stuck in each peach.

If fresh apricots are used, seed but do not peel.

Dried Fruit Baked—Prunes, apricots, peaches, pears, raisins or apples dried may be stewed in the oven while other things are baking. Wash fruit, pour boiling water over and let stand covered 1 hour. Then add sugar, cover tightly and cook in moderate oven till fruit swells and softens.

(Paste or Write Here Scraps or Memos. of Your Own)

FRESH FRUITS IN COMBINATION WITH COOKED DISHES

Fresh fruits are frequently served in combination with cooked foods, such as apples, cut and sliced, for garnishment on a casserole dish of pork or chops; also in combination with puddings, cakes, etc.

These will be found under the Recipes relating to the cooked foods rather than in this section which is intended to cover primarily fresh fruit as dishes in themselves.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

Candies Made at Home

CLASS 29

SOME TESTS USED IN SUGAR COOKERY

(Iowa State College Bulletin, "Cake")

238° to 242° F. Soft Ball—The stage at which a little of the sirup dropped into cold water may be formed into a soft ball that will just hold its shape in the fingers. Used in making icing, taffy, fudge, pinoche and fondant.

248° F. (about) Firm Ball—The stage at which the sirup tested as above will form a firm ball in the fingers. Used in making divinity, sea-foam, and pop-corn balls.

290° F. (about) Crack or Brittle—The stage at which sirup becomes brittle immediately upon being dropped into cold water. Used in making butter scotch, glacé nuts and taffy.

254° to 345° F. Caramel—The stage at which sirup turns a dark yellow color and snaps like thin glass when cooled. Used in making nut brittle, and caramel syrup used for flavoring.

To caramelize sugar melt dry in sauce pan or add small amount of water and boil until dark yellow in color. The latter method requires a little less attention. To prepare caramel sirup, add as much boiling water as sirup, boil until smooth and store in bottles.

Icings, fondant and other confections should be made on a clear day if possible, since a damp atmosphere interferes with proper hardening. If the work must be done on a damp day, the cooking should be carried a little farther in each case. Fondant that has become a little too dry to handle may be restored by placing oiled paper over the candy and wrapping the dish in a moist towel.

Fondant is the basis for many different confections and may be used also for dipping small cakes and frosting larger ones. A great variety of candies may be made from fondant by combining it with different kinds of fruit and nuts, by using different flavorings and colorings and by moulding it into different shapes.

IOWA COLLEGE RECIPES

White Fondant—5 c sugar, 1½ c hot water, ¼ tsp. cream of tartar. Place ingredients in smooth sauce pan and heat gradually to boiling. Boil gently, without stirring to soft ball stage. Crystals which form on sides of pan should be washed off with knife or spoon dipped in cold water. Repeat as often as crystals form. When just done, pour without stirring or scraping pan, on slightly oiled marble slab or plate. Let stand until entirely cool, draw together and work with wooden spoon until white and creamy. When just dry enough to handle, begin kneading with the hands and knead until perfectly smooth. Place in bowl, cover closely with oiled paper and let stand twenty-four hours.

Coffee Fondant—5 c sugar, 1½ c cold water, ¼ c ground coffee, ¼ tsp. cream of tartar. Place coffee and water in sauce pan and heat to boiling. Strain through double cheese cloth. Add sugar, and cream of tartar and boil to soft ball stage. Handle same as white fondant.

Maple Fondant—1¼ lbs. maple sugar, 1¼ lbs. white sugar, 1 c hot water, ¼ tsp. cream of tartar. Break maple sugar in pieces, add to remaining ingredient. Boil and work same as white fondant.

Nut Brittle or Nut Bar—1 c sugar, 1 c nut meats. Place nut meats on tin plate in thin, even layer. Make a caramel of the sugar and pour over nuts to cover evenly. When cold, break in pieces. If desired in bars or squares, mark before cooling. The nut meats may be chopped if desired.

Glacé Nuts—2 c sugar, 1 c boiling water, ⅛ tsp. cream of tartar. Put ingredients in sauce pan and heat gradually to boiling. Boil without stirring until syrup begins to discolor slightly (310° F.). Place sauce pan in cold water to stop boiling instantly. Place in hot water during dipping. Take nuts separately on a long pin, dip in syrup to cover, remove and place on oiled paper.

Note—To save time, nut meats may be replaced evenly over bottom of a square pan and the syrup poured over, marked and cooled. The syrup should become quite hard and brittle if cooked to right stage.

Fudge—3 c sugar, ¾ c water, 1 tbsp. corn syrup, 2½ squares chocolate, ⅛ tsp. salt. Cut chocolate in small pieces, put in sauce pan with sugar, corn syrup and milk. Stir until chocolate is melted. Bring to boiling point and let boil until the mixture will form a soft ball when dropped in cold water. Pour on a smooth surface and work with a spatula until ready to knead. Knead until creamy. Press into slightly oiled pan, cool and cut in squares.

NOTE—¼ c each of chopped raisins, figs and dates makes a pleasing variation of this recipe.

Sour Cream Candy—2 c brown sugar, ½ c sour cream, 1 tsp. vanilla, ½ c nut meats, cut in small pieces. Mix sugar with sour cream. Cook to soft ball stage, beat mixture until it thickens, add vanilla and nuts. Cut in squares when cool.

Divinity—2 c sugar, ½ c hot water, 4 tbsp. corn syrup, 2 egg whites, ½ c chopped nuts, ½ tsp. vanilla. Put sugar, boiling water and sirup in pan, stir until blended. Heat gradually to boiling. Boil without stirring to firm ball stage. Have egg beaten stiff but not dry. Cool sirup slightly and pour very slowly into egg whites, beating constantly. Beat until light and creamy, add flavoring and nuts. Pour into oiled pan and cut in squares when cool, or drop by teaspoonfuls on oiled paper to harden.

Almond Balls—1 lb. almonds, 1 lb. powdered sugar, Cocoa. Blanch almonds and grind very fine. Mix with powdered sugar and put thru food chopper several times. Roll in small balls in palms of hands, then roll in cocoa.

Persian Paste—1 lb. dates, 1 lb. figs, 1 lb. pecans, powdered sugar, lemon juice. Put dates, figs and pecans thru food chopper. Add powdered sugar and lemon juice to taste. Uses: 1. Make into balls, put in refrigerator two or three days, then dip in hot fudge. 2. Split unsalted crackers and spread with paste. Serve with ice cream. 3. Remove stones from dates, fill with paste and roll in powdered sugar.

Uncooked Cake—¼ lb. nuts, ¼ lb. figs, ¼ lb. dates, ¼ lb. raisins, ¼ lb. cocoanut. Put ingredients thru food chopper and pack closely in buttered pan. Press and weight and let stand several hours before cutting.

Candied Cranberries—1½ c large firm cranberries, 2 c sugar, 2½ c boiling water. Wash cranberries and make three slits ⅛ inch long with point of pen knife in each. Make thin sirup of sugar and water, cool, add the berries and bring very slowly to boiling point. As soon as sirup boils, remove dish from stove and let stand over night. Next day, drain sirup from berries and boil sirup until reduced to half its original volume. Put berries into a sirup and heat slowly. Boil gently for three or four minutes, then allow to stand for two hours or more. Boil gently a third time for five minutes. A smaller dish may be needed for last boiling. On the following day drain off sirup and spread berries on sheet of waxed paper. When surface is dry and berries cold, store in glass jars. The berries may be used as a confection and in the same ways that candied cherries are used. The sirup is excellent for flavoring and coloring pudding sauces and many other desserts.

Candied Grape Fruit Peel—Wash peel from three grape fruits. Remove any portions of pulp adhering. Cut into strips ¼ inch wide. Soak over night in one quart of cold water to which has been added one tablespoon of salt. Drain, place in sauce pan, cover with cold water and bring to boiling. Repeat three or four times or until the bitter taste is removed and the peel is soft. Drain and weigh. Make sirup using an equal weight of sugar and ½ cup water. When sirup is thick and heavy, add strips and cook until pieces are clear, lifting pieces from time to time that they may not stick to pan. Remove to plate to cool and roll each piece separately in powdered or granulated sugar. When entirely cool store in glass jars.

CANDY RECIPES—GENERAL

Uncooked Candy: Plain White Fondant—Have all ingredients prepared and utensils ready before beginning to make the candy. Roll the sugar until smooth, blanch the nuts, seed the dates or raisins, melt the chocolate, and beat the whites of eggs if necessary.

1. To make uncooked candies use confectioner's sugar or ordinary pulverized sugar. Roll until smooth on the bread board. Beat slightly whites of eggs with 2 tbsp. cold water. Stir in enough sugar to make a smooth stiff paste.

2. Cream ⅓ cup butter, beat in ½ cup sifted or rolled confectioner's sugar, add 1 teasp. boiling water, stir in more sugar, add 1¼ teasp. boiling water, again more sugar until stiff enough to knead.

3. Beat slightly 1 egg white with a pinch of salt, add the rolled sugar gradually until ready to form into shapes.

4. Flavoring or coloring should be worked into the paste last.

The above will serve as a foundation for many different varieties of candies, as the center of chocolate creams or stuffing for dates. It may be formed into shapes resembling any French candies. The balls of paste may be worked around nuts, chopped fruits or preserved fruits, marshmallows or creamed cocoanut.

Chocolate Creams—Form white fondant into little balls size of a marble put aside to harden on waxed paper. Heat some confectioner's dipping chocolate, by cutting it in small pieces and putting in a pan over hot water. When melted cool, and either beat it to the consistency of molasses or mix in enough beaten white of egg to make a smooth thick paste. Dip the fondant balls into the chocolate paste until no white shows. A fork, a long straw or a wire, shaped like a spoon, or even the fingers, may be used to dip and remove the chocolate creams. Put aside to cool on heavy paraffin paper.

Fruit and Nut Creams—Press halves of English walnuts on each side of a ball of flavored fondant, or knead ground nut-meats into the paste and roll into balls, decorate with a nut, or tiny piece of candied fruit. To cover the fondant balls with chopped cocoanut dip first into slightly beaten white of egg then into the cocoanut.

Chop citron, dates, figs, currants, candied orange peel, raisins or any candied fruit to make fruit creams. Knead fruit into the fondant, form into balls, or flat bars, and set aside to harden.

Fancy Midget Candies (Uncooked)—Roll out fresh fondant to ¼ inch thickness flavored first with wintergreen or peppermint, cinnamon, almond, ginger, extract and colored if desired with fruit coloring. Cut the rolled out paste into small rounds roll in granulated sugar.

Cooked—Melt ½ cup red currant jelly in pan, add 1 cup sugar, boil until it spins a thread, add 3 tbsp. gelatine dissolved in ¾ cup cold water and 1 tbsp. rose extract. Pour into shallow buttered pan, sprinkle with chopped pistachio nuts. When cold and firm cut into small rounds and roll in rose colored sugar.

To Salt Peanuts and Almonds (To Blanch Nuts)—Cover raw peanuts or almonds with cold water, bring just to the boiling point, drain and slip skins from the nuts by pressing between thumb and forefinger. Dry thoroughly on paper. Heat oil or butter or any clear vegetable cooking fat until it will brown a bit of bread in 30 seconds. Dip the nuts a few at a time in the oil and quickly remove when a faint light brown. Spread on brown paper and sprinkle lightly with fine salt.

To Salt Walnuts, Pecans and Filberts—These are harder to blanch than almonds and peanuts, but proceed in the same way. After skins are removed, dry several hours, beat an egg white and rub each nut lightly with it; sprinkle with fine salt, lay on paraffin paper and slightly brown in a slow oven.

Candied Orange or Grape Fruit Peel—Put the peel from 4 oranges in boiling water, boil till tender, changing the water twice. Drain. Scrape out the white part, cut the yellow pieces in strips, weigh, and to every lb. of peel use 1 lb. sugar, ½ cup water. Cook water and sugar until it spins a thread, add peel, simmer until transparent. Drain, roll each piece in sugar, dry in warm oven. Grape fruit peel may be candied the same way.

Fruit Paste—1. Grind in the food chopper 1 cup each of seeded raisins, dates, figs, and enough nuts to make ¼ cup ground. Add 1 tbsp. brown sugar mixed with 1 tbsp. orange juice. Roll this paste into a long round stick 1 inch in diameter. Put on the bread board dusted with powdered sugar and cut the roll into candies ¼ inch thick. Sugar coat each one and put away to keep in a tin box.

2. Boil 2 cups sugar, 1 cup milk, 2 tbsp. butter together until it will form a soft ball when dropped in cold water. Add 1 lb. of chopped fruit, raisins, dates or figs, and 1 cup chopped nuts. Beat until creamy. Knead till stiff, roll and cut in same way as No. 1, or shape into a loaf and slice when needed.

Stuffed Dates, Figs or Prunes—Make a mixture of 1 egg white, ¼ cup orange juice, 1 teasp. lemon juice and enough powdered sugar to form a paste, or use a plain fondant. Work into the paste, chopped nut meats. Add preserved ginger

or Maraschino cherries, marshmallows, bits of preserved fruit or even a little peanut butter. Stuff the dates, figs or prunes with this paste and roll them in granulated sugar.

Fruit Kisses—Beat 1 or 2 egg whites very stiff, add 1 cup brown sugar or white powdered sugar, ¼ teasp. flavoring. Add 1 cup chopped nuts or candied fruits, dates or figs, or 1 cup of both. The kisses must be of the consistency to drop stiffly off the spoon on to a buttered pan. Place them several inches apart and bake in a slow oven until lightly browned.

Panacha or Mexican Kisses—Mix 1 lb. dark brown sugar with ½ cup cream in a pan over the fire. Stir until it boils. Cook to a soft ball. Remove from fire and stir in 1 cup of unbroken pecan meats. When the sugar becomes granulated drop the candy in little flat cakes on waxed paper.

Peanut Bars—Beat together in the order mentioned 1 cup minced roasted peanuts, 1 stiff egg white, 1 cup brown sugar, ¼ teasp. salt, ½ teasp. vanilla. Spread on a buttered pan. Bake in a slow oven. Cut in bars.

Opera Creams—Mix well 3 cups sugar, 1 cup of top cream from a qt. of milk, ⅓ teasp. cream of tartar. Cook without stirring until a soft ball may be formed in cold water. Pour into a deep warm bowl. When nearly cool, beat till creamy, knead on a board till smooth, dredge the board with powdered sugar if the candy sticks. Nut meats or chopped fruits may be put in while kneading, or roll paste into bonbons and decorate with nuts or bits of candied fruits.

Peppermints and Wintergreen Candies—1. Heat ½ cup milk or thin cream, 2 cups sugar, 5 drops of oil of peppermint, or essence of wintergreen. Stir until dissolved, then boil for 3 minutes without stirring, then beat until creamy. When cooling, drop on waxed paper.

2. Make a stiff paste by beating together confectioner's sugar and 2 tbsp. cream, 6 drops of essence of peppermint or wintergreen. Make into flat balls topped with a walnut meat; or, roll the candy out lightly and cut with a sharp cutter about the size of a fifty-cent piece.

Lemon Drops—Stir over a hot fire until thoroughly heated, 1 cup sugar, 2/3 cup water, 1 teasp. cream of tartar. Then boil briskly until candy is hard and brittle if dropped in cold water. Add 1 tbsp. lemon juice or extract, boil up once to distribute evenly the lemon, pour into buttered plates. When cool enough to handle form into drops, sticks or thin squares. Handle as little as possible to prevent destroying the transparency of the candy.

Butter Scotch—Boil quickly 1 cup brown sugar, 2/3 cup water, 1 tbsp. vinegar, 1 tbsp. butter, until it becomes brittle when dropped in cold water. Pour into buttered pans when cold, break into pieces.

Maple Horehound—To 1 pint water add a light cupful of horehound herbs. Boil 30 minutes, strain, pressing juice from herbs. Add to this liquid 3 cups brown, or maple sugar. As it boils up put in ¼ teasp. cream of tartar and boil until very brittle in cold water, add 1 tbsp. butter or less, and pour out on a flat greased dish. When nearly cold cut into squares or tiny rounds with a sharp cutter.

Chocolate Caramels—1. Cook together 1 cup sugar, ½ cup milk, ½ cup butter. Stir until it forms a soft ball in cold water. Add 1 cup molasses and cook until it forms a very firm ball when tested in cold water. Pour into a buttered platter until ½ inch thick. When cool mark the caramels into squares. For chocolate flavored add melted sweetened chocolate with the molasses.

2. Mix 1 cup white sugar, 1 cup brown sugar, or maple if chocolate is not used, ⅛ lb. chocolate, ¼ cup milk, ⅛ lb. butter. Boil until it hardens in cold water, about 20 minutes. Stir all the time if you wish the caramels to be crumby.

Old Fashioned Molasses Candy—1. In a kettle holding 4 times the amount of molasses to be used pour 1 pt. good "New Orleans" molasses. Boil over a slow fire 30 minutes, stirring to keep contents from boiling over. Be careful not to burn the candy. When some dropped in cold water becomes quickly hard and brittle add ¼ teasp. soda, stir once to mix and pour on greased plates. When nearly cool pull pieces of the candy back and forth with the tips of fingers buttered to prevent sticking. When candy is a bright yellowish brown color it is "pulled" through.

2. Dissolve 1 cup sugar in ½ cup vinegar, mix with 1 qt. molasses and boil stirring often, until it hardens when dropped from a spoon into cold water. Then stir in 1 slight tbsp. butter, 1 teasp. soda dissolved in 1 teasp. water. Flavor to taste, stir once and pour out into buttered dishes. As it cools cut into squares for "taffy" or pull with the fingers until it is white.

3. Boil together 2 cups brown sugar, 1 cup molasses, ½ cup water, 2 tbsp. vinegar. When crisp if dropped in cold water add 1 tbsp. butter, ½ teasp. soda, stir 1 minute, cool and pull.

Chocolate Chips—Take 1 cup New Orleans molasses, 2/3 cup sugar, 1 teasp. butter, flavor with vanilla. Boil until hard, pull out thin and cut in small pieces. When cold and hard dip in hot melted chocolate sweetened and flavored. Lay on waxed paper.

Popcorn Candy—The popcorn must be freshly popped to use in candies or it will taste tough. To secure snow white fluffy popcorn kernels, put only enough corn grains in the popper to cover the bottom, hold high over a hot flame shaking all the time so the kernels will not scorch. The popped corn may be sprinkled with melted butter and salt while hot, or sugared in different ways.

1. Plain Sugared:—Boil until it threads 1 cup sugar, ½ teacup water. Pour over about 3 qts. popped corn.

2. Colored—For yellow flavor the syrup with lemon or orange; for red or pink, flavor with rose extract, beet juice or cranberry juice; for green, crushed spinach leaves will bring enough juice to color the syrup.

3. Chocolate Sugared—Make a syrup of 1 cup sugar, 1 square chocolate, ½ teasp. butter, ¼ cup water; or, 1 cup sugar, ¼ cup corn-syrup, 1 oz. chocolate, ½ cup water. When it threads flavor with vanilla and pour over 3 qts. popped corn, stir well.

Popcorn Kisses—With a very sharp chopper, cut up fluffy popped corn kernels. Use only crisp ones. If necessary put them through a meat chopper with 1 cup nutmeats. Beat 3 egg whites very stiff, stir in sugar to the proportion of ⅓ cup powdered sugar to 1 egg white to be used with 1/3 cup chopped corn, 1/3 cup nutmeats. Beat the sugar into the whites for 5 minutes. Add a little at a time the nutmeats and popcorn. Mix well and drop on buttered paper. Bake in slow oven about 20 minutes.

White Fudge—Boil for about 5 minutes 2 cups white sugar, 1 cup milk; when it forms a soft ball when dropped in cold water take from stove and add 1 teasp. vanilla, 1 tbsp. butter. Beat until stiff, or until it "fudges."

Chopped nuts or dates or preserved cherries beaten into the fudge are a delicious addition.

Chocolate fudge is made by adding 2 teasp. cocoa, or chocolate to white fudge before the butter is put in.

Fudge Made with Canned Milk—Put into a cooking pan 2 cups sugar, 2 squares of bitter chocolate, butter size of an egg, about 2/3 cup canned milk. Boil this until a little dropped in cold water will form a soft ball. Take off the fire, add 1 teasp. vanilla and stir until thick. Pour into buttered pans, cut into squares. Chopped nutmeats may be added as the candy begins to thicken.

Many delicious cream candies are made by using canned milk with a little additional water to the recipes calling for milk, or plain canned milk in place of cream. Only the best brands of canned milk should ever be used.

Orange Fudge—Mix 2 cups white sugar, 2/3 cup milk, 1 big tbsp. butter, juice of ½ orange, with its grated rind. Boil to the soft ball stage. Remove from fire, beat till creamy. Drop on buttered dish or waxed paper.

Peanut Butter Fudge—Mix 2 cups sugar, 2 tbsp. peanut butter, ½ cup milk. Boil until a bit of it in cold water forms a soft ball. Add ½ teasp. vanilla. Cool, beat till creamy. Pour into buttered pans; when nearly set, cut into squares.

Tutti-Frutti Fudge—1. Boil together 1 cup sugar, ½ cup cream, 2 squares of chocolate. Stir until boiling and chocolate is melted. When it forms a soft ball in cold water add 1 tbsp. butter. Take it from the fire and beat for 10 or more minutes, adding toward the last some chopped candied cherries or other candied preserved or crystallized fruits. Cut into squares before it cools.

2. In the same way boil 1 cup sugar, 1 cup water, 1 teasp. almond flavoring. When done add chopped almonds and candied cherries, cut into bits. Beat till creamy, pour into buttered pans, cool and cut into shape.

Cocoanut Cream Candy—Mix 2 teasp. butter, 3 cups sugar, ¼ teasp. cream of tartar, 1 cup canned milk, 1 cup water; or, if fresh milk is used instead of canned milk take 2 cups of milk. Stir only until boiling point is reached and sugar is dissolved. Boil to the soft ball stage, add ¼ teasp. vanilla, ½ cup shredded cocoanut, cool quickly. When cold beat till creamy and drop from a spoon on waxed paper.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

CLASS 30

Drinks

BEVERAGES

Afternoon Tea—The charm of a cup of tea, or any hot drink lies first in its delicate brew, and steaming hotness, second in its dainty service.

Select green tea, or Orange Pekoe, or one of the Ceylon teas. Pour boiling water over the leaves in a hot tea pot, using one slight teasp. tea leaves to each cup water. Allow it to remain a few minutes, until the tea is the strength to suit. Strain into thin cups. Serve, with an attractive garnish, as thin slices of lemon, bits of crystallized ginger, or maraschino cherries, and accompanied by lemon wafers, dainty sandwiches or cakes, sugar and cream.

A more delicate flavor may be secured by pouring the boiling water over the tea in a tea-ball. This is more convenient for some, and is thought to be more economical.

When arranging a proper equipment for an afternoon tea table, simplicity and daintiness should characterize it. Use a table just high enough for convenience in serving and large enough to hold the few necessary things without crowding. The tray may contain the swinging kettle of boiling water, the teapot, the tea balls and dish, the cream and sugar. This leaves room on the table for a tasteful arrangement of any other China, linen or silver necessary, cups, saucers, and small plates for sandwiches, and garnishes if served. All linen used should be the daintiest one has, the silver, the best; and the China the most attractive.

RECIPES—GENERAL

Coffee—Good coffee making is an art that seems difficult for some to acquire. Several points must be carefully noted and followed to always get good results.

1. Keep the coffee pot sweet and clean. Wash as soon after using as possible. Once a week fill 2/3 with water, add 1 tbsp. baking soda, boil 1 hr. rinse and wipe clean.

2. Select a good brand of coffee that will always be the same blend. A popular mixture is 2/3 Java 1/3 Mocha.

3. Use fresh water. Water that has been boiled long becomes flat and stale and does not unite with the coffee in a delicious blend.

4. Decide on one method of making coffee and make it carefully each time.

Boiled Coffee—Have medium fine ground coffee. Allow 1 heaping tbsp. to each cup water and 1 extra tbsp. coffee for the pot. Put the coffee in pot add the quantity of cold water, 1 cup to each person served and one extra. Bring to a boil. To get the full strength from the coffee let it boil until it is as strong as desired, or; let boil up three times. Remove to a hot electric plate, settle with dash of cold water or crushed egg shells. Never let hot coffee stay on the coffee grounds when settled. Pour off into a hot urn and serve.

Drip Coffee—For this method the coffee must be ground very fine, almost to a powder. Use only 1 teasp. coffee to a cup, and one extra for the pot, being half as much as for boiled coffee. Put coffee in a piece of clean cheese cloth, pour boiling water through it slowly. This makes a very delicate coffee and clear.

Percolator Coffee—Put medium fine ground coffee in upper part percolator, 1 tbsp. to each cup and 1 tbsp. extra. Put the boiling water in lower part of percolator. Cover. Place over fire and let water percolate up through the coffee. Test its strength by pouring a little out into a cup. When just right set aside to settle. Serve.

After Dinner Coffee—When coffee is served for after dinner or at the afternoon tea hour it should be of extra strength and diluted with hot water to suit individual tastes.

To make Vienna coffee, serve it with whipped cream piled in each cup.

Café au lait is made of equal parts of strong coffee and hot milk added either at time of making or when it is poured.

Serve buttered hot Sally Lunn with hot afternoon coffee, or toasted and buttered raisin bread, coffee cake, frosted ginger bread, wafers, cake or savory sandwiches.

A Good Cereal Beverage—This is especially palatable and nourishing for children for whom a hot drink is desired. They should never be given tea, coffee, or even cocoa which is really a food and too heavy for even an adult as a drink.

Take 3 lbs. whole wheat, 1 lb. whole barley, 1 cup ground chickory, 3 tbsp. molasses, 3 tbsp. butter. Roast wheat and barley till brown, stirring constantly to avoid scorching. Roast separately as they vary in time required. When as dark as roasted coffee, add butter and molasses to the two together, stirring all until grains are dry and are separated. Remove from oven, and when cold add the chickory. Grind in coffee mill.

To make: Use 2 tbsp. to 1½ cups cold water per person. Boil gently 1 hour. Serve with sugar and cream or milk.

Spiced Cocoa—Scald 1 qt. milk. Melt 3 heaping tbsp. cocoa, 3 tbsp. sugar, few grains salt, in ½ cup boiling water until smooth. Add remaining ½ cup boiling water, boil up once. Combine this with the scalded milk. Add ½ teasp. vanilla, ½ teasp. cinnamon. Beat well, serve very hot with whipped cream. Pass vanilla wafers, macaroons or lady fingers.

Chocolate—Chocolate or cocoa should be made rich and beaten vigorously to mix the chocolate well and to prevent formation of scum.

1. Mix ⅓ cup grated chocolate or cocoa with ⅓ cup sugar. Stir smooth in 1 cup boiling water. Add 1 more cup water and put on to boil a few minutes. Add 3 cups rich milk, boil up once, beat hard for a minute. A beaten egg may be added to give more body and richness. Serve hot with spoonful whipped cream to each cup. Marshmallow cream may be substituted or 2 marshmallows to a cup. Serve with cinnamon toast.

2. A simple rule for two or three cups chocolate is 1 teasp. grated chocolate to 1 teasp. sugar and 1 cup milk; adding 1 cup boiling water to the pot. Boil up several times, beat, serve.

Hot Mulled Cider—Heat 1 qt. cider to boiling point. Pour it slowly over 3 beaten eggs and ½ cup sugar. Beat well. Bring again to a boil. Remove and serve in glasses heated in warm water to prevent cracking.

For spiced cider add ½ teasp. sweet whole spices before bringing to a boil. Remove spices before serving.

Iced Drinks or Unfermented Drinks—For a cooling drink during the warm days nothing is so refreshing as fruit juices, lightly sweetened and diluted. These are quickly prepared, and such a variety of delicious beverages are possible with the many different fruits of the summer that one need never tire of this form of refreshment. For those who have not time to prepare a combination fresh fruit beverage, there are bottled juices of excellent quality on the market that may be simply diluted with iced water.

Attractive service of an iced drink is as important as the delicate blending of the delicious juices. To be pleasing to the eye as well as the palate it should be served in sparkling glasses, thin and of attractive shape. Dainty, white paper napkins and straws tend to add to the impression of coolness. If a more elaborate arrangement is desired, the glasses may be placed on one of the new trays with embroidered napery, a dish of fruit sandwiches perhaps, and a small basket of flowers.

The fruit drinks besides being thirst quenchers are by nature of their acid contents invigorating and healthful. They arouse the appetite, stimulate the various organs of digestion and elimination, the stomach, intestines, skin, liver and kidneys, and increase the phosphates in the blood. They are not only invigorating and health promoting for the well, but are sources of great benefit in some illnesses and to the convalescent.

Iced Tea and Coffee should be made strong and drawn off their leaves at once to be put aside to cool. Dilute when ice cold with iced water. Serve in tall thin glasses with slices of lemon or cream.

Iced Chocolate—Make a rich chocolate, cool, add 1 teasp. vanilla. Dilute if necessary with ice cold water, or if ice supply is known to be pure, half fill thin glasses with crushed ice and pour chocolate over. Top each glass with whipped cream sprinkled with cinnamon or ground nuts.

Cocoanut Milk—This is a favorite drink for children. Put 1 grated fresh cocoanut in 1 qt. water. Bring to boil, then simmer gently 5 minutes. Strain, sweeten, chill. Add ¼ cocoanut juice to ½ milk in tall glass. Top with spoonful whipped cream flavored with nutmeg or cinnamon; or: Add 1 egg, yolk and white beaten separately, to every pint of milk. Fill glass half full with this eggnog. Stir in ⅓ glass of the sweetened cocoanut milk. Top with cream and nutmeg.

Eggnog—Scald 1 cup milk with several fresh mint leaves, strain, cool. Beat 1 egg yolk with 1 teasp. sugar; beat the whites stiff; whip cream to ½ cupful; fold the yoke, white and cream into the milk.

Irish Moss—Wash 1 oz. Irish moss thoroughly, and soak over night. Then lift it out and put on to boil in 2 qts. water. Simmer several hours. Strain, add 2 tbsp. sugar and fruit juice which may

be either 1 teasp. lemon juice and 2 tbsp. orange juice, or grape juice. This is very nutritious and may be served to little children.

Grape Juice Dainty—Another nutritious and stimulating drink for a child is; 2 tbsp. grape juice to each glass, 2 tbsp. cold water, 1 teasp. powdered sugar stirred in with 1 beaten white of egg.

The fresh juice of strawberries or raspberries may be used instead of the grape juice.

Honolulu Tea—Add 1 or 2 tbsp. pineapple juice to a glass of iced tea with sliced lemon. Serve in place of iced fruit cocktail at beginning of meal.

Ceylon Frappe—Peel several oranges, remove thin skin between layers and shred the pulp. Place this in small bowl in layers with 1 cup crushed fresh mint leaves. Sprinkle each layer with powdered sugar, ½ cupful in all. Pour over all, the juice of 2 lemons and 1 cup cold tea. Set aside to chill and ripen. Dilute at serving time with cold water or Appollinaris.

Quick Lemonade—Strain juice of 6 lemons. Combine with 1 cup sugar and add cold water to the desired strength. Pour this over crushed ice in tall thin glasses.

Lemonade Extract or Syrup—Grate rind of 1 lemon. Strain juice of 12 lemons. Boil 2 cups sugar with 1 cup water until sugar dissolves, add the grated rind and the lemon juice. Simmer 5 minutes. Cool, put on ice. When time to serve add cold water to taste.

Egg Lemonade—Beat 2 eggs, add ½ cup sugar, juice 4 lemons and grated rind if liked; stir all until sugar is dissolved, add 4 cups cold water and chill on ice.

The yolks and whites of the eggs may be whipped separately. Combine the yolks, sugar, lemon juice and water. Chill and when ready to serve stir in the stiff whites.

Iced Ginger Tea—Make a tea of 2 quarts water and 3 tbsp. ginger. Boil 12 minutes, cool, and sweeten with chilled lemonade syrup. Add ice water. Serve in ice tea glasses with quarter of thin lemon slice on top.

If more of a punch is desired add 2 tbsp. shredded pineapple or orange.

To make Grape Juice—Use 10 lbs. grapes, 2 qts. water. Boil 10 minutes. Put in cheese cloth bag and allow juice to drip for several hours. Do not squeeze. Add 2 lbs. sugar to juice, boil up once, bottle tight. For more minute directions see Canning Section.

Cream Grape Juice Cordial—Soak crushed mint leaves in orange juice 15 minutes, or add leaves to crushed ice in the glasses.

1. Mix fruit juices in the proportion of 1/3 orange juice to 2/3 sweet grape juice. Fill glasses 2/3 full and top with whipped cream flavored delicately with orange extract. Serve with orange wafers; or:

2. Omit orange juice from recipe. Serve the grape juice and mint leaves with whipped cream. Sprinkle with nutmeg.

Grape Punch—1. Boil for 5 minutes, 2 cups sugar, 3 cups water, juice of 1 lemon and 1 orange. Strain and make ice cold. Add 2 cups fresh grape juice. Dilute with water if necessary. Fold in 1 stiffly beaten white of egg. Serve at once.

2. 1 qt. grape juice added to 1 gallon plain lemonade makes a good punch. Add fresh grapes cut in half and seeded.

3. Mix 1 pt. grape juice, 1 pt. water, juices of 1 lemon, 1 orange, 1 small cup sugar. Diced pineapple and juice may be added.

Fruit Punch—Punch is made of any combinations of fruits and fruit juices according to taste and convenience. Sugar and charged water are added; spices, mints, or extracts if desired.

Reception Punch—Slice 6 lemons, 6 oranges, 2 cups Maraschino cherries. Cut in small pieces 1 pineapple, preserved ginger, ½ cup, fresh raspberries and strawberries 2 cups each, preserved orange peel ½ cup. Sprinkle 2 cups sugar through the fruit and juices, stand on ice 1 or 2 hours, then add 3 qts. ice cold water and 4 bananas sliced.

Fruit Syrup—Have equal quantity of sugar, water, and juices from any one kind of fruit or berry. Boil until a clear syrup, 15 minutes or more; add the fruit juice, simmer 30 minutes. Bottle and seal while hot. When a certain fruit not in season is desired to add to punch its flavor may be had by using its fruit syrup.

Washington Punch—Dissolve 1 cup sugar in 1 cup hot tea, add 1 cup of fruit juices mixed. Strain, chill. When ready to serve add 1 pt. Appollinaris water, 1 pt. iced water, some chopped fruit and Maraschino cherries.

August Spiced Punch—This is quickly made by using fruit syrup. In 2 cups water put bits of whole spices, cloves, ginger. Add 1 cup strawberry syrup. Simmer 2 minutes, cool. Add strained juices of 2 lemons, 1 orange; add ice water to taste.

Yellow Pineapple Punch—Make a syrup of 2 cups sugar, 2 cups water, grated rind of 1 lemon and 2 oranges, juice of 1 large can pineapple. Simmer gently 10 minutes, strain. Add juice from 3 lemons, 4 oranges sliced, diced pineapple from 1 can. Mix with 1 qt. charged water. Pour all over a piece of ice in a punch bowl.

If retaining a pineapple color to the punch is not important, add 2 cups berry juice or halved

fresh berries; 1 cup of tea is also a pleasing addition.

Raspberry Mint Punch—Make a mint tea of 1 qt. fresh crushed mint leaves and 2 cups boiling water. Simmer 10 minutes. Add 1 cup sweet grape juice or 1 cup raspberry syrup. If fresh fruit is used instead of the fruit syrup, add 1 cup fresh raspberry juice; make a syrup of 1 cup sugar with 3 cups water. Pour all together and put aside to ripen and to chill. Strain and serve.

Mint Cordial—Strain juice of 2 lemons, pour it over a cup of chopped and crushed mint leaves, soak about 40 minutes. Make syrup of 2 cups sugar, 3 cups water until it spins a thread, add lemon juice and mint and 1 cup fruit or berry juice preferably that of light color as orange, pineapple, canned apricot. Dilute with water or pour over crushed ice in tall glasses.

Apricot or Peach Nectar—Rub through a sieve apricots from 1 can, or the pulp of the fresh very ripe fruit, apricots or peaches. Let stand with cold water poured over and 2 cups sugar. If peaches are used add almond extract or Maraschino cherries and juice, and juice of 2 lemons. If apricots are used, add juice of 4 oranges.

(Paste or Write Here Scraps or Memos. of Your Own)

Cranberry Nectar—Cook 2 cups cranberries in 4 cups water till tender, strain, add 2 cups sugar, stir until dissolved, cooking gently 5 minutes. Put in ice box. Cook 6 sliced apples with plenty water to cover until tender. Mash, strain, cool. Combine cranberry and apple juice, juice of 2 oranges, 2 lemons. Dilute with water about 2 qts. Sweeten to taste.

Blackberry Lemonade—Use either large blackberries, black raspberries or blueberries. Crush berries and use 2 cups of their juice. Mix with grated rind and juice of 2 lemons, 1 cup sugar and about 3 cups water. Stand and chill 1 hour. Strain, serve.

This may be improved by adding ⅛ teasp. ground ginger to berry juice.

Spiced Appleade—Core and peel 6 apples, slice and boil till tender in water to cover, press out juice. Wash rhubarb, do not peel, cut in dice to fill 2 cups. Simmer in 3 cups water. When tender, mash, strain. Add to juice, ½ teasp. cinnamon, ¼ teasp. ginger, 1 cup sugar. Simmer a few minutes, add to apple juice. Chill for ½ hour. Add water when ready to serve, and more sugar if desired.

STUDY ON BEVERAGES

(Iowa State College Bulletin)

A beverage is any drink which relieves thirst and replaces the fluid loss of the body. "Water is the beverage provided for man by Nature and is essential to life."

Beverages are used: I. As relievers of thirst. II. As diuretics. III. As diaphoretics. IV. As diluents. V. As stimulants. VI. As demulcants. VII. As tonics. VIII. As astringents. IX. As nutrients. X. As an aid to digestion.

I. BEVERAGES TO RELIEVE THIRST

1. Water. 2. Carbonated and effervescing waters. 3. Fruit drinks: a. Orangeade; b. Lemonade; c. Limeade; d. Raspberry shrub; e. Pineapple punch; f. Currantade; g. Grape juice.

Syrup for Fruit Beverages—¾ c sugar, ¾ c boiling water. Add sugar to boiling water, stir until sugar is dissolved. Boil without stirring 10 minutes. Cool and bottle.

NOTE: This syrup may be added to all fruit juices.

Lemonade with Syrup—1½ tbsp. syrup, 2 tbsp. lemon juice, ¾ c cold water. Mix syrup and lemon juice. Add cool water. Strain lemonade before serving.

Lemonade—½ c lemon juice, 1 c sugar, 4 c water. Add water boiling hot to lemon juice and sugar and strain. When cool add crushed ice.

Appollinaris Lemonade—Make same as lemonade, substituting appollinaris in place of water.

Pineapple Lemonade—2 c water, 1 c sugar, 4 c ice water, 1 can grated pineapple, juice 3 lemons. Boil sugar and water 10 minutes. Add pineapple and lemon juice. Cool, strain and add ice water.

Currantade—4 c red currants, 1 c red raspberries, 8 c water, 2 c sugar, juice of 1 lemon. Make syrup by boiling sugar and water 10 minutes. Crush the currants and raspberries. Add lemon juice. Strain fruit juice through a jelly bag. Add the syrup to the fruit juice and let stand two hours before serving.

Unfermented Grape Juice—10 lbs. grapes, 1 c water, 3 lbs. sugar. Put grapes and water in granite stew pan. Heat until stones and pulp separate; then strain through jelly bag, add sugar, heat to boiling point and bottle. This will make one gallon. Dilute with water and serve.

Ginger Punch—1 qt. cold water, 1 c sugar, ½ lb. canton ginger, ½ c orange juice, ½ c lemon juice. Chop ginger, add water and sugar. Boil 15 minutes. Add fruit juice, cool, strain and add crushed ice.

Fruit Punch—1 c water, 2 c sugar, 1 c tea infusion, 1 qt. appollinaris, 2 c strawberry syrup, juice 5 lemons, juice 5 oranges, 1 can grated pineapple, 1 c maraschino cherries. Make syrup by boiling water and sugar 10 minutes, add tea, strawberry syrup, lemon juice, orange juice and pineapple. Let stand 30 minutes, strain and add ice water to make one and one-half gallons of liquid. Add cherries and appollinaris. Serve in punch bowl, with large piece of ice. The quantity will serve fifty people. (Note directions for making tea.)

II. DIURETICS—TO STIMULATE ACTION OF KIDNEYS

Mineral and carbonated waters hold first rank.

Mineral waters possess, in addition to the properties of plain water, a mildly stimulating effect upon the mucous membrane of the stomach, due to the carbon dioxide gas and the salts they contain.

"These waters are very useful when taken one-half an hour before meals to cleanse the mucous membrane of the stomach and prepare it for the reception of food. They also serve to dilute and wash out the waste materials from the system through the kidneys."

"The alkaline waters all contain more or less carbon dioxide gas and their more important ingredients are the alkaline carbonates."

They are useful in neutralizing the uric acid in the system.

Generally speaking, the European waters are richer in minerals than are the American.

Alkaline table waters:

1. Vichy
2. Johannis
3. Apollinaris
4. Seltzer

The following acid beverages also promote action of the kidneys:

1. Lemonade
2. Orangeade
3. Cream of tartar drinks
4. Raspberry vinegar

Orangeade—Juice of 1 orange, 1 tsp. sugar, ¾ c water. Boil sugar and water three minutes. Let cool, add orange juice. Strain and serve.

Cream of Tartar Drink—Dissolve 2 tsp. of cream tartar in a pint of boiling water. Flavor with lemon peel and sugar. Serve ice cold.

Cream of Tartar Whey—Stir two level teaspoons of cream of tartar into a pint of boiling milk and strain. Sugar may be added if desired.

III. DIAPHORETICS—TO PROMOTE PERSPIRATION

1. Lemonade
2. Ginger Tea
3. Tea

Hot Lemonade—Make same as lemonade in above recipe, and serve hot.

Ginger Tea—1 tbsp. molasses, ½ tsp. ginger, ½ c boiling water, ½ c milk, ½ tsp. butter. Mix molasses and ginger. Add boiling water gradually Boil 1 minute, add milk and butter and serve.

Tea—1 tsp. tea, ¾ c freshly boiled water. Heat cup and put in tea. Pour on hot water, cover and let stand in warm place 3 minutes. Strain and serve in hot cup, with cream and sugar if desired.

Orange or Lemon Cut Sugar—Rub the surface of blocks of loaf or cut sugar over the rind of a lemon or orange which has been washed and wiped until dry. Place in a glass jar and serve with tea.

Rock Sugar for Five O'Clock Teas—Mix white and red rock candy together and serve with tea.

IV. DILUENTS—TO DILUTE WASTE MATERIAL

1. Alkaline waters
2 Carbonated effervescing waters

V. STIMULANTS

1. Tea (hot or cold)
2. Coffee (hot or cold)
3. Cocoa (slightly)
4. Chocolate (slightly)

Coffee—Two level tbsp. ground coffee for each cup of water. To make 8 cups of coffee mix ¾ c ground coffee with 1 c cold water and let stand about ¼ hour; add 7 c water—cold preferred—place coffee pot over fire, bringing slowly to boiling point, then simmer 2 minutes. Add ¼ c cold water and set on back of range to settle. Coffee may be boiled, filtered or infused. In each case 2 level tbsp. to 1 c water is used.

Breakfast Cocoa—1½ tbsp. prepared cocoa, 2 tbsp. sugar, 1 c boiling water, 1 c milk, few grains salt, few grains cinnamon. Scald milk, mix cocoa, sugar and salt, dilute with one-half cup boiling water to make smooth paste, add remaining water and boil 1 minute. Turn into scalded milk and beat two minutes, using Dover egg beater. Vanilla or cinnamon improves the flavor.

NOTE: ½ tsp. flour mixed with the sugar and one beaten egg or egg yolks may be added.

Chocolate—¼ sq. baking chocolate, 1 tbsp. sugar, ¼ c boiling water, ¾ c scalded milk, few grains salt. Melt chocolate in small saucepan placed over hot water, then add sugar and salt. Add water gradually while stirring constantly and boil 1 minute. Pour into hot milk and beat. Serve with or without whipped cream.

VI. DEMULCANTS TO ALLAY IRRITATION OF THE ALIMENTARY CANAL

1. Barley water
2. Rice water
3. Flaxseed tea
4. Currant jelly

Demulcants when taken hot are soothing for coughs and promote expectoration.

Barley Water—2 tbsp. barley, salt, 4 c cold water. Wash barley. Add the water and let stand 4 hours, cook in same water until it is reduced to one-half, if it is to be used for infant feeding. For adults reduce to 1 cup. Salt and cream may be added or lemon juice and sugar, as the case may require.

Rice Water—2 tbsp. rice, 4 c water, salt. Wash rice thoroughly in cold water. Add the water to the rice and let soak 30 minutes. Heat gradually to boiling point and let boil until rice is soft. Strain, reheat rice water, season with salt and flavor in the same way as barley water. Rice water is a useful drink for cases of dysentery, diarrhoea and irritated conditions of the alimentary canal.

Flax Seed Tea—½ c flaxseed, 1 qt. boiling water. Add flaxseed to boiling water, boil 30 minutes and let stand a little while near the fire to thicken. Strain and add lemon juice and sugar.

Currant Jelly Drink—Dissolve red or black currant jelly in hot or cold water. Add crushed ice and serve.

VII. TONICS—TO AID DIGESTION

1. Koumiss
2. Alkaline waters

Koumiss—1 qt. milk, 1½ tbsp. sugar, ¼ yeast cake, 1 tbsp. lukewarm water. Heat milk to 75 degrees F., add sugar and yeast cake dissolved in luke warm water. Fill sterilized bottles to within one and one-half inches of top. Cork and shake. Place bottles inverted where they can remain at a temperature of 70 degrees F. for ten hours. Put in ice box or cold place and let stand 48 hours, shaking occasionally to prevent cream from clogging mouth of bottle.

VIII. ASTRINGENTS

1. Tea
2. Blackberry juice
3. Coffee
4. Cocoa

IX. NUTRIENTS TO SUPPLY FOOD VALUES

1. Cocoa
2. Chocolate
3. Fermented milks (example Koumiss)
4. Milk
5. Eggnog
6. Albuminized milk

Lemon Egg Nog—1 egg, 1 tbsp. sugar, 1 tbsp. lemon juice. Beat yolk of egg until thick and lemon colored. Beat white of egg until stiff. Add sugar gradually to the beaten yolk, add egg white and lemon juice. Serve ice cold.

Albuminized Milk—White 1 egg, ½ c milk, few grains salt. Put egg white, milk and salt in pint jar. Fasten the cover securely and shake jar until the egg and milk are thoroughly blended.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

CLASS 31

Preserving Foods In The Home

Including
PRESERVES, JELLIES, Etc.

CANNING, DRYING, PICKLING, STORING

Being Lessons VII and VIII of
"TEN LESSONS ON FOOD CONSERVATION"
Published by U. S. Food Administration

OUTLINE

I. Necessity for preserving foods.
II. Consideration of various means of preservation.
III. Canning of fruits and vegetables.
IV. Drying of fruits and vegetables.
V. Preservation of fruits and vegetables by fermenting. salting and vinegar pickling.

I. NECESSITY FOR PRESERVING FOODS

This season it is imperative, as never before, to avoid the waste of all kinds of food. On account of the increased production in gardens, people must appreciate the importance of taking care of the surplus. To save the surplus of perishables will provide variety for the winter diet, lessen the expenditure for food, and help to simplify the growing problem of transportation.

II. CONSIDERATION OF DIFFERENT MEANS OF PRESERVATION

The present situation demands careful consideration of the best means of preserving different local foods. The selection of canning and drying, or other means, depends upon its suitability to the product being preserved, the cost and difficulty of securing containers, and the ease in handing and storing the finished product.

Canning retains the original form, color, flavor and texture of fruits and vegetables to a greater degree than do other means of preserving. In addition, canned foods require less preparation before serving. Considering the initial cost of containers, canning is more expensive than drying, brining or curing. The present shortage of tin and glass makes it more important than formerly to consider whether food shall be canned or not.

Drying furnishes a good substitute for canning, and when properly done gives attractive and wholesome products. Much space in storing and expense of containers are saved, since a ton of many different vegetables in the fresh state when properly dried will average only about 175 pounds in weight.

Brining such vegetables as cabbage, cauliflower and cucumbers is an economical way of saving these products. Some vegetables can be saved in brine better than by canning them. In brining, fewer containers are required for storing large quantities of vegetables, and containers such as crocks, kegs and barrels are less expensive than tin and glass.

Storing matured crops is of great importance. Economy demands that such vegetables as legumes and root crops be allowed to mature, since in this state they are more nutritious and less time and money are spent in storing.

Curing of meats is to be considered only when such products are raised on the farm. It is well to encourage the reviving of old methods with the use of the smokehouse, preservation in salt, etc., for carrying over surplus meat on the farm and thus securing delicious products. The canning of meats should not be attempted in the household at the present development of canning methods.

III. CANNING OF FRUITS AND VEGETABLES

General Suggestions on Canning—It is important during the present season to consider what vegetables to select for canning and the most economical procedure to use. The following suggestions should have general value:

1. Do not can vegetables which can be matured and form a more nutritious food mature than when canned green. Lima beans and others are examples of this class.
2. Root crops like beets and carrots should be stored instead of canned.
3. Some products like tomatoes can be concentrated in purees and pastes and thus take up less space.
4. Fruit pastes, which are concentrated products made of fruit pulp, can also be considered. These are of thicker consistency than jams and fruit butters and may be dried and packed in layers, thus being economical and convenient.
5. Fruit juices for jelly stock and other purposes can be extracted, bottled in various containers, sterilized and sealed. Larger quantities can thus be economically saved than when finished products demanding more time, fuel and sugar are made in the summer season. If the jelly is made only as needed, fewer glasses will be required since these containers will be used again and again.
6. Valuable fruit syrups which can be substituted for cane and sorghum syrups can be made from juice of apples, scuppernong grapes and other fruits. Where fuel is plentiful for the boiling processes involved, these are economical because they do not require the use of any sugar. These syrups can also be used instead of sugar when making jams and marmalades of the same fruits.
7. The city housekeeper who cans fruits and vegetables must consider a number of points. In the first place, she must watch the markets to find when local products are available at lowest prices. She must also be assured that the vegetables she secures for canning are fresh. This is most important. Not only is quality injured by staleness but the difficulty of sterilization is greatly increased. It would be worse than useless to attempt to can vegetables which are being disposed of cheaply because they are almost ready to decay. When fresh vegetables can be secured at reasonable prices the city housekeeper who wishes to preserve any quantity should further weigh the relative cost of canning and drying, considering equipment, fuel, time, containers and the vegetables to be preserved. Fruits present fewer problems.
8. In the larger towns and cities, teachers can reach and instruct larger numbers of housekeepers by working through the many well-established existing organizations. Community canning kitchens in the public schools may be started where conditions warrant it; but impartial advice should first be secured from the extension director of the State agricultural college, as such undertakings require trained leadership for success.

IV. DRYING OF FRUITS AND VEGETABLES

Methods of Drying—The process of drying vegetables and fruits is a simple one and can be done in the average home by the housewife. A uniformly dried product is desired and can best be secured by using a drier or evaporator constructed so that heated currents of

air pass over the product as well as up through it, gathering the moisture and passing away. The movement of the current of air induces a more rapid and uniform drying.

Vegetables and fruits can be dried in an oven, in trays or racks over the kitchen stove, in a specially constructed drier, and where there is electric current, by the newly devised method of exposing trays of the material to be dried to the air current from an ordinary electric fan. There are small driers on the market which give satisfactory results. The small cookstove driers of evaporators are small ovenlike structures, usually made of galvanized sheet iron or of wood and galavanized iron. They are of such a size that they can be placed on the top of an ordinary wood or coal range or a kerosene stove. These driers hold a series of small trays on which fruits or vegetables are placed after being prepared for drying. Portable outdoor evaporators are especially convenient when it is desired to dry as much as 10 bushels of fruit or vegetables per day. They are usually constructed of wood except the parts in direct contact with the heater. The home made dry kiln used in some sections of the country can be cheaply and easily made of brick and stone. Sun drying is only satisfactory in very dry climates. If done, every precaution should be taken to protect the vegetables or fruits from dust and insects when exposed to the sun.

If drying is done in a cookstove oven, leave the oven door ajar. Frequently note the temperature of oven. Trays for use in the oven can be made by using a convenient-sized piece of galvanized wire screen and bending up the edge one or two inches.

It is important to know the temperature of the heat in the drier, and this cannot be determined very accurately except by using a thermometer. An ordinary chemical thermometer can be suspended in the drier. If a thermometer is not used, the greatest care should be given to the regulation of the heat. The temperature in the drier rises rather quickly, and the product may scorch unless close attention is given. The temperature for drying should be rather low to prevent scorching the product. For most vegetables, after surface moisture is removed, begin drying at a temperature of 110° F. Increase temperature gradually from 110° to 145° F. and complete drying in two to three hours. The time required for drying vegetables varies. However, it can easily be determined by a little experience.

Dried Vegetables—As great care should be given to the selection and preparation of vegetables for drying as for canning. To secure a fine quality of dried products, much depends upon having the vegetables absolutely fresh, young, tender and perfectly clean. Wash all vegetables and clean well. If steel knives are used in paring and cutting, have them clean and bright, so as not to discolor the vegetables.

After vegetables are prepared properly they are blanched—that is, they are plunged into boiling water for a short time. The blanch gives a more thorough cleaning, removes the strong odor and flavor from certain kinds of vegetables, and makes them more flexible. This allows the moisture in the vegetables to evaporate more quickly and uniformly. Use a wire basket or cheesecloth bag for blanching. After blanching the required number of minutes, drain well and remove surface moisture by placing vegetables between two towels or by exposing to the sun and air for a short time.

The vegetable thus prepared is spread in a thin layer on the trays of the drier. The material should be stirred or turned several times during the drying in order to secure a uniform product.

Dried Fruits—In very dry climates fruits are usually dried in the sun. Most fruits dried in the sun discolor unless especially treated. For drying fruits in small quantities for home use the small dryer is much more satisfactory. On very hot, dry days fruits may be dried in the sun until surface begins to wrinkle and then finished in the drier. Only fresh, ripe fruits should be used.

Before spreading fruit on the trays of the drier, line the tray with wrapping paper or cheesecloth. There is a possibility of the acid of the fruits acting upon the zinc. After drying, cool quickly, as fruit when cooled slowly shrivels and looks unattractive.

The ideal moisture content of dried fruits is about 23 per cent. The ability to judge accurately as to when the fruit has reached the proper condition for removal from drier can be gained only by experience. When sufficiently dried it should be so dry that it is impossible to press water out of the freshly cut ends of the pieces, and so that it will not show any of the natural grain of the fruit on being broken, yet not so dry that it will snap or crackle. It should be leathery and pliable.

Storing Dried Product—When vegetables are first taken from the drier, if completely dried, they are very brittle. They are more easily handled and are in better condition for storing if allowed to stand one to three hours to absorb enough moisture to make them more pliable before putting into bags or storing otherwise. If it is not convenient to store products immediately and they are allowed to stand several days, just before storing they should be heated to 160° F. to destroy any insect eggs that might be on them. Care should be taken not to heat the vegetables higher than 160° F.

Dried vegetables and fruits should always be stored in moisture-proof containers and in a dry place free from dust and dirt. The best container is a tin box, bucket, or can fitted with a perfectly tight cover. Perhaps the most convenient and cheapest container is the small paper bag. A small amount should be put in each bag, just enough to use for one or two meals. This will prevent the opening of any dried product that cannot be consumed in a short time. The upper part of the bag is twisted to form a neck. The neck is bent over and tied tightly with a string. The entire bag is then painted with a coat of melted paraffin, using a small brush or a frazzled end of a piece of rope. This makes the bag practically moisture and insect proof. To protect further from insect ravages, pack the bags, after labeling, in a tin container, with a tightly fitting cover. A large number of bags may be stored in an ordinary lard can. A glass jar with a tight seal is a good container for dried products. Paraffin-coated paper containers of various sizes can be found on the market. If such containers are used, they should also be stored as just suggested for the paper bags.

All dried products should be examined occasionally. Upon the first appearance of insects, spread thin layers in the sun until insects disappear; then heat at a temperature of 160° F. and restore carefully.

V. PRESERVATION OF FRUITS AND VEGETABLES BY FERMENTING, SALTING, AND VINEGAR PICKLING

General Statement—The preservation of food products by fermentation has been practiced for centuries, and in Europe many fermented substances are well-known articles of food. In this country, however, sauerkraut and dill pickles are practically the only foods frequently preserved in this manner. Salted vegetables are prepared to some extent in this country, although the method of salting is more commonly used with meats and fish. Vinegar pickling is well known in all parts of the country. A number of vegetables may be preserved by fermenting and salting, and when properly prepared and stored they will keep for a long time. These methods of preserving foods cannot replace canning or drying, but have certain advantages, chief of which are the following: Containers may be used for storing the vegetables, such as wooden kegs, stone crocks or large glass bottles, which are not adapted to canning; no sugar or fuel is required in the fermenting or pickling of vegetables, which is an advantage so far as cost is concerned; and owing to the shortage of tin and glass containers these methods of preservation are especially well worth considering at this time.

FERMENTING OF FRUITS OR VEGETABLES—The method of preserving fruits and vegetables by fermentation is perhaps best illustrated by the method of making sauerkraut in the home, which is given in the following paragraphs:

I. In making sauerkraut for home purposes the outer green leaves of the cabbage should be removed, just as in preparing cabbage for boiling. In addition, all decayed or bruised leaves should be discarded and the core removed. Cabbage may be shredded by one of the hand-shredding machines sold upon the market for such purposes, or if such an instrument is not available the heads may be cut into thin slices with a large knife. The core is omitted when machine for shredding is not available, because it is difficult to shred it fine enough with a knife. The shredded cabbage should be packed immediately into a perfectly clean, water-tight receptacle, such as a cider or wine barrel, keg or tub. Four or five gallon earthenware crocks are recommended for family use. After opening this quantity of sauerkraut it can be used up before spoilage sets in.

As the cabbage is packed into the barrel or crock, salt in the proportion of one pound of salt to 40 pounds of cabbage should be added and distributed evenly throughout the cabbage. Experiments have shown that approximately two and one-half pounds of salt to each hundred pounds of shredded cabbage gives the best flavor to the resulting kraut. When the barrel or crock is nearly full the cabbage should be pressed down as firmly as possible and covered with a clean board cover. It is advisable but not essential that a clean cloth be placed over the cabbage before the cover is put into place. The salt soon extracts a considerable amount of the cabbage juice from the cabbage and a sufficient weight of clean brick or stone should be added to cause the brine to rise above the wooden cover. Care should be taken not to use lime or sandstone for weights, for the acid produced by fermentation attacks the lime and destroys the keeping quality of the brine. Tubs and covers made of yellow or pitch pine should not be employed because such woods cause a disagreeable flavor.

The barrel or crock is now set aside and fermentation is allowed to proceed undisturbed. If the weather is cold or the product is stored in a cool cellar it may take three to five weeks for the fermentation to be completed. If placed in a warm room fermentation may be completed in ten days to two weeks. As soon as fermentation starts a foam appears on the surface of the brine. This is soon followed by a film which develops into a heavy scum if allowed to remain. The scum should be removed by skimming as often as it forms, every day if necessary. This scum is really a mold growth which feeds upon the acid in the brine and if allowed to grow undisturbed it soon destroys both brine and kraut. As soon as gas bubbles cease arising, the scum should be again removed, if any has formed, and a layer of hot melted paraffin about one-fourth to one-half inch thick should be poured upon the brine. If the sauerkraut is made during the fall and stored in a cool place there is no absolute necessity for the layer of paraffin, for the low temperature will prevent decomposition. No doubt the popular idea that sauerkraut made from early cabbage will not keep is based upon the fact that the fermentation of sauerkraut made from such cabbage occurs in warm weather, and the rapid growth of scum soon destroys both brine and kraut if the surface is not properly protected.

II. **Covering the Material**—The surface of the fermenting material should be protected against spoilage. This should be done by placing between the vegetables and the board cover mentioned above several thicknesses of clean cheesecloth, or even a layer about one inch thick of clean beet tops, rhubarb or grape leaves. In the case of sauerkraut clean cabbage leaves can be used.

III. **Protecting the Surface of Fermenting Material**—If uncooked vegetables or fruits are fermented, there will also be more or less bubbling and foaming of the brine during the first stages of fermentation. After this ceases a thin film will appear, which will spread rapidly over the whole surface and develop quickly into a heavy folded membrane composed of mold growth as explained. It is very important that this scum be prevented

from forming, if the product is to be kept for a considerable time. One important characteristic of this scum is that it will not grow in the absence of air. The free oxygen of the air is absolutely necessary for its growth. Consequently the exclusion of air from the surface of the brine will entirely prevent the scum from forming. There are three feasible methods of excluding the air. The first method is to use an oil, like cottonseed oil, which floats on the surface and effectually prevents air from reaching the brine. Brine with a layer of liquid petroleum or cottonseed oil one-half inch thick on the surface will keep indefinitely. The only objection to liquid oils is the difficulty of getting at the preserved vegetables without getting them covered with oil, which it is difficult to remove.

The second method is to cover the surface with very hot melted paraffin. If the paraffin is sufficiently hot to make the brine boil when poured upon it, the paraffin will form a smooth even layer before hardening. After solidifying it will effect a perfectly air-tight seal. Paraffin has, in comparison with liquid oil, the advantage of ease in handling and of not coming in contact with the fermented vegetables when they are removed. Further, paraffin can be used over and over and thus the expense is small in the long run. If it becomes dirty, it can be heated very hot and strained through cheesecloth or a thin layer of cotton. The one disadvantage with paraffin is that the development of gas below the layer will break the seal. If the paraffin breaks it should be removed, remelted and replaced. Before adding paraffin the containers should be set where they will not be disturbed until ready for use. Any attempt to move them may break the seal and necessitate remelting and resealing.

If cottonseed oil or paraffin is used to cover the brine it is advisable so to adjust the amount of brine used and weights on the cover that the brine comes up to but does not go over the cover. In this case only the brine exposed between the cover and sides needs to be oiled or paraffined, thus saving covering material.

The third method is to pack the barrels as full as possible and replace the head. In using this method of fermentation with beets, cucumbers, chayotes, or string beans, fill the barrels as full as possible, add cover and weights. Let stand for 24 hours to allow the initial gas to escape and head up tight. Bore a one-inch hole in the head and fill the barrel full with brine. There should be no air space in the barrel. Allow the barrel to stand until bubbling has stopped. Add more brine if necessary and plug the vent tight. If the barrel does not leak, fermented products put up in this manner will keep indefinitely.

IV. String Beans may be preserved by a slight modification of the method used for sauerkraut: Remove the tip ends and strings from the beans, wash, drain and weigh them. For each hundred pounds of beans weigh out three pounds of fine salt. For smaller amounts use the same proportion of salt (three per cent. by weight). Pack the beans in the keg or crock in layers, sprinkling each layer with the fine salt, using just enough so that the amount weighed out will suffice to pack the whole quantity of string beans. Cover and ferment as described for sauerkraut.

V. Cucumbers, Chayotes and Beets—These vegetables are best preserved by fermenting them in a weak salt solution, as the salt will not extract sufficient water from them to form a brine. Wash the vegetables and pack them whole in a keg or other container. Pour over them a weak brine, cover with a board, and weight, and set aside to ferment as in the case of sauerkraut. The brine is prepared as follows: dissolve one pound salt in 10 quarts water, stir until the salt is dissolved and then add 1½ pints vinegar.

SALTING FRUITS AND VEGETABLES

Vegetables like dandelions, spinach, kale, beet greens and string beans may be preserved by packing with a sufficiently large quantity of salt to prevent any fermentation or development of bacteria. Wash, drain and weigh the vegetables Weigh out also a quantity

of fine salt equal to one-fourth the weight of the vegetables. Pack the vegetables in a clean keg, stone crock or other container in layers about one inch thick and sprinkle each layer heavily with salt. Cover the material with a clean cloth and a round board as described for sauerkraut, add a weight and set aside. When ready for cooking the salted vegetables should be soaked several hours in clean water and cooked in the same way as one would the fresh vegetables.

PRESERVING FRUITS OR VEGETABLES IN VINEGAR

Pickled vegetables or those preserved in vinegar are of three general types: those preserved whole in vinegar alone (sour pickles), those in which spices or sugar and spices are added to the vinegar (sweet or spiced pickles), and the chopped vegetables such as chow-chow, ketchups, etc., which contain vinegar. The acetic acid in the vinegar preserves these materials by preventing the growth of yeasts, molds or bacteria, which would cause the fruit to spoil.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

HOME CANNING BY THE ONE-PERIOD COLD-PACK METHOD

By O. H. Benson, Agriculturist, Boys' and Girls' Extension Work, Northern and Western States

(Farmers' Bulletin No. 839, U. S. Department of Agriculture, Extracts)

Without previous experience, and with no other equipment than that to be found in almost every home, anyone, adult or child, should be able to can food satisfactorily by the method described in this Bulletin.

By this method various vegetables, soups, meats, fish and practically any other foods or combination of foods can be canned, as well as fruits and tomatoes, the products most commonly canned.

In all home canning it should be borne in mind that when hermetically sealed containers are difficult to obtain, food products which can not be preserved easily in other ways should be given preference. This would make inadvisable in most cases at times like the present, the canning of such products as hominy, dried beans, potatoes and similar foods.

Most home-makers are familiar with some form of canning. Much of the canning practiced in homes, however, has been restricted to the putting up of fruits. The canning of vegetables and of meats has been considered until recently by all but a relatively few persons to be too complicated to be done satisfactorily in the home. But it is a simple matter to can practically any food product in the home with ordinary kitchen equipment and with the expenditure of comparatively little labor. This is described in the following paragraphs; the system was developed primarily for use in the Northern and Western States rather than in the South. By its use the time required for the treatment of food to prepare it for keeping is reduced to a minimum.

NOTE:—The exact wording of the government bulletin has not been closely followed here, but has been varied, to give only the simple directions for home canning in small quantities under the simplest method and conditions. We recommend that the housewife write the Department of Agriculture for a copy of the Bulletin, if only to have it handy for reference in the event she should want to go a little beyond these directions in some particular. By all means have the Bulletin if any large amount of canning is to be attempted; it shows methods, better even though slightly more elaborate, and better utensils procurable at little expense, for use in the canning of larger quantities.—EDITORS.

Preparations for Canning—Start with clean hands, clean utensils, clean, sound, fresh products, and pure, clean, soft water. No withered or unsound vegetables or fruits should be canned. If possible, those picked the day of canning should be used. Peas and corn, in fact, which lose their flavor rapidly, should be canned within five hours if a choice product is desired.

Wash the containers before you start; if glass or crockery jars, place in cold water over a fire to heat; have them hot and ready for use when the products have been prepared for packing.

Wash carefully all grit and dirt from the materials to be used. Grade the products for ripeness. Large fruits and vegetables should be pared if necessary, and small fruits, berries and greens picked over carefully.

Steps in Canning—After the preparatory measures, the canning method consists of five steps—scalding or blanching, cold-dipping, packing, processing, and sealing. In canning berries and all soft fruits the blanching is dispensed with.

The products to be canned are blanched or scalded usually by being placed in a cheesecloth bag or dipping basket into boiling water and allowed to remain there from 1 to 15 minutes, depending on the kind of product. In the case of greens and green vegetables, however, the scalding is accomplished most satisfactorily in steam, as volatile oils and other substances remain in the food under this treatment. Such products may be put into a colander, set over a vessel of boiling water and covered as tightly as possible. Better results may be obtained by the use of a steam cooker.

As soon as removed from the boiling water or steam the product should be dipped into cold, clean water and immediately removed and drained for a few moments. The temperature of the water used for cold dipping should be as low as possible.

The product should be packed carefully into hot jars as soon as removed. In the case of fruits, boiling hot syrup or hot water is then added. In the case of vegetables, hot water usually is used and salt is added for seasoning. The scalded rubbers and tops of jars are put into place, the tops of cans sealed, and the containers are placed in a hot-water bath, pressure cooker, or other similar device for processing.

Processing is the final application of heat to sterilize the product and is continued for a period determined by the character of the product and the kind of apparatus used (see time schedule). The containers should be placed in the processing vessel as soon as they are filled.

Immediately after the termination of the processing period, while the products are still hot, glass and similar containers must be sealed.

Jars should then be placed in a tray upside down to cool and closely examined for leaks. If leakage is found the covers should be tightened until they are completely closed.

Tin cans may be cooled by plunging them in cold water. When the packed containers are thus cooled, they should be stored in a cool, dry place not exposed to freezing temperature. Most products packed in glass jars will bleach or darken if exposed to light; it is well, therefore, to wrap jars in paper. From time to time, especially in very hot weather, both glass jars and tin cans should be examined to make certain that there are no leaks, swellings, or other signs of fermentation.

Equipment Required—Whatever type of apparatus is used for processing or sterilizing, a number of utensils are needed for properly handling the products during the preceding steps. These include five or six acid-proof pans with covers for use in handling and blanching acid fruits, two tablespoons, one set of measuring spoons, one wire basket or several yards of cheesecloth for use in blanching, six wiping cloths, two hand towels, one duplex fork for lifting hot jars, several sharp paring knives, a generous supply of clean hot and cold water, a garbage pail for scraps and a good stove or other heating device.

For processing, home canners may choose from among several types of apparatus, according to their needs and means and the extent of their canning intentions. There are five general types of outfits in common use. These are described at length in the **Bulletin** from which these paragraphs are taken, and those who plan any extended amount or quantity of canning should obtain a copy and study these several methods carefully. For home-canning in small amounts the following homemade outfits are fully sufficient.

Home-made outfits are constructed of such utensils as wash-boilers, tin pails, milk cans, metal washtubs and lard pails Such canners should have well-fitting covers and false bottoms or lifting platforms of metal or wood; the latter are to support jars or cans to prevent direct contact with heat and also permit a free circulation of water and steam around and under the containers.

Difficulties in the Operation of hot-water bath canning outfits may be avoided if the following rules are observed. Support the jars on a perforated platform sufficiently to permit the circulation of water under and around the jars. Have the water cover the tops

of the jars by at least one inch. Count time as soon as the water begins to boil vigorously. Remove the jars from the water and tighten the covers as soon as the time is up.

Containers—The method here described does not require a particular class of container. Glass jars, crockery jars (with air-tight tops) or tin cans of practically any type may be used if they are carefully cleaned and properly handled and sealed. When products are to be used in the home, glass jars are perhaps preferable to tin cans. Jars may be sealed without the use of special apparatus and may be used over and over again if taken care of and new rubbers are used each time. Tins, on the other hand, must be thrown away each time. Tin cans, however, have certain advantages. They exclude light and so prevent bleaching; they may be packed, handled and transported more safely than glass jars.

Altitude Changes—The directions given here for canning are based upon an altitude from sea level to 1000 feet and upon the use of the **quart can** or container. If using smaller cans or jars, reduce the time a trifle; if using larger, increase the time. For altitudes above 1000 feet the time of sterilization should be increased at the rate of 10 per cent. for each 500 feet.

Seasoning—In seasoning foods it should be kept in mind that most vegetables as well as meats are injured in flavor and quality by an excessive use of salt for seasoning in the canning process. A little salt is very palatable and its use should be encouraged, but it is better to add no salt in canning than to use too much. Salt can be added to suit the taste when canned goods are served.

Syrups—Syrups are employed usually in canning fruits. A formula much used in some sections for syrup is 3 quarts of sugar to 2 quarts of water, boiled to a thin, medium-thin, medium-thick, or thick syrup. The formula sometimes called the Eastern formula is 3 quarts of water to 2 quarts of sugar, boiled to a thin, medium-thin, medium-thick, or thick syrup. The first formula may be used for canning all kinds of fruits delicate in flavor and texture and when sugar is low or reasonable in price. When sugar is high in price and the character of the fruit is such that less sugar is required, the Eastern formula may be used. The following may be remembered:

Thin syrup is sugar and water boiled sufficiently to dissolve all of the sugar, but is not sticky. Such syrup has a density of from 12 to 20 per cent. Medium-thin syrup is that which has begun to thicken and becomes sticky when cooled on the finger tip or spoon; density 20 to 40 per cent. Medium-thick syrup is that which has thickened enough to roll or pile up over the edge of the spoon when it is poured out; density 40 to 50 per cent. Thick syrup is that which has become so thick that it is difficult to pour out of a spoon or container, but has not sugared; density 50 to 64 per cent.

Thin syrups are used for all sweet fruits such as cherries, peaches, apples, etc., that are not too delicate in texture and color. Medium-thin syrups are used in the canning of the medium-sweet fruits, such as blackberries, currents, dewberries, huckleberries, raspberries, etc. Medium-thick syrups are used in the canning of all sour fruits, such as gooseberries, appricots, sour apples, etc., and delicately colored fruits such as strawberries and red raspberries. Thick syrup is used in preserving and making all kinds of sun-cooked preserves.

Canning Fruit Without Sugar—All fruits can be canned for future use for jelly making, pie filling, salad purposes, etc., without the use of sugar by simply adding hot water instead of the hot syrups. It has been found practicable also with certain vegetables to substitute sugar for salt in the canning process, and then add other seasonings to taste when serving.

In canning fruit without sugar, can it the day it is picked; cull, stem, seed and clean fruit by placing in strainer and pouring cold water over it. Pack the product carefully in hot glass jars or tin cans until full. Use tablespoon, wooden ladle or table knife for packing purposes. Pour boiling hot water over the product in the hot jar. Place rubbers and caps in position, not tight. If using tin cans, seal completely. Place product in the sterilizer, vat or canner, and sterilize for the length of time given, which for hot-water bath is 30 minutes. After sterilizing remove the filled containers. Seal jars; invert to cool and test for leaks. Wrap in paper to prevent bleaching and store in a cool, dry place. If tin cans are used it will be found advantageous to plunge them into cold water immediately after sterilizing, to cool them quickly.

(Paste or Write Here Scraps or Memos. of Your Own)

CANNING AND PRESERVING RECIPES

As Prepared by O. H. Benson and Published by the U. S. Department of Agriculture.

Endorsed by the U. S. Food Administration

NOTE: Sterilization time given is for **water-bath** method. For other methods, as a rule more suited for canning or preserving larger quantities than for the usual small amounts put up in the home, it is recommended that the housekeeper send to the Department of Agriculture for Farmers' Bulletin 839, Home-Canning by the One-Period Cold-Pack Method, and study this Bulletin thoroughly in its entirety.

CANNING DIRECTIONS

VEGETABLES

Tomatoes—Scald 1½ minutes or until skin loosens. Cold dip. Remove stems and cores. Pack directly into cans or hot jars. Press down with tablespoon (add no water). Add level teaspoon salt per quart. Put rubbers and caps of jars into position, not tight. Seal tin cans completely. Sterilize (water-bath) 22 minutes.

Sweet Peppers—Use sweet green peppers. Place the peppers in the oven and bake them until the skins separate from the meat. Remove the skins. Pack them solid in hot glass jars or tin cans. Add water. Add 1 level teaspoonful of salt per quart. Put the rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 90 minutes. Remove the jars; tighten the covers; invert the jars to cool, and test the joints. Wrap the jars to prevent bleaching.

Pumpkins, Squash, Hominy and Sauerkraut—Prepare and cut into convenient sections. Blanch 3 minutes. Cold dip; pack closely in hot jars or cans. Fill with boiling water. Add level teaspoonful salt per quart. Put rubbers and caps of jars into position, not tight. Seal tin cans completely. Sterilize (water-bath) 120 minutes.

Sweet Corn—Remove husk and silk. Blanch 5 minutes on cob. Cold-dip; cut corn from cob and pack directly in hot jars or cans (¼ inch of top). Fill with boiling water. Add level teaspoonful salt per quart. Put rubbers and caps of jars into position, not tight. Seal cans completely. Sterilize (water-bath) 180 minutes.

Corn seems to give home canners more trouble than do most products; but with care and study corn may be canned as easily as any other product grown in the garden. A little experience in selecting the ear and the ability to recognize corn that is just between the milk and the dough stage are important. Cut the corn from the cob with a sharp, thin-bladed knife, and pack it at once into sterilized jars. Best results can be obtained when one person cuts the corn from the cob and one person fills the containers. If it is necessary for one person to work alone, he should cut off sufficient corn to fill one jar, pour on boiling water, add salt, place the rubber and the cap in position, and put the jar into the canner or hot water at once. Corn expands a little in processing, and for this reason jars should not be filled quite full. Corn that has reached the dough stage before being packed will have a cheesy appearance after canning. Corn should never be allowed to remain in the cold-dip water, and large quantities should not be dipped at one time unless sufficient help is available to handle the product quickly. Water-logged or soaked corn indicates slow and inefficient packing.

When canning sweet corn on the cob, follow same directions but pack whole ears in jars instead of the cut-off corn.

Home Canning Field Corn—This product is usually known as corn club breakfast food, or 4-H brand food product. The corn should be selected between the milk and the dough stage. Wide-mouthed glass jars or tin cans should be used. Avoid packing container too full, as the product swells during the sterilization period. The corn should be canned the same day it is picked from the field, if possible. The yellow field-corn makes a yellow, butter-like food product when ground and canned. Avoid mixing the white and the yellow or Bloody Butcher corn in the same batch of food products. Secure a good grade of food chopper for grating the corn. Small 10 cent hand graters can be used, but work with these is too slow and tedious.

Blanch the corn ears in boiling hot water or live steam for 10 minutes. Remove and dip quickly in cold water. Cut the corn from the cob with a sharp, thin-bladed knife. Feed the corn to the food chopper and grind to a pulp. Cook this product in a kettle, add one level teaspoonful salt to each quart, and a little butter, and sweeten a trifle with sugar. Cook (stir while cooking) until the product has assumed a thickened or pastelike mass. Then pack this product immediately in tin

cans or hot glass jars to one-fourth inch of the top. Seal jars by placing rubber and cap in position and seal tin cans completely. Place jars and cans in wash boiler or sterilizer and process (hot-water-bath) 180 minutes.

After this product has been sterilized and cooked and stored away, it will form a solid, butterlike mass, which when removed whole from the jars or pack may be cut in convenient slices for toasting, frying and baking purposes, and will make a delicious food product, palatable, economical and nourishing.

Vegetables Such as Wax Beans, Stringless Beans, Okra, Green Peppers, Cabbage and Brussels Sprouts—String or hull. Blanch in live steam for 5 to 10 minutes. Remove and dip quickly in cold water. Pack in hot jars or tin cans and add boiling hot water until jars or tin cans are full. Add one level teaspoonful salt to each quart. Put rubbers and caps of jars in position, not tight. Seal tin cans completely. Sterilize (water-bath) 120 minutes.

Lima Beans, Peas and Other Vegetables or Combinations of Them—Blanch in live steam for 5 to 10 minutes. Dip quickly in cold water. Pack immediately in hot glass jars or tin cans. Add boiling hot water to fill container. Add level teaspoonful salt per quart. Place rubbers and caps of jars in position, not tight. Seal tin cans completely. Sterilize (water-bath) 180 minutes. Remove from container; tighten cover; invert to cool and test the joints. Wrap in paper to prevent breakage and store.

Peas—A cloudy or hazy appearance of the liquid when peas are keeping well indicates that the product was roughly handled in blanching and cold-dipping, or that split or broken peas were not removed before packing. When peas are too old and blanching is not done carefully, the skin becomes cracked and the liquid cloudy. Some waters of high mineral content have a tendency to increase cloudiness, also to harden the peas.

Cauliflower—Use the flowered portion. Plunge it into cold brine (one-half pound salt to 12 quarts water). Allow the cauliflower to remain in brine for one hour. Blanch it three minutes and dip quickly into cold water. Pack it in hot glass jars or tin cans. Fill with boiling water and add a level teaspoonful salt for each quart. Put rubbers and caps of jars in position, not tight. Cap and tip tins. Sterilize (water-bath) 60 minutes. Remove the jars; tighten covers; invert jars to cool, and test the joints. Wrap the jars with paper to prevent bleaching.

Musbrooms—Caution: Unless you are absolutely sure that you know a mushroom when you see it, do not run the risk of gathering and using for food what you think are mushrooms. A large number of persons are poisoned every year because of carelessness in this regard. Many very poisonous plants closely resemble edible mushrooms. Can mushrooms immediately after picking; if allowed to stand they become unfit for use. (See Farmers' Bulletin, 796, Some Common Edible and Poisonous Mushrooms.)

Wash and trim the mushrooms. If small, can them whole; if large, they may be cut into sections. Blanch the mushrooms in boiling water 5 minutes Remove and plunge them quickly into very cold water. Pack in hot glass jars and add boiling water to cover; add one level teaspoonful salt to the quart. Place rubbers and caps of jars in position, not tight. Sterilize (water-bath) 90 minutes. Remove the jars; tighten covers; invert jars to cool and test the joints. Wrap jars in paper. If canning in tin, always use lacquered cans. After opening containers, remove the mushrooms immediately and use them as quickly as possible.

Root and Tuber Vegetables, Such as Carrots, Parsnips, Salsify, Beets, Turnips and Sweet Potatoes—Grade for size, color and degree of ripeness. Wash thoroughly, use vegetable brush. Scald or blanch in hot water sufficiently to loosen the skin. Dip quickly into cold water. Scrape or pare to remove skin. Pack whole vegetables, slices or cross-section pieces in hot glass jars or tin cans. Add boiling hot water until full. Add level teaspoonful salt to quart. Place rubbers and tops of jars in position; partially seal, but not tight. Cap and tip tin cans completely. Sterilize (water-bath) 90 minutes. Remove jars from canner; tighten covers; invert to cool, and test joints. Wrap in paper and store.

How to Prevent the Fading of Beets—Small beets that run 40 to the quart are the most suitable size for first-class packs. The older the beet the more chance there is for loss of color. When preparing the beet, leave on one inch of the stem and all of the tail while blanching. Blanch not more than 5 minutes, and cold-dip. The skin should be scraped from the beet, not peeled. Beets should be packed whole, if possible. Well-canned beets will show a slight loss of color when removed from the canner, but will brighten up in a few days.

Greens or Potherbs—A large number of cultivated and wild greens are edible, and if canned by this method will make a succulent and valuable food for the winter and spring months. Among the cultivated greens are Swiss chard, kale, Chinese cabbage leaves, upland cress, French endive, cabbage sprouts, turnip tops, young tender New Zealand spinach, beet tops, dandelion, young tender dasheen sprouts, native mustard, Russian mustard, collards, and tender rape leaves. Among the wild greens are pepper cress, lambs quarter, sour dock, smartweed, sprouts, purslane, or "pusley," pokeweed sprouts, dandelion, marsh marigold, wild mustard, and milkweed (tender sprouts and young leaves).

Can the day they are picked. Wash clean, sort thoroughly, allowing no foreign weed leaves or other vegetable matter to remain. Rid the greens of all sand. Rid of dry or decayed or diseased leaves. Place the greens in a crate or cheesecloth and blanch in live steam either in an improvised home-made steamer or regular commercial steamer for 15 minutes. Remove the greens and plunge quickly into cold water. Place on the table and cut into convenient lengths. Pack tight in hot jars or tin cans. Add hot water to fill the container and season to taste. The product will be slightly improved if a few strips of boiled bacon or chipped beef are added. A little olive oil also improves the flavor. If using glass jars, place rubbers and tops in position; partially seal. If using tin cans, cap and tip completely. Sterilize (water-bath) 120 minutes. Remove from canner, tighten covers of jars; invert to cool, and test the joints. Wrap in paper to prevent bleaching, and store.

VEGETABLE COMBINATIONS

Corn and Tomato Combination—Blanch fresh corn on the cob 5 minutes. Cold-dip quickly. Cut the corn from the cob, cutting from tip to butt. Scald the tomatoes 1½ minutes and cold-dip. Remove the skin and core. Chop tomatoes into medium-sized pieces. Mix thoroughly 2 parts tomatoes with 1 part corn. Pack the mixture in hot glass jars or enameled tin cans. Add a level teaspoonful salt per quart. Put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 120 minutes. Remove the jars; tighten the covers; invert the jars to cool, and test the joints. Wrap the jars with paper to prevent bleaching.

Corn, Tomato and String Bean Combination—Use 1 part corn, 1 part green string beans, 3 parts tomatoes. Blanch fresh corn on the cob 5 minutes and cold-dip. Cut the corn from the cob, cutting from tip to butt. Prepare string beans and cut them into convenient lengths. Blanch them 4 minutes and cold-dip. Blanch tomatoes 1 to 3 minutes and cold-dip. Remove the skin and core. Cut the tomatoes into medium-sized pieces. Mix thoroughly. Pack the mixture in hot glass jars or enameled tin cans. Put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize for the time of 120 minutes (water-bath). Remove the jars; tighten the covers; invert the jars to cool, and test the joints. Wrap the jars with paper to prevent bleaching.

FRUITS

Soft Fruits and Berries—These include apricots, blackberries, blueberries, cherries, currants, dewberries, figs, gooseberries, grapes, huckleberries, peaches, plums, raspberries and strawberries.

After hulling, seeding, stemming or skinning the fruit, place fruit in a strainer and rinse by pouring cold water over it. Pack from strainer into hot jars or cans without crushing, using big spoon or ladle. Hot syrup previously prepared should be poured over the fruit at once. Before packing a second jar, place rubbers and caps in positions, not tight. If using tin cans, seal completely. Enameled tin cans should be used for all highly acid berries. Sterilize (water-bath) 16 minutes. Remove from canner; tighten covers; invert to cool, and test joints. Wrap in paper to prevent bleaching, and store.

Another Recipe for Strawberries—Canned by this recipe, strawberries will not rise to the top of the syrup. Use only fresh, ripe, firm and sound berries. Prepare them and add 8 ounces sugar and 2 tablespoonfuls water to each quart of berries. Boil slowly for 15 minutes in an enamel or acid-proof kettle. Allow the berries to cool and remain several hours or overnight in the covered kettle. Pack the cold berries in hot glass jars or enameled tin cans. Put the rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 8 minutes. Remove the jars; tighten the covers; invert the jars to cool, and test the joints. Wrap the jars with paper to prevent bleaching.

Hard Fruits, Apples, Pears and Quinces—Remove skin and core. Cut into convenient sections or slices and drop into slightly salted cold water to keep from tarnishing. Blanch 1½ minutes. Cold-dip. Pack closely into hot jars or tin cans. Fill with hot syrup. Put rubbers and caps of jars in position, not tight. Seal tin cans completely. Sterilize (water-bath) 20 minutes. Remove from canner; tighten covers; invert to cool and test joints. Wrap in paper to prevent bleaching, and store.

Windfall Apples—Separate apples into two grades; whole and reasonably sound and firm, first grade; all other apples (bruised, worm-eaten, and those containing decayed spots), second grade.

Whole Apples, First Grade—Pare and core. Drop whole apples in cold, slightly salted water, to keep from tarnishing. Pack whole apples in gallon tin cans or 2-quart hot glass jars. Add thin hot syrup until full. Place rubbers and tops of jars in position, not tight. Seal tin cans completely. Sterilize (water-bath) 16 minutes. Remove from canner; tighten covers; invert to cool, test the joints. Wrap in paper to prevent bleaching, and store.

Apple-Pie Filling—The only difference between the canning of apples for pie filling and canning them whole as by the directions above is that the apples should be sliced immediately after paring into cold, slightly salted water. It will be found desirable to can first-grade apples either whole or quartered, and second-grade apples and products prepared from poor stock sliced for use in pie filling. Second-grade apples and products prepared from poor stock should not be sold, of course, without labels which make the grade plain.

FRUIT JUICES

The fruit juice may be pressed out of fruit by means of a cider press, special fruit press, or other improvised press; then heated in an acid-proof kettle up to 110° F. The fruit juice may then be poured into ordinary hot jars, hot bottles, or tin cans, and handled by the same directions as those for canning of fruit itself. If poured into miscellaneous bottles it is suggested that the fruit juice be sterilized as follows: Make a cotton stopper and press into the neck of the bottle and leave during the sterilization period. Set bottles in boiling hot water up to the neck of the bottle, sterilize the fruit juice for 40 minutes at a temperature of 165° F. Remove the product, press cork in top over cotton stopper immediately. If the cork fits well, no paraffin need be used. If a poor cork, it may be necessary to dip the cork in a melted solution of wax or paraffin. Fruit juices and apple cider when handled in this way will not "flatten in taste" and will keep well for future use.

SYRUP MADE FROM WINDFALL APPLES AND APPLE CIDER

Add 5 ounces powdered calcium carbonate to 7 gallons apple cider. Powdered calcium carbonate (carbonate of lime) or, to give it its common name, precipitated chalk, is low-priced and harmless. Boil the mixture in a kettle or vat vigorously for 5 minutes. Pour the liquid into vessels, preferably glass jars or pitchers; allow to stand six or eight hours, or until perfectly clear. Pour the clear liquid into a preserving kettle. Do not allow sediment at bottom to enter. Add to the clear liquid one level teaspoonful of lime carbonate and stir thoroughly. The process is completed by boiling down rapidly to a clear liquid. Use density gauge or candy thermometer, and bring the temperature up to 220° F. If a thermometer is not available, boil until bulk is reduced to one-seventh of the original volume. To determine whether the syrup is cooked enough test as for candy—by pouring a little into cold water. If boiled enough it should have the consistency of maple syrup. It should not be cooked long enough to harden like candy when tested.

When the test shows that the syrup has been cooked enough, pour it into fruit jars, pitchers, etc., and allow it to cool slowly. Slow cooling is important, as otherwise the suspended matter will not settle properly and the syrup will be cloudy.

A good way to insure slow cooling is to stand the vessels, full of syrup, in a bucket or a washboiler or to place them in a fireless cooker. The white sediment which settles out during cooking is called "malate of lime," and is a harmless compound of lime with the natural acid of the apple. When the syrup is cooled, it should be stored in fruit jars, bottles, or jugs and crocks. Place the rubber and cap or cotton stopper or cork in position and tighten. Place the container in boiling hot water and sterilize (water-bath) 15 minutes. Remove jars and tighten covers; invert to cool and test the joints. Store for future use. This recipe is for making syrup primarily for home consumption. If the product is to be sold legal requirements as to labeling should be ascertained and complied with.

PRESERVES

The one-period, cold-pack method of canning will be found especially helpful in eliminating the necessity of using paraffin or other wax tops for jellies, jams and preserves. Three recipes and directions for canning jellies, jams and preserves by this method follow to illustrate the application of the method. The use of containers with screw tops is recommended for these products. This will make unnecessary the expense and trouble of using paraffin, and will make the melting, molding and deterioration of the top parts of the packs less likely.

Strawberry—Make a syrup of 1 quart of water and 11 pounds of sugar and cook it in an open kettle until the usual temperature for making candies, jellies, etc., is reached. If a candy thermometer is used cook the preserves until they reach a temperature of 265° F. A candy thermometer registers 265° F. when placed in the syrup. Add 8 pounds of berries to the syrup. Cook very slowly, just at the boiling point. Stop the cooking when the thermometer registers 219° F. and pour into shallow pans to cool. Hasten the cooling by pouring syrup over the berries. Skim while cooking. Fill into hot jars. Put the rubber and cap into position, not tight. Cap and tip if using enameled tin cans. Sterilize (water-bath) 20 minutes. Remove the jars; tighten covers;

invert the jars to cool, and test for leaks. Wrap the jars in paper to prevent bleaching.

Cherry—Place 1 gallon of cold water in a kettle and add 10 pounds of pitted cherries. After bringing to boiling point continue to boil slowly for 18 minutes. Add 12 pounds of granulated sugar and cook until after the mixture has been boiled violently for a few minutes. If a candy thermometer is used cook the mixture until a temperature of 219° F. is reached. Pack into hot glass jars. Put the rubber and cap in position, not tight. Cap and tip if using enameled tin cans. Sterilize (water-bath) 20 minutes.

SUN PRESERVES

Strawberry—Select ripe, firm berries. Pick and preserve the same day. Hull and rinse as in No. 1 under Strawberry Canning. Place them in a shallow platter in a single layer; sprinkle sugar over them; pour over them fifty degree syrup (same as strawberry preserves, but boiled thicker). Cover them with a glass dish or a plain window glass. Allow them to stand in the hot sun 8 to 12 hours. Pack them in hot screw-top jelly glasses. Put the rubber and cap in position, not tight. Cap and tip if using enameled tin cans. Sterilize (water-bath) 20 minutes. Remove the jars; tighten covers; invert the jars to cool, and test the joint. Wrap the jars in paper to prevent bleaching.

SOUPS

Beef Stock Soup—Strip off the fat and meat from 25 pounds of beef hocks, joints and bones containing marrow. Crack bones with a hatchet or cleaver. Reserve meat and fat for other use. Put the broken bones into a thin cloth sack and place in a large kettle containing 5 gallons of cold water. Simmer (do not boil) for 6 or 7 hours. Do not salt while simmering. Skim off fat. This should make about 5 gallons of stock.

List of supplies needed—25 pounds beef bones; 5 gallons water.

Pack hot into hot glass jars, bottles, or enameled or lacquered tin cans. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Vegetable Soup—Soak ¼ pound lima beans and 1 pound rice for 12 hours. Boil ½ pound pearl barley for 2 hours. Blanch 1 pound carrots, 1 pound onions, 1 medium-sized potato, and 1 red pepper for 3 minutes, and cold-dip. Prepare the vegetables and cut into small cubes. Mix thoroughly lima beans, rice, barley, carrots, onions, potatoes and red pepper. Fill hot glass jars or enameled tin cans ¾ full of above mixture of vegetables and cereals. Make a smooth paste of ½ pound wheat flour and blend in 5 gallons of soup stock. Boil 3 minutes and add 4 ounces salt.

List of supplies needed: ¼ pound lima beans; 1 pound rice; ½ pound pearl barley; 1 pound carrots; 1 pound onions; 1 medium-sized potato; 1 red pepper; ½ pound flour; 4 ounces salt; 5 gallons soup stock.

Pour stock over vegetables and fill cans or hot glass jars. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Cream of Pea Soup—Soak 8 pounds dried peas overnight. Cook until soft. Mash fine. Add the mashed peas to 5½ gallons of soup stock and bring to boil. Pass the boiling liquid through a fine sieve. Make a smooth paste of ½ pound flour and add paste, 10 ounces sugar, and 3 ounces salt to the soup stock. Cook until soup begins to thicken.

Pack in hot glass jars or tin cans. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Cream of Potato Soup—Boil 1½ pounds potatoes, sliced thin, and 5 gallons soup stock for 20 minutes. Add 3 ounces salt, ¼ teaspoonful pepper, and ½ pound butter, and boil slowly for 5 minutes. Make 3 tablespoonfuls of flour into smooth paste and add to the above.

Cook 3 minutes and pack in hot glass jars or tin cans while hot. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Bean Soup—Soak 3 pounds beans 12 hours in cold water. Cut 2 pounds ham meat into ¼-inch cubes and place in a small sack. Place the beans, ham, and 4 gallons water in a kettle and boil slowly until the beans are very soft. Remove the beans and ham from the liquor and mash the beans fine. Return the ham and mashed beans to the liquor and add 5 gallons soup stock and seasoning and bring to boil.

Pack into hot glass jars or tin cans while hot. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Okra Soup—Slice 8 pounds okra into thin discs. Blanch 10 minutes and cold-dip. Boil 1½ pounds rice for 25 minutes. Mix the okra and rice and fill the cans or hot jars half full. To 5 gallons soup stock add 5 ounces salt, ¼ teaspoonful coriander seed, and ¼ teaspoonful powdered cloves, and bring to a boil. Fill the remaining portion of the jars or cans with the seasoned food. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Tomato Pulp for Cream of Tomato Soup—Place tomatoes in a wire basket or piece of cheesecloth and plunge into boiling water from 1 to 3 minutes. Plunge into cold water. Remove the skin and core. Place tomatoes in a kettle and boil 30 minutes. Pass the tomato pulp through a sieve. Pack in hot glass jars and tin cans while

hot, and add a level teaspoonful salt per quart. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 30 minutes.

Chicken-Soup Stock—Place 30 pounds chicken in 10 gallons cold water and simmer over fire for 5 hours. Remove meat from bones, then strain. Add sufficient water to make 10 gallons stock.

Fill hot glass jars or enameled tin cans with the hot stock. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Chicken Broth with Rice—For each gallon of soup stock use 12 ounces of rice. Boil the rice 30 minutes. Fill hot jars or enameled tin cans two-thirds full of rice and the remainder with soup stock. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

Chicken Gumbo—Cut 2 pounds ham into small cubes and boil 30 minutes. Mince 3 pounds chicken and chop ½ pound of onions fine. Make a smooth paste of ½ pound flour. Add above to 5 gallons of chicken soup stock. Then add ½ pound butter and ¼ pound salt and boil 10 minutes; then add 3 ounces powdered okra mixed with 1 pint of water.

Fill into hot glass jars or enameled tin cans while hot. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

VEGETABLES FOR SOUP

If it is impracticable to obtain materials in the summer for making soup stock when vegetables are abundantly available, the vegetable portion of the soup may be canned alone. The preparation of soup from cans of such vegetable combinations will be a relatively simple matter whenever stock is available, as it should be in most households if meat refuse is properly utilized.

Soak 6 pounds lima beans and 4 pounds dry peas over night. Boil each ½ hour. Blanch 16 pounds carrots, 6 pounds cabbage, 3 pounds celery, 6 pounds turnips, 4 pounds okra, 1 pound onions, and 4 pounds parsley, for 3 minutes, and dip all in cold water quickly. Prepare the vegetables and chop them into small cubes. Chop the onions and celery extra fine. Mix all of the vegetables together thoroughly and season to taste.

Pack in hot glass jars or tin cans. Fill with boiling water. Partially seal glass jars. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

(Paste or Write Here Scraps or Memos. of Your Own)

PRESERVING MEATS

(U. S. Department of Agriculture)

While meats may be canned successfully if directions are followed carefully, it is perhaps advisable for beginners in canning to start with vegetables and fruits, taking up the canning of meats only after thorough familiarity with the process described in this bulletin has been acquired. If canned meat products are to be offered for sale through interstate shipment, inquiry should be made of the U. S. Department of Agriculture and State food regulating agencies in regard to the steps which must be taken to comply with the United States meat-inspection regulations and local laws.

Poultry and Game Birds—Recipe No. 1—Kill fowl and draw at once; wash carefully and cool; cut into convenient sections. Place in wire basket or cheesecloth and boil until meat can be removed from bones; remove from boiling liquid and remove meat from bones; pack closely into glass jars or enameled cans; fill jars with pot liquid, after it has been concentrated one-half; add level teaspoonful salt per quart of meat, for seasoning; put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 3 hours. Remove jars; tighten covers; invert to cool and test joints. Wrap jars with paper.

Recipe No. 2—Kill fowl and draw at once; wash carefully and cool; cut into convenient sections; scald in boiling water and dip at once into cold water. Pack immediately into glass jars or enameled cans; fill with boiling water; add level teaspoonful salt per quart; put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water bath) 3 hours. Remove jars; tighten covers; invert to cool, and test joints. Wrap jars with paper to prevent bleaching.

Fresh Beef—Obtain fresh beef, cut into convenient pieces for handling (about ¾ lb. in weight), and roast or boil slowly for one-half hour. Cut into small pieces, remove gristle, bone, and excessive fat, and pack directly into hot glass jars; fill with gravy from the roasting pan or pot liquid to one-half its volume; put rubber and cap in position, not tight. Sterilize (water-bath) 3 hours.

Corned Beef—After beef has been properly corned for required time, remove the meat from the brine; soak for two hours in clear water, changing the water once; place in a wire basket and boil slowly for one-half hour; remove from the boiling water, plunge into cold water, and remove gristle, bone and excessive fat. Cut meat into small pieces and pack closely into hot glass jars or enameled cans. Put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 3 hours.

SPECIALLY PREPARED MEATS

Spring Chicken, Fried—After cleaning and preparing spring frys, season and fry as though preparing for serving directly on the table. Cook until the meat is about ¾ done. If a whole spring chicken, break the neck and both legs and fold around body of chicken. Roll up tight, tie a string around the chicken, and drop this hot, partially fried product into hot quart glass jar or enameled tin can. A quart jar will hold two to four small chickens. Pour liquid from the griddle or frying pan into the container over the chicken. Place rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 90 minutes.

In a similar way any fowl or wild game may be prepared by frying, oven-baking, roasting or stewing. The meat products which may be canned in this way include beef, pork, Hamburg steak, sausage, venison, rabbit, squirrel, raccoon, opossum, lamb and all types of sea-food. All may be packed after cooking three-fourths done in any desired way.

Hot glass jars or enameled tin cans may be used. When the products are packed while hot in the containers the hot liquids, gravies, dressings, etc., or hot water, should be poured over them. Put rubbers and caps of jars in position, not tight. Cap and tip tin cans. Sterilize (water-bath) 90 minutes. Tighten jars and invert to test joints.

CAMP RATIONS

Ration No. 1—Products required for mixture: 4 lbs. rice; 1 lb. fresh green peppers; 4 chili peppers; 4 cloves or 2 garlic; 4 quarts tomatoes; 1 lb. cheese (or ½ lb. butter); 1 lb. fresh pork; 4 Spanish peppers; 8 level teaspoonfuls salt; 4 quarts water.

Put the meat, peppers and garlic through a food chopper. Mix with tomatoes, water and salt. Cook on slow fire, simmering for 45 minutes. Soak rice in salted water for 20 minutes. Rinse with cold water at once. Mix this product with the sauce without straining. Grind or grate cheese and mix thoroughly with all the other products.

To can this ration, the mixture should be packed in hot glass jars or tin cans while hot. Place rubbers and caps of jars in position, not tight. Cap and seal tin cans. Sterilize (water-bath) 90 minutes. Remove jars or cans; tighten glass jar covers; invert to cool and test joints. Wrap jars to prevent bleaching, and store.

Ration No. 2—Products required for mixture: 1 lb. rice or hominy, cracked; 1 teaspoonful salt; ½ lb. bacon or chipped beef cut into small pieces; 1 lb. mixed equal parts carrots, onions, beans, Irish potatoes; 2 quarts water or milk (or 1 quart water and 1 quart milk); ½ lb. sweet green peppers cut fine; 1 pint strained tomatoes; season with celery salt or celery seed.

Cook rice or hominy, water or milk, and salt, in a double boiler until the rice or hominy is soft. Bacon or chipped beef, green peppers, and the strained tomatoes should be cooked or boiled separately. Then add to this mixture the 1 lb. mixture of vegetables and season with mixed spices. Cook this vegetable combination until done. Mix at once rice, bacon, green peppers, etc. Stir this well into the mixture.

The product to be canned should be hot and thoroughly mixed. Pack mixture into hot glass jars or tin cans at once to one-eighth inch of top. Place rubbers and caps of jars in position, not tight. Seal tin cans completely. Sterilize (water-bath) 90 minutes. Remove jars; tighten covers; invert to cool, and test joints. Wrap and store.

Ration No. 3—One-Pound Pack. Products used: 8 oz. beef; 2 oz. potatoes; 2 oz. onions; 1 oz. carrots; 1 oz. beans; 2 oz. beef gravy.

Parboil the beef in kettle with thin gravy for 30 minutes. Cut up potatoes, onions and carrots into small sections; add the beans. Place entire mixture into kettle; add the gravy, season to taste. Stir mixture and cook for 10 minutes.

To can the mixture, pack it into hot glass jars or tin cans to one-eighth inch of top. Place rubbers and tops of jars in position, not tight. If using tin cans, seal completely. Sterilize (water-bath) 90 minutes. Remove jars or cans; tighten jar covers; invert to cool, and test joints. Wrap and store.

JELLIES AND PRESERVES

Preserving—(Farmers' Bulletin 853, on Home Canning)—A preserve is the product resulting when whole fruits are cooked in syrup until clear and transparent. When properly made the fruit in the preserve keeps its form, is plump, tender, clear, and of good color, the surrounding syrup being also clear and of proper density.

Cook Fruit as Little as Possible—(Farmers' Bulletin 853, on Home Canning)—Since long cooking injures the color and flavor of fruits it is desirable to cook delicate fruits such as berries for as short a time as possible. Cooling rapidly after cooking gives preserves a better color and flavor than can be secured when they are packed hot. Standing immersed in syrup after cooking also helps to plump them. If berry preserves are covered for a brief time before removing from fire and the vessel left covered while cooling the product will be more plump. For cooling, shallow enamel trays or pans are desirable.

To sterilize jars place them in cold water, then heat to boiling point until ready to use. Cover fruit with melted paraffin as soon as fruit is cold.

Fruit for Jelly Making—(Farmers' Bulletin 853, on Home Canning)—The juice from certain fruits, such as grape, apple, crabapple, orange, kumquat, and currant is better suited for making a natural fruit jelly than juices from other fruits. The juices from these fruits contain the properties necessary for jelly making. The best fruits for jelly making contain pectin and acid. Pectin, the fundamental jelly making substance, does not exist in some fruits in sufficient amount to make jelly without the addition of pectin from some other source. The peach, strawberry, and cherry are examples of fruits which contain acid but are lacking in pectin. Pear, guava, and quince contain pectin but are deficient in acid. If the missing property be added in each of these fruits, a jelly with the color and flavor of the fruit selected can be made.

When making the various jellies use a few apples with the fruit juice as it improves both quality and flavor. Combinations of fruit often produces far more delicious and unusual results than the use of one variety alone.

Jelly Making Substance—(Cornell Reading Course)—The jelly making substance in fruit is obtained by cooking the fruit with water and thus extracting its juices. The amount of water and the time required to extract the jelly making substance depend on the dryness and kind of fruit. Juicy fruits, such as currents, berries, plums, and grapes, require little water and are quickly softened so that their juices may be extracted by heat. Dry fruits, such as apples and quinces, require more water and longer cooking than do juicy fruits. The white inner skin of oranges, lemons, and grapefruit will, if cooked in water for a long time, yield the jelly making substance.

To Strain Jelly—(Farmers' Bulletin 853 on Home Canning)—As soon as the fruit is tender the liquid should be squeezed through a cheesecloth and then be allowed to drip, without pressure, through a flannel jelly bag.

Filling Glasses—(Farmers' Bulletin 853, on Home Canning)—After skimming the jelly, pour at once into hot sterilized glasses and set aside to cool.

To Guarantee Whether Your Jelly Will Jell—By using a simple test much waste of sugar and spoiling of jellies can be avoided. To decide how much sugar should be used with different kinds of juices, put a spoonful of juice in a glass and add 1 spoonful of pure alcohol, shake the glass gently to mix. Pour slowly from the glass; note how the pectin or vegetable jelly settles. If it settles as one lump, a cup of sugar may be used for each cup of juice; if in several lumps use ¾ of a cup sugar to 1 cup of juice; if not in lumps but merely

settled use ½ or less of a cup of sugar to 1 cup juice; if no formation under this test, it is unsuitable for jelly making and should be combined with apples or other fruits rich in pectin.

Jams and Marmalades—(Cornell Reading Course)—If in directions for making jams and marmalades the jelly-making property of fruits were given greater consideration than is commonly the case, the product would be improved in both taste and wholesomeness. The object sought in making jams and marmalades is a rich, sweet product which will keep easily, which is not so firm as jelly and yet has something of the body of jelly, which is not so soft and tough as is the so-called preserve and yet has something of its softness and stickiness. In short, jams and marmalades should be skillfully produced crosses between jellies and preserves.

Directions for Making Jams and Marmalades—(Cornell Reading Course)—Wash the fruit and prepare it as the kind requires. If large fruits are used, core and halve, quarter, slice, or chop them. If berries or grapes are used, crush them. For each quart of fruit use: for dry fruits, ½ to 2 cupfuls of water; for juicy fruits, ⅛ to ¼ cupful of water. Common sense must ultimately regulate the amount of water. The least amount that is possible for good results should be used. Simmer the fruit until it is tender and the juice is extracted. If seeds are to be removed, rub the cooked fruit through a colander. To 1 quart of cooked fruit, add two-thirds to 1 quart of sugar. Acid, juicy fruits require the larger amount of sugar. Cook the mixture until it is thick, stirring it continuously in order to prevent burning, then pour it into sterilized glasses or small jars. If a jelly-like consistency is desired, cook the mixture until it jellies from the spoon. If a richer mixture is desired, cook it for 5 to 10 minutes longer

RECIPES

Sun Preserves (Cornell Reading Course)—Method 1—Fruits that lend themselves especially well to the following method of preserving are strawberries, cherries, white currants, and raspberries. Use 1 pound sugar to each pound of fruit. Put a layer of fruit in the bottom of a preserving kettle and add 1 or 2 tablespoonfuls of water. Alternate the layers of sugar and fruit. Heat the mixture carefully until the sugar is dissolved; avoid crushing the fruit if possible. Boil the mixture for from 5 to 7 minutes, pour it in thin layers onto large platters, and set it in the sun for a day. It should thicken or jelly on the platter. After it has cooled and thickened, transfer it from the platter to sterilized jars, and seal or cover them with paraffin.

Method 2—Fruits that lend themselves especially well to the following method of preserving are peaches, apricots, raspberries and plums. Carefully wipe or pick over the fruit to be preserved. Cut peaches, plums, or apricots in halves, and remove the pits. Spread the fruit on racks or boards and set it in the sun to dry for 1 or 2 days. The fruit should not be left out overnight to gather moisture. Weigh the fruit and use a pound of either brown or white sugar to each pound of fruit. Pack alternate layers of fruit and sugar in jars, being careful to have the top layer of sugar. The sugar will dissolve gradually and form a thick, rich syrup around the fruit. The mixture should be kept covered, but need not be sealed.

Fig Preserves (Farmers' Bulletin 853, on HOME CANNING)—Six quarts figs, 2 quarts sugar, 2 quarts water. Put the figs into a boiling soda solution (1 cup soda to 6 quarts of boiling water), and allow figs to remain about 5 minutes. Rinse the figs well by putting them through two cold baths. Drain the fruit thoroughly and add gradually to the skimmed syrup, which has been made by boiling the sugar and water together for 10 minutes. Cook rapidly until the figs are clear and tender (about 2 hours). Carefully lift the fruit out and place in shallow pans. Cover the figs with the syrup and allow to stand overnight. Pack the cold figs in sterilized jars, fill each jar to overflowing with the syrup. Cap, clamp, and process.

Strawberry Preserves (Farmers' Bulletin 853, on HOME CANNING)—Two pounds berries, 1½ pounds sugar, 1 cup berry juice. Pick over the fruit and put together all firm, perfect berries. Slightly heat, crush, and strain the others to obtain the juice. Make a syrup of the sugar and juice, bring to the boiling point, remove from the fire, and cool before adding the berries. Add the berries a few at a time. Place again over the fire and heat slowly to boiling. Cook rapidly to 106° C. or 223° F. If a thermometer is not at hand, cook until berries are bright and transparent. Cool and pack cold in sterilized jars. Process at simmering (87° C. or 188° F.) to give best results in color and flavor. For 12-ounce or pint jars at this temperature, process for ½ hour. Other berries may be preserved in the same way.

Watermelon Preserves (Farmers' Bulletin 853, on HOME CANNING)—Cut 1 pound watermelon

rind into inch squares. Allow to stand overnight in clear water. Drain and cover with about 30° syrup (2 cupfuls sugar to 1 quart water). Boil for 25 minutes. Let stand overnight immersed in syrup. Next morning add juice of ½ lemon and 3 slices of lemon additional for each pound. Cook until transparent (about 1 hour). Let stand until cold. Pack, add the syrup, garnishing with slices of lemon, cap, and process.

Cherry Preserves (Farmers' Bulletin 853, on HOME CANNING)—Four pounds of cherries, 3 pounds sugar, 1 cupful cherry juice. Make a syrup of the sugar and fruit juice, cool, add seeded cherries, and cook rapidly until fruit is clear and syrup is of the proper consistency. If a thermometer is used, finish cherry preserves at 106° to 108° C. or 223° F. to 226° F. Cool, pack into jars, and process as for other preserves.

Apple Jelly (Farmers' Bulletin 853, on HOME CANNING)—One pound fruit, 2 pounds water, boil together for ½ to ¾ hour and strain.

One pint strained juice—determine amount of sugar to be added by the use of the alcohol test previously given—bring the juice to a boil, add the sugar and cook as rapidly as possible until the jelly point is reached. Remove from the fire, skim, pour into hot sterilized glasses, and when cold cover with melted paraffin.

Apple and Grape Jelly—Wash, core and slice apples with the peel left on. Take equal parts of apples and grapes and half as much water as fruit. Cook until soft, strain in jelly bag and measure the juice. To each cupful of juice add 1 cupful sugar. Cook the juice 20 minutes uncovered, then add the sugar. Cook until it jellies.

Grape Jelly (Farmers' Bulletin 853, on HOME CANNING)—Four pounds grapes, 1 pound water; crush and boil together for 20 minutes, press through a jelly bag, and allow to drain through a flannel bag.

Test the strained juice with alcohol to determine the proportion of sugar to use. Bring the grape juice to boiling, add sugar, and stir until the sugar is dissolved. Continue the boiling until the jelly point is reached. Remove from the fire and skim. Pour into hot sterilized glasses, cool, and store.

Currant Jelly—Cook currants with a little water, strain; add 1 pound sugar to each pint of juice; after it begins to boil skim well. Boil 3 minutes.

Raspberries, plums and all other juicy fruits are cooked in this way.

Dry Fruits, such as apples and quinces, are also cooked this way, but require more water and longer cooking. (See general directions.)

Mint Jelly (Cornell Reading Course)—The best mint jelly is made with the juice of slightly unripe apples as a basis. Wash fresh mint leaves thoroughly. To 1 cupful of mint leaves (packed solid) add 1 cupful of boiling water, set the mixture on the back of the stove, and steep it for an hour. Lay a piece of cheesecloth over a bowl, pour the steeped mint leaves into it, twist the ends of the cheesecloth, and press out all moisture. To 1 cupful of apple juice add 1 to 2 tablespoonfuls of mint juice. If the mint flavor is not sufficiently pronounced add a drop or two of mint extract. Use ¾ cupful of sugar to each cupful of juice, and boil the mixture rapidly until the jelly test can be obtained. Just before it is poured into the scalded glasses, color it green with vegetable coloring matter.

Blackberry Jelly (Farmers' Bulletin 853, on HOME CANNING)—Four pounds blackberries, 1 pound water.

Select 3 pounds of ripe fruit and 1 pound of underripe fruit, wash by running water over them, cap, crush, and add 1 pint of water and boil 15 minutes. Press the pulp and strain the juice through a flannel bag. Determine the correct amount of sugar to be added by the use of the alcohol test. Bring the juice to a boil, add sugar and stir until the sugar is dissolved. Continue the boiling until the jelly point is reached. Remove from the fire and skim. Pour into hot sterilized glasses, seal, and store.

Raspberry Jam—Crush the berries; for each quart of fruit use ⅛ to ¼ cupful water. Simmer until the juice is extracted; then add two-thirds to 1 quart of sugar to 1 quart of fruit. Cook until thick, stirring continually to prevent burning. Pour into sterilized glasses or jars. (See general directions.)

All sweet, juicy berries are cooked in this manner.

Blackberries and other berries not very sweet, add more sugar to taste.

Peach Jam—Take ripe freestone peaches and slice them. For each quart of fruit use ⅛ to ¼ cupful water; use as little water as possible. Simmer until tender and juice is extracted. To 1 quart of cooked fruit add two-thirds to 1 quart sugar, more if peaches are sour. Cook mixture until thick, stirring continually to prevent burning. Put into sterilized glasses or jars. (See general directions.)

The pits and peels of the peaches may be cooked with the fruit until ready for the sugar, then strain and add sugar. They add to the jam and give a delicious flavor.

Peach Butter—The poorer grade of peaches may be used, as they are to be crushed. Cook cider and sugar together until thick; allow 1 pint of the boiled cider to 3 quarts of peach pulp and cook together very slowly until thick. A little mixed ground spice may be added if desired.

Peach Pickle—Use 8 pounds peaches and stick 2 or 3 cloves in each peach. Add a few sticks of cinnamon and cook until tender, then put them on platter to cool and place in jars. Pour the cold

syrup over. Let stand 24 hours, then seal up.

This rule applies for all kinds of fruit pickles, using more or less sugar, according to the fruit used.

Cranberry Conserve—Chop 5 pounds cranberries, together with 2 pounds raisins. Boil the rind of 5 oranges until tender, chop fine and mix with the cranberry mixture; add 10 cupfuls sugar, the pulp and strained juice of the oranges. Cook slowly until about as thick as marmalade.

Orange Marmalade (Cornell Reading Course)—Twelve thin-skinned oranges, 3 lemons.

Wash and slice the fruit as thin as paper or grind it fine. For every quart of fruit add 1½ quarts of water and let the mixture stand overnight. In the morning cook it slowly until tender, about 2 to 2½ hours. Measure the cooked fruit, and add an equal amount of sugar. Cook the mixture until it jellies from a spoon, about 30 to 60 minutes.

(Paste or Write Here Scraps or Memos. of Your Own)

Grapefruit Marmalade (Cornell Reading Course)—Wash grapefruit thoroughly, remove the seeds, and run it through a chopper. Barely cover it with water, and let it stand overnight. In the morning boil it for 30 minutes and let it stand overnight. On the third morning boil it for 30 or 40 minutes, or until the white part of the fruit is very tender. Measure the fruit, add an equal quantity of sugar, and boil the mixture until it jellies from the spoon, about 30 to 60 minutes. Pour the marmalade into hot sterilized glasses or small jars and cover it with paraffin.

Such extended preparation previous to cooking the fruit with sugar is given in order to soften the white of the fruit and extract from it the jelly-making substance.

Grape Conserve (Cornell Reading Course)—Mix 3 pounds seeded grapes, 3 pounds sugar and 1 pound English walnuts broken into small pieces. Cook them together as for jam. The juice of 1 orange and the peel of ½ orange cut in small pieces may be added for variation.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

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of Your Own)**

DRYING FRUITS AND VEGETABLES IN THE HOME

(From Farmers' Bulletin No. 841, U. S. Department of Agriculture)

"CONDITIONING" DRIED PRODUCTS

RECIPES

It will be found advisable to "condition" practically all dried vegetables and fruits. This is best done in a small way by placing the material in boxes and pouring it from one box into another once a day for three or four days, so as to mix it thoroughly and give to the whole mass an even degree of moisture. If the material is found to be too moist, it should be returned to the drying trays for a short drying.

Many of the products for which directions are given here may be dried either without or with preliminary blanching. In such cases both methods are described. Alternate methods are designated by letters.

RECIPES

Sweet Corn—Only very young and tender corn should be used for drying, and it should be prepared at once after gathering.

(a) Cook in boiling water 2 to 5 minutes, long enough to set the milk. Cut the kernels from the cob with a sharp knife, taking care not to cut off pieces of the cob. Spread thinly on trays, and place in position to dry. Stir occasionally until dry.

(b) Boil or steam on the cob 8 to 10 minutes to set the milk. To improve flavor a teaspoonful of salt to a gallon of water may be used. Drain well and cut corn from cob, using a very sharp and flexible knife. Cut grains fine, only half-way down to the cob, and scrape out the remainder of grain, being careful not to scrape off any of the chaff next to the cob. Dry from 3 to 4 hours at 110° to 115° F. When field corn is used, good, plump roasting-ear stage is the proper degree of ripeness. A pound of dried corn per dozen ears is an average yield.

(c) The corn may be dried in the sun. Dry in oven 10 to 15 minutes and finish drying in the sun. Sun-drying, of course, is not satisfactory in moist weather.

Pack in cartons or boxes for a few days to "condition."

String or Snap Beans—All varieties of string beans can be dried, but only beans in ideal condition for table use should be selected for this purpose.

(a) Wash, remove stem, tip, and "strings." Cut or break the beans into pieces ½ to 1 inch long, and place on trays and dry. They also can be run through the slicer and then dried quickly.

(b) Prepare as directed above, but instead of cutting the beans, thread them on coarse, strong thread, making long "necklaces" of them, and hang them above the stove or out of doors until dry. An old-fashioned recipe calls for boiling the pods until nearly cooked through before drying.

(c) Wash and string beans carefully. The very young and tender beans can be dried whole. Those that are full grown should be cut in one-fourth to 1 inch lengths with vegetable slicer or a sharp knife. It is beter to cut beans than to snap them. They are then put in a bag of cheesecloth or in a wire basket and blanched in boiling water for 6 to 10 minutes, depending on the maturity of the bean. One-half teaspoonful of soda may be added to each gallon of boiling water to help set the green color in the beans. Remove surface moisture by placing between two towels or by exposing to the sun and air for a short time. Dry young string beans 2 hours, more matured beans 3 hours. Begin drying at temperature of 110° F. and raise temperature gradually to 145° F.

Wax beans are dried in the same manner as the green string beans. "Condition" as described.

Lima Beans—Lima beans can be shelled from the pod and dried. If gathered before maturity when young and tender, wash and blanch from 5 to 10 minutes. Length of time for blanching depends upon size and maturity of beans. Remove surface moisture and dry from 3 to 3½ hours at same temperature as string beans.

Dry Shelled Beans (Important in the South)—Beans of different kinds, after maturing and drying on the vines, can be treated as follows: Shell, wash, spread in thin layers on the trays of the dryer, and heat 10 minutes, beginning at 160° F. and gradually raising the temperature to 180° F. This high temperature is for the purpose of destroying all insect eggs that may be on the beans. Cowpeas or any field pea can be treated in the same way. Cool and store carefully. It might be added that the heating of the bean or pea destroys its vitality. When so treated it cannot be used for seed.

Okra—(a) Small, tender pods sometimes are strung on a stout thread and hung over the stove to dry. If dried in that manner, heat in oven before storing on trays.

(b) Wash, blanch 3 minutes in boiling soda water, and dry 2 to 3 hours at 110° to 140° F. Use ½ teaspoonful soda to a gallon of water. Dry

young and small tender pods whole. Older pods should be cut in ¼-inch slices.

Peppers—(a) Peppers may be dried by splitting on one side, removing seed, drying in the air, and finishing the drying in the drier at 140° F. A more satisfactory method is to place peppers in biscuit pan in oven and heat until skin blisters, or to steam peppers until skin softens, peel, split in half, take out seed, and dry at 110° to 140° F. In drying thick-fleshed peppers like the pimento, do not increase heat too quickly, but dry slowly and evenly.

(b) Small varieties of red peppers may be spread in the sun until wilted and the drying finished in the dryer, or they may be dried entirely in the sun.

(c) Peppers often are dried whole. If they are large they can be strung on stout thread; if small, the whole plant can be hung up to dry.

Peas—(a) Shell and spread on trays and dry.

(b) Shell full-grown peas with nonedible pod, blanch the peas from 3 to 5 minutes, remove surplus moisture, spread in single layer on trays, and dry from 3 to 3½ hours. Begin drying at 110° F., raising temperature very slowly in about 1½ hours to 145° F. Continue drying 1½ or 2 hours at 145° F.

(c) Shell full-grown peas, passing through a meat grinder, spread on trays, and dry. Whole peas take longer to dry, but when cooked they resemble fresh peas. The ground peas dry more quickly, but make a product which can be used successfully only in the preparation of soup or puree.

(d) When drying the very young and tender sugar peas, use the pod also. Wash and cut in ¼-inch pieces. Blanch in boiling water 6 minutes. Remove surplus moisture and dry the same length of time and at the same temperature as string beans. It is not necessary to use soda when blanching peas.

Pack away and "condition."

GARDEN BEETS, ONIONS, LEEKS, CARROTS, TURNIPS, PARSNIPS, CABBAGE

Beets—(a) Select young, quickly grown, tender beets. Wash, peel, slice about ⅛ inch thick, and dry.

(b) Boil the whole beets with skin until a little more than three-fourths done. Dip in cold water, peel, and slice into ⅛ or ¼-inch slices. Dry 2½ to 3 hours at 110° to 150° F.

Turnips—Turnips should be treated in the same way as beets.

Carrots—Varieties having a large, woody core should be avoided.

(a) Wash, peel, slice lengthwise into pieces about ⅛ inch thick, and dry.

(b) Clean, scrape, or pare, and slice into ⅛-inch slices. Blanch 6 minutes, remove surface moisture, and dry 2½ to 3 hours. Begin drying at 110° F., and raise temperature gradually to 150° F.

Parsnips, kohlrabi, celeriac, and salsify are dried by the same methods.

Onions—(a) Select well-matured onions and remove the outside papery covering. Cut off tops and roots. Slice into ⅛-inch pieces and dry quickly. Store in a light-proof container to avoid discoloration.

(b) Wash, peel, and slice onions into ⅛ to ¼-inch slices. To avoid any unpleasantness, peel and slice while holding under water Blanch in boiling water 5 minutes. Remove surface moisture and dry 2½ to 3 hours, beginning at 110° F. and raising temperature gradually to 140° F.

Leeks are handled in a similar manner, cut into ¼-inch strips and dried.

Cabbage—(a) Select well-developed heads of cabbage and remove all outside leaves. Split the cabbage, remove the hard, woody core, slice the remainder of the head with a kraut cutter or slicer, and dry.

(b) Shred or cut into strips a few inches long. Blanch 10 minutes, drain, remove surface moisture, and dry 3 hours at 110° to 145° F.

All these products should be "conditioned."

Spinach and Parsley—Spinach that is in prime condition for greens should be prepared by carefully washing and removing the leaves from the roots. Spread the leaves on trays to dry thoroughly. Slicing will greatly facilitate drying.

Parsley should be treated in the same way as spinach.

BEET TOPS, SWISS CHARD, CELERY, AND RHUBARB

Beet Tops—Tops of young beets in suitable condition for greens should be selected and washed carefully. Both the leafstalk and the blade should be cut into sections about ¼ inch long, spread on screens, and dried.

Swiss Chard and Celery should be prepared in the same way as beet tops. Celery also may be prepared in the same way as pumpkins and summer squash.

Rhubarb—Choose young and succulent growth. Prepare as for stewing, by skinning the leafstalks and cutting into pieces about ¼ inch to ½ inch in length. Do not use the blade of the leaf.

All these products should be "conditioned."

POTATOES

Irish Potatoes—Select good, sound, well-matured potatoes.

(a) Wash and boil or steam until nearly done. Peel and pass through a meat grinder or a potato ricer. Collect the shreds in layers on a tray and dry until brittle. If toasted slightly in an oven when dry the flavor is improved somewhat.

(b) Boil or steam until nearly done, peel as above, cut into ¼-inch slices, spread on trays, and dry until brittle.

Peeling may be omitted, but the product will be very much inferior in flavor.

Sweet Potatoes—Select sound, mature roots.

(a) Wash, boil until nearly done, peel, and run through the meat chopper. Spread on trays and dry until brittle.

(b) Treat as above, but slice instead of running through the meat chopper.

(c) Wash, peel, slice, spread on trays, and dry. A somewhat brighter product will result if the sliced potato is dipped in salt water just before drying.

MISCELLANEOUS

Cauliflower—Clean, divide in small bunches, blanch 6 minutes, and dry 2 to 3 hours at 110° to 145° F. Cauliflower will turn very dark when drying, but will regain part of the color in soaking and cooking. Dried cauliflower is especially good in soups and omelets.

Brussels Sprouts may be handled in a similar way, but add a pinch of soda to the blanching water.

Pumpkins and Squash—(a) Select sound, well-grown specimens. Cut into strips; peel these; remove all seeds and the soft part surrounding them. Cut strips into smaller bits not over ¼ inch thick and 2 inches long, and dry.

(b) Pare and cut into about ½-inch strips and blanch 3 minutes. Remove surface moisture and dry slowly from 3 to 4 hours, raising temperature from 110° to 140° F.

Pack and "condition."

Soup Mixtures—Each vegetable used in the soup mixture is prepared and dried separately. They are put together in proportions desired, the preferred flavoring vegetables predominating. A combination of several vegetables makes the most desirable soup mixture. Those most often used are carrots, cabbage, onions, celery, potatoes, and okra.

Herbs—Celery tops, parsley, mint, sage, and herbs of all kinds need not be blanched, but should be washed well and dried in the sun or in the dryer. These are good for flavoring soups, purees, gravies, omelets, etc.

Apples, Pears and Quinces—Early varieties and sweet apples are not well adapted to drying. Winter apples should be used for this purpose.

(a) Peel, core, trim and slice ¼ inch thick. Dip in weak salt solution containing 8 teaspoonfuls of salt to 1 gallon of water. Spread on trays and dry. It is only necessary to dry apples long enough for them to become tough and somewhat leathery.

(b) Pare, core, and cut into eighths, or core and slice in rings, using fruit or vegetable slicer. As apples discolor quickly, do not let them stand long before drying. To prevent discoloration, as the fruit is prepared it may be dipped for 1 minute in a cold salt bath, using 1 ounce of salt to 1 gallon of water. Remove surplus moisture and dry at 110° to 150° F., raising temperature gradually. Dry from 4 to 6 hours, and longer if necessary.

Pears are dried in the same way as apples. They may be steamed 10 minutes before drying.

Quices are treated in the same way as pears.

Pack and "condition."

Raspberries—(a) Sort out imperfect berries, spread the selected berries on trays, and dry. Do not dry so long that they become hard enough to rattle. The drying should be stopped as soon as the berries fail to stain the hand when pressed.

(b) Pick leaves and stems from fruits and spread on trays. Handle carefully and do not bruise. Spread in thin layer on tray and dry slowly. Raise temperature gradually from 110° to 125° F. in about 2 hours. Do not raise temperature higher than 130° F. until a considerable portion of the moisture has evaporated, as otherwise expansion will occur and juice will be lost by dripping. This is accompanied by loss of flavor and color. Finish drying berries at 140° F. for 2 to 3 hours. It is necessary to dry berries from 4 to 5 hours.

Blackberries, dewberries, and huckleberries can be dried in the same way as raspberries.

Pack and "condition."

Peaches—Peaches usually are dried unpeeled, but they will be better if peeled before drying.

(a) Remove the stones, cut the fruit into halves, or preferably into smaller pieces, and spread on trays to dry.

(b) Cut in halves, pit, lay in trays pit side up, and dry at same temperature and for same length of time as apples.

Peaches should be packed carefully and "conditioned."

Plums and Apricots—(a) Plums are not peeled, but the pits are removed, the fruit being cut into halves and dried in the same way as peaches.

(b) Select medium-ripe plums, cover with boiling water, cover the vessel and let stand 20 minutes. Small, thin-fleshed varieties are not suitable for drying. Drain, remove surface moisture, and dry from 4 to 6 hours, gradually raising temperature from 110° to 150° F.

Apricots are handled in the same way as plums.

Pack and "condition."

Cherries—(a) Remove stems of cherries and, if the fruit is large, the pits also. Spread out on trays to dry. Small, black cherries can be dried when containing the stones.

(b) Wash, remove surface moisture, and spread cherries, unseeded, in thin layer on trays. If cherries are seeded there will be a loss of juice. Dry from 2 to 4 hours at 110° to 150° F. Raise temperature gradually.

Pack and "condition."

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Scraps or Memos.
of Your Own)**

PRECAUTIONS AGAINST INSECTS

ATTACKING DRIED PRODUCTS

From Farmer's Bulletin 841, U. S. Department of Agriculture

Two kinds of moths stand out prominently among insects that attack dried fruits and vegetables. They are much more likely to get into the fruit during the process of drying than to find their way through boxes into the products stored inside them. This applies particularly to drying in the sun.

A small moth called the Indian-meal moth is the most destructive insect that attacks such products. It is about three-eights of an inch long and has a cloaked appearance, one third gray and the rest copper brown. The fig moth is about the same size but dark neutral gray. A minute flattened chocolate-brown beetle usually accompanies these moths and does considerable damage. Both of the moths deposit their eggs on fruit when it is on the drying racks—generally at dusk or after dark, as they are not fond of daylight. It takes from three to ten days for the eggs to hatch into whitish or pinkish grublike caterpillars and from five to ten weeks from the laying of the eggs till the appearance of the moths to lay another lot of eggs; and since a number of "broods" or generations are produced yearly, if a few of these moth eggs are stored away on dried fruits or vegetables, hundreds of caterpillars are produced and many pounds of valuable material may be destroyed during the course of the winter if it is stored in a warm room. Warm, dark bins or dried fruit in sacks offer especially favorable places for their development. It is evident that the larger the amount of material in a package, the greater the chance of a few eggs doing a great deal of damage. Small cartons or containers have the advantage of confining the injury from these moths to small quantities of material, if the containers are closed tightly.

In sun drying, if the drying racks are screened early in the evening and at night, the cheesecloth or fly-screen battened down, and the dried fruits and vegetables stored in tight paper sacks in a cool place, no danger ordinarily need be feared from these insects. As an additional precaution, the dried product, before being stored, may be heated to 140° F. long enough to allow the heat to penetrate throughout. This will sterilize it if already infected.

In drying by artificial heat, the process itself ordinarily will sterilize the product. But after drying it should be stored promptly, to prevent infestation.

PACKING AND STORING

Although not necessary, tin cans or glass jars make good receptacles for storage of dried fruits or vegetables. Pasteboard boxes with tight covers, stout paper bags, and patented paraffin paper cartons also afford ample protection for dried products when protected from insects and rodents. The dried fruit or vegetables must be protected from the outside moisture and will keep best in a cool, dry, well-ventilated place. These conditions, however, are difficult to obtain in the more humid regions, and there moisture-tight containers should be used.

THE KEEPING OF VEGETABLES, FRUITS AND MEATS

(From Bulletin No. 375, by Mrs. Mary Hinman Abel, published by the U. S. Department of Agriculture)

CARE OF FOOD IN THE HOME

The following hints regarding the keeping of different kinds of foods may be found useful:

Potatoes are kept without difficulty in a cool, dry and dark place. Sprouts should not be allowed to grow in the spring.

Such **roots** as carrots, parsnips and turnips remain plump and fresh if placed in earth or sand filled boxes on the cellar floor.

Sweet Potatoes may be kept until January if cleaned, dried, and packed in chaff so that they will not touch each other.

Pumpkins and Squash must be thoroughly ripe and mature to keep well. They should be dried from time to time with a cloth and kept not on the cellar floor but on a shelf and well separated from each other.

Cabbages are to be placed in barrels, with the roots uppermost.

Celery should be neither trimmed or washed, but packed, heads up, in long, deep boxes, which should then be filled with dry earth.

Tomatoes may be kept until January, if gathered just before frost, wiped dry, and placed on straw-covered racks in the cellar. They should be firm and well-grown specimens, not yet beginning to turn. As they ripen they may be taken out for table use, and any soft or decaying ones must be removed.

Apples, if for use during the autumn, may be stored in barrels without further precaution than to look them over now and then to remove decaying ones; but if they are to be kept till late winter or spring they must be of a variety known to keep well and they must be hand-picked and without blemish or bruise. They should be wiped dry and placed with little crowding on shelves in the cellar. As a further precaution they may be wrapped separately in soft paper.

Pears may be kept for a limited time in the same way, or packed in sawdust or chaff, which absorbs the moisture which might otherwise favor molding.

Oranges and Lemons are kept in the same way. Wrapping in soft paper is here essential, as the uncovered skins, if bruised, offer good feeding ground for mold. Oranges may be kept for a long time in good condition if stored where it is very cold but where freezing is not possible. Lemons and limes are often kept in brine, an old-fashioned household method.

Cranberries, after careful looking over to remove soft ones, are placed in a crock or firkin and covered with water. A plate or round board placed on top and weighted serves to keep the berries under water. The water should be changed once a month.

In winter, large pieces of **fresh meat** may be purchased and hung in the cellar. Thin pieces, as mutton chops, are sometimes dipped in mutton suet, which keeps the surface from drying and is easily scraped off before cooking.

Smoked Ham, Tongue, Beef and Fish are best put in linen bags and hung in the cellar.

Salt Pork or Corned Beef should be kept in brine in suitable jars, kegs or casks, and should be weighted so as to remain well covered. A plate or board weighted is a satisfactory device.

Eggs may be packed for winter use in limewater or in water-glass solution. Many housekeepers have good success packing them in bran, in oats, or in dry salt, but the preference is to be given to 10% solution of water-glass. Exclusion of the air with its accompanying micro-organisms and the prevention of drying out are what is sought in all cases. Packed eggs are not equal to fresh eggs in flavor, but when they are well packed are of fairly good quality and perfectly wholesome.

Washing Eggs—The ordinary way to break an egg is to hit it against another egg or over the edge of the mixing bowl and let the contents stream over the side of the shell without considering whether the latter is clean or not. Even if there is no visible dirt, the shell may not be as clean as it seems, for it may have come from a dirty nest or have been untidily handled. Eggs should always be washed before breaking.

MEATS

When meat is received the skin side should be rubbed with a cloth wet in hot water and then carefully scraped with a knife. The thin outer skin of lamb should be entirely removed in order to avoid the disagreeable taste due to any contact with the hair of the animal. The cut surface should also be carefully scraped, and to prevent drying, be covered with paraffin paper or rubbed with salad oil, or in case the meat is to be kept for some time, entirely covered with melted suet. The meat should then be put on a plate in the ice-box.

POULTRY

The skin of poultry is frequently very dirty when brought from market, and fowls should be not only washed, but scrubbed with a soft brush and warm water in which a teaspoonful of baking soda has been dissolved. Such treatment will prevent the disagreeable "henny" taste often noticeable in cooked poultry.

Poultry should be drawn immediately, and unless it is known to have been killed very recently, it should be thoroughly washed on the inside and used soon. Poultry that is drawn directly after killing, on the contrary, keeps better if it is not washed until used. It should be hung in a cold place or put in the ice-box with a piece of charcoal inside the body.

Cold-storage chickens should under no circumstances remain in a warm room before cooking. Such poultry must be kept at a low temperature and cooked as soon as possible. All cold-storage food, when brought into a warm temperature, spoils quickly, and without doubt many cases of illness traced to the use of such food are really due to careless handling and delay in cooking.

(Paste or Write Here Scraps or Memos. of Your Own)

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Scraps or Memos.
of Your Own)**

MENUS

CLASS 32

MEALS FOR SPECIAL OCCASIONS

(Iowa State College Bulletin)

Menus of foods that can be prepared before serving time. In this way the hostess is relieved of care at the last moment.

SERVING OF MEALS

Menu—Creole Chicken in Chafing Dish, Luncheon Rolls, Pickled Peaches, Rice Croquettes with Raisins, Head Lettuce, Horse Radish Sandwiches, Marshmallow Pudding, Coffee, Mints.

STEPS IN PREPARATION

(No Help)

Preparation Several Days Before

If oil lamps are used:
Clean chimneys.
New Wicks.
Gas lamps:
New mantles.
Clean silver.
Iron napkins and table cloths.
Iron towels (plenty of them).
Clean tables and shelves ready for serving.
Get serving trays ready.
Clean refrigerator and make room for salad materials.
List supplies.
Write place cards.
Arrange seating of guests.

Preparation for Preceding Day

1. Cook chicken.
2. Set rolls.
3. Make salad dressing.
4. Cook rice.

Morning Preparations—Day of Party

1. Salad combined and set to harden.
2. Pudding made and set to harden.
3. Bread cut and wrapped.
4. Sandwich filling made.
5. Rolls baked.
6. Chicken ingredients prepared.
7. Rice croquette mixture combined and rolled ready to fry.

Afternoon Preparations—Day of Party

1. Set table.
2. Combine chicken ingredients (place in chafing dish).
3. Fill sandwiches (last).
4. Get necessary serving material in order.
5. Measure coffee.

USE OF SERVING TABLE

Preparation Before Guests are Seated

1. Place food for first course on the table.
2. Place food for second course on one shelf of serving table.
3. Place food for third course on one shelf of serving table.

Serving From Serving Table

1. Remove soiled dishes from first course to kitchen.
2. Serve second course from serving table.
3. Remove soiled dishes to serving table.
4. Serve third course from serving table.

THANKSGIVING DINNERS

Clear Tomato Soup—Croutons
Turkey—Crumb Stuffing
Potato Souffle Glazed Onions
Frozen Cranberries
Pumpkin Pie Coffee
Assorted Nuts Fruits

Fruit Cocktail
Turkey—Oyster Stuffing
Mashed Potatoes Pea Timbales
Pineapple Salad
Marshmallow Pudding Coffee
Candied Grape Fruit

Hot Spiced Grape Juice
Roast Chicken Celery
Scalloped Potatoes Spinach Timbales
Currant Jelly
Nesselrode Pudding Coffee

CHRISTMAS DINNERS

Roast Goose, Savory Stuffing Gooseberry Jelly
Baked Potatoes Brussels Sprouts
English Plum Pudding
Mints Coffee

Roast Pig with Blushing Apples Cabbage Relish
Riced Potatoes Creamed Turnips
Brown Steamed Pudding, Lemon Sauce
Coffee Orange Sticks

Roast Lamb Mint Jelly
Mashed Potatoes Carrots and Peas
Mexican Salad
Mince Tart Coffee

FARMERS' MEETING

Ham Sandwich — Beet Pickle
Escalloped Potatoes
Raisin and Nut Sandwich
Apple Pie — Coffee

Baked Beans — Brown Bread Sandwiches
Cabbage Salad
Cake — Coffee — Apples

Beef Loaf — Bread and Butter
Combination Vegetable Salad
Doughnuts — Brown Bread Sandwiches — Coffee

Cheese Sandwich — Pickled Peaches
Egg and Nut Salad — Bread and Butter Sandwich
Pumpkin Pie — Coffee

WOMEN'S MEETINGS

Macaroni, Italian Style
Lettuce Sandwich
Fruit Salad — Nut Bread Sandwich
Cocoa

Cheese and Nut Sandwich
Potato Chips — Olives
Banana Salad
Cake — Coffee

Stuffed Eggs — Bread and Butter Sandwiches
Combination Fruit Salad
Cream Cheese Sandwich
Wafers — Cocoa

Cream Tomato Soup — Bread and Butter
Egg and Lettuce Salad
Cake — Coffee

PICNIC LUNCHES

Savory Meat Sandwiches — Pickles
Potato Chips
Raisin Salad — Cheese Wafers
Cake — Candy — Lemonade

Fried Chicken — Bread and Butter
Potato-Vegetable Salad
Nut Bread Sandwiches — Fruit

Ham Sandwich — Potato and Pepper Salad
Orange Marmalade Sandwiches
Gelatin Fruit Pudding — Wafers
Coffee

Salmon Salad — Bread and Butter
Fresh Tomatoes
Raisin Nut Sandwiches — Coffee

HIGH SCHOOL FUNCTIONS

Chicken a la King — Savory Potatoes
Tomato Salad — Wafers
Ice Cream

Veal Loaf — Glazed Carrots and Peas
Cabbage and Pimiento Salad
Snow Pudding — Custard Sauce

Fricassee of Chicken — Potato Chips
Cranberry Sauce — Brick Ice Cream

Creamed Veal on Toast
Fruit and Nut Salad — Wafers
Cake — Pineapple — Lemonade

Oyster Stew — Oyster Crackers
Celery Curls — Midget Pickles

CHURCH SUPPERS

Fricassee of Chicken — Celery
Escalloped Potatoes — Glazed Peas and Carrots
Cranberry Jelly
Ice Cream — Wafers — Coffee

Meat Loaf — Cabbage Salad
Creamed Potatoes — String Beans
Fruit Pudding — Cake — Coffee

Roast Ham — Peach Pickles
Delmonico Potatoes
Lettuce and Celery Salad
Apple Pie — Coffee

AFTERNOON REFRESHMENTS

Cherry and Nut Salad — Cheese Wafers
Coffee

Creamed Chicken on Toast Squares
Celery Salad — Wafers
Coffee

Egg and Peanut Salad
Wafers — Cake — Coffee

Pineapple Salad — Coffee
Bread and Butter Sandwiches

Pineapple Lemonade — Peanut Drop Cake

Currantade — Scottish Fancies

Fruit Punch — Rolled Wafers

FIVE O'CLOCK TEAS

Orange Marmalade Sandwiches — Cream Nuts
Tea

Cheese and Nut Sandwiches — Preserved Pineapple
Sunshine Cake — Tea

Nut Sandwiches — Ginger Crisps — Lemonade

Candied Grape Fruit Peel
Cocoa with Marshmallows
Tiny Eclairs Filled with Welsh Rabbit

Plain Sandwiches — Fudge
Black Tea with Lemon

SEASONAL MENUS

American housekeepers are facing not only very high prices for all foods but a decided shortage of some staple articles such as white flour and potatoes.

Very careful planning will be necessary to feed a famliy properly on an average income during this period of scarcity. Food must be chosen with a view to its value in the diet and needs rather than wants must be considered. A diet so limited tends to be rather monotonous and special care must be taken to have the cooking and serving carefully done.

A garden is a valuable asset and provides flavor and variety in the diet at a reasonable cost. If surplus vegetables are canned for winter use the advantage will be still greater.

The following menus have been planned with a view to using garden products when they are in season, and it is assumed that the housekeeper has access to a vegetable garden and some home grown fruit.

SPRING

MENU I.

Breakfast

Prunes

Cornmeal Mush Milk

Dinner

Fish Balls Dandelion Greens

Bran Bread

Dried Apricot Sauce

Supper

Fried Hominy

Gingerbread Rhubarb Sauce

MENU II.

Breakfast

Stewed Dried Apples

Rice with Milk

Dinner

Scalloped Asparagus and Eggs Radishes

Whole Wheat Bread Green Onions

Baked Indian Pudding

Supper

Cream of Pea Soup

Corn Muffins Canned Cherries

MENU III.

Breakfast

Orange

Cream of Rye Milk

Dinner

Baked Beans Steamed Brown Bread

Dandelion Salad

Rhubarb Pie

Supper

Cornmeal Mush Milk

MENU IV.

Breakfast

Cornmeal Pancakes Corn Syrup

Dinner

Baked Rice and Eggs

Greens Bran Muffins

Cornstarch Pudding Cherry Sauce

Supper

Baked Bean Soup with Popcorn

Rhubarb Sauce Plain Cake

MENU V.

Breakfast

Orange

Fried Mush Corn Syrup

Dinner

Beef Stew with Dumplings

Wilted Lettuce with Onions

Rhubarb Baked with Raisins

Supper

Split Pea Soup

Rye Meal Muffins Asparagus

MENU VI.

Breakfast

Eggs Scrambled with Corn Meal Mush

Dinner

Stewed Beans Radishes Onions

Corn Bread Canned Fruit

Supper

Cottage Cheese

Escalloped Potatoes

Rhubarb Sauce

MENU VII.

Breakfast

Stewed Dried Peaches

Grits Milk

Dinner

Boiled Corned Beef Potatoes

Cabbage Onions

Tapioca Pudding

Supper

Corn Soup

Whole Wheat Bread

MENU VIII.

Breakfast

Prunes

Oatmeal Pancakes Corn Syrup

Dinner

Hopping John Parsnips

Graham Bread Canned Fruit

Supper

Corn Beef Hash Asparagus

Corn Muffins

MENU IX.

Breakfast

Stewed Dried Apples

Fried Mush Corn Syrup

Dinner

Split Pea Soup

Potatoes

Cottage Cheese on Lettuce

Supper

Macaroni with Tomato Sauce

Graham Muffins Custard

MENU X.

Breakfast

Rhubarb Sauce

Graham Bread Toast Eggs

Dinner

Hamburg Roast Tomato Sauce

Asparagus

Rice Pudding

Supper

Corn Meal Mush Milk

SUMMER

MENU I.

Breakfast

Banana

Oatmeal with Milk

Dinner

Hamburg Steak

Sliced Tomatoes Lettuce

Corn Bread

Supper

Macaroni Salad

Graham Gems

Fresh Currants

MENU II.

Breakfast

Raspberries Milk Toast

Dinner

New Potatoes and Peas

Lettuce Corn Bread

Junket with Fruit

Supper

Dutch Cheese

Fried Tomatoes

Corn Bread

MENU III.

Breakfast

Fresh Fruit

Poached Egg on Toast

Dinner

Scalloped Rice with Fish

Cucumbers Turnips

Corn Bread

Cherries

Supper

Egg Salad Green Onions

Sliced Tomatoes

Graham Gems

MENU IV.

Breakfast

Strawberries

Rice Milk

Dinner

Meat Loaf Sliced Tomatoes

Green String Beans

Corn Bread

Supper

Brown Bread

New Potatoes, Creamed

Stewed Gooseberries

MENU V.

Breakfast

Prunes

Creamed Beef on Toast

Dinner

Creole Beans

Creamed Cabbage

Lettuce

Batter Fruit Pudding

Supper

Boiled Eggs

Steamed Rice

Red Raspberries and Currants

MENU VI.

Breakfast

Corn Muffins with Raisins
Milk

Dinner

Fish Loaf with Cucumber Sauce
Creamed New Potatoes
Sliced Tomatoes

Supper

Johnny Cake and Milk

MENU VII.

Breakfast

Oatmeal with Raisins
Milk

Dinner

Mexican Beef Green Corn
Beet Greens
Steamed Brown Bread

Supper

Creamed Hominy
Tomatoes
Cornmeal Gingerbread

MENU VIII.

Breakfast

Apple Sauce
Graham Toast

Dinner

Peanut Loaf
New Potatoes and Peas
Green Apple Pie

Supper

Creamed Eggs
Corn Muffins
Lettuce Raspberries

MENU IX.

Breakfast

Fruit
Corn Meal Mush Milk

Dinner

Polenta
String Beans
Graham Muffins
Custard

Supper

Fried Apples
Corn Muffins

MENU X.

Breakfast

Oatmeal with Raisins
Milk Graham Toast

Dinner

Fish Salad
Potatoes
Green Corn Apple Cobbler

Supper

Peanut Sandwiches
Sliced Tomatoes, Cucumbers and Onions
Cocoa

FALL

MENU I.

Breakfast

Baked Apple
Oatmeal Milk

Dinner

Scalloped Onions with Meat
Baked Potatoes
Grapes Corn Bread

Supper

Cream of Tomato Soup Toasted Bread
Peach Shortcake

MENU II.

Breakfast

Corn Meal Mush Milk

Dinner

Baked Squash
Scalloped Potatoes
Brown Bread
Custard

Supper

Baked Lima Beans with Cheese
Corn Muffins
Apple Cobbler

MENU III.

Breakfast

Grapes
Fried Mush Corn Syrup

Dinner

Corned Beef and Cabbage
Steamed Carrot Pudding

Supper

Potato Soup with Onions
Apple Sauce Gingerbread

MENU IV.

Breakfast

Baked Apple
Hominy Milk

Dinner

Spare Ribs
Creamed Cabbage
Corn Bread Apple Sauce

Supper

Corned Beef Hash
Corn Muffins Stewed Pears

MENU V.

Breakfast

Apple Sauce

Oatmeal Milk

Dinner

Baked Beans

Steamed Brown Bread

Cranberry Sauce

Supper

Cottage Cheese

Fried Onions and Apples

Corn Muffins

MENU VI.

Breakfast

Plum Sauce

Fried Hominy

Dinner

Beef Stew with Vegetables

Apple Cobbler

Supper

Creamed Eggs on Graham Toast

Ginger Cookies Pear Sauce

MENU VII.

Breakfast

Baked Apple

Milk Toast

Dinner

Scalloped Rice with Fish

Creamed Carrots

Baked Cranberry Pudding

Supper

Baked Sweet Potatoes

Stewed Tomatoes

Corn Muffins

MENU VIII.

Breakfast

Corn Cakes Syrup

Dinner

Hamburg Steak

Mashed Potatoes

Creamed Turnips

Apple Tapioca Pudding

Supper

Corn Mush and Milk

MENU IX.

Breakfast

Graham Toast

Poached Egg

Dinner

Succotash Brown Bread

Apple Sauce

Supper

Creamed Beef on Toast

Baked Apples

Gingerbread

MENU X.

Breakfast

Corn Cakes Syrup

Dinner

Creamed Fish

Baked Potatoes

Baked Onions

Pumpkin Pie

Supper

Corn Meal Mush

Milk

WINTER

MENU I.

Breakfast

Buckwheat Cakes Syrup

Dinner

Meat Loaf Dried Corn

Cabbage Hot Slaw

Apple Sauce

Supper

Scalloped Tomatoes

Baked Potatoes

Cookies Milk

MENU II.

Breakfast

Corn Meal Mush Milk

Dinner

Macaroni and Cheese Loaf

Corn Bread

Pumpkin Pie

Supper

Cold Sliced Beef Loaf—Tomato Sauce

Creamed Potatoes

MENU III.

Breakfast

Corn Cakes Syrup

Dinner

Spare Ribs

Kraut Boiled Potatoes

Canned Fruit Cookies

Supper

Polenta

Graham Gems Baked Custard

MENU IV.

Breakfast

Corn Mush Milk

Prunes

Dinner

Pea Loaf with Peanuts

Baked Potatoes Cold Stew

Suet Pudding

Supper

Brown Bread Beans

Baked Apples

MENU V.

Breakfast

Corn Cakes Syrup

Dinner

Beef Stew with Vegetables and Dumplings
Corn Bread
Apple Sauce

Supper

Stewed Dried Corn Creamed Turnips
Muffins with Raisins

MENU VI.

Breakfast

Bananas
Oatmeal Milk

Dinner

Mutton Stew, Barley and Vegetables
Pumpkin Pie

Supper

Hash
Scalloped Tomatoes
Spice Cakes

MENU VII.

Breakfast

Buckwheat Cakes Syrup

Dinner

Cream of Split Pea Soup
Rutabagas Potatoes
Steamed Fruit Pudding

Supper

Stewed Dried Corn
Steamed Brown Bread
Baked Apples

MENU VIII.

Breakfast

Corn Meal Mush Milk

Dinner

Swiss Steak Potatoes
Baked Onions
Corn Bread
Canned Fruit

Supper

Fish Cakes with Potatoes
Corn Muffins
Apple Sauce

MENU IX.

Breakfast

Prunes
Fried Mush Syrup

Dinner

Bean Loaf with Tomato Sauce
Creamed Carrots Corn Bread
Steamed Molasses Pudding

Supper

Spanish Rice Corn Muffins
Apple Butter

MENU X.

Breakfast

Corn Pancakes Syrup

Dinner

Baked Rice with Cheese
Beets with sour sauce
Corn Bread
Suet Pudding

Supper

Baked Eggs with Tomato Sauce
Corn Muffins
Stewed Dried Peaches

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

SECTION V.

KITCHEN-BATH-LAUNDRY AND OTHER CONVENIENCES

and THEIR CARE

KEEP HOUSE "THE PAPER WAY"

There is no other way in which there is more labor saving and economy than in the use of the many modern paper articles that have come into use the past few years.

Paper Towels, bought in a roll, used once and thrown away, are cheaper than the laundry cost alone of linen or cotton towels, are more convenient and vastly more sanitary, and serve almost all purposes except for bath where a hard rub is desired. Have a roll in kitchen as well as in bath room. Such towels can be used in many other ways than drying the hands, such as laying on the table when about to "bread" croquettes or prepare fish, to dry meat or fish for draining, or soaking up an article fried in fat, making a bag for lettuce, covering cold meats, and many other purposes.

Paper Plates, which can be had paraffined or not, serve countless uses. Paper dishes are obtainable. Paper receptacles are especially desirable for an ice box.

Paper Doilies and Napkins are bright and attractive and fit in better than linens or drawn work in many instances. They can be had in fancy sets complete to match.

Paper Jelly Glasses are better in many ways than glass ones. They are fitted with tops which are sealed with paraffin and are air tight; they are economical and are not subject to breakage. They make most convenient molds for gelatin as they can be had in sizes almost as tiny as thimbles, for aspics and desserts.

Paper Filter—For clearing soups, and various purposes, use a soft, thick paper, like blotting paper, which comes prepared for filter purposes.

The Paper Dishrag of tough fabric will last two weeks and can be burned. The paper ice-blanket saves ice. The paper shelf-roll saves lots of mental agony.

A large paper bag used to line the garbage pail keeps the pail clean and is most sanitary.

GET THE "PAPER HABIT"

THE SINK

To Flush a Sink Trap—(Cornell Reading Course)—Apparatus: an old granite or iron pot, a granite funnel, a stick, and one-third cup washing soda for each sink.

Put the soda in the pot, add a quart of water for each one-third cup of soda. Bring it to a boil, stirring to dissolve the soda but only with a stick that can be thrown away afterwards.

Put the funnel in the sink plug-hole and pour down the quart of boiling soda water. Be careful not to let the soda get on hands or drain boards. Leave the pot, stick and funnel in the sink.

See that no water goes down the sink for half an hour.

Plug the sink and fill it with water, hot if possible. Then remove the plug and let the rush of water finish cleaning out the trap.

Rinse, dry and put away the funnel, pot and other implements and leave everything tidy at the sink.

Every sink and trap in the house should have this treatment at least once a week.

To Clean a Sink Trap—(Cornell Reading Course)—Apparatus: an empty garbage pail, an old, small sieve, the trap brush, a monkey wrench, an old pot, and one-fourth cup washing soda.

Put the soda into the pot, add two quarts of water, and boil.

Set the pail under the trap and unscrew the cap at bottom of the S-trap.

Remove any obstruction that may be there, and brush out both sides of the trap pipe with the trap brush.

Pour the soda solution down the sink, put on the screw cap; put sieve in sink, empty the contents of the pail through it, then empty the contents of the sieve into the stove.

Plug the sink, fill it with water, and wash the sieve, garbage pail, and trap brush. Then let the water away in order to flush the trap. While it is running away, examine the trap to make sure that it is not leaking at the screw.

THE STOVE

To Blacklead a Kitchen Stove—(Cornell Reading Course)—Apparatus: the blacklead plate, the turpentine bottle, a dauber, a black-lead brush, black lead, soap, an old flannel cloth, a pail of hot water, and a stove apron.

Put on the stove apron, mix the black lead with enough water (warm) to make it the consistency of cream, then add a few drops of turpentine.

Wet the cloth, rub it on the cake of soap, and wash the stove all over with it. Rinse the cloth and renew the soap as often as necessary. The object is to get rid of old blacking and grease, and so to make the surface easier to polish. Soda water is an excellent substitute for soap if the stove is very greasy or has been neglected.

Let the stove dry.

Commence at the top of the stove and with the dauber apply a thin layer of blacking to one section of the stove and polish immediately with the black-lead brush; then proceed to blacken and polish the next section. If the blacking is allowed to dry before the brushing the polish is harder to obtain; therefore, daub only as much as can be polished before it dries out.

Fireplace baskets and irons do not require washing very often.

Note: It is now considered good practice to oil kitchen stoves, thus avoiding the labor and dust of the blackleading process.

To Oil a Kitchen Stove—(Cornell Reading Course)—Apparatus and directions together: Put a little separator oil on a wad of cotton waste and rub it on all the iron parts of the stove.

Rub off with fresh waste, an old cloth, or some crumpled paper.

Polish with a dry flannelette or woolen cloth until all oiliness is gone.

Burn the waste, old cloth, or paper. Be Particular about this because oily waste and oily cloths are a frequent cause of fire through spontaneous combustion.

Wash out the polishing cloth.

To Clean a Gas Stove Thoroughly—(Cornell Reading Course)—Apparatus: a stove apron, a couple of old newspapers, a wire sink-brush, a monkey-wrench, whisk, dustpan and brush, a sink towel, several pieces of old cloth, soap and washing soda, and the separator-oil bottle.

Put on the apron and spread the papers on the table.

Turn off the gas at the main supply pipe with the monkey wrench.

Fill a large dishpan with strong, hot soapsuds, put into it to soak the dripping pan and rack and any movable nickel pieces of the stove.

Fill the sink half full of strong, hot soda water. Put the drop tray in the bottom to soak, and on top of it put the top grates, doors and all movable parts of the stove.

Brush out both ovens and all parts of the stove frame.

Wet one of the old cloths in hot water, rub it on the soap, and wash off the stove. Dry it, if necessary, with an old cloth. Then oil the black parts very lightly with the separator oil and polish it off thoroughly with another old dry cloth.

Let the soda water out of the sink, let in fresh warm water, and scrub the doors and other black

pieces with the wire brush. Dry them off, take them to the table, oil and polish them, and put them back on the stove.

Let the dirty water out of the sink, transfer the nickel pieces, dripping pan and rack to the sink, pour in the soapy water, scrub the pieces thoroughly, dry them with the sink towel, and return them to place.

Scrub, rinse, dry and return to place the drop tray.

(Paste or Write Here Scraps or Memos. of Your Own)

Burn the old cloths and wash the sink out carefully. It is especially necessary to be careful about burning oily cloths that are not washed after using, because they have been known to take fire spontaneously and are therefore dangerous when tucked into corners out of sight.

Note: Be sure to have the stove all put together before any oiling is done.

MICE, INSECTS, VERMIN

HOUSEHOLD INSECTS AND METHODS OF CONTROL

(Extracts from Bulletin under above title, being Sanitation Series No. 3, Cornell Reading Course, New York State College of Agriculture, Ithaca, N. Y.)

THE HOUSE FLY

It has been conclusively shown that house flies carry the germs of cholera, typhoid fever, cholera infantum, and tropical dysentery, on their feet, legs and bodies and in their digestive tracts. There can be no doubt of the responsibility of the house fly for much sickness and many deaths.

Where Flies Breed—The main breeding-places of house flies are in piles of stable manure, especially horse manure, in rotting straw and manure lying in stables and barnyards, in the kitchen refuse of garbage cans and barrels, in manure piles about pigpens and poultry houses, in human excrement lying in the pits of loose or open closets, and, in fact, in almost any decaying vegetable matter that lies long enough in one place to ferment and decay.

The fact should be emphasized that the most dangerous breeding-place for flies is in open closets; for in these places the germs of typhoid fever, dysentery, and cholera infantum are found. By all means the pits of closets should be tight and dark so that no flies will enter them; and the contents should be kept covered with fine ashes or dirt. In addition, the pits should be cleaned rather often and the contents carefully buried far from wells and springs of water.

METHODS OF CONTROL

Treatment of Manure Piles—Chlorid of lime, at the rate of 1 pound of lime to 8 quarts of manure, will kill the maggots if it is thoroughly mixed with the manure. Unfortunately, this treatment is expensive; the chlorin fumes from treated manure irritate the eyes of livestock, and it is not certain whether or not the chlorid of lime destroys the fertilizing value of the manure.

Kerosene oil will kill the maggots, but too much of it is required for its use to be economical. Lime has been used for this purpose, and has not proved an efficient destroyer of the maggots.

It has been found by J. J. Davis that a solution of iron sulfate, 2 pounds in a gallon of water, or 2½ pounds of dry sulfate per horse each day, will kill the maggots when mixed with the manure. Iron sulfate is so cheap that it will not cost more than 2 cents per day for 1 horse; and in addition it will completely deodorize the manure.

The Storage and Removal of Manure—It has been shown that flies prefer light, open places in which to breed and that they rarely enter dark rooms to deposit their eggs. It is therefore wise to build a dark, well-screened room or a tight cement pit in which manure can be stored for a long time or from which, if preferred, it can be removed once or twice a week. In the country, where it is preferred to remove the manure once or twice a week rather than to store it, it should be drawn to the fields and scattered thinly over the surface. If the manure is left in piles or in large lumps there is still danger of its serving as a breeding-place for flies.

The Box Privy—Flies that come from the privy are the most dangerous. Not only do they bring germs to our tables, but they are likely to contaminate the milk that may be used for feeding children.

There is no longer any excuse for the old, open box privy, cleaned once a year. It is a menace to the whole household and to the neighborhood as well. The pit must be fly-proof and, in addition, the contents should be carefully covered each day with a liberal supply of fine road dust or sifted ashes. Finally, the pit should be emptied as often as possible and the contents should be buried far from wells and springs of drinking water.

Fly Traps—Every one is familiar with the different types of wire fly traps. Many of them are excellent and their use is recommended.

Insect Powder—A powder known as pyrethrum, Persian insect powder, or buhach, is sold for killing all kinds of household insects. Buhach is a California product, and is more likely to be fresh than the imported Persian product. There is no more satisfactory way of ridding a kitchen of house flies than by the use of this powder. At night all the doors and windows of the kitchen should be closed; fresh powder should be sprinkled over the stove, on the window ledges, tables, and in the air. In the morning flies will be found lying around dead or stupefied. They may then be swept up and burned.

Bichromate of Potash—This is a substance often used for killing flies. It is not a virulent poison, and little danger is incurred in putting it about the room. It should be dissolved in water at the rate of 1 part of potash to 2 parts of water, and should then be set about the room in shallow dishes. If the room can be darkened with the exception of one window, and the solution placed on the ledge of this window in the light, quicker results will be obtained.

Formaldehyde—One of the best solutions for attracting and killing flies is a dilute mixture of formaldehyde (40 per cent) and water. Two tablespoonfuls in a pint of equal parts of milk and water, set about the room in plates, will attract the flies and kill many of them, provided there is no other food or water for them to feed on. A piece of bread placed in the middle of each plate for the flies to alight on will make the bait more attractive.

Fly-Papers—Tanglefoot fly-papers should be in use in kitchen and dining room if flies are present. No fly should be allowed to live in any kitchen a minute longer than is absolutely necessary to provide means for its destruction.

Screens—If we could eliminate all the breeding-places for flies we should be free from them. This is too much to expect at present, and the screening of windows and doors seems necessary.

Flies enter a house largely through the back door leading to the kitchen. They are attracted to this opening by the odor of cooking food and by the warm air pouring outward when the door is opened. This is especially noticeable toward night on a wire gauze door if the main door is left open. The wire screen is often literally black with flies, and whenever it is opened some of them are almost sure to enter. Moreover, this door is opened probably more than any other in the house. The only efficient method of keeping flies out of the kitchen is to build a porch over the back door and screen the three open sides. Of course, a wire gauze door must be placed in one side wherever it is most desired. With this arrangement the flies cannot gather on the screen door of the kitchen, and they do not gather on the porch screen door in such vast numbers because less warm air and odor is present there.

THE CLUSTER FLY

A word should be said about the cluster, or bunch, or honey, fly, as it is variously called. This fly is slightly larger than the house fly and appears longer and narrower. It is familiar to most housekeepers because of its habit of entering houses in autumn and hiding away in protected nooks and corners in large clusters. Clusters may be seen in the corners of a room, beneath garments hung in closets, and behind curtains at darkened windows. The cluster fly is an annoyance because of its habit of specking and spoiling the wall paper.

Normally, the cluster fly lives out of doors, frequently on the flowers and fruits of plants. In the autumn, however, it enters dwellings in search of snug retreats in which to pass the winter. It seems to frequent unused and darkened rooms; the writer has never seen it in any abundance in light, much-used rooms.

Methods of Control—Screens are of no use in keeping this fly out of a room. It will find cracks and crevices beneath the clapboards and around the window casings, through which it may crawl in spite of all that can be done. The most feasible plan of controlling the species is that given by one of our correspondents, who says: "The only way I have found to keep them out of the room is to leave out screens, lower the windows from the top, and have the room light." As cold weather sets in the clusters of flies may be swept up and burned.

Fresh pyrethrum or insect powder, dusted freely on the clusters of flies, will paralyze and kill them so that they may be swept up and burned.

THE MOSQUITO

The mosquito is really a kind of small fly, not unlike the house fly except in size and in its power to "bite." Mosquitoes are no more abundant today than they were 100 hundred years ago; but much greater interest is shown in them nowadays than formerly because of their relation to certain diseases. There are known to be over 500 different kinds of mosquitoes in the world; over 60 species occur in the United States. Not more than half a dozen of these are at all common about our houses; only 3 of them are known to carry malaria, and only 1 is concerned in disseminating yellow fever.

The Bite of a Mosquito—The beak of a mosquito is made of 6 bristle-like or lance-like organs enclosed in a sheath. The bristle-like organs are the puncturing parts of the beak, for the sheath does not enter the flesh when a mosquito bites.

When a mosquito is puncturing the skin, an irritating poison, the chemical nature of which is not known, is injected into the wound. This poisonous substance causes an itching sensation. The immediate area turns red and becomes inflamed, and in the case of some persons much swelling follows. The itching and irritation may be relieved by the application of dilute solutions of ammonia, a 5 per

cent solution of carbolic acid, or a 1 per cent lotion of menthol.

Methods of Controlling Mosquitoes—The best way to get rid of mosquitoes is to drain or fill up the ponds, pools, or other bodies of water in which the insects breed. Old tin cans, pails, or other useless receptacles that may hold water should be turned bottom side up or drawn away far from the house. Rain barrels and tanks may be covered with galvanied wire netting, at least 14 meshes to the inch, so as to prevent the mosquitoes from laying their eggs on the water.

In many cases ponds, pools and tanks that cannot be drained may be sprinkled with kerosene oil every two weeks during the summer. The oil spreads over the water in a thin film and prevents the wrigglers from obtaining air through their breathing tubes; consequently they are drowned. Furthermore, the oil kills the eggs and prevents the female mosquitoes from depositing any more.

In case of those pools and tanks that cannot be drained or that it is not desirable to cover with oil, fishes may be introduced which will destroy the wrigglers. For example, goldfish, sunfish, or certain minnows serve to keep pools free from mosquitoes.

The Use of Bed Nets—But in spite of our best efforts there are always a few mosquitoes in certain regions. One good method of escape from them is by the careful use of bed nets. If a net is arranged so that it does not hang in folds and is not too low and close to the sleeper, little air is excluded. In order to be serviceable, a net must be free from rents and large enough to reach the floor on all sides of the bed. A bobbinet bar, closed on all sides, makes an ideal net. Care should be taken not to allow mosquitoes to enter the net with the sleeper, and the edge of the net must not catch on the bed rail or cover and remain off the floor during the night. If one must travel in a malarial region infested with mosquitoes, a light net should always constitute a part of the traveling outfit and have its place in the bag with other necessities.

Going Indoors Early at Night—It is now known that night air does not carry miasma or malaria; but it is just as important to remain in the house at night as it ever was, because mosquitoes are particularly active after dark. Therefore, in order to escape the bites of Anopheles mosquitoes and the accompanying malaria, it is important to remain indoors after dark or to have the sitting porches closely screened.

Repellents for Adult Mosquitoes—Various mixtures, oils, and ingredients are used for repelling adult mosquitoes. Oil of citronella is said to be an efficient protection, but its efficiency will not long continue at most, and it is not to be relied on during a night of sleep. It is mainly useful while one is sitting on porches or in rooms where mosquitoes are troublesome.

The following mixture is recommended: cedar oil, 1 ounce; oil of citronella, 2 ounces; spirits of camphor, 2 ounces. A few drops of this mixture on a cloth hung on the bed will keep mosquitoes at a distance and will be effective for a long time.

THE BEDBUG

The body of the bedbug is flat and wide, a character that fits it wonderfully well to the place that it has chosen for its home. The cracks and crevices of bedsteads furnish admirable protective retreats for an insect with a flat, thin body. Moreover, the bedbug has no large wings to get in its way and encumber its retreat.

Dissemination of the Bedbug—It is often puzzling to know how these insects become established in a house. One of the most prevalent ways is on laundry brought in by the washerwoman. The writer has repeatedly seen bedbugs come in on the weekly laundry. In several instances the insects were seen on the white spread of a bed where clean clothes had been laid by the laundress.

If the members of a family travel considerably they are likely to bring the pest home in their trunks and handbags. Guests who have been traveling and stopping at various hotels often unwittingly become the source of infestation by bringing the pest in their baggage. In towns and cities, where houses are built close together, bedbugs will actually migrate from one house to another.

Control of the Bedbug—In the first place, iron or brass bedsteads are much more desirable than wooden beds in a fight against this pest. The former offer few cracks and crevices, and these are easily reached.

The old-fashioned remedies, such as kerosene oil, gasoline, or benzine, when forced into cracks and crevices with a hand syringe or a feather, are still among the most efficient weapons against the bedbug. The treatment must be thorough and should be made several times in succession, with intervals of 3 or 4 days between applications in order to give time for any untouched eggs to hatch.

A mixture of 1 ounce corrosive sublimate, 1 pint alcohol, and ¼ pint spirits of turpentine, painted in the cracks of a bedstead with a feather, is another old-fashioned and effective remedy.

Boiling water, poured over the parts of a bedstead after they have been placed where they may be liberally treated, will kill both eggs and bugs. Of course, boiling water should not be used on highly polished or on varnished furniture.

Sulfur has been used with success by some persons. Not less than 2 pounds of sulfur to every 1,000 cubic feet of space should be burned, and the rooms should be tightly closed for several hours. In order to close the cracks around windows and doors, strips of newspaper may be soaked in water and applied rapidly over the cracks. They will stick tightly for many hours. The sulfur should be placed in a kettle set on bricks in a tub of water so as to avoid danger from fire. A half teacupful of wood alcohol poured on the sulfur and then lighted will serve to burn the sulfur completely.

It must be remembered that sulfur fumes bleach certain colors in wall papers and fabrics, and tarnish metals of various sorts.

COCKROACHES

Cockroaches are exceedingly annoying because of their proneness to get into substances and because of their filthy, disgusting habits. Often they become so numerous that they destroy considerable material. They are likely to attack the bindings of books and other leather articles. In the larder they will attack almost any foodstuff, polluting more than they actually destroy.

Methods of Control—In fighting cockroaches, persistence should be the watchword. The insects are shy, apparently cautious regarding baits and poisons, and difficult to reach in any manner.

Various kinds of traps have been devised for catching roaches. The box with cone-shaped tubes affords a sample of a modern trap. The box is baited at night with cheese or other favorite food. The roaches can enter but cannot escape.

A rather unique method of killing roaches is described by Mr. Tepper of Australia. Plaster of paris, 1 part, is mixed in a saucer with flour, 3 or 4 parts, and placed where the insects are abundant. Near at hand is placed a flat dish containing water, with bridges so arranged that the roaches can easily reach it. They eat of the flour and the plaster of paris, and either are killed or leave the premises.

A powder known as insectoline, manufactured by the Insectoline Company, Chicago, Illinois, has given good results in fighting these insects. The writer has used it in kitchen and pantries with satisfactory results. In order to obtain the best results with this powder, it must be applied in large quantities and persistently.

Professor F. L. Washburn, after failure with several so-called remedies for cockroaches, tried powdered borax, and has this to say concerning its value as an exterminator of roaches: "We then turned to powdered borax, using it freely in the kitchen with marked success. This was sprinkled in cracks about the sink, along the tops of baseboards, near the sink, and elsewhere, wherever there were cracks that afforded the insects a hiding place. By a generous use of this substance, persisted in for two weeks, the room, in fact, we may say the premises, were entirely freed from this disgusting pest."

Whatever powder or substance is used, it must be applied in large quantities and at short intervals for an extended period of time. Persistence and thoroughness are absolutely essential to the control of cockroaches.

Hydrocyanic acid gas is successfully employed against cockroaches.

ANTS

Methods of Control—Perhaps the first method of prevention is to remove the substance attracting the ants. If this cannot be done, the food may be placed on a support, the legs of which rest in water covered with a film of oil.

Another temporary expedient, and one that may discourage the ants enough to finally stop them from coming, is to soak small sponges in sweetened water and place them where the insects are most numerous. The ants will crawl into the pores of the sponges in great numbers and may be killed by dropping the sponges into boiling water. This process should be repeated over and over, and thousands of the workers may thus be destroyed. In instances in which this practice has been given a thorough and persistent trial, the ants have become so discouraged and bewildered by the sudden loss of so many workers that they have finally abandoned the house entirely.

A syrup made by dissolving sugar and borax in boiling water, placed about the infested room in small dishes, will attract and kill many of the ants. It is said also that camphor, either free or wrapped loosely in paper and placed around the foods attracting the ants, will drive them away.

If carefully watched, the ants may often be traced and the crack or opening through which they enter may be discovered. When found, kerosene oil should be squirted into it or it should be tightly plugged with cotton soaked in kerosene. This practice is often an effectual preventive.

Ordinary ants may be prevented from reaching tables by setting the legs of the tables in cups containing a little water with kerosene oil on the surface. This method avails little with the Argentine ants, however, since they soon manage to cross the oil on a causeway formed from the dead bodies of their sacrificed comrades. Against the red ant

and the little black ant, the film of oil is an effective barrier until the oil evaporates, when it must be renewed.

Cyanid of potassium has been used with marked effect against ants in the field. It is a deadly poison, and should be handled with great care. If it is powdered fine and scattered over an ant hill after the latter has been broken up or stirred on the surface, the ants will begin immediately to remove the pieces. In doing so, every ant that touches the cyanid will be killed. Colonies have been almost exterminated in this way, and whenever the colonies of the red ant can be located the cyanid may be used to advantage. It will be found more useful against the normally outdoor species, such as the pavement ant and the carpenter ant, than against the red ant.

It must be remembered that if fowls are allowed access to the poison and pick up the pieces they certainly will be poisoned. In order to obviate this difficulty, it is best to use the cyanid in solution by dissolving it in water at the rate of an ounce to a gallon of water. It may then be sprayed over the nest or poured down the openings. This method seems to be quite as effective as scattering the poison in the pulverized form; at least, experiments have shown that some species of ants may be nearly, if not quite, exterminated in this way. Another very effective method of application consists in placing a pint or more of the solution in hollows dug out at the exits of the burrows of the colony.

Ordinary cotton tape, treated with corrosive sublimate, acts as an effectual barrier to the red ant and other species. The tape is often wound about the legs of tables, or it may be tacked along the edges of shelves and in other places to protect food. The ants will not cross these strips of tape. The prepared tape may be bought in the larger cities of the South, but the author has never seen it for sale in cities in the North. Since one often receives an inferior article from the store it is better to prepare the tape at home.

Mr. Newell makes a solution of the corrosive sublimate by heating it in water in a granite-ware vessel and dissolving all that the water will take up. After this solution has cooled it is filtered. The solution may be filtered, in the absence of filter paper, through a fine quality of cotton batting. A thick layer of the cotton should be placed in a funnel, and the solution should be poured in and allowed to filter through. The tape is then soaked in this filtered solution and pinned on the wall to dry. Neither the solution nor the tape should be allowed to come in contact with iron, tin, or steel. When the tape is well made it will remain effective for many months, even for a year.

Tartar emetic, mixed with 4 or 5 times its volume of syrup and placed about in shallow dishes, is an effective remedy against house ants. If some of this mixture, poured into individual butter plates, is set about in a refrigerator where ants are troublesome, or in a pantry that ants frequent, the little pests will soon leave. In some cases it has proved to be one of the simplest and most effectual remedies that can be used to rid a house of these persistent pests.

The only method of getting rid of ants permanently is by locating their nests and treating them in such a way that the queen will finally be destroyed. No more eggs will be laid, and the production of workers will cease. One of the best substances for treating nests, in order to kill the queen and exterminate the workers, is carbon bisulfid. It is often difficult to locate the nest, and sometimes when found it will be in an inaccessible situation; for example, it may be discovered in the foundation walls, under the floor, or in some other equally secluded and protected place. One writer suggests that black ants may be traced to their nests by baiting them with broken pieces of rice, farina, or cream of wheat. The ants will carry these pieces of white food to their nests and may be easily traced in this manner. Perhaps the red ant may be followed to its home by the same means. When the colony is located it may be treated with carbon bisulfid by pouring an ounce or two of the liquid into each of several holes made in the nest with a sharpened stick, after which operation the mouth of each hole should be quickly stopped with a clod of dirt. A heavy wet blanket thrown over the nest will aid in retaining the gas and will tend to make the fumigation more effective. The liquid evaporates quickly and the gas permeates the whole nest, killing the queen and the workers and exterminating the colony. By attaching a torch to the end of a long pole and extending it out over the nest while the operator stands at a safe distance, the gas may be exploded and the fumes driven into all corners of the colony. If the colony is located in the foundation walls, the problem will be much more difficult and may be impossible of solution. The difficulty will be in reaching the nest with the liquid. If the nest is located under the floor, it may be necessary to remove a piece of the flooring in order to gain access to the colony.

In the use of carbon bisulfid, it must be remembered that the gas is inflammable and explosive, and no form of fire or light should be brought near the place that is being fumigated.

L. J. Nickels has been very successful in poisoning Argentine ants with a weak solution of sodium arsenite. For a weak solution, he dissolved a little more than 1 ounce of the arsenite in a small quantity of hot water. When dissolved the sodium arsenite was added to a sweetened solution of 20

pounds of sugar dissolved in 3 quarts of water. It was necessary to heat the syrup mixture so as to thoroughly dissolve the sugar.

In order to make a small amount of the mixture, 3 grams of the arsenite should be dissolved in a small quantity of water and added to a sweetened syrup of 2 pounds of sugar dissolved in ¾ of a pint of water. Small sponges may be soaked in this poisoned solution and placed in jars so that the ants can easily gain access to them. It seems that the ants will carry this slightly poisoned syrup to their nests and feed it to the queen and to the broods of young ants, gradually killing off the whole colony. It would seem as though the same mixture could be used effectively for common ants.

CLOTHES MOTHS

Methods of Control—First of all, it should be definitely understood that odors emanating from small quantities of various substances, such as camphor balls, cedar, and naphthalene, have no killing effect either on moths or on larvæ. Cedar chests or closets lined with cedar are of no avail if eggs are once deposited on clothes stored in them. Apparently, the odor of cedar has some repelling effect on the moths themselves. The odor of camphor balls also has a repellent effect on the moths; but a few moth balls placed among clothes in a chest do not prevent injury if eggs are deposited on the garments before the latter are put away. The real function and value, then, of cedar chests or closets lies in repelling moths and keeping them away from the garments. The clothing, however, must be free from all eggs and larvae of the moths before being put in chests. Great care must be taken to shake and brush the garments and to have them in the sun and air until all the larvæ and eggs have been shaken loose and destroyed.

In the second place, it should be understood that garments which are often worn are not liable to injury. It is the clothing and the materials that are stored away in closets and trunks for a long time undisturbed, which are badly injured. It is under such conditions that the moths have an opportunity to deposit their eggs, that the eggs have a chance to lie undisturbed long enough to hatch, and that the larvæ have occasion to eat and to grow to maturity.

Sunlight and air are among our best available agents of protection from clothes moths. Before garments are put away for the summer they should be hung in the air and sun, and then be thoroughly brushed and shaken so as to dislodge the eggs and larvæ that may be on them. In addition, they should be taken out occasionally, perhaps once a month, and brushed, shaken, and aired. The same treatment should be accorded woolen bedding and blankets that are to be stored. After the clothes are once thoroughly cleaned, sunned and aired they may be packed away with a supply of camphor balls distributed among them to repel the moths. It is advisable to spray the cracks in closets and chests with benzine or gasoline before putting the clothes in them, in order to kill any eggs or larvæ of the moths that may be lurking there.

A few old woolen rags or pieces of old furs, stored in attics but never used, are prolific breeding-places for these moths and should be taken out and burned.

Doctor Howard early suggested a method of storing winter wraps and garments during the summer, which is practical and efficient. He goes to the tailor shop and buys a few common pasteboard suit-boxes, and in these the garments to be stored are neatly folded away. Then the cracks around the edges of the cover are sealed by pasting strips of paper over them. This makes a tight box that excludes all moths. With care the boxes last several years.

Another method of storing clothes is given by a resident of the city of Washington, D. C. He has a wooden chest for holidng his clothes. In the cover of the chest he has bored a large hole and on the underside of the cover, directly beneath the hole, he has tied a large sponge. In the middle of the summer he pours a little carbon bisulfid on the sponge and closes the hole with a cork.

Cold-storage plants are common nowadays in all cities and in many small towns. During the summer these plants are available for the storage of furs, rugs, and other valuable woolen goods.

Doctor Howard reports some experiments which demonstrate that a continuous temperature of 40 degrees is sufficient to maintain the larvæ of clothes moths in an inactive condition and thus prevent injury by them. In the light of these experiments, cold storage forms the simplest and safest method of protecting woolen goods from the ravages of clothes moths.

FLEAS

Methods of Control—It follows from what has been said regarding the kinds of fleas found in houses, and their rate of increase, that pet dogs and cats must be eliminated or must be kept clean and free from these pests. These animals may be kept reasonably free from fleas by frequently bathing them in a solution of creolin. A dog can be bathed with a 3 per cent solution, 4 teaspoonfuls to 1 quart of water, or 4 tablespoonfuls to 1 gallon of water. Cats are more sensitive, and should be bathed with a 2 per cent solution.

A dog or a cat should be provided with a sleeping-cloth or rug, which should be beaten or shaken at least once a week and hung in the sunlight, if

possible, for a few hours. If infested, the kennel should be thoroughly washed inside and outside with a 5 per cent solution of creolin.

To clear a house of fleas when it is once infested is often a strenuous task. In the first place, a change from carpets to rugs, if possible, is recommended. The larvæ of fleas cannot develop in rooms in which the floors are exposed and swept from time to time. In severe infestations, nothing but the removal of all floor coverings, followed by a thorough washing of the floors with strong soapsuds, will avail. In case of old floors, the cracks should be filled with some good filler.

The use of benzine or gasoline will also be very helpful. The carpets should be sprinkled with the gasoline. Special attention should be paid to the edges of the carpets and to the cracks underneath the baseboards. Great care should be exercised regarding fire while gasoline is being applied, owing to its inflammable character.

Miss Fields, long a resident of Southern China, says she renders her house immune from fleas by dissolving alum in the whitewash or the calcimine when it is applied to the walls. She also places sheets of thick paper, dipped in a solution of alum, under the matting and scatters pulverized alum in all crevices where the insects might breed. Powdered alum, she states, may be scattered on the carpet and swept into its meshes without injury. Dr. Henry Skinner has had good results with the use of flake naphthalene. He said that he "took one room at a time, scattered on the floor 5 pounds of flake naphthalene and closed it for 24 hours. On entering such a room the naphthalene vapor will instantly bring tears to the eyes and cause coughing and irritation of the air passages. . . . It proved to be a perfect remedy and very inexpensive as the naphthalene could be swept up and transferred to other rooms."

CARPET BEETLES

Methods of Control—The carpet beetles will always be difficult to control in houses having floors completely covered with carpets that are tightly tacked about the edges. A carpet placed permanently on the floor and allowed to remain there undisturbed for a year furnishes ideal conditions for these pests to thrive and increase. As was urged in the case of fleas, so again it is urged that a change from carpets to rugs be made if possible. Where bare floors, partially covered with rugs, are maintained, the carpet beetles will not find hiding places suited to their development. Moreover, the rugs can be examined without difficulty at any time, and they are usually dusted and aired too often for the larvæ to gain a foothold. The tendency among modern homes is to use rugs on polished floors, with a consequent diminution of the carpet beetles as a household pest.

Where the insects have become well established in a house nothing but heroic measures and long-continued efforts will avail. House-cleaning should certainly occur twice a year instead of once, and should be very thoroughly done, at least so far as the carpets are concerned. They should be removed, thoroughly dusted and beaten, sprayed with gasoline, and hung in the air and sunlight as long as possible.

The floors should be thoroughly washed and scrubbed with soap and water, especially along the baseboards and the cracks of the floors. It would be of advantage to spray the cracks beneath the baseboards with benzine or gasoline, to clean out all the dirt possible from the cracks in the floor, and to pour in benzine or kerosene oil. Before the carpet is replaced on old floors the cracks should be filled with a crack-filler, and thus the favorite hiding-places for the larvæ might be eliminated. In badly infested houses, tarred building paper may be placed beneath the carpets, but the odor from such paper is not always pleasant.

The carpet may be loosely tacked about the edges, thus affording the owner an opportunity to examine it so as to see whether the pests have returned. The following is a good account of the manner in which one housekeeper finally got rid of the pests: "My own experience with them began last year. We moved to our present abode in April, and it was not until every carpet had been put down and the house settled that I was aware that we had such unwelcome guests. I was not long in observing their habit of running into any crack and crevice that presented itself, and also running along the joints of the floors, and our warfare against them was directed toward these joints. In the closets we stopped up every nook on the walls; every crevice under the baseboards, and filled up the joints of the floors; then we laid down oilcloth, and kept a plentiful supply of camphor in the closets. I am happy to say that we have had no trouble with them since so doing.

"Fortunately, we had put paper under all the carpets, so we felt that they were in a measure, at least, protected, but I found them continually, just under the edges of the carpet. As far as possible we filled up the crevices under the baseboards and I used benzine plentifully all the summer, saturating the borders of the carpets every two weeks and killing all I saw in the meantime. Last spring we varnished the cracks of the floors, and in some cases, where they were open, covered them with strips of thin muslin stuck down with the varnish; we again put paper under the carpets, as we had found it such protection the previous year. I have found the various insect powders of no use whatever when the insect is in the larval state; whether

or not is has any effect on the beetle I cannot say; but this I can state—that our unceasing warfare has not been in vain, for I have, during the past summer, seen only single ones where last year I found scores."

Hydrocyanic Acid Gas—This gas is quite as effectual for the carpet beetle as it is for the bedbug (see Bedbugs).

Sulfur—The fumes of sulfur are quite as effective as hydrocyanic acid gas if enough of the sulfur is burned at one time. Not less than 2 pounds of sulfur to 1,000 cubic feet of space should be used. The room should be tightly calked and closed as described in the chapter on bedbugs. We would again call attention to the injury that may result from sulful fumes to metals, wall papers, and similar furnishings.

Corrosive Sublimate and Alcohol—As we have pointed out, the larvæ congregate mostly about the edges of the carpets. It is said that a solution of 60 grains of corrosive sublimate, dissolved in 1 pint of alcohol, and applied to the edges and undersides of the carpet around the borders, will poison the larvæ when they begin to eat the fabric. The alcohol quickly evaporates and leaves the corrosive sublimate among the fibers of the carpet, where it will remain for a long time. Since corrosive sublimate is such a virulent poison, great care must be exercised when children are likely to play about the room, lest they get hold of some of the material and become poisoned.

Trapping the Larvæ—The larvæ may be trapped by placing woolen cloths, especially red ones, in closets. Among these the larvæ will congregate and may be caught and killed by shaking the cloths once a week over a piece of paper. If persistent effort is made, many of them may be killed.

Protection of Furs and Woolens—These may be stored in boxes in exactly the same manner as is described in the chapter on clothes moths. The box arranged for the application of carbon bisulfid serves as well in protecting materials from the carpet beetle as from the clothes moths.

LARDER BEETLES

Methods of Control—In the first place, the beetles are easily seen and may be caught by hand and killed. This may be the most satisfactory way of dealing with them if they are not too abundant.

Cheese is very attractive to the beetles; if pieces are exposed here and there the beetles will congregate and may be caught and killed in considerable numbers. Cheese ground up and poisoned with arsenic, and then placed in the haunts of the beetles, will often kill many of them.

When hams and shoulders are put away they should be bagged as early as possible after being cured and should be wrapped with great care. If the least crack or opening is left the larvæ will find entrance.

If a ham or similar food should become infested with the grubs, the part containing them should be cut away and burned; the remaining part of the meat should be treated with a dilute solution of carbolic acid.

If the beetles become abundant, and there are many hiding-places, the room in which they are present should be entirely cleared of food products and anything else that may interfere with the work of cleaning. The storeroom should then be thoroughly cleaned and finally sprayed with benzine or fumigated with carbon bisulfid.

FISH MOTHS

Methods of Control—Usually books stored in moist basements or other damp rooms are the most seriously injured. This, of course, suggests airy, dry rooms for the storage of books or valuable papers if one wishes to preserve them free from injury by the fish moth.

Another common method of preventing injury to books and papers is by the frequent use of buhach powder. Fresh buhach should be sprinkled freely on the shelves and on the books themselves. Moreover, this treatment should be given frequently where these pests are abundant and persistent, because the powder so soon loses its strength. In badly infested houses, starched clothes, stiffened silk, and similar fabrics should not be allowed to remain too long packed away in drawers or loose in chests or boxes.

It is customary for librarians to poison sweetened paste with white arsenic, spread the mixture on pieces of cardboard, and slip the latter about on shelves among the infested books as bait for the fish moths. It would seem that a like method of procedure, in which glue is substituted for the starch matter, might also succeed in killing the pests. These pieces of cardboard might be placed about among garments or other stored fabrics if injury by the fish moth is anticipated.

MISCELLANIES

To Dispose of Mice—The "harmless, neecssary cat" is usually the best mice exterminator. Mice will not stay long in a home where there is a cat. But in many places a cat is not wanted; in city apartments they are a great deal of trouble, and it must be admitted that in the country they are as capable exterminators of the desirable songbird as of the undesirable mice. Cayenne pepper, in bags at mice holes, or sprinkled down them, or rags dipped in water and then in the pepper and stuffed in the holes, will drive mice elsewhere. Or scatter camphor about where they run and in their holes; they very much dislike it, and will leave where its odor is apparent to them at all.

Red Ants are also driven away by the odor of camphor gum. Camphor may be placed quite near food which the ants are after, as it does not "absorb" into or affect the food at all.

When ants are running, dip a sponge or some fluffy cotton in sweetened water and place it in their path; they will immediately infest it, then drop it in hot water, clean and repeat. Then sprinkle the camphor to drive away the late comers.

For Roaches, as well as ants, borax is efficacious. Do not moisten it, but mix it powdered with gum camphor, or even sprinkle the borax alone, thickly, over the closet shelves and into the cracks which seem to be infested. It may take several applications, as roaches are persistent; but in the end will effectually banish them.

Moths or Mice will not invade paper boxes, or boxes covered with paper, or scrap books, etc., or books packed in boxes, if alum is used in the paste with which the paper covering the boxes, etc., is pasted on.

To Prevent Moths before putting away shades or rugs, sprinkle with cayenne pepper. Use it anywhere else, in place of "moth balls" (camphor) where the pepper itself would later not be objectionable—as in the case of clothes.

Water Bugs—A weak solution of turpentine poured down the water pipes once a week will drive away water bugs.

Flies may be kept away from such things as gilt frames by going over these with a soft brush dipped in a pint of water in which three or four onions have been boiled.

To Wash Linoleum—Varnish new linoleum with a good quality of varnish before it is used. This really doubles its life. Never use soap in scrubbing linoleum, but put a cup of kerosene into the pail of water, wash thoroughly and dry off with a soft cloth. If it is varnished a rub over with one of the oiled mops will keep it in perfect condition. New linoleums should have two coats of varnish and will be all the better for three.

Oiled and Varnished Wood should be simply wiped with a flannel cloth wrung out of warm water. **Grained wood** should be washed with cold tea. **Painted wood** may be washed in warm water with a few drops of ammonia used.

Smoked Ceilings that have been blackened by lamp or gas soot, may be washed off with soda water.

Broken Walls may be filled in with a mixture of white and plaster of paris made into a paste with water, or with vinegar if it hardens too fast for use. Cover over with paper to match that on wall.

Dustless Dusters—After washing, ordinary dusters dipped in kerosene and dried in the open air, make excellent home-made "dustless" dusters. Dry mops may be similarly treated with good effect.

A Wood-Box Problem (or Coal Box)—The box is usually full when you want to sweep. Put casters on it, so you can move it around easily.

To Keep Sponges soft and clean, wash them in warm water containing a little tartaric acid, then rinse in plenty of cold water. Do not put in too much of the acid, or have the water very hot, or you may spoil the sponge; be sure to wash the acid out thoroughly.

Hot Water Bottles, Bags, Pans, Jugs, should be hung or turned upside down when not in use, to thoroughly drain. With rubber bags, however, as soon as well drained, but before entirely dried out inside, put in the stopper, so as to retain a little of the moist air (but no water) as this moist air will make the rubber last longer and remain soft and flexible better than too dry air such as would otherwise replace the moist air if left hanging open in a warm dry room.

Saving Soap—Quantities of soap are thrown away. When a cake has dwindled to a thin piece it is usually discarded, or breaks up and is wasted. Two or three such pieces may be moistened and allowed to stand until soft, then stuck together and pressed into a respectable cake; or the thin pieces may be kept in a can or bowl until a sufficient number are collected, then covered with about four times as much water as there is soap and boiled until the soap is dissolved. This makes a soft soap that is invaluable where suds are wanted. A teaspoonful of the soft soap will serve for a dishpan of water and will be found more convenient than cake soap.

To Stop a Leak—A temporary stopping of a leak in a water or gas pipe is easily effected with a paste

made of yellow soap and whiting. This, of course, should not prevent one's sending immediately for the plumber, but it will make waiting for him less trying.

White Enamel—To keep white enamel sink and bath tub clean and beautifully white give them a good rubbing with a cloth wet with kerosene, then rinse with hot soap suds. Dirt will instantly disappear from sinks, bath tubs and wash bowls, if a woollen cloth dampened in gasoline is used.

(Paste or Write Here Scraps or Memos. of Your Own)

Water Bugs—A weak solution of turpentine poured down the water pipes once a week will drive away water bugs.

When Leaving Home for any length of time pour about half a cupful of kerosene in the wash bowl, closet, laundry tubs, sink, etc. This will prevent sewer gas or water bugs from coming into the house, and the odor will disappear in a few hours.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

THE LAUNDRY AND THE IRONING BOARD

SECTION VI.

Including
CLEANING and STAINS

A GOOD HOME-MADE LAUNDRY LIST

Take an ordinary scratch pad and paste the back of it on the right hand side of a cardboard, the latter cut with an inch margin above the pad and a two-inch margin to left of pad.

Write on a two-inch slip of paper, preferably typewrite, alphabetically, the names of all laundry articles. To avoid oversight of important articles follow a printed laundry list—or you can cut up and use the printed list itself. Paste this on the two-inch margin to left of pad. Obviously the pad must be as long as the list when written out—and do not have the articles on the list too close together.

Each week write on pad the number of out-going articles, opposite the names on the list. Check them off when returned and tear the sheet off pad, leaving fresh sheet for the next week.

WATER

The following matter is taken from Cornell Reading Course, Bulletin Farm House Series No. 3, "The Laundry."

A bountiful supply of good water for laundry purposes is an important factor in successful laundering. Water is the natural solvent for much of the dirt that accumulates on clothing; moreover, it acts as a carrier to rid the clothing of all forms of dirt, both soluble and insoluble. Unfortunately, good drinking water is not necessarily equally good for laundry purposes, as water may hold in solution substances not hurtful to health but very detrimental to cleaning purposes. A water good for the laundry should be clean, soft, clear, odor-free from discoloration, free from iron, free from organic matter.

HARD AND SOFT WATER

The characteristic known as hardness, possessed by some waters, is due to the presence of lime salts. Hard water is not the best for laundry purposes, as lime salts decompose the soap used and form in its place an insoluble lime soap, which collects as a curd on the surface of the water. Such soap decomposition takes place as long as any lime remains in the water and the cleaning (detergent) properties of soap are not in operation until every bit of lime has combined with soap to form lime soap. By leaving minute particles of lime soap in its pores, hard water is said to weaken a fabric. If the available supply of water is hard, then, the problem of the housekeeper is to find some means of removing ilme or of reducing its ill effects.

MATERIALS FOR SOFTENING WATER

Washing Soda (sodium carbonate)—Washing soda is the best alkali to soften water for general household use, for while effective in its action, it is not so corrosive as to render its handling difficult or its use unduly harmful, nor is it expensive. It should never be used in its dry form, however, for it is an alkali sufficiently strong to eat holes in a fabric if it is used in full strength, and wherever a particle of the dry substance falls a strong solution is formed. Carelessness causes many of the complaints against present-day laundry methods.

Lye (sodium hydroxid or caustic soda)—Lye is an alkali of far greater strength than washing soda; one pound of lye being equal to about twelve pounds of washing soda, it should be used with just so much the greater caution. It should never be used save in solution, and as the solution deteriorates very rapidly on exposure to air, if any quantity is made it should be kept in bottles or jars tightly stoppered with rubber stoppers. The compound formed by exposing lye to the action of air and water, is washing soda, so there is no advantage in using it after all. Lye is much more difficult to handle, and its action is so much more corrosive than is that of other alkalis that it is not advisable to use it in the home laundry.

Borax (sodium biborate)—One of the mildest alkalis to use in the laundry is borax. This alkali is more expensive than either lye or washing soda and is not so vigorous in its action; but in some instances it is greatly to be preferred to either lye or washing soda. Washing soda and lye, unless they are thoroughly rinsed from clothing, have a tendency to cause yellowing, particularly when starch is used afterwards. Borax, on the other hand, has a tendency to whiten fabrics and is added directly to starch, in order to give it good color and to increase its clearness. When colored fabrics or wools are to be washed in hard water, borax is one of the best alkalis to use for softening the water; therefore it should be on the laundry shelf for that purpose if for no other.

Ammonia (ammonium hydroxid)—Ammonia is another good alkali for softening water when it is not advisable to use stronger alkalis. Ammonia is a very volatile substance, consequently it should be used only when the laundry process is to be conducted quickly. It is better and cheaper to purchase the full-strength ammonia from a druggist and then dilute it, than to buy the article known as household ammonia, which is of unknown strength.

To Soften Water—Water may be softened by any of the following methods:

1. For each gallon of water, use two tablespoons of a solution made by dissolving one pound of washing soda in one quart of boiling water. The solution should be bottled and kept on hand, as it is a useful cleansing agent (detergent).
2. For each gallon of water use one-fourth tablespoon of lye dissolved in one cup of water.
3. For each gallon of water use one tabelspoon of borax dissolved in one cup of water.

If water is very hard, increase the amount of alkali used.

ORGANIC MATTER

Organic material may be precipitated by the use of alum in the form of an alum-borax mixture. The sediment should be allowed to settle and the water may then be drawn from the top.

To Remove Organic Matter—For each gallon of water use one tablespoon of a mixture made up of two-thirds borax and one-third alum. If the water is rich in organic matter, use more than one tablespoon of the mixture. When water is very scarce, alum is sometimes used to separate the dirt from the water and the water is then filtered and used again.

THE WORK ON WASH-DAY

Before taking up short-cuts in washing, let us see if we can lessen the actual bulk of wash-day. Table cloths can be saved by frequent use of bleached crash runners for breakfast and luncheon; also they make a desirable change in artistic table appearance. They are smaller and easier to wash and iron than heavy linen covers.

Paper napkins and paper cloths, which come in sets, also make a desirable change, are cheap, and save laundry. They are especially suitable for informal luncheons and for summer. The bare polished table, with a few doilies, may be frequently used.

Use lightweight knit union underwear instead of muslin. Use crepe for nightgowns, petticoats, house dresses, and children's dresses and boys' waists; they wash quickly, require no starch and need not be ironed. Small children may use rompers and save petticoats.

PREPARING FOR THE WASH

Sort your washing for different tubs. Put table linen and other comparatively clean articles into one, the next cleanest into another, etc. Soak handkerchiefs in a basin of salt water, pour soapy water over them and put them into one of the "clean goods" tubs. If colds have prevailed in the family, the handkerchiefs should be put to soak in a solution of boric acid by themselves, and should be separately washed and boiled for twenty minutes.

Soak the clothes overnight in cold water. In the morning fill washing machine with scalding water, cut in the soap and put in the first tub of clothes. Run the tub 15 minutes; the second while you are rinsing and bluing the clothes from the first. If you use the scalding process it is not necessary to boil the clothes oftener than once monthly. Washing with naphtha soap will obviate boiling even that often. The naphtha soap should be shaved into a tub of lukewarm water at noon the day before. Put in the first tub of clothes to soak, and at night time run the washer with these, wring them and put in rinsing water; put the rest of the white clothes into soak until morning.

In the morning take out part of the clothes and run in washer; let the colored clothes soak while you hang out the white. By this method you can get the entire washing on the line early in the morning; and breaking up the work over the two days does not leave you worn out.

To Wash with Paraffin (Cornell Reading Course)—Apparatus: paraffin wax, laundry soap, soft water, clothes boiler, saucepan, laundry tub and wringer.

Soak the clothes overnight in cold **soft** water.

Shred ½ cupful of paraffin and ½ pound bar of soap, and melt each in 1 pint of hot water.

Fill the boiler with soft water and bring to boiling point; add the paraffin mixture.

Wring the clothes out of the water in which they are soaking, put them in the boiler, and boil ½ hour.

Remove the clothes to a tub of soft, warm water, or a washing machine, and rinse the soapsuds well out of them. Only the very dirty parts need to be rubbed. This rinsing water must be kept as warm as possible.

Rinse in clear cold water. Rinse in bluing water.

(Note)—For a washing of about five boilerfuls, prepare twice the amount of paraffin and soap, putting one-half of it in the first boilerful and adding more to each succeeding boilerful of clothes.

GENERAL DIRECTIONS FOR WASHING

(From Cornell Reading Course, Farm House Series No. 3, "The Laundry")

Directions for Washing—Have plenty of hot water before beginning the washing. If possible the water should be soft; if it is not, soften it (see methods for softening under "WATER").

Make a soap solution; use 1 cake of soap to 2 or 3 quarts of water.

Rinse the clothes from water in which they were soaked, removing as much of the dirt as possible. Parts of the clothing that are very much soiled should be rubbed a little and rinsed in fresh water before the garments are put into a tub or a washing machine. The precaution of rinsing saves wear and tear on the whole garment.

Pour warm water into tub or washing machine; if the water is hard, soften it with washing-soda solution or borax. Add enough soap solution or soap to make a good suds. A tablespoonful of turpentine, kerosene, or benzine may be added to the washing water as well as to the water in which clothing has soaked. Put in clothes to be washed. Rubbing is essential for soiled garments; it may be accomplished in one of two ways; by using the washboard and old-fashioned tub, or by using a washing machine. It is well to have a board for very soiled parts, such as hems and edges, but the washing machine is a great improvement on the older method.

Whenever the water becomes dirty, use fresh suds. Clothes cannot be made clean without the use of plenty of water. Keep up a good suds while washing, and add hot water from time to time. If a washing machine is used, do not put enough water in the machine to float the clothes; if you should they would escape the mechanical action of the dasher and would not be sufficiently rubbed. Clothes should be wrung from the wash water through the wringer. The screws of the wringer should be adjusted to bring its rolls close together, and clothing should be folded so as to give it an even thickness in passing through the wringer; for heavier garments loosen the screws of the wringer. Fold in buttons and hooks and turn the wringer slowly.

A second suds is generally necessary, though it may be omitted if the clothing has been only slightly soiled. Shake out clothes wrung from the first suds, look them over for soiled parts, turn them wrong side out, and drop them into second suds. Wash and wring them ready for boiling.

Clothes should be clean before they are boiled, as the boiling process is intended not so much to remove visible dirt as to destroy germs and purify the clothing as well as to whiten it. Boiling is omitted when a naphtha soap is used, as the soap loses its effect in very hot water; it is asserted that boiling is not needed because naphtha itself is a purifier. Nevertheless, at least once a month, the clothing washed at other times with naphtha soap should be boiled.

Fill the boiler half full of cold water; if the water is hard, soften it. Add enough soap solution to make a light suds. Half fill the boiler with clothes, wrung and shaken out from the last suds. Use plenty of water and do not put too many clothes into the boiler. Bring the water very gradually to the boiling point and boil 10 minutes.

Kerosene or turpentine is sometimes added to the boiling water to counteract the yellow color given clothing by the use of the dark resin soaps. It is better to avoid kerosene and turpentine at this point if possible, as clothing treated by them require very thorough rinsing to remove the odor. Each boilerful of clothes should be started with clean cold water. Cloths or clothes containing lampblack or machine oil may be placed in the hot water left after the last clothes have been wrung from it. Kerosene or turpentine should then be added, as they are the solvents for such dirt.

Rinsing is an important part of the washing process, for if soap or some of the strong alkalis are left in the cloth they may be very detrimental in the bluing or starching process.

If water is hard it should be softened for rinsing with either borax or ammonia and not with washing soda. The rinsing water should be hot. The clothes should be slowly lifted with a clean stick from the boiler into a dishpan, and drained or wrung or shaken before being put into the rinse water. It is not always practicable to use more than one rinse water before bluing the clothes, but better results are obtained when the clothes are rinsed more than once. With some kinds of bluing, the presence of soap or alkali precipitates the blue as iron rust. If the starch used is not pure, and any lye or washing soda or soap has been left in the cloth, a yellow color is produced from the starch impurities by the action of those alkalis. Wring from the rinsing water and shake out the garments.

Bluing—It is impossible to give any rule for the amount of bluing to use or the depth of color to be decided upon. Some fabrics, such as soft, loosely-woven fabrics, absorb more bluing than others. The amount of bluing to be used is a matter of experimentation by the launderer. Clothing should not be allowed to stand in the bluing water, as they might become streaked.

If a ball bluing is used tie it in a thick cloth, wet, and squeeze it into a bowlful of hot water. Use a part of the resulting bluing solution for bluing the water. More of the bluing in the bowl should be added to the bluing in the tub from time to time as the clothing takes it up. As some kinds of bluing are in the form of minute particles, the bluing water should be stirred each time before adding clothes to it. After they are wrung, unstarched clothes will then be ready for drying.

Starching—Make the starch according to directions. Starch those garments requiring thick starch first, as moisture from the clothing gradually thins the starch and a medium stiff, medium thin, and thin starch gradually result.

Stiff Starch—Collars, cuffs, shirt-bosoms.

Medium Stiff Starch—Shirt waists, collars and cuffs, coarse lace curtains.

Medium Thin Starch—White petticoats, duck skirts, and some dresses.

Thin Starch—Skirts and dresses when a stiff finish is not desired; shirt waists.

Clear Starch—Infants' dresses, fine laces, curtains, light-weight table linen when it is desirable to give it some body.

Raw Starch—Collars, cuffs, shirt-bosoms when an extra stiffness is desired; some light curtains.

The starch should be thoroughly worked into the cloth so as to distribute it evenly through the threads of the fabric. Such working insures a smooth, even stiffness and prevents starch spots in ironing. All garments starched with boiled starch should be dried thoroughly before being dampened. They should be dampened several hours before being ironed. If articles are to be raw-starched they should be thoroughly dried first. They are then dipped into the raw starch and rubbed as for washing, squeezed dry, and spread out on a clean sheet or cloth, but not one over the other. They should cover only half the sheet. The other half of the sheet should be folded over them. Then the sheet with its contents should be rolled tightly and stand for 2 or 3 hours to insure even distribution of moisture.

Drying—When possible the process of drying should accomplish more than the mere removal of moisture. Clothing should be hung where it will be freely exposed to the action of fresh air and sunshine. Such exposure purifies and bleaches at the same time. In many commercial laundries a chemical bleach is used to whiten clothing that is necessarily dried in steam closets, and consequently does not have the beneficial bleaching action of sunshine.

The home launderer does not often have to consider the need for commercial bleaching agents.

The launderer should be provided with a clothespin bag, or, better still, with a clothespin apron having a deep pocket, good and wide.

When possible, lines should be taken down each week, but when they cannot be they should be well wiped with a damp cloth before hanging up clothes. The clothespins should be clean. Each article should be turned wrong side out and hung with the threads of the material straight; the garment should be shaped as nearly as possible in its natural shape. Avoid hanging pieces by corners, for thus hung they will be pulled out of shape. Fasten garments by their bands when possible. Table linen, bed linen and towels should be pinned in at least four places, as it is nearly impossible to iron properly a piece that was improperly hung. Careful hanging greatly reduces the labor of ironing. When the clothes are brought in from the line the clothespins should be put into the apron or basket kept for that purpose and placed where they will be kept clean.

Starched pieces should not be allowed to freeze, and should be removed from the line as soon as dry. Long hanging reduces their stiffness. If flannel underwear is properly stretched and hung it may be folded and put away without further treatment.

Dampening—Clothes should be dampened some hours before being ironed, because during the interval between moistening and ironing the moisture becomes distributed evenly and does away with the necessity of using a superfluous amount of water. The dampening is best done at night, but only as many articles should be sprinkled as can be ironed next day, for damp fabrics will mildew if left wet for a few days, especially in hot weather. Although clothes should be well dampened, they should not be drenched. Very often trouble in ironing starched pieces is owing to overwetting. The starched part is soaked and made limp and sticky. A clean whisk broom kept for the purpose is the best thing to use for sprinkling clothes. Some persons have used a toy sprinkling pot. There is, however, a danger in its use, for it may rust and give rise to rust spots on clothes. Large pieces should be sprinkled and folded separately. Small pieces may be sprinkled and laid together before folding. Care should be taken to fold and roll garments smoothly, as this aids in their ironing. The rolls of dampened pieces should be packed closely in a basket lined with a clean cloth and covered with a clean cloth.

Table linen and other linen should be made very damp, not wet. If table linen is sprinkled with a mixture of 1 part alcohol and 4 parts water, the result after ironing will be a slight stiffness resembling that of new linen.

If an ironing machine is used, unstarched pieces may be removed from the line while still damp and ironed immediately without the preliminary sprinkling.

Washing Colored Clothing—The processes of dyeing have so improved that almost all wash goods are now considered to have fast colors. This is particularly true of the better grades of fabrics, in which the dye seems to attach itself with especial firmness to the fibers of the cloth. Though a color may be said to be fast, it is only relatively fast. Colored goods require more careful treatment than do white goods. The conditions that most affect the stability of colors in fabrics are: long-continued action of water and soap; strong alkalis or acids; strong sunlight, which is a powerful bleaching agent and is used frequently for bleaching.

In washing colored clothing, the factors just enumerated should be kept in mind. Colored clothing should not be soaked for any length of time unless its color is known to be very stable. Any soap used in the washing process should be a mild soap in solution, or if the color of the goods to be washed is very delicate the soap solution should be replaced by soap bark, bran, rice water, potato water, or cooked-starch water. The washing process should be conducted quickly, and in water not very hot. After washing, colored garments

should be turned inside out and hung in a very shady or dark place, and should be taken in as soon as dry. Fading is more often owing to careless drying than to any fault in washing. Washing powders and strong alkalis should never be used with colored clothing. If the water needs softening, use borax. If starch, bran, rice water, etc., are substituted for soap, use the mixture as if it were soapsuds.

In starching colored clothes, rub the starch in thoroughly and wipe off any excess of it; no difficulty will then be experienced with white starch spots.

To Set Color—Sometimes a fabric shows a decided tendency to fade even under the best washing conditions. It is always well if there is any doubt about fading to test a small piece of the cloth before washing it. If the color fades, then an attempt should be made to set it. With most colors the dyer uses chemical substances which cause a firmer union between the color and the cloth. Such substances are called mordants. The process of making a color fast may sometimes satisfactorily be used by the housekeeper to strengthen weak colors. The household mordants are brine, vinegar, sugar of lead, and alum, used in the following proportions:

To 1 gallon of water add ½ cupful mild vinegar, or 2 cupfuls salt, or 1 tablespoonful alum, or 1 tablespoonful sugar of lead (poison).

Vinegar is best for pinks. Small pieces of cloth should be tested in each of the above solutions and a choice made after the test. The cloth of which the color is to be made fast should be left in the mordant solution over night, and may be left in for several days with good results. It should be thoroughly dried before being washed. Even with relatively strong colors, soaking a fabric over night in a brine solution before washing it for the first time may render it far less susceptible to fading influences than it otherwise would be. The effect of brine, however, is said not to be lasting. Colored goods are often rinsed in a dilute salt solution just before drying them.

THE LAUNDERING AND CARE OF WOOLENS

All waters which touch woolens should be of the same temperature. There are scientific reasons for this, not necessary to expound here. Woolens should not be washed in both hot and cold water; nor should woolens ever be rubbed. It is such treatment that causes shrinkage.

Strong alkalies, soda, lye, washing powders, should be avoided. If necessary to soften the water, or to cut grease or neutralize any acids used to remove stains, use borax or ammonia.

Woolen Blankets are ruined if put in tub and washed like cotton goods. Shake them first, to remove all dust. Then look for spots and mark same with a few stitches of white thread (colored thread might fade and leave a mark).

Measure the blankets and set a pair of curtain stretchers ready to take them—they may be stretched doubled if double blankets.

Don't rub soap directly on them—use a soap solution, made by shaving a bar of good, white neutral soap in cold water, heating to boiling point, allowing to cool, then adding 2 tablespoonfuls of powdered borax and ½ cupful of wood or denatured alcohol.

Temperature of all waters used for woolens should be about 110 degrees F. Work blankets up and down, squeeze them lightly, but don't rub. Badly soiled places stretch over a smooth surface and use a brush with the soap solution. Don't use a wringer, except very lightly adjusted, and keep the blanket flat, not stretched, pulled or crumpled.

Drying—Don't let lie about wet. Don't wash but one blanket at a time. Unless you use frames, hang straight on a clean, light line; use plenty of clothespins. Don't dry

in direct rays of the sun; it will yellow the blanket; select a bright place in a light wind. During drying, use often a whisk broom with lengthwise stroke to rub up the nap. When perfectly dry, rub with a flannel cloth in a dry room until blanket is light and fluffy.

Colored Woolens will come out drab or streaked unless you **set the colors.** For red, light blue, tan and brown, soak about 10 minutes in a solution of 1 ounce sugar of lead to 1 gallon of water. For purple, green, mauve or blue (predominating) soak in alum water, 1 ounce alum to 1 gallon of water. Yellows, buff, tans, you will improve with 1 cupful of strained coffee added to last rinsing water.

To Bleach Blankets which have yellowed, use hydrogen peroxide diluted to about an eighth of its strength, steeping the blankets over night.

Sweaters—To retain original shape, take the important measurements before wetting, and stretch to these measurements while drying. Use, otherwise, same method as for blankets.

To Bleach Sweater—Hang it while still wet in an upturned barrel, stretched to its proper measurements. Burn a sulphur candle (procurable at any drug store) under the barrel. The bottom of the barrel, however, is first knocked out, as well as top, leaving only the cylinder. Now stretch a cloth over the barrel to keep the sulphur fumes in; occasionally remove this to shake out the folds of the sweater. About an hour and a half treatment will suffice for perfect whiteness. Wash in soapy water to remove sulphur odor.

Radiator Drying is not good. It may steam woolens; they should dry slowly. They should not be pressed with an iron hot enough to make them steam in the ironing.

CORNELL COURSE ON WASHING WOOLENS

Washing Woolens (Cornell Reading Course)—The action of water and alkalis upon wool has been thoroughly studied. Strong soaps should never be used in washing woolens, nor should soap be applied directly to the garment. The soap should be used in solution. A great deal of stress is laid upon having the water used in washing flannels not much more than lukewarm, for at a lukewarm temperature soap and water have a less detrimental action on wool than at any other temperature. It is even more important than the lukewarm water to have all the waters used of the same temperature, in order to avoid changes from hot to cold water, or vice versa, as sudden changes in temperature cause shrinkage.

Have two receptacles ready for washing flannels. Pour into one of them water not too hot for the hand to bear comfortably. Add enough soap solution made from a neutral or mild soap or a wool soap to make a good suds. If the water is hard, or the clothing is very much soiled, add a tablespoonful of borax or ammonia for each gallon of water used. Shake or brush the garments free from dust, and put them into the water to soak for 10 or 15 minutes. Before beginning to wash the flannels, prepare a second tub of water having the same temperature as that of the first or a slightly higher temperature. Wash one garment at a time by drawing through the hands and washing up and down in the water; avoid rubbing if possible. Pass the garments from the first to the second water; the second water should be a suds if the first suds has not removed all the soil. Rinse free of soap in several waters; be sure to keep the temperature constant. Wring through a loosely set wringer. Turn wrong side out and hang in a warm place, but not near a fire, as heat will cause shrinkage. When nearly dry, turn. When drying, shape by pulling and stretching.

It is a mistake to ascribe all the shrinkage in woolen garments to washing. The moisture, heat, and movements of the body may cause a marked shrinkage.

If flannels are to be pressed, they should be allowed to dry first, and should then be covered with a slightly dampened piece of cheesecloth and ironed with a moderately hot iron. The cheesecloth draws up the fibers of the flannel, giving it the fluffy appearance of a new garment. Underwear and woolen stockings should be stretched into shape and should not be ironed. For very soiled garments special soap formula for the purpose will be useful.

Blankets are washed in the same way as other woolens, except that because of their size, only two blankets or only one pair of them are washed at a time, and fresh water is used for each pair. After wringing, they may be stretched and dried on curtain stretchers. If stretchers are not available, blankets should hang on the line until perfectly dry, and occasionally the water should be squeezed from the hanging ends. To press them, fold them evenly and wrap them in a sheet. Keep them smooth and unwrinkled and place a flat board over them. Weight heavily and let them remain for several days.

WASHING THE BED CLOTHES OTHER THAN BLANKETS

It becomes inevitable that heavy quilts, pillows, etc., must from time to time be washed. As disagreeable a job as this is, it is not so formidable a task as it seems, however, if properly gone over. It requires time and strength, though, and one should set aside a day for this. Select a bright sunny day and hire a good strong woman to help.

Blankets have been covered in another article. (See Care of Woolens.) Pillows ought to be renovated oftener than they usually are. It is not difficult if you put your feathers into a cheesecloth bag the size of the ticking. The latter can then be removed and washed as often as you please, and the feathers can be renovated better if in the thin cheesecloth bag.

If, however, they are in the usual ticking only, prepare good hot soapsuds, made strong with ammonia and borax, and put them in to soak for an hour. As the water cools lift the pillows about, roll them and toss and slap them until the dirt is out of the feathers. Don't crush or squeeze them. Rinse in hot, soapy water, then in several clear waters, hang in the sun, turn and shake them as they dry. They can be dried, if neecssary, on steam radiators.

Down and lambs' down comfortables are washed in the same way as pillows. Thick cotton filled comfortables can be washed so the cotton will not form into lumps, if very careful with them, especially if the tying in them is fairly close. In buying comfortables choose those which are of fast colors.

Put comfortables into warm suds and let soak. Squeeze flat without twisting in wringer and put in a second tub of warm, soapy water; run through a washing machine or shift around in water, lifting up and down and slapping; do this in several soapy waters and finally in several clear warm waters, then squeeze and shake dry as possible and hang in a warm place in hot sun, shaking occasionally to fluff the down. If carefully done they come out as light as when new.

Silk-covered comfortables should be sent to the cleaners; home washing will almost certainly spoil the silk.

HINTS ON WOOLEN AND SILK GOODS

To Wash a Long White Shawl—Pour boiling water over soap, add cold water until luke warm. Put shawl in, pat gently, then squeeze, don't wring. Repeat until shawl is clean; repeat in two or three warm waters without soap. Lay out a bath towel, of several thicknesses, smoothly on a table; lay shawl on same, spread out one end to natural width of shawl and pin to the table with sharp pins or thumb tacks through shawl; pin sides evenly, being careful not to stretch. Pin another layer on top of first and continue to end of shawl and lay in sun till top layer is dry, then unfold top layer; continue till all layers are dry. Brush out fringe with fingers. The shawl will be soft, white and even, as when new.

Shawls, Sweaters and loosely woven jackets lose their shape when hung on lines to dry. To prevent this, fasten them securely with safety pins to a sheet stretched between two lines, or dry the sweaters or jackets on a "form" if you have one, or tack them against a sunny wall stretched only to the extent you want them to remain when dry.

To Dry a Sweater another way, hang it over a mosquito netting hammock, the latter pulled tight, and the sweater spread out in position wanted and pinned thereto.

Crocheted Articles of Wool—Clean them in a pillow case; keep them in it during the entire process of washing. Use abundant warm water and soap, and clear warm water for rinsing; hang on line still in the pillow case, on a bright windy day.

New Stockings—Rinse them first time in water in which a teaspoonful of vinegar has been put, and they will not fade so readily.

To Clean White Felt—Make a soft paste of magnesia and milk, cover the felt thickly, applying with a brush, leave till next day, then brush off with a clean hand brush.

Black Felt such as an old derby hat, clean with household ammonia on a clean piece of muslin.

Cleaning With Gasoline—For badly soiled ar-articles, make a strong lather of white soap dissolved by hot water until it looks like jelly and add it to the gasoline, teacupful to a gallon. Soak the garment in this for 15 minutes, then rub where necessary and wash between the hands; wring out and rinse in clean gasoline. Add a little salt to gasoline used for cleaning wool or silk and if possible put a piece of cloth under it, to "drive through" to, and there will be no "ring" where cleaned.

The gasoline can be saved for future use; let the dirt settle, then pour off the liquid and cork tightly. It should be unnecessary to say that work with gasoline should be in the open air and in no case near a fire.

White Kid or Satin Slippers can be sponged with gasoline and made fresh as new

Gasoline Cleaned Articles require no ironing.

To Soften Flannels that have become hard and shrunken, restore them by soaking in gasoline and shaking till dry.

"Dry" Cleaning Men's Clothes—Take a soft cloth, dip it in alcohol, pass it lightly over a cake of pure soap and apply briskly to the goods till cleaned. If you can put a cloth under the goods much of the dirt or grease will be driven through to the cloth and less time required than when it has to be all transferred to the cleaning cloth. If the goods have a lining which would show stain, separate the goods and lining in some way to prevent this "driving through" to the lining.

After cleaning the garment, sponge it carefully, then press it. The treatment, as well as cleaning it, restores the nap and lustre as when new. In the case of obstinate grease spots, rub hard with pure white soap lather and lukewarm water, then apply the alcohol and soap process as above.

White Silk—Use lukewarm water and borax, for washing, instead of soap. Dry by wrapping a sheet or blanket and iron while just a bit damp but not wet.

When washing white silk always rinse in a warm blueing water to keep from yellowing. Many a dry cleaning bill can be saved by carefully laundering as above.

To make silk that has been washed look like new, put a teaspoonful of methylated spirits to a pint of running water and iron while damp.

Silk blouses can be made to look like new by stiffening with a little gum arabic in the rinsing water. One dessert-spoonful of boiling water and then silk ironed while damp.

Yellow Chiffon—Use gasoline, plenty of it. Souse the chiffon in, shaking up and down and around, and if there are spots upon it rub them gently between the hands. Change the gasoline as it becomes cloudy for fresh. When the chiffon is clean hang it in the wind, pulling it into shape now and then. When you are ready to put it back upon the dress lay between two thicknesses of fine muslin slightly dampened and press with warm iron lightly, not to spoil the general effect.

Chiffon Veils—Subject these to a thorough washing with soap and water. Prepare a bath of warm water and white soap, lay the veil in and lift up and down, squeezing through the hands until quite clean. Then rinse in clear water—warm water if the veil is white, and a few drops of ammonia if the veil is colored. To dry, pin it on table or bed, and iron. Although chiffon irons perfectly, it is more like new when not ironed, and in the case of a dotted veil pressing of any kind is not advised—the dots will surely show the impress.

Net Veils—For net veils of every description squeeze through alcohol to freshen and remove dust. Wash in gasoline. Use sufficient fluid to cover the article. Squeeze through the hands several times, then rinse in clear gasoline. This will probably be quite black when one has finished if the veil is black, but when dry the veil will be a deep black and the dots, if any, very glossy.

Crepe de Chine—After washing crepe de chine or georgette crepe in warm water with a mild white soap, rinse in clear warm water, roll in a Turkish towel and do not iron till next day.

Blue Serge—To remove the shine from a dark blue serge sponge occasionally with a strong blueing water, then press (not iron) carefully.

A Black Frock may be freshened by sponging it with alcohol mixed with water in the proportion of 1 part alcohol to 3 of water. The garment should be sponged on the right side, but ironed on the wrong.

CORNELL COURSE ON SILK

Washing Silk (Cornell Reading Course)—Silk should be washed in much the same way as wool. While it is not so strongly affected by soaps and alkalies as is wool, its gloss is destroyed by the use of strong cleansing agents. The delicacy of the fiber makes hard rubbing impossible, for it breaks the fibers and destroys not only their durability but also their silkiness. In wringing silk, place it between dry towels or heavy cloths and put it through a loosely adjusted wringer, iron it on the wrong side while still damp, with a moderately hot iron. Silk is very easily scorched, and if the iron is too hot the silk will be stiff. Push the iron back and forth with a wriggling motion to give softness and pliability to the silk. It is often best to iron silk under a cloth; to do so gives less body and a softer finish. Ribbons, if of good quality, may be very successfully washed. To iron them, cover them with a dry cloth and move the iron frequently back and forth over the surface of the cloth above them.

LINENS AND COTTONS

To Launder Table Linen (Cornell Reading Course)—Apparatus: tub, washboard or washing machine, soap, ironing table with blanket and sheet, hot irons, and cloth for cleaning irons.

Washing—Remove all stains. Soak overnight if possible in softened water. Wash in hot water, using soap and the board or machine. Boil or scald fifteen minutes in soapy water. Rinse in cold water. Rinse in cold bluing water. Dry out of doors if possible.

Note: For old linen add 1 cupful of boiled starch to each gallon of bluing water.

Dampening—Dampen well. Roll up tightly and let lie over night if possible.

Ironing—General rules: Pull well into shape. Have the irons very hot. Press heavily. Iron until perfectly dry. Ironing and folding a table napkin; place the napkin on the table wrong side up with the name on the upper right hand corner. Fold the lower edge to within ⅛ inch of the upper edge and iron. Fold the lower edge even with the upper edge and iron. Fold the left-hand edge to within ⅛ inch of the right-hand edge and iron. Turn over and iron the remaining square. Fold the left edge even with the right hand edge and iron.

Ironing and folding a table cloth in the screen fold of four: Fold the cloth lengthwise, wrong side out. Fold again lengthwise. Drop one selvage and bring it back to the folded edge on the opposite side. Place lengthwise on the ironing table and iron the top quarter. Open and iron the middle quarters. Fold the middle quarters together and iron the remaining quarter.

Note: If the cloth is very large or the table very narrow, it is better to fold it in two, right side out, iron both sides, and refold in the screen fold.

Fine Table Linens—An authority on fine laundering says that hot water should not be used in washing fine table linen or embroidered doilies. Cold water, white soap and borax, if not a borax soap, should be used. If a gloss is desired for linen add a teaspoonful of salt to the starch when making.

WHITE LINEN AND COTTONS

Outline for Washing (Cornell Reading Course)—Put water on to heat. Make soap solution. Rinse clothes from water in which they have soaked. Wash clothes in warm suds in the following order: Table linen and clean towels; bed linen; body linen; handkerchiefs; soiled towels and cloths; stockings. Wash again in clean suds; wring. Boil in clean, slightly soapy water. Rinse in clean, clear water; wring. Rinse in bluing water; wring. Starch. Hang to dry. Remove from line, dampen, and fold.

COLORED LINENS AND COTTONS

Colored Goods—Add ½ ounce of Epsom salts to 2 quarts of clear water and you will have a good mixture for rinsing colored frocks and blouses.

A little borax in the water before washing red or red-bordered goods will alone often prevent their fading.

Dark calicoes should be ironed on the wrong side with irons that are not too hot.

To prevent the fading of ginghams, calicoes and lawns, dissolve 5 cents' worth of sugar of lead in a pailful of lukewarm water. Put the goods in and let stand two or three hours. Wring out, dry and press in the usual way. The process also shrinks the goods.

To Bleach faded cotton wash in boiling cream of tartar water.

Cotton Voiles—When washing cotton voiles, if after they are washed and dried they are dipped in a solution of gum arabic and water (1 teaspoonful powdered gum arabic to 1 pint), rolled in a cloth and ironed wet, the garments will look quite new.

Near-Fireproofing Muslins, Laces, etc.—Muslins and laces may be rendered much less inflammable by simply mixing with the starch used in laundering an equal quantity of whiting.

CURTAINS, LACES, ETC.

Dyeing Curtains—An excellent dye for lace or muslin curtains: save the tea-remains from the teapot; keep the tea savings and leaves in a covered jar, and when you have sufficient, strain through a fine sieve and add the liquid to a pan of ordinary starch water Dip one end of the curtains, and if the color is too dark add more starch water. If too light add more of the tea savings.

Net Curtains—To be sure they will dry straight put them on the poles at the window while still wet, and they will fall into graceful folds, as they dry. Otherwise dry on a frame or pinned to a wall.

If allowed to dry thoroughly before starching curtains will remain clean longer.

To Wash Laces—White laces that have become discolored from perspiration should not be put immediately into hot water. Soak them first in cold water, rubbing them well with pure soap. If the pan of water is set out in the sun it will aid in the bleaching process. Later rinse and squeeze the lace in warm water and soap suds, rinsing again in clear water very slightly blued. Laces may also be bleached snowy white by basting them to cardboard, and setting out in the sun. The laces must be wet when basted to the cardboard. When bleached and dry they will need no ironing.

To Clean Lace—Salted flour or powdered starch mixed with borax and rubbed into every thread of the lace will clean it. Lay it away with a fresh supply of powder for three days, then shake and brush it thoroughly and you will find it very clean and fresh.

Another plan is to mix gasoline and powdered magnesia and rub this into the lace. Leave the mixture on over night and apply again. Shake out and brush carefully.

Milk for Lace—It is well, when washing a piece of choice yellow lace, to dip it in milk before ironing. Always place a piece of tissue paper directly over the lace, so the warm iron will not touch the fabric.

Black Lace—Wash in mixture of half vinegar and half water; heat together until lukewarm; wash without soap; rinse in a similar solution, put in a cloth and iron on wrong side until dry, between two thicknesses of cloth.

Washing Lace Collars—First baste them on a piece of white cloth; they will not be torn or stretched, and if no starch is used they will look like new.

To Clean White Lace, without laundering it, spread it smoothly on wrapping paper and sprinkle it freely with calcined magnesia, then place another piece of paper over it, and put away under a heavy weight for several days. Dust off the magnesia and the lace will be found almost as fresh as when first purchased.

Fine Laces should never be starched, they will generally be stiff enough if ironed while very damp, the ironing being continued until they are dry.

To Clean Gold Lace—Buy some rock ammonia from a chemist, pound it finely and apply it with a piece of clean flannel to the lace, rubbing briskly. After a thorough brushing the lace will look good as new.

To Tint Lace—Wait until it is dry after washing, then dip it into weak tea. If a little stiffness is desired a cube of sugar may be added to the tea.

CORNELL COURSE ON LACES

Washing Laces (Cornell Reading Course)—It is often best to dry-clean fine laces, as they thicken slightly in washing. To wash them, use a warm neutral soap-solution to which has been added ammonia or borax. Squeeze out the dirt by pressing the lace in the hands, but do not rub it; rubbing breaks the delicate threads. A good way to wash fine lace is to baste it to strips of cheesecloth, being careful to catch down all its points. Put it to soak over night in warm soapy water containing a little borax or ammonia. Wash it, by squeezing, then rinse it free of soap. Old yellow lace may be bleached by stretching it, while wet, around a bottle, and standing it in the sun, rewetting the lace occasionally. Javelle water may be used to bleach lace. Lace may be stiffened by rinsing in a mixture of 2 tablespoonfuls of alcohol to 1 cupful of water; by rinsing in borax water, 2 tablespoonfuls to a cup; or by using gum arabic, 1/8 teaspoonful to a cupful of water. If a yellow color is desired, dip the lace in coffee or tea.

Black lace should be cleaned by squeezing it repeatedly in a mixture of 1 cupful of strong coffee and 1 tablespoonful of ammonia. Rinse in gum arabic water made with coffee, to give natural stiffness.

Lace curtains should be washed with as near an approach to the care given to lace as is practicable. Clear-starch them, stretch them, and pin them out on sheets, one curtain over another. If available, it is better to use curtain stretchers than sheets, but if care is taken to square off the first curtain and stretch it straight and even, good results may be obtained by pinning the curtains to sheets.

CLEANING FURS, GLOVES, ETC.

To Clean Furs—Hot sand and sawdust rubbed into furs and then beaten out with light rattan sticks, clean and make them look like new. Use clean sand. Ermine and other white furs treated similarly with plaster of paris and corn starch will be freshened and softened.

Sponging Furs—Sponge furs with gasoline. Dry in the open air and brush with hat brush until smooth. Or sponge freely with alcohol, and while the fur is wet sift it down to the roots with all the finely powdered fuller's earth it will hold. Shut up in a box for two days and brush out the powder.

Soiled Gloves—To clean kid gloves when slightly soiled take a teaspoonful of powdered French chalk. Put the gloves on the hands and the chalk into the palm of one glove and rub the hand and fingers together as if washing your hands. Take off the gloves without shaking them and lay them aside for a night. Put them on and clap the hands or wipe the gloves with a clean cloth. Fuller's earth will do nearly as well.

White kid gloves can be cleaned on the hands with oatmeal and benzine mixture to a paste. Continue rubbing till the paste drops off in dry flakes.

Yellow Gloves or Hose—For gloves that have turned yellow or hose yellowed by the feet, or white hose that are stained, pour gasoline over till moistened, leave ten minutes, then wash in lukewarm water and plenty of white soap; rinse in cold water to which a teaspoonful of gasoline has been added.

To Dye Gloves—White kid gloves can be dyed tan by dipping them in saffron water until the desired shade is obtained.

(Paste or Write Here Scraps or Memos. of Your Own)

Black Gloves—Black kid or suede gloves that wear white at the ends, can be made to look like new; mix a little good black ink with ½ teaspoonful of olive oil and apply to the faded parts with a feather. Let the gloves dry thoroughly before wearing them.

To Wash Chamois Leather (Cornell Reading Course)—Apparatus: warm water and washing soda, soap, and a clean towel.

Dissolve ⅛ cupful washing soda in 2 quarts of lukewarm water.

Soak the chamois in the soda water 15 to 60 minutes, according to dirtiness.

Lift the chamois into a basin of warm, strong soapsuds, and squeeze and work them with the hands until clean. Be careful not to rub or wring them. Very soiled places may be put on a smooth surface and brushed with a small brush.

Rinse thoroughly in warm, soft water. Press as much water out as possible by pulling through the hand. Roll in the towel and wring tightly. Stretch well in all directions and hang to dry.

Stretch and rub the chamois two or three times while they are drying.

Chamois Gloves—White chamois gloves after being washed are usually stiff, and it is difficult to get them on again. Let them become partially dry, then fit them on the hand, after which carefully remove, keeping the gloves the shape of the hands; let them dry thus in the model of the hand.

Wring chamois out of the soapy water without rinsing, and when it dries it is soft and serviceable instead of stiff.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

THE LAUNDRY—MISCELLANEOUS

Laundry Container—A wicker hamper is perhaps the ideal laundry container, but it must be kept clean. One enameled white looks so clean that it is hard to remember that it may harbor impurities and germs. It must be washed in hot water occasionally, and dried in the sunshine, and then further refreshed with a clean coat of enamel.

Laundry bags in the different rooms can be emptied every day into the hamper. These bags should be of a sort easily washed, and should be washed every couple of weeks.

A big white enameled tin box is an admirable holder for laundry from a nursery or sick room. This should be emptied, scalded and aired every day—the laundry being put into boiling water or a disinfecting fluid.

SOAP

Soap (Cornell Reading Course—"The Laundry")—There is much difference of opinion as to which kind of lye produces the better soap. The question is settled "practically" in favor of sodium lye, for it can be produced at a smaller cost. It is safe to say that much of the soap on the market is made from sodium lye.

When lye is mixed with a fat it breaks the fat up into fatty acids and glycerin, of which it is composed. The lye unites with the fatty acids to form a new compound, called soap, and glycerin remains. This is the process of soap-making called saponification. The nature of the soap formed will depend, first, on the nature of the fats used, whether they are hard or soft, clean or rancid; second, on the kind of alkali used, whether potash lye or soda lye; third, on the nature and amount of impurities in both fat and alkali; fourth, on the completeness of the process of soap-making or saponification. If the operation of soap-making is not properly conducted, the reaction between the fat and the lye is incomplete, and a soap is produced that contains free fat and an undue amount of free alkali. Such soap is greasy, unduly active, and a poor cleansing agent.

The Adulteration of Soap—It is not uncommon to find some foreign, insoluble substances in soap, which have been added merely to increase its weight and bulk. In cheap soaps resin is often added as an adulterant. It is rather difficult to say when resin may be considered an adulterant, for in small quantities it is of value in laundry soaps because it whitens the clothing. Resin gives a brown color to soap, therefore a dark brown soap may be safely rejected as containing an excess of resin.

The best advice to give the housekeeper is: Select soap manufactured by a reliable firm and give it a trial. It is not economy to use a cheap, poorly made soap in the laundry. A common mistake is to think that the use of one kind of soap will prove satisfactory for all purposes; this common belief possibly accounts for much of the dissatisfaction that exists regarding the various soaps on the market. Every laundry should contain three grades of soap, mild, medium, strong. A mild soap should always be used in washing flannels, woolen goods, or fabrics either frail or delicate in color. A medium soap should be used for the more durable colored goods. A strong soap is best for most white goods, both cotton and linen.

Soap Is Antiseptic—Aside from its use in removing dirt, soap has antiseptic properties. It is not safe to depend on it as the only disinfectant in cases of contagious diseases, but it is a valuable purifier for the ordinary household washing.

Home-Made Soap—A question often arises as to the advisability of using kitchen waste fats in making home-made soap. While some housekeepers may find such use an economy, the fact remains that home-made soaps are generally poorly made and of inferior quality.

Washing Powders—Something should be said of washing powders. They are mixtures of soap and some alkali, such as lye, washing soda, and borax, and may have incorporated with them some one or more of the substances of the nature of turpentine, paraffin, Fuller's earth. In the case of the poorer powders a "filler" is used; that is, a substance to give weight to the powder and very properly considered an adulterant. The best powders contain large amounts of soap and only small amounts of alkali. A report is made, however, of one of the poorer varieties of washing powder containing only 10 per cent of soap. There may be occasions when washing powder is desirable, but indiscriminate use of these strong cleansing agents is inadvisable and should not be generally indulged in.

SOAP FORMULAS AND SUBSTITUTES

Home-Made Soap—Take 1 pound can lye dissolved in 3 pints cold water, 5 pounds fat melted, 1½ tablespoonfuls borax and ½ cupful ammonia.

When lye mixture has cooled add it to fat, stir until as thick as honey, pour into wooden or pasteboard boxes lined with oiled or waxed paper, set away to harden.

Soap Bark—One pound soap bark equals 2 pounds soft soap. Use in place of soap.

Bran—Take 1 cupful bran, 1 quart water. Boil half hour. Strain, boil bran in a second quart of water ½ hour. When needed, reduce with warm water.

Potato Water—Grate 2 large-sized potatoes into 1 pint clean, clear, soft water. Strain into 1 gallon water, let liquid settle. Pour off and use.

Soap Solution for Colored Goods—One-quarter pound mild or medium soap to 1 gallon of water.

Soap Solution, Ordinary Purposes—One bar of ordinary washing soap, 2 to 3 quarts of water; shave soap and put into saucepan with cold water. Heat gradually until soap is dissolved (about 1 hour).

Soap Solution for Soaking Clothes—One bar of ordinary soap, 3 gallons of water, ½ to 1 tablespoonful turpentine, 1 to 3 tablespoonfuls ammonia.

Soap Solution, Much Soiled Woolens and Delicate Colors—Half a pound of very mild or neutral soap, ¼ pound borax, 3 quarts of water.

Soap Jelly with Turpentine—One bar soap, 1 quart water, 1 teaspoonful turpentine or kerosene.

For Washing Delicate Fabrics and colors, a liquid may be made from laundry starch, grated potatoes, rice, flour, etc. The water in which rice has boiled may be saved and utilized for the same purpose. The cleansing liquid after cooking should be as thick as cream, and should be diluted from 1 to 4 times, according to the amount of dirt in the clothing. Rinse clothing in a more dilute solution, which may be blued for white clothes.

A Good Laundry Soap—Five pounds good, clean grease free from all water, 1 can potash or lye, ¼ cupful kerosene, ¼ cupful ammonia, 2 tablespoonfuls powdered borax, 10 cents' worth oil of sassafras. Dissolve the potash in 5 cupfuls of cold water thoroughly; melt the grease and strain through an old stocking into the potash, stirring all the time, mixing the kerosene, ammonia and borax together, and then add the oil of sassafras. Have a deep pan lined with brown paper and pour in the soap; when set mark off in squares and put away to harden. Will make 30 cakes.

Soap Improves with keeping, so it should always be bought in large quantities. Before storing it, however, it is well to cut the bars into convenient pieces, for this is most easily done when it is soft. The cutting may be done with a piece of string or wire more easily than with a knife.

Brown Soaps usually contain resin and soda and are injurious to colored clothes; resin is injurious to flannel and woolens; neither should be washed with such soap.

STARCH, STARCH SUBSTITUTES, ACCESSORIES

Starch, Substitutes, Accessories (Cornell Reading Course)—Directions for using: In making starch a naturally soft water is greatly to be desired, but if the water furnished is hard it should be softened with borax, not with washing soda or lye, since the latter tend to produce a yellow color with starch.

One-quarter cupful wheat starch to 1 quart water gives flexible, light, durable starch.

One-quarter cupful cornstarch to 1 quart water gives moderate body stiffness.

One-half cupful wheat starch to 1 quart water gives flexible, firm finish.

One-half cupful cornstarch to 1 quart water gives stiff body finish.

A mixture of the two starches may be varied, to produce any desired result.

Directions for Cooking Starch—Starch should first be mixed with a little cold water and then stirred slowly into boiling water and cooked in accordance with the following directions:

If wheat starch is used, cook slowly at least 25 or 30 minutes.

If cornstarch is used, cook slowly 15 or 20 minutes.

If a mixture of wheat starch and cornstarch is used, the wheat starch should be added first and cooked 15 minutes. The cornstarch should then be added and the mixture cooked 15 minutes longer. Stir mixture frequently, to prevent sticking and formation of a skin.

Thorough cooking of starch is very desirable in laundry practice, for it increases the penetrability of the starch and decreases its tendency to stick to the iron. If borax, lard, butter, kerosene, or other like substance is used it should be cooked with the starch, to insure thorough mixing.

Thick Starch—One-half cupful starch, mixed with ½ cupful cold water, 1 quart boiling water, ½ to 1 level tablespoonful borax, ¼ level tablespoonful lard or butter or kerosene or turpentine, or ¼-inch square wax or paraffin. Mix and cook as directed under directions for cooking starch.

Thin Starch—One-half cupful starch, mixed with ½ cupful cold water, 3 quarts boiling water; other

ingredients same as for thick starch; mix, cook as directed.

Clear Starch—Dilute ½ cupful thick starch with 1 quart hot water.

Clear starch is used for thin muslins, infants' dresses, etc.

Raw Starch—Same proportions as for thick starch; use borax, but omit fatty substances; stir thoroughly before using.

Raw starch is often used with very thick or very thin goods, to increase their stiffness. A fabric will take up a greater amount of starch in the raw form than in the cooked form. The desired stiffness is produced by the cooking given the raw starch by the heat of the iron. The difficulty of ironing is increased by using raw starch, for unless the ironer is skillful the starch cooks on the iron and starch specks are then produced in the clothes. Moreover, raw starch gives a less durable finish than does cooked starch.

Rice Starch—One-quarter cupful of rice and 1 quart boiling water. Wash rice, cook in water until very soft. As water evaporates, add more to keep quantity up to 1 quart. When cooked add another quart boiling water. Strain, without squeezing, through double thickness cheesecloth or through flannel. Use while hot. The most satisfactory starch for delicate fabrics is rice starch, and it may be used in place of clear starch.

Glue for Stiffening Dark Clothes—Twelve ounces dark glue, 1 quart water. Boil together until glue is dissolved, cool somewhat. Dip the garment to be stiffened into glue and wipe off excess of glue with piece of black cheesecloth, sateen or calico. After sprinkling roll garment in black cloth and iron on ironing board covered with black cloth. Any glue left over may be saved and used again.

To Increase Stiffness—Partly dry garment before starching. Add 1 tablespoonful powdered gum arabic reduced to liquid in ½ cupful boiling water, to the stiff starch mixture. Or use borax. Or add a small amount of glue to starch mixture. Dry quickly.

Gum Arabic as a Starch Substitute—Four tablespoonfuls pulverized gum arabic, 1 pint cold water, 3 tablespoonfuls alcohol. Put water and gum arabic in saucepan and set into saucepan containing boiling water. When dissolved strain through cheesecloth, cool, add alcohol, pour into a bottle, cork, set away for use. The alcohol acts as a preservative and the mixture may be kept for any length of time.

BLUING AND MISCELLANIES

Bluing (Cornell Reading Course)—White fabrics have naturally a creamy tint, which may be deepened to an unpleasant pale yellow by careless washing, by insufficient rinsing, or by lack of exposure to the bleaching influence of sunlight and fresh air. Bluing is used to hide the yellow color, because blue and yellow are complementary colors, and when used together in proper proportions give the effect of whiteness. Bluing is unwarrantably used to hide a yellowness which comes from careless washing.

No one kind of bluing may be recommended to the housekeeper. She must experiment for herself, choose one good variety, and learn to use that one properly.

Sufficient bluing should be used to make a little of the bluing water taken up in the cup of the hand show a pale sky-blue color. More than that amount of bluing should not be needed. It is always best to make a small amount of strong bluing in a bowl of water, then draw from it to color the water in the tub.

Blue—To prevent blue from streaking clothes mix 1 dessert-spoonful of soda in the bluing water.

Marking Linen—To mark fine linen with indelible ink, without blurring or spreading, first starch and iron the goods smoothly. The writing may then be made small and neat and will remain clear-cut and distinct.

To Hang Skirts—The right way—especially pique, cotton or woolen skirts—is to pin them to the line by the waistband so that they will hang straight down. If pinned at the top they will shrink evenly all around instead of sagging, as they too often do when pinned by the hem.

Bleaching (Cornell Reading Course)—In former times, dependence was placed on sunshine, fresh air and a greensward for bleaching all manufactured cottons and linens. Such dependence on natural agents has been obviated by the ability to procure similar results from the use of chemicals.

In the home laundry, we still use natural agents to whiten and purify household linen. That is the greatest advantage which the home laundry has over the commercial laundry; in the latter, in a majority of cases, clothes are dried in steam closets, and some chemical must replace the sun's rays to bleach a garment left yellow by washing. The action of the sun and air is not merely to bleach but to disinfect, and clothes thus dried have a freshness and sweetness that cannot be duplicated by any other method.

Occasionally, even in the household, it may be necessary to supplement the natural bleaching process by the use of chemicals. If a garment has yellowed by age or by being packed away with starch in it, it may be expedient to use a chemical bleach.

The best bleach to use is javelle water, which should be made as follows:

Javelle Water—One pound washing soda, ½ pound chlorid of lime, 1 quart boiling water, 2 quarts cold water. Put soda in granite pan, add boiling water and stir until dissolved; let cool. Dissolve chlorid of lime in cold water; let settle and pour the clear liquid into the soda; let settle. Pour off clear liquid, bottle and put away in dark place.

Use, mixed with equal parts or more of water, and do not let the garments stay in over ½ hour. Rinse thoroughly in several waters, and lastly in dilute ammonia water.

Moisture is necessary if clothes are to be bleached by the action of the sun. After a garment dries, it should be made wet again and hung out. It may be necessary to repeat the wetting process a number of times before the yellow tinge fades and yields. It is said that clothes are whitened if they are allowed to freeze out of doors on the line. The reason given for the bleaching action is that freezing causes the clothes to retain moisture, hence the time of their bleaching is prolonged.

(Paste or Write Here Scraps or Memos. of Your Own)

To Save Hands—A little vinegar placed in the rinsing water on washing day will prevent the hands from becoming rough and chapped.

To Set Colors—Green, blue, lavender, aniline red, purple and pink should be soaked in alum water, 2 ounces to a tub. Black, gray and dark blue should soak in strong salted water.

To Clean a Raincoat—Use soap and water and not gasoline, as the latter will injure the rubber in the fabric. Lay out on a flat surface and scrub lightly with soap and water. Do not wring. Put on a coat-hanger and hang to dry.

Shiny Skirt—Turpentine is a ready remedy for removing the shine from a dark skirt. Rub the affected parts with a small piece of flannel dipped in the turpentine and hang the garment in the open air to remove the odor of the turpentine.

Paraffin in Starch—To secure smoothness and glossiness when ironing starched pieces stir the starch three or four times while boiling and just ready to remove with a paraffin candle.

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Scraps or Memos.
of Your Own)**

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THE IRONING BOARD

Women are more and more sensible each generation about cutting down on unnecessary work; one of the first places of which this is true is the laundry. They do not iron everything, as their grandmothers did, perspiring over a hot stove all day. They have found that an hour or two in the early mornings of two days "pays better" whether done by themselves or by a maid; and where they have electricity they use the modern electric iron and take the work calmly and cool.

Hosiery, knit underwear, rough towels, many other articles, and even sheets, may just as well be laid away without the ironing process. By sensible hanging at the line, taking down as well as putting up, such garments may be left smooth enough for the nature of their use. If such pieces can be hung up without wringing, just a little of the water squeezed or pressed out, they do not shrink so readily and are less likely to need the iron. Cotton crepes and other goods that are not to be ironed will look better if hung up dripping wet. Crepe dresses and sweaters are best ironed by slipping over a coat-hanger to dry in shape. And many things besides lace curtains—including scrim and muslin curtains, by the way—are best dried on a curtain stretcher without ironing.

Table linen, however, will bear no subterfuge. It must have a piping hot iron and the linen must be quite damp.

With napkins, it is suggested that they all be ironed before folding, as it gives them a chance to thoroughly dry before folding, and saves time and labor; but the final effect is not so perfect as if finished one at a time and folded as ironed, with the iron run over each fold as made.

Linen and corded goods must never be ironed on the bias, as it will leave them out of shape. Iron lengthwise or crossways always.

CORNELL COURSE ON IRONING

Ironing (Cornell Reading Course)—While a knowledge of conditions aids greatly in ironing, as in other operations, experience and skill are necessary to accomplish good results. Ease of ironing and the quality of the product depend on the skill of the operator, or the care that has been used in starching, drying, folding and sprinkling the clothes to be ironed, and on the kind and condition of the irons. If the garments have been poorly and carelessly starched, the work of ironing is greatly increased. Starchy lumps cook on the iron and damage its smoothness, even when the lumps are immediately removed. The reason for allowing clothes to stand over night after sprinkling is to give them an even dampness that makes ironing easy and successful. If starched goods have been overdampened the starch is brought to the surface, and a result is produced similar to that of careless starching. If linen is too dry it cannot be made smooth and free from wrinkles. If it is too wet the process of ironing is laborious.

It is said that irons that are to be used for starched garments should not be polished by rubbing them on salt or emery paper. A better method is to procure a good yellow pine board, free from all sand and dirt, and rub it with a hot iron until a hard coat of burned resin is produced. The board may be used for polishing the iron. The iron should occasionally be wiped with a piece of wax or paraffin and then with a clean cloth.

Have ready and at hand: a flat, firm, unwarped ironing board or table, tightly covered with a blanket and clean sheet, securely fastened underneath; clean irons; an iron stand, which may well consist of a clean brick; two pieces of old cloth for cleaning irons; a piece of

paper folded several times for testing irons; a piece of beeswax or paraffin tied in a cloth, for keeping irons smooth; a bowl of water and a clean cloth for moistening parts dried by exposure to air. Spread a large paper or place a blanket under the ironing board to receive the clothes while they are being ironed.

For ordinary ironing a good, firm surface is desirable. A thin woolen blanket and an outside linen cover are sufficient. For embroideries or wool a thick covering is better, as the fabric should sink into a soft foundation to bring out the pattern in one case and to give a soft finish in the other.

The following simple rules for ironing may be followed:

Iron first that part of the garment which will be least mussed by further handling, or in which a little wrinkling will not seriously interfere with good results.

If the garment is trimmed, iron laces and embroideries first, as they dry out quickly because of their porous nature.

Leave as much of a garment folded as possible, to keep it moist. Sometimes it may be convenient to lay a piece of dampened cheesecloth over any unironed part to keep it moist.

Silk Waists—Iron on wrong side while still damp.

Embroideries—Iron on wrong side on soft foundation, to allow design to stand out.

Laces—Lay on piece of flannel covered with a piece of cheesecloth. Iron on wrong side and pull out points with tip of iron. Lace should be stretched and pinned out on a hard surface. Pull out at each point and catch down with a pin; or stretch and roll on a bottle.

Flannels—Iron after laying a dampened cheesecloth over them. If they are not covered with a damp cloth, iron on wrong side; have the iron only moderately hot.

Colored Garments—Iron on wrong side, to prevent fading; do not have irons too hot.

Silk Garments—Iron on wrong side, to prevent shininess.

After Ironing each article should be hung on a frame or clotheshorse to dry and air before it is put away; if hung in a poorly ventilated room the clothes will have a bad odor.

Sprinkling may not be necessary when an **ironing machine** is used for ironing, if the operator will remove the clothes from the line at the right time, that is, while they are still damp. The process can be carried through so quickly that it is unnecessary to keep one garment damp while the other is being ironed.

IRONS AND OTHER UTENSILS

Irons (Cornell Reading Course)—A number of irons are now on the market for summer use when it is not desirable to have sufficient fire in the range to heat the irons. Some of these are: electric irons, gas irons, and, most practical of all for the country home, denatured-alcohol irons.

For general laundry purposes one size of the ordinary sadiron is sufficient, but it is advisable to put several irons into a well-equipped laundry, to use for the various kinds of work to be done. Among them should be heavy, medium-heavy, and small pointed irons, the last for ironing ruffles, laces, etc.

A frequent cause of poor ironing is the condition of the irons. They must be kept clean and free from rust to do good work. New irons should be heated thoroughly and rubbed with wax or grease before using. If irons are to be put away for any length of time they should be covered with a thin coating of vaseline, clean grease or paraffin, or wrapped in wax paper. If starch cooks on, it should be removed immediately with a dull knife. If irons become dirty from careless use, or from being left on the stove during the preparation of the meals, they should be thoroughly washed with soap and water and carefully dried. To keep irons smooth when using them, rub with wax or paraffin and wipe immediately with a clean cloth. They improve with wear if they have good treatment.

Tubs—Stationary tubs are best, even though running water is not available, for some simple method of draining them can always be devised. They are better if made of porcelain, enameled iron, or alberine stone. Wooden tubs may be more cheaply constructed, but there is danger of the wooden tub becoming unsanitary from careless handling.

Stationary tubs should be always set with regard to the height of the person who is to use them most. Many tubs are set far too low, and necessitate too much back bending on the part of the operator.

Laundry Bench—The laundry bench for holding tubs should be of the proper height; they are usually set too low.

Wringer—A wringer should be a part of the laundry equipment, and the best on the market is usually the cheapest. After using a wringer, it should be carefully dried, and the screws pressing the rollers should be loosened. When not in use it should be kept covered with a cloth to protect it from dust and dirt. The bearings should be oiled occasionally. Oil dissolves rubber, and that property is taken advantage of in cleaning the rubber rollers; they are carefully wiped with a little kerosene. The operation should not be performed frequently, however, and the oil should be carefully and completely removed immediately after use.

Ironing Board—The blanket and sheet should be put on tightly and smoothly and tacked securely under the board, using short brass-headed tacks. It is well to have a separate blanket and sheet also, which fit the table used in the laundry, as a table is a convenient place for ironing large pieces. The ironing sheet should be kept clean.

Sleeve Board—A sleeve board is good not only for sleeves but for gathers and for small dresses. It is not difficult to manufacture at home.

Attach to the Wall the broader end of the ironing board, with hinges; it is a great convenience, for then it is always in place, and can be put out of the way by folding up against the wall.

Ragged Articles—If an article is ragged, fold it with the tear visible, not hid. You may be saved the embarrassment of taking it out for use thinking it whole, and only learning later when it is opened "in company." The man of the house will particularly endorse this "pointer" if applied to his handkerchiefs.

Buttons and Mending—While ironing, notice pieces needing repairs or buttons; place them on one side to go to the mending basket before put away.

Ironing Board Covers that are strong, durable and easily removed for laundering, are made of drilling and laced up the back with tape run through small rings or eyelets.

An Ironing Pad is a great convenience when ironing lace waists, embroidery, dresses, etc. Make one of a piece of an old blanket folded several times with two layers of cotton batting in the centre; quilt it in one or two-inch blocks; make cases for it from old sheets. It is invaluable for use in sleeves, shoulder seams, and for doing up embroidery pieces, especially raised work.

To Remove Wrinkles—Let a wrinkled garment hang 24 hours, if possible, before dressing it. Many of the wrinkles will hang out. Taffeta is really injured by each pressing, and although taffeta does wrinkle easily, some of the wrinkles will come out if the garment is smoothed and carefully hung away. After each pressing, too, taffeta is just so much more liable to wrinkle.

When Chiffon is badly wrinkled, steam it, then hang it on a padded hanger. Stuff it with tissue paper, and dry it in front of fire or radiator. To steam it fill a big pan full of boiling water and hold the chiffon over it until it is damp with steam.

Baby Irons—A set of toy irons is very useful for ironing baby clothes, or for yokes, sleeves and other dainty work.

Rusty Irons—To remove rust from flatirons, saturate a piece of flannel with ammonia, then rub the irons. Dry with a cloth sprinkled with powdered bath brick.

Rusty irons can be made beautifully smooth by rubbing them when hot upon a piece of beeswax tied in a cloth and then upon a cloth sprinkled with salt.

Rub flatirons over waxed paper before setting them away and they will keep bright and smooth.

Sticky Irons—Irons that have been put away sticky should be well scraped with a thin knife, then rubbed with a rough cloth, moistened in kerosene.

If a Brick Is Used for an iron-stand the iron will hold its heat much longer than when an ordinary stand is used.

Used Starch—It is economical after using a bowl of old starch to let it settle. Then pour off the water and dry the starch in the oven at night. It will be reduced to a cake and can be used again.

Water in which macaroni has been cooked will make an excellent starch for use for dainty lingerie garments or fine ginghams.

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Scraps or Memos.
of Your Own)**

ALL KINDS OF STAINS

First Aid—It is hardly necessary to say that stains should be treated as speedily as possible after their first appearance. When once dry they are more difficult to remove, requiring both time and perseverance.

Paint should be instantly wiped off. Grease on wood, stone or carpet should be congealed before it has time to penetrate, by throwing cold water over it. Tea, coffee, ink, wine and fruit stains will disappear in a quarter of the time if they can be attended to while wet. Spots on colored material must not be rubbed but dabbed over and over again until they disappear. Rubbing roughens the surface and often leaves a whitened circle almost as unsightly as the actual stain. The dabbing is best done by covering a finger with an old handkerchief frequently changed, and great care should be taken to confine the operation to the area of the stain itself, and not to extend the damage by dampening and dabbing the surrounding material. In the treatment of stains, to know what you mean to do, and to do it quietly and neatly, is more than half the battle.

In General—When any greasy substance has been dropped upon silk, it can be abstracted by mixing French chalk with methylated spirit to the consistency of cream, laying it upon the stain, then covering with a brown paper and pressing with a warm iron. An ice cream mark can be removed by this means, but it must be applied at once.

A bottle of cologne is a most useful article, for it will take away smears if rubbed on as soon as they appear, and it does not leave the disagreeable odor which remains for a time after using alcohol, benzine, and the like. Cologne may be used alike on white or colored fabrics, cotton or woolen, without the slightest injury. It is not intended for a general cleansing agent, as it is expensive for the purpose, but it is an emergency agent of about the same excellent value as others. For instance, when a person is quite ready to go out and detects some soil that has been overlooked when putting the garment, that is to be worn, away, a cloth saturated with cologne will remedy the spot at least temporarily, and leave a pleasant odor instead of the reverse.

Medicine stains may often be removed by sponging thoroughly with alcohol.

For acids, tie up a bit of washing soda in the stained part, make a lather of soap and cold soft water, immerse the linen and boil until the spot disappears.

CORNELL COURSE ON STAINS

To Remove Stains (Cornell Reading Course)—The ordinary washing process is sufficient to get rid of most of the dirt in clothing, but certain stains may require special treatment in order to insure their complete removal. Some stains are insoluble in water, or in soap and water, or they may be made so by the action of heat, and thus become permanently set during the washing. It is wise always to look over clothing for such stains and to remove them before the washing begins. Such examination will often save time and wear and tear on the garments, even while it is possible to remove the stains in washing, as only the part of the garment most affected is then treated, and the removal of the stain does not involve severe treatment of the whole garment.

The process of removing stains is fundamentally the same as that of removing other forms of dirt, that is, to find some substance in which the stain is soluble or which will aid in its mechanical removal. The chief solvents valuable in removing stains that resist ordinary washing processes are:

SOLVENTS

The following are **inflammable** and should be so marked:

Turpentine; benzine, naptha, or gasoline; kerosene; ether (also an anaesthetic); chloroform (also anaesthetic and a poison); alcohol.

Others: Carbona; olive oil, lard, etc.; fuller's earth and French chalk; naptha soaps; water, both hot and cold; oxalic acid (a poison); javelle water; benzol; hydrogen peroxid; sunshine; ammonia; borax; salt; vinegar; lemon juice; hydrochloric acid (a strong acid and very corrosive to fabrics and to flesh); ink eradicator; milk.

GENERAL PRINCIPLES OF STAIN REMOVAL

(From U. S. Farmers' Bulletin No. 861)

Prepared Under the Direction of
C. F. Langworthy, Chief, Office of Home Economics

The removal of stains is a necessary feature of the laundering and general care of clothing and other household textiles. Most stains may be removed easily at home, provided reliable methods are known and a few simple precautions are taken. With some stains prompt home treatment is necessary in order to save the article in question from being ruined, and in most cases it is desirable, since all stains are removed more easily when fresh.

Too much emphasis cannot be laid on the importance of applying the stain removers while the stain is still fresh, for usually it is much more difficult to remove an old stain than a fresh one. Changes in the character of the stain, brought about by drying, exposure to air, washing, ironing or in other ways, often make it necessary to use chemicals in removing old stains, whereas in many cases much simpler methods are successful if the stains are treated when fresh.

NATURE OF STAINS

The nature of a stain should be known, if possible, before its removal is attempted, since this determines the treatment to be adopted. Moreover, if an unsuitable stain remover is used, the stain may be "set" so that its removal becomes difficult or even impossible. For example, if hot water, which easily removes most fresh fruit stains, is applied to stains containing protein, such as stains of milk, blood, eggs, or meat juice, it coagulates the albumin in the fibers of the cloth and makes it extremely difficult to remove. Similarly, soap, which aids in the removal of grease spots, sets many fruit stains.

The kind of fabric upon which the stain occurs also should be known. The method of treatment adopted depends as much upon the nature, color, weave, finish, and weight of the fabric as upon the kind of stain. Cotton and linen are destroyed by strong acids and attacked to some extent even by weaker ones. Concentrated acids, therefore, should never be used in removing stains from these fabrics, and when dilute acids are used they should be neutralized afterwards with a suitable alkali or removed by thorough rinsing; otherwise the acid may become cencentrated on drying and destroy the fibers. Generally speaking, alkalis do not attack cotton or linen fabrics to the extent that acids do. However, long-continued or repeated exposure to alkalis, especially in hot solution, weakens the fibers. This fact is said to be due to a hydration of the cellulose which constitutes the fibers. The damage to fabrics resulting from the careless use of strongly alkaline soaps, washing powders, washing soda, or lye, is well known to the housekeeper.

Wool and silk, being more delicate than cotton and linen, require more careful treatment. The use of very hot water must be avoided, since it turns both wool and silk yellow, shrinks wool, and weakens silk and injures its finish. These materials also will not stand much rubbing, as this felts together the wool fibers and results in a shrinkage or thickening of the material, while the silk fabrics, as a rule, are too delicate to stand much rubbing without breaking or separating the fibers. Both wool and silk are dissolved by strong alkalis and are injured even by washing soda or strongly alkaline soap. The only alkalis which should be used in laundering or removing stains from wool and silk are the milder ones like borax or dilute solutions of ammonia. Acids, with the exception of nitric which weakens and turns the fibers yellow, do not attack wool and silk readily.

In general it is more difficult to remove stains from wool and silk than from cotton or linen. In removing stains from materials made from two or more kinds of fibers, such as silk and cotton mixtures, the effects of the stain removers upon all of the fibers should be considered. No chemical should be used which would injure the most delicate of the fibers present.

It is also much more difficult to remove stains from colored than from white materials, for the reason that most of the bleaching agents which must be used to remove persistent stains are likely to destroy the color of the material as well.

METHODS FOR TREATMENT OF STAINS IN GENERAL

The following paragraphs deal with methods and reagents commonly used in the removal of a number of stains. To save repetition, these are given here in detail, and reference is made to them in dealing with the particular stains in later pages of the bulletin.

Laundering—Ordinary laundering, mentioned frequently as a method for removing stains, should be done as follows: First, soak the stained portion in cold or lukewarm water, rubbing the stain with a neutral soap if necessary. Follow this by thorough rinsing in clean water, after which the article may be laundered as usual. Use this method only for cotton and linen (white or fast colors) and the so-called wash silks and washable woolens. If the materials are delicate, sponge them.

Sponging—Sponging is applicable to all fabrics, but especially to delicate materials or colors which ordinary laundering might injure. Spread the stained article on a flat surface in a good light, and beneath the stain put a cloth folded into several thicknesses, or clean, white blotting paper, to absorb the superfluous liquid. Change the pad for a fresh one as soon as it becomes soiled. Sponge with a clean, soft lintless cloth (preferably of the same material as that stained) and renew it as frequently as may be necessary. Lay the stained material with the wrong side up and apply the water to the back, so that the foreign substances can be washed from the fibers onto the pad without having to pass through the material.

Application of Chemicals—Chemicals should not be used until water or laundering has been tried, for they attack the fibers of the cloth as well as the stain.

There are a few common chemicals which are necessary in removing some stains, and these should be kept in every household. A good plan is to have a small cupboard in the laundry where these chemicals may be kept together with the utensils used in applying them. As some of these chemicals are poisonous they should not be kept in the family medicine cabinet or pantry. Chemicals most commonly used in removing stains are Javelle water, potassium permanganate (solution), oxalic acid, ammonia water, carbon tetrachlorid, French chalk, and cream of tartar.

With these chemicals should be kept some of the utensils used in applying them; such as a medium-sized bowl, a medicine dropper, a glass rod with rounded ends, several pads of cheesecloth or old muslin, and a small sponge.

Other chemicals are mentioned in later pages of the bulletin. These can generally be bought as needed at any of the larger drug stores.

If the effect of the stain remover upon the fiber or color is not known, try it by applying a little to a sample or to an unexposed portion of the goods. Sometimes it is best to remove the stain even if some of the color is removed also, for the color often may be restored by careful tinting.

Work rapidly when using chemicals to remove stains, so as to give them as little time as possible to act on the textile fibers. Many brief applications of the chemicals, with rinsing or neutralization after each application, are preferable to the practice of allowing them to remain on the stain for a long time. Stretch the stained portion of the garment over a bowl of clean water and apply the chemical with a medicine dropper. The chemicals may be rinsed out quickly by dipping in the clean water. Another method is to place the stained portion over a pad of folded cloth and apply the chemical with a glass rod. The rinsing or neutralizing always must be thorough.

Javelle Water—Prepare Javelle water as follows: Dissolve 1 pound of washing soda in 1 quart of cold water To this solution add ¼ pound of ordinary bleaching powder (calcium hypochlorite). Filter this liquid through a piece of muslin to remove the sediment which remains. Keep the clear liquid in tightly stoppered bottles for use. Javelle water may be used successfully in removing a number of stains, but should be applied only to uncolored cotton or linen materials, since it bleaches colors and rots silk or wool. In treating stains with Javelle water, stretch the stained portion over a bowl filled with water and apply the Javelle water to the stain with a medicine dropper. Do not allow the Javelle water to remain in contact with the stain for more than one minute, and then apply oxalic-acid solution to neutralize the Javelle water and rinse by dipping the stain in the bowl of water.

Commercial ink removers are similar in action to Javelle water, and are very convenient for removing many stains beside ink spots.

If allowed to remain too long in contact with the fibers Javelle water rots even linen and cotton materials, and it should, therefore, always be neutralized with oxalic acid and the fabric be rinsed thoroughly to remove all traces of the chemical. Several applications of the Javelle water with intermediate neutralizations are necessary with persistent stains.

Potassium Permanganate—Potassium permanganate can be used in removing stains from all white fabrics. It also may be used successfully upon many colored materials, but should always be tried first on an unexposed portion of the goods, to determine its effect on the dye. It does not harm delicate fibers, provided it is used with reasonable care. First, remove as much of the stain as possible by sponging or washing with cold water. Prepare and use the perman-

ganate as follows: Dissolve 1 teaspoonful of the crystals in a pint of water and apply a little of this to the stain with a medicine dropper, a glass rod, or a clean cork, and allow it to remain for about five minutes. Remove any pink or brown stain left by the permanganate, by applying one of the following chemicals:

1. Hydrogen peroxid, made slightly acid (if not already so) with hydrochloric, acetic, oxalic, or tartaric acid. One drop of the acid usually is enough to acidify 3 teaspoonfuls of the peroxid.

2. Oxalic acid in saturated solution or lemon juice for cotton, linen, or silk. Hydrogen peroxid is more satisfactory for wool.

Follow the treatment by thorough rinsing.

One or more repetitions of this treatment may be necessary in the case of persistent stains.

Oxalic Acid—This is poisonous and should be used carefully; the bottle in which it is kept must be marked "Poison," and kept out of the reach of children.

To prepare a solution of oxalic acid for use, dissolve as many of the crystals of the acid as will dissolve in a pint of lukewarm water. Put into a bottle, stopper tightly, and use as needed. Apply this solution to the stain with a medicine dropper or glass rod, and after allowing it to remain for a few minutes rinse thoroughly in clean water.

Hydrogen Peroxid—Hydrogen peroxid, as obtained for medicinal purposes, usually is made slightly acid, to give it better keeping quality. For use in removing stains make a small amount of the peroxid slightly alkaline with ammonia. It then decomposes easily and its oxygen is free to attack the stain. Since hydrogen peroxid affects the fiber also, in the case of cotton and linen materials, follow it by very careful rinsing. Apply it to the stain with a medicine dropper, a glass rod, or a clean cork, or sponge the stain with it. The method of using it in neutralizing potassium permanganate is described above.

METHODS FOR INDIVIDUAL STAINS

In cases where the nature of the stain is not known it should be attacked first by sponging with cold water, provided, however, that the fabric would not be injured by water. If the stain is not removed by cold or warm water, chemicals should then be applied. Often the behavior of a stain, when treated with cold water, will give some indication of its nature; for example, a grease spot will not absorb water. Hot water should be avoided in treating unknown stains until after other substances have been tried, since hot water will set many stains and make their removal more difficult.

Acids—With the exception of nitric acid, acids do not generally produce stains upon white fabrics but often change or destroy the color of dyed materials. However, vegetable fibers are destroyed readily by some acids, especially by those of greater concentration or strength. Strong sulphuric acid, by virtue of its drying action, readily destroys the fibers of cotton and linen, which consist chiefly of cellulose; but not those of wool and silk, which do not contain cellulose. Strong nitric acid or the dilute acid, if allowed to become concentrated by drying not only turns the fibers of silk and wool to a permanent bright yellow, but finally dissolves them. Dilute acids do not attack the fibers to any great extent unless they are allowed to dry on the cloth and become concentrated, but they do sometimes affect the color of the fibers. It is essential, therefore, that acid spots on textiles be neutralized at once by some alkaline solution. For this purpose anyone of the following should give good results:

1. Water. Rinse the spot several times in a large volume of water. This treatment serves to stop any further action of the acid on the fabric, but usually has no effect upon any discoloration due to the acid.

2. An alkaline substance. Apply an alkali to the acid spot. The alkali forms a salt with the acid and this must be removed later by rinsing or sponging with water. The acid should be neutralized completely with the alkali or the discoloration may reappear after awhile. To determine when an acid is completely neutralized touch it with a piece of litmus paper, wet in clean water. Litmus paper is red in the presence of acids and blue with alkalis. It may be purchased at some drug stores, but if litmus paper is not available it is possible to tell when an acid spot is neutralized by tasting it. If alkaline it will taste bitter and if acid it will taste sour. Any of the following alkalis may be used.

(a) Ammonia. If the spot is slight, neutralize it by holding it in the fumes from an open bottle of strong ammonia.

(b) Sodium bicarbonate (baking soda). Sprinkle this on the stain—on both sides, if possible—moisten with water, and allow to stand until the acid is neutralized (shown in this case by the ceasing of the effervescence); and remove the excess by rinsing with water.

(c) Ammonium carbonate (sal volatile). Apply in the same way as sodium bicarbonate.

Alkalis—Dilute alkalis have little effect on cotton and linen, but strong alkalis cause the fibers to swell and become yellow, and the cloth to contract. The fiber, however, is not weakened unless the alkali is allowed to remain a long time upon the cloth or to become very concentrated through evaporation. Wool and silk, on the other hand,

are yellowed or destroyed by strong alkalis even in dilute solutions. Even if the fiber is not affected by the alkali, the color may be changed or destroyed. It is important, therefore, to neutralize alkali spots at once. Use any of the following agents:

1. Water. Rinse thoroughly. Frequently this is sufficient in the case of such alkalis as washing soda and ammonia.

2. A mild acid. Apply the acid with a cloth until the fabric changes back to its original color, or until the stain is slightly acid as shown by its reaction to litmus paper or by the odor or taste. Then rinse the fabric thoroughly in water. In the case of colored goods it is helpful to rub the stain dry, using a piece of the same material as the stained fabric, if possible. Use any of the following mild acids:

(a) Lemon juice. Squeeze the juice on the stain. As long as the spot remains alkaline the juice is a bright yellow in color, but when the spot becomes acid the color disappears almost entirely. Apply the lemon juice until this color change takes place.

(b) Vinegar. If the vinegar itself leaves a spot, remove it by sponging with water.

(c) Acetic acid. Apply a 10 per cent. solution to the stain and remove the excess by rinsing.

METHOD OF REMOVING STAINS—SPECIFIC

NOTE: The majority of the following items are taken from Cornell Reading Course, Farm House Series No. 3, "The Laundry," to which the publishers acknowledge their grateful indebtedness. Such Cornell items are in each case marked "(C. R. C.)."

Blood—(C. R. C.)—Wash in cold water until stain turns brown, then rub with naptha soap and soak in warm water. Or; rub with common soap, then soak in water to which a teaspoon of turpentine has been added. Or; if the goods is thick apply a paste of raw starch to the stain; renew paste from time to time until stain disappears.

Blood—If fresh, blood may be removed by soaking for twelve hours in cold water and starch; or by soaking in cold water, then washing in warm water with plenty of soap; expose to the sun a day or two if any stain remains. Old blood stains require iodine of potassium diluted with four times its weight of water.

Chocolate—(C. R. C.)—Sprinkle with borax and soak in cold water.

Chocolate and Coffee—Pour soft boiling water through the stains and while wet hold in the fumes of burning sulphur. Or soak overnight in cold water in which a little borax has been dissolved. Or use glycerine in same manner as for tea stains (see TEA), especially when cream had been in the coffee or the chocolate.

Coffee—(C. R. C.)—Spread stained surface of the cloth over bowl or tub. Pour boiling water through the stained part of the cloth; pour from a height so as to strike the stain with force.

Cream—(C. R. C.)—Wash in cold water, then with soap and water.

Fruit and Wine—(C. R. C.)—Treat with boiling water as for coffee. If the stain resists the boiling water treatment, soak the stained part of the cloth for a few minutes in a solution made from equal parts of javelle water and boiling water. Rinse thoroughly with boiling water to which a little dilute ammonia water has been added. Repeat if necessary.

Fruit and Wine—While fresh, gently rub the spot with a clean cloth saturated with alcohol; if cloth remains on the table, protect the table from the alcohol. If old, rub fruit stains with yellow soap on both sides of the cloth, cover quickly with cold water starch well rubbed in, and expose to sun and air for three or four days. Then rub off the mixture. Repeat process if necessary. Apple and pear stains may be removed by soaking in paraffin for a few hours before washing. Fruit spots may often be removed by pouring boiling water through the stain while fresh. Old fixed stains may be removed by soaking in a weak solution of oxalic acid, or holding the spot over the fumes of sulphur.

Egg—Egg stains should be soaked in cold water; hot water would set the stains. The same rule applies to egg stains on dishes; wash in cold water instead of hot water and they come off more readily.

Grass Stains—(C. R. C.)—Soak in alcohol. Or; Wash with naptha soap and warm water. If the fabric has no delicate colors and the stain is fresh, treat with ammonia water. For colored fabrics, apply molasses or a paste of soap and cooking soda and let stand over night.

Grease Spots—(C. R. C.)—wash thoroughly with naptha soap and water. Soften old grease spots with turpentine, oil, or lard, before washing the cloth. Or; dissolve the grease in benzine, alcohol, chloroform, ether, carbona, or benzol. For delicate fabrics dissolve grease spots in ether or chloroform. Chloroform and carbona are useful because non-inflammable. Or; apply a paste of Fuller's earth or chalk to absorb grease, especially when fresh.

Grease—Hot water and soap will usually remove these; if of long standing use chloroform or naptha (away from artificial open flame light). Eucalyptus oil (used for mosquito lotion, but not always unadulterated for this purpose) will remove grease spots without injury to any material.

Indigo—(C. R. C.)—Treat as for coffee (C. R. C.).

Ink—(C. R. C.)—Ink is often difficult to remove, as it varies greatly in composition. It is well to experiment with a corner of the spot (or with some of the same ink on another fabric) before operating on the whole.

If the stain is fresh, soak the stained portion of the cloth in milk. Use fresh milk as the old becomes discolored. Or; wet the stain with cold water. Apply a ten per cent. solution of oxalic acid to stain, let stand a few minutes, and rinse. Repeat until stain disappears. Rinse in water to which borax or ammonia has been added. (Oxalic acid is a very poisonous substance). Javelle water will remove some ink stains. Apply as for rust stains (see RUST (C. R. C.). Or; treat with hydrochloric acid as for iron rust (C. R. C.). Or; treat with lemon juice and salt, as for iron rust (C. R. C.). Or; use alcohol for some ink stains.

Milk is the only reagent given above that does not remove color.

Ink—(Iowa State College)—1. If stain is fresh, place stained portion in sweet or sour milk and allow to stand several hours. 2. Wet stain in cold water and drop dilute oxalic acid or equal parts oxalic acid and cream of tartar on the spot, let stand a few minutes and rinse in ammonia water. 3. If stain is dry and well set, cover with salt and lemon juice, or use Javelle water. 4. Soak stain in hot vinegar. 5. Ink eradicator may be used. The result depends upon weave and material, also kind of ink.

To bleach or remove stains from white goods, soak the article in equal quantities Javelle water and hot water until stains disappear; then rinse thoroughly in several waters, and finally in diluted ammonia water.

Javelle water removes all stains and all colors, and therefore should not be used on colored goods.

Ink—Ink can generally be removed in the same manner as rust. Oxalic acid and Javelle water will remove ink, but all ink removers except milk will also remove color from colored fabrics. Soak in sour milk; if a stain remains and the fabric is not a colored fabric; rinse in a weak solution of chlorid of lime, or try other reagents. To take ink spots out of colored materials cover with tallow before sending to the laundry and much if not all of the stain will disappear. Boiling starch poured over ink spots will often remove ink spots, but requires treatment for an hour or two; it is not injurious to colored materials. Salts of lemon will remove ink spots in many cases; wet the powder, then wet the spot with tepid water; then rub on a little of the salts and expose to the sun. Use of milk: wash out as much of the spot as possible in milk; put finally to soak in a pan of milk, let it stand two days, or until the milk turns to clabber; then wash out the fabric.

Indellible Ink—Cyanide of potassium (one of the most violent of poisons) will remove all indellible inks, the base of which is nitrate of silver. Turpentine or alcohol rubbed in hot removes the new inks, using soda and soap freely in hot water afterwards.

Iodine—(C. R. C.)—Soak in alcohol, chloroform or ether.

Iodine—Iodine may be removed from skin or clothing with strong ammonia water. Or use boiling starch water same as for ink stains. Or wash with alcohol, then rinse with soapy water.

Iron Rust—(C. R. C.)—1. Wet the stained part with borax and water, or ammonia, and spread over a bowl of boiling water. Aply a ten per cent. solution of hydrochloric acid, drop by drop, until the stain begins to brighten. Dip at once into alkiline water. If the stain does not at once disappear add more acid and rinse again. After the stain is removed, rinse at once thoroughly in water to which borax or ammonia has been added, to neutralize any acid that may linger. Less dilute acid may be used if the operator is skillful.

2. Proceed as with hydrochloric acid, but use a ten per cent. solution of oxalic acid instead of hydrochloric acid. Oxalic acid is not so detrimental to fabrics as is hydrochloric acid, but it is a deadly poison even in dilute solution.

3. Wet the stained part with a paste made of lemon juice, salt, starch and soap, and expose it to the sunlight. This is a simple method to employ, but it takes longer and is often not effective.

4. Soak stain in Javelle water for a few minutes, then wash. Repeat until stain disappears. Javelle water is weaker in action than is hydrochloric acid. All the iron-rust-removing substances destroy color, and unless care is taken will greatly weaken the fabric.

Lampblack—(C. R. C.)—Saturate spot with kerosene. Wash with naphtha soap and water.

Lampblack or Soot—Rub the spots with dry corn meal before sending the clothes to the laundry.

Machine Oil—(C. R. C.)—Wash with soap and cold water. If the stain does not respond to the soap and water, use turpentine as directed (C. R. C.) for paint stains.

Machine Oil—Try rubbing with lard, let stand, wash with cold water and soap.

Meat Juice—(C. R. C.)—Wash in cold water, then with soap and water.

Medicine Stains—(C. R. C.)—Soak in alcohol.

Mildew—(C. R. C.)—Mildew is very difficult to remove if of long standing. 1. Wet stains with lemon juice and expose to the sun. 2. Wet with paste made of 1 tablespoonful of starch, juice of 1 lemon, soft soap, and salt, and expose to action of sun. 3. Treat with paste made of powdered chalk and expose to action of sun.

Mildew—Mildew may often be removed with chlorid of lime; soak several hours, then rinse in cold water. Or try saturating the article with kerosene, roll it up and let stand 24 hours, then wash in soapsuds. A mixture of soapy starch and milk will often prove sufficient for fresh mildew.

Milk—(C. R. C.)—Treat as directed under cream.

Mucus—(C. R. C.)—Soak in ammonia water or in salt and water, then wash with soap and cold water.

Mud Spots—Mud spots which are left after the garment has been brushed may be removed by rubbing with a cut raw potato.

Paint—(C. R. C.)—1. Wet the spot with turpentine, benzine or alcohol, let it stand a few minutes. Wet again and sponge or pat with a clean cloth. Continue until stain disappears. 2. For delicate colors, treat with chloroform. 3. If the paint is old it may take some time to soften. Treat old paint stains with equal parts of ammonia and turpentine.

Paint—If a fine fabric is involved, use alcohol or chloroform instead of turpentine. If turpentine, when used, leaves a dark ring or spot, sponge with chloroform.

Perspiration—(C. R. C.)—Wash in soapsuds and expose to the action of sunshine. Or treat with Javelle water as directed for iron rust. Or treat with oxalic acid as directed for iron rust.

Scorch—(C. R. C.)—Scorched fabric can be restored if the threads are uninjured. 1. Wet the stained portion and expose to the action of the sun. Repeat several times. 2. Extract juice of 2 onions, add 1 cupful vinegar, 2 ounces Fuller's earth, and ½ ounce of soap. Boil. Spread paste over scorched surface. Let it dry in sun. Wash out thoroughly.

Scorch—Rub the spot with a cloth dipped in diluted peroxide of hydrogen; place the garment in the hottest sun possible. Or a soap rub, then the sun bath, may be sufficient.

Soot—Treat as directed for lampblack.

Stove Polish—(C. R. C.)—If fresh, remove by washing. If the stain is old, treat as directed for tar and lampblack.

Tar—(C. R. C.)—Treat as directed for lampblack.

Tar or Pitch (or Wheel Grease)—Soften stains with lard, then soak in turpentine and rub gently until dry. Make a ring around the stained part, of cornstarch, so the turpentine will not spread.

Tea—(C. R. C.)—Treat as directed for chocolate. Or soak the stain in glycerin, then wash.

Tea—Soak the stained part in cold water, then in glycerin, let it stand an hour or two, then wash with cold water and rub well. Even the old stains will disappear under this treatment. Directly tea is spilt on a table cloth or napkin, cover the stain with common salt. Leave it for awhile; when the cloth is then washed the stain will have disappeared. Clear boiling water poured through tea stains, as directed for removing coffee stains, will effect removal.

Tea stains on **Granite Ware** or enamel teapot—Fill with cold or leftover coffee and boiling water and set on stove to boil for ten minutes; remove the coffee and wash pot in hot soapy water.

Varnish—(C. R. C.)—Treat as directed for paint.

Vaseline—(C. R. C.)—Wash with turpentine. Boiling sets this stain.

Vaseline—Saturate the spot with ether and lay a cup over it to prevent evaporation until the stain is removed. Use the ether with very great care; it is volatile and dangerous.

Wine—Treat as directed for fruit stains.

Wagon Grease—(C. R. C.)—Soften with lard or oil and wash in soap and water.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

THE FAMILY DOCTOR AND HEALTH

SECTION VII.

"In time of health prepare for sickness"

THE HOME NURSE

In spite of all the barriers it is possible to devise, sickness and accident cannot always be kept from the home. And the physician's fight is half won if those in the home support his work with intelligence, assurance and quiet efficiency, while his function is often rendered unnecessary, and always it is a big aid to him, if "what to do first" or while awaiting him, is known and sensibly practiced.

To the gentle hand of the woman belongs the care of the sick, and every woman should appreciate seriously that the time will come inevitably when on her will perhaps depend even the life of a loved one. This is not to say that she should fit herself as a professional nurse is fitted, but that "reasonable preparedness" should be hers in that she should learn the simple lessons imperatively necessary for the care of the sick, or the meeting of an emergency in her own home.

No course in home nursing can equip one to take care of such critical issues as typhoid fever or pneumonia, but even in these knowledge and confidence, and the quiet assurance that comes of intelligence, will materially assist the professional nurse engaged, and help her to establish the proper atmosphere and carry on her own work with infinitely greater ease and success. But for the ordinary home ills, learn the following first principles of home nursing.

The day of the long face is past and gone. Cheerfulness, hopefulness, confidence, give the patient the feeling that in the very atmosphere is the sense of winning as a matter of course.

Sunlight, air and quiet, come next. Turn out any member of the family necessary to attain these for the sick. Sun and fresh air are the best cleansers and stimulants that exist. They purify polluted atmosphere, real and mental, better than any disinfectant or tonic known. Quiet clears away worry and irritation, small excitements and all sorts of nervous rubbish—and even pleasant excitements, including the entertaining of visitors, are included here.

HOME NURSING

(Iowa State College Bulletin)

I. VALUE OF KNOWLEDGE

A working knowledge of the fundamental principles of home nursing gives power to interpret the directions of the physician and also puts the home maker in perfect sympathy with his directions. This spirit of cooperation removes a serious handicap which often prevents the physician from doing his best work.

Serious illness is frequently avoided by timely preventive treatment which is the result of this knowledge of principles.

A knowledge of the fundamental principles of nursing is essential in the wise treatment of emergencies.

II. QUALIFICATIONS OF A NURSE

The qualifications of the successful nurse are identical with the qualifications of the ideal woman. The chief qualifications are neatness, good temper, poise, tact, which is another name for common sense, and good health.

The ability to adapt herself to all circumstances is a valuable asset.

Neatness means clean person, simply combed hair, well shod feet, clean, simply made, cotton dresses, clean teeth, clean hands and clean finger nails.

Good health is so essential to the home nurse, that great care must be taken to maintain good physical condition. It is especially important that the home nurse eat simple, easily digested food at regular intervals, that she spend some time in the open air each day and that she plan for some sleeping hours out of each twenty-four. The welfare of the patient depends upon this.

III. THE SICK ROOM

A large room on the sunny side of the house is preferable. A room with two or more windows makes thorough ventilation more easily possible. A germ disease should be cared for on the upper floor, to aid in preventing the contamination of the lower floor. The room should have only a minimum amount of furniture. A painted or other hard finished wall is preferable. Upholstered furniture, thick rugs and other dust catchers should be avoided. Windows should be securely screened. The bed should be so located as to protect eyes from strong light, and patient from direct draught.

IV. KNOWLEDGE OF BACTERIA

Bacteria are present practically everywhere in nature. They are found in the air, in the soil, in salt and fresh water, in the food.

The majority of bacteria, however, are harmless and many of them are beneficial. Under the latter may be named the putrefiers, nitrifiers and flavor producers. Bacteria, which produce disease, are known as pathogenic bacteria.

Methods of Destroying Bacteria

A. Physical agents.
   1. Heat.
      By boiling.
      By steaming.
      By use of hot air or dry sterilization.

B. Chemical agents.
   1. By gases.
   2. By liquids.
   3. By soluble salts.

Chemical agents which will destroy bacteria are known as disinfectants, while those that check the growth of bacteria are known as antiseptics.

DISINFECTANTS

1. Bichloride of Mercury (corrosive sublimate): Standard solution, 1:1000 (1 tablet to a pint of water).

This is particularly serviceable for the disinfection of wounds, the hands, and for washing woodwork, floors and furniture.

Bichloride will discolor clothing and corrode metal, marble and porcelain, hence it is inapplicable for the disinfection of instruments and for use in plumbing fixtures.

2. Carbolic Acid or Phenol: A 5 per cent solution will destroy non-spore bearing microorganisms very quickly. To insure the killing of bacterial spores add 0.5 per cent of hydrochloric acid.

Carbolic acid will not discolor white materials or metals. It is one of the most common and most valuable of the disinfectants for handkerchiefs, towels, underclothing, napkins, etc.

3. Lysol, Cresol and Creolin: These are very closely related to carbolic acid or phenol and are used similarly.

4. Chloride of Lime: Dissolve chloride of lime of the best quality in pure water in the proportion of six ounces to the gallon. Keep in a stone jar or jug. Use one quart of this solution for each discharge from patient suffering with a contagious or infectious disease. Chloride of lime is used principally for disinfecting excreta, water closets, sinks and traps.

5. Milk of Lime: Milk of lime is made by adding one part of dry freshly slacked lime to four parts of water.

To disinfect excreta use twice as much of the milk of lime as the volume of the discharge. Thorough mixing and stirring are advisable. The mixture should stand one hour before being thrown into the water closet or before being buried. A 5 per cent solution of carbolic acid may be used instead of the milk of lime.

6. Formaldehyde: Formaldehyde is a gas readily soluble in water. It is commonly sold as formalin (a 40 per cent solution of formaldehyde in water). Formaldehyde is more commonly used for fumigation than any other gas. It does not damage books, paintings, delicate fabrics, or attack ordinary dyes or metals.

It can therefore be used for the disinfection of furnished rooms, sleeping cars, ambulances and closed vehicles. Formaldehyde is active only in the presence of moisture. The air of the room during fumigation should contain 75 per cent of moisture and the temperature of the room should be at least 50 degrees F.

7. Alcohol: Alcohol of 70 per cent solution is frequently used as a disinfectant for thermometers, needles and to disinfect the skin.

ANTISEPTICS

1. Peroxide of Hydrogen: Peroxide of hydrogen will check bacterial growth. It is used on wounds, as a mouth wash and as a gargle.

2. Listerine: Listerine is one of the common antiseptics used as a mouth wash and gargle.

3. Boric Acid: Boric acid solution is made by dissolving the powder in hot water (a 4 per cent solution is usually used). It is used for eye and nasal applications and for mouth washes and for a cut or an abrasion of the skin, or a discharging sore. It is also used to sterilize thermometers and rubber nipples.

4. Salt Solution: Use one level teaspoonful of salt to one pint of sterilized water. This possesses but slight antiseptic properties but it is much used on account of its stimulating effect on tissue.

5. Condys Fluid: Condys fluid conains 16 grains of permanganate of potash crystals to one ounce of water. It is both a disinfectant and deodorant.

VENTILATION

"A constant supply of pure, fresh, flowing air" is essential to health. An adult requires 1,200 cubic feet of pure air every hour for breathing. Ventilation must be carried on continually day and night.

Methods of Ventilation

1. Gravity and Diffusion (natural means).

2. Mechanical Ventilation (by propulsion or extraction of air). The air of the sick room must be kept pure, wholesome and cool. In almost every case the window can be kept open 1½ inches from the top without injury to the patient. The hot air rises and displaces the cold air. The sick room may be properly ventilated by arrangement of windows in adjoining rooms. A good circulation without a draught may be secured. A fire place is one of the very best ventilators. The temperature of the sick room should be from 65 to 68 degrees F. at night and 68 to 70 degrees F. in the daytime.

CLEANLINESS

The Floor: Remove rugs from room, sweep clean and wipe rugs with dampened cloth wrung out of hot water which has a few drops of formaldehyde in it.

Note: Great care must be taken in handling formaldehyde. The gas is a great irritant to eyes, nose and throat.

If the case is a contagious disease, remove from room all rugs except one which can be easily fumigated or if necessary, burned.

Sweep the floor with a vacuum cleaner or with a brush or broom covered with a dampened cloth. Avoid disseminating the dust about the room in every possible way. Clean the floor thoroughly with soap and hot water and follow with a standard solution of bichloride of mercury—1:1000 parts —(1 tablet to 1 pint of water).

The Furniture: Metallic or non-absorbent substances are the ideal materials for beds in the sick room. These can be wiped with a disinfectant or antiseptic wash so that all cracks or crevices will be free of dust or germs. The remainder of the furniture should be thoroughly dusted every day with a dampened cloth even if the furniture is varnished or oiled. This can be done without injury to the furniture if it is rubbed immediately with a dry cloth. Once a week apply to the furniture a mixture of equal parts of oil and turpentine. Apply the emulsion sparingly and rub afterwards till all greasiness has disappeared. This will keep the furniture in good condition. The sick room should be thoroughly free from dust and should have a clean sweet odor about it. The use of deodorizers is questionable. The source of the odor should be removed.

V. CARE OF PATIENT

Bed and Clothing

The three-quarter bed is a convenient size. The mattress should not be too hard and should have a perfectly level surface. The springs should be only moderately elastic and should present a level surface. When a protecting sheet is necessary, a rubber sheet or an oil cloth protecting sheet is preferable. In the absence of these, newspapers may be used. They should be removed frequently and burned. Sheets should be at least 2¾ yards in length (this is required by an Iowa state law for public beds). Pillows should be of medium size. Blankets are lighter and more easily cleaned than quilts.

Making the Bed

Tuck in under sheet securely at head, foot and sides, being careful to make the fold under the mattress much deeper at the head than at the foot. This helps to keep a smooth surface under the shoulders and is a means of preventing irritation of the skin. Place the protecting sheet of rubber, oilcloth or paper over the undersheet, being careful to place it under the trunk of the body. Over this place the draw sheet, being careful to place the folded edge toward the head. Place the upper sheet with the wide hem toward the head. Fold the top of sheet over sufficiently to cover the edge of blanket (about 12 inches). Place blanket and spread over top sheet, folding top sheet over edge of blanket and spread. Tuck clothes in securely at the foot. Begin at lower right corner of bed. Lift upper sheet, blanket and spread in a diagonal fold from lower right corner of bed to edge of clothes. Tuck in bedding below fold, until the diagonal fold hangs smoothly. This holds the bedding securely at the foot and does not hold too firmly at the sides.

Changing the Bed Clothing

Have freshly aired and warmed bedding ready for use. Remove spread and fold neatly. Fold fresh draw sheet. Fold fresh under sheet in long fan-like folds.

Roll patient as far toward the opposite edge of the bed as possible. Loosen bedding all around edge of the bed. Push soiled under sheets, one at a time, close to the back of the patient, keeping them in long straight folds.

Place clean under sheets in position. Roll patient to clean side of bed. Remove soiled under sheets, draw the clean ones over and secure under the mattress. Spread the fresh upper sheet and blanket over those already on the bed and draw out the soiled ones from the foot of the bed. Replace spread and fold bedding at lower corners with the diagonal fold as at first. Remove pillow and replace it by a freshly aired pillow with clean slip. Remove soiled clothing from the room.

Note: In case of contagious diseases, the soiled bedding should be placed upon paper and should be carried out at once for disinfection. (Process is described under disinfectants.) In case of diseases like scarlet fever which enter the body through the air passages, the bedding should be thoroughly fumigated before being hung outside to air. For all bedding which can be boiled, boiling one hour is an effective means of disinfection.

SPONGE BATH IN BED

Equipment—Hot water, cold water, bowl of warm water (98 degrees), mild soap, bath towel, face towel, wash clothes, mouth wash.

Method

Put patient between light weight blankets and remove clothing without exposing the patient. Wash and dry face and neck. Wash and dry arms, chest, abdomen, limbs and back.

Precautions

Rub firmly and dry thoroughly. Back may be rubbed with alcohol and dusted with talcum powder. Expose the body as little as possible. Dry each part thoroughly as soon as washed. Mouth should be washed thoroughly.

Mouth Wash: Six to eight drops of alcohol in one-half glass of cold water. Equal parts of tincture of orris, rose water and alcohol may be used or a solution of boric acid. Listerine or lemon

juice diluted with water may be used or equal parts of lemon juice and glycerine.

General Care

Pulse and Temperature: The clinical thermometer is of great value to the mother in the home. To use the thermometer, shake down to 95 degrees, place bulb under tongue, ask patient to close lips and hold thermometer for five minutes.

To clean thermometer, wash in alcohol, or a carbolic acid solution (1 to 20.) Wash thoroughly in cold water before using.

Temperature

Normal temperature, 98.4 to 98.6 degrees F. High fever, 103 to 105 degrees F.

Moderate fever, 101 to 103 degrees F. Subnormal, 97 to 98 degrees F.

Note: About 70 pulse corresponds with 98.4 degrees.

Respiration: Notice the rise and fall of the chest in breathing. The normal respiration is from 16 to 18 per minute.

Feeding the Patient

Attractiveness is an important point to be considered in the preparation of meals for the invalid. A well-planned tray is more important than the well-planned meal for the normal person. It is absolutely necessary to study the needs of the patient and to plan a well-balanced meal to suit that condition, being careful to observe individual taste when it does not introduce some injurious food into the meal.

VI. EMERGENCIES

Have the Following Equipment

Alcohol
Aromatic spirits of ammonia
Castor oil
Epsom salts
Lime water
Carron oil (equal parts of olive oil and lime water)
Mustard, powdered
Sodium bicarbonate
Witch-hazel
Carbolized vaseline
1 bottle soda mint tablets
1 tin talcum powder
1 small package antiseptic gauze
½ pound absorbent cotton
6 gauze roller bandages (3 large and 3 small)
1 roll old muslin
1 small bottle collodion
1 pair scissors
1 paper safety pins (medium size)
Corrosive sublimate tablets (poison). Keep in bottle that cannot be mistaken for anything else.
1 roll adhesive tape
1 pair small tweezers
Small bottle iodine

TREATMENT

Cuts

1. Remove foreign matter.
2. Wash with antiseptic solution of corrosive sublimate (1 tablet to pint of water). Solution must be fresh.
3. Boric acid solutions.
4. Weak salt solution (1 teaspoonful to pint of water) or hydrogen peroxide.
5. Wrap with sterile bandage.

Burns

Acid (except carbolic).

1. Wash with water.
2. Wash with lime water or a mixture of baking soda and water.

Note: If the burn is from carbolic acid, wash in alcohol.

3. Cover with carron oil (equal parts of linseed oil and lime water) and bandage.

Alkali—Wash with water (neutralize with vinegar or lemon juice). Cover with oil as in acid burns and bandage.

Heat—Cover with gauze wet in saturated solution of baking soda or carron oil. Bandage lightly to exclude air.

Sunstroke—Place patient in cold bath and rub with ice. Ice water on head.

Lightning Stroke—Warm bath (100 degrees). Mustard plaster over heart. Giving of stimulants, black coffee, 1 tablespoon brandy to equal part of water or one-half teaspoonful aromatic spirits of ammonia to one-third glass of hot water.

Fainting—Lower head and raise feet. Loosen clothing. Open windows. Dash cold water over face. Rub limbs toward the body. If this does not restore consciousness very soon, apply heat and send for a physician.

Drowning—To remove water from body, hold patient by the waist with head down.

Clear mouth of mucous and pull tongue forward.

To restore respiration: Place patient on back. Raise shoulders by means of a pillow or a roll of clothing.

Seize arms near the elbows. Extend horizontally and then upward until the hands meet back of the head.

Return arms close to the body until the elbows meet over the stomach. Hold the arms in this

position for a few seconds and then repeat until about fifteen respirations have been completed. Be careful to keep the mouth open and the tongue forward.

After consciousness is restored:
Remove wet clothing.
Hot bath.
Heat applied over heart.
Stimulants given.
Brisk rubbing from extremities toward body.

Croup—Cover bed with tent-like cover (use sheet). Place funnel of paper in nose of teakettle. Fill the kettle with boiling water. Introduce mouth of funnel at back of tent, being careful to have the funnel at least two feet above the patient. Place hot fomentations over chest and round throat. Cause vomiting by means of oil.

POISONS

Prevention: Extreme care is necessary. Be sure that bottles are properly labeled. Be sure that poisons are placed out of reach of children. Keep poisons in a special place to prevent accident. Do not take medicine in a dark room. Look at the label before removing cork.

General Treatment:
1. Emetic and cathartic.
2. Antidote.
3. Stimulant.

Good emetics:
Mustard and water.
Salt and water.
Large quantity of lukewarm water.

Good cathartics:
Salts (Epsom or Rochelle).
Castor oil.
Syrup of Figs.

Note: The disagreeable taste of castor oil may be disguised as follows:
1 oz. castor oil.
1 oz. orange juice.
½ teaspoonful baking soda.
Mix and take while foamy.

Good stimulants:
Black coffee.
Aromatic spirits of ammonia (½ teaspoonful to ⅓ cup hot water).

Remedy for Poisons:

Arsenic—Magnesia.
Sugar of Lead—½ oz. Epsom salts.
Phosphorus—½ oz. Epsom salts (avoid oil).
Strychnine—Powdered charcoal.
Mercury—Whole beaten egg.
Silver Nitrate—Strong salt solution.

Strong acids (except carbolic)—Alkali, magnesia, lime, whiting, baking soda or one tablespoonfull of ammonia to two cups of water. Follow by milk, eggs, or olive oil.

Carbolic acid—Rinse mouth in alcohol. Follow by two tablespoonsful of Epsom salt.

Ammonia—Vinegar or lemon juice. Follow by soothing liquids.

Poison Ivy—Wash in three per cent. solution of boracic acid solution. Follow by zinc ointment.

EMERGENCIES IN GENERAL

Before applying first aid methods, have a physician sent for. If patient is on the ground make the bystanders move back; if the accident is indoors, open the windows; if in a crowded public place indoors, carry the patient to an adjoining room or outdoors.

Fainting—Due to bad air, mental shock from bad news, etc. Loosen the clothing, put a cloth wet in very cold water, at back of neck, **lay patient with head slightly lowered.** This treatment, with plenty of fresh air, will usually restore the patient quickly. It may be advisable to give a stimulant, aromatic ammonia, if obtainable, 20 drops in a tabelspoonful of water, repeated if necessary in ten minutes.

In Shock, or unconsciousness from a profound excitement to the nervous system, instead of simple fainting, do not conclude that the broken leg or open wound causing the shock is necessarily of first importance. If there is insensibility, pallor, weak or absent pulse, or irregular, or feeble respiration, this as a rule must receive first attention.

Restore normal heat, wrap patient in blankets, coats or rugs, apply hot water bottles or hot bricks or irons, and flannel wrung from hot water, to abdomen or extremities, and re-establish the circulation. Use stimulant, aromatic ammonia, coffee, brandy, or whiskey, diluted properly in hot water, and repeat in ten minutes. A patient apparently wholly unconscious will often swallow if a liquid is poured slowly over back of tongue; but watch out not to choke him. Absolute quiet.

If it is the head that is injured, or the patient is delirious or highly excited, avoid stimulants; exert effort to quiet and soothe him. Do not use a stimulant if there is a hemorrhage.

Hemorrhage—Place patient with wound higher than the heart; if in bed and the hemorrhage is from lungs, throat, nose or head, elevate the head of the bed high as possible. If from the bowels, bladder, abdomen, or lower parts, elevate foot of bed. If from a limb, elevate the limb.

If it is a profuse, throbbing, spurting hemorrhage, lose no time; it is probably direct from a severed artery. Thrust the fingers right into the wound and press tight against where the blood seems to issue and try to stop the flow. Use a tourniquet, if possible. A very cold or very hot clean compress is preferable to the fingers, but unsterilized fingers are better than letting a patient bleed to death. Be sure to tell the doctor about having used the tourniquet.

Try to find a point away from the wound where pressure will retard the flow of blood, by closing the blood vessels leading to it, and apply there a firm bandage, with a hard knot held and pressed tight at that point. Don't fail to tell the doctor about the tourniquet.

A Venous Hemorrhage—usually from the rupture of a varicose vein—should have pressure applied below the wound instead of above it. It can be determined by the blood being darker, sometimes a purplish tinge, and by the fact that it flows steadily, not in spurts. If in doubt tie both above and below the wound. The doctor must be advised of the tourniquet.

If the scalp is cut or it is a wound where the edges can be brought together, clean with hot water, boiled if possible, and close wound with gauze, hot.

Artificial Respiration—Place patient face down, and pass fingers into throat to remove whatever may be obstructing the air. Then turn him over, pull the tongue out by grasping it with a cloth—the fingers alone will slip—and hold it out and down. Put a pillow or coat under back so as to slightly elevate the chest. Stand at patient's head, grasp the arms, draw them up until they meet above head; lower the arms, make the elbows meet over the stomach. Repeat in rythmic motions, about four seconds for the complete act. As soon as normal respiration is established, treat for shock as described above.

Choking—If a child, and if the fingers will not dislodge the obstruction, swing the patient by the feet, have the back slapped sharply, and compress the chest with one hand between shoulders and one in front. If not at once relieved run with child to a doctor. If adult, lay on stomach.

Drowning—Empty the lungs by holding patient by the stomach with head down, or rolling him on his stomach on a barrel or chair with a coat or hard pillow in it. Then apply the artificial respiration methods as above; finally the treatment for shock after respiration is restored.

Do not give up until a physician tells you to—not even if the physician is an hour in coming. Persons have been resuscitated from drowning an hour or two after it was thought there was no hope.

A Broken Bone—Notify physician, then support the broken member with an improvised splint, avoiding any pressure at the injured point; cover with a cloth and keep it wet with cold water; keep patient as quiet and comfortable as possible until the doctor arrives. Do not try to set the broken points of the bone together.

Sprains—Apply hot water for an hour or two. Immerse ankle, or wrist, in very hot water and increase heat of water to the limit of endurance; keep it at as hot temperature as it can stand for several hours. Repeat daily. When relieved apply adhesive strips or bandage to support the injured ligaments. Immobilize; i. e., see that joint is immovable.

Dislocation—Pull into position, if possible; a physician may have to do this; you may simply have to wait if one or two trials are so painful to the patient as to show danger of his fainting. Apply treatment for sprains.

Convlusions in Children—Prepare bath as hot as can safely bear; add two teaspoonfuls mustard to small tub of water. If it can be done more quickly wrap child in blanket wrung from very hot water; use care not to burn the child's tender flesh. Apply cold wet towel to the head in any event. Empty the bowels as quickly as it can be done; best method, an enema of warm water with castile soap, or glycerine or olive oil. Give child a teaspoonful of ipecac every 15 minutes or have him drink warm water until he vomits, or induce vomiting by other means.

EVERYDAY ACCIDENTS

Accidents will happen as long as we are human. The irritating part is that we do not expect them. They all have one thing in common—they happen at the wrong time. When you have no sticking plaster you cut your finger. When a child burns his hand at the bonfire you are without olive oil or ointment to soothe the pain. Be prepared in time of peace.

A good many serious results have been avoided by having a wound dressed properly in the nick of time. Every household, that is to say every mother, ought to have a little box, cabinet or other safe place always filled with a few essentials for emergency use.

Sticking plaster in various sizes ought to be the first thing in this cabinet. A small bottle of olive oil comes next. It is the open blister which sometimes causes tetanus. Peroxide, carbolic acid diluted at 50 per cent, boracic acid for the eyes and to wash out sores before putting dressing on, are articles not to be dispensed with. Turpentine is also a splendid thing against infection of sores from rusty nails.

Do not forget the almost inevitable bottle of castor oil or milk of magnesia in case of fever and indigestion. A small quantity of essence of peppermint and spirits of ammonia should also be added, because sick stomach is a frequent occurrence with the little ones. A box of bicarbonate of soda and one of Epsom salts are indispensable.

Liniment Inflammable—Never use a liniment near an open flame, for a liniment usually contains some substance of an inflammable nature.

For a Rusty Nail Accident paint with tincture iodine at once on the afflicted part.

Foreign Matter in the Eye—If a smut has only gone on to the edge of your eye, it is quite easy to take off, but if it has got right in it may be difficult to move.

An excellent method, if you are out of doors and have no implements at hand, is to shut the good eye, hold down the lid with your finger and roll the bad eye as much as you possibly can. Try to look with it right round to one side and then round to the other side. After you have done this for a minute or so, wipe the eye carefully with a soft handkerchief. You will probably find that the smut comes off on the handkerchief, as the rolling has shifted it to the front and onto the edge of the lid and made it easy to reach.

Another way is to close the bad eye with your finger, leaving the good eye open. Then blow your nose violently two or three times. When you open the bad eye again you

will probably find that it is quite comfortable, and that the smut has vanished. The tears have washed it out.

If the accident occurs indoors, where there is someone to help you, the best way of putting the matter right is to get some one to dip a small brush in castor oil and take the smut away with that. You must use castor oil, not olive oil, which might possibly injure the eye, and you must have a very soft,clean brush. The patient should look up to the ceiling if the smut is at the bottom of the eye, and sideways and downwards if it is at the top.

Swallowing a Fish Bone—Swallowing a piece of dry bread or cracker, if a fish bone is lodged in the throat, is a good remedy, but the acid from a lemon slowly sucked and swallowed will dissolve the bone to a jelly so that it will slip down easily.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

ELBOW GREASE

WITH HOT WATER AND SOAP

Modern Army Practice, as taught in the Medical Officers' Reserve Corps, discards all uselessness and foolishness. In the Armies of the Allies, the entire question of antiseptics and disinfectants simmers down to about ten per cent credit to two or three simple chemicals, and ninety per cent soap and hot water and ELBOW GREASE.

Every woman should read and study the following LECTURE, given before the Medical Officers' Reserve Corps, Camp Greenleaf, Medical Officers' Training Camp, Fort Oglethorpe, Georgia, October, 1917. **This is army training for medical officers.**

DISINFECTION AND ISOLATION

By MAJOR ABBOTT of the U. S. Army

DO IT WELL—DO IT CHEERFULLY—DO IT NOW

I suppose a good many of you men in this audience have had the experience of going into houses and being met by a terrible stink, and when you looked about you found little saucers of badly smelling stuff under the sofa, under the table, under the bed, around the hallways, and other places. That was one of the old ways of disinfection and purifying the atmosphere. I may be wrong about it, but I have an idea it started from the days when the only disinfection known, in which any confidence was placed, was the burning of sulphur; and in the very old book on quarantine and isolation you would see pictures of the Health Doctor dressed in oil silk or leather, looking as if he had on a gas mask extending down to his feet. He is depicted as burning sulphur in an open brazier and going through the motions of purifying the atmosphere. As funny as that may be, it is fundamentally the idea which Lyster held. Lyster had the idea that had existed for years that the atmosphere reeked with living, infective germs. It was also thought that round about a person having a contagious disease there was always an atmosphere that was diseased, laden with disease producing germs. Today we know that is not so. It is very doubtful to the minds of many who have studied this subject that there is little if any conveyance of disease by the atmosphere. The general opinion is that conveyance of disease from one individual to another is by direct contact, or by objects which have been in immediate contact with diseased persons. I shall refer to that later on.

PERFECT NONSENSE

I am asked to speak on the question of disinfection and isolation. The reason for this invitation I think is due to the fact that a great many men think that the spraying about of a little formaldehyde and raising a smell, which causes your eyes to water, and causes you to be very uncomfortable for a few minutes, is disinfecting. It is perfect nonsense; it does not do anything of the kind. For instance, you can fill a room with the old formaldehyde lamps, with which most of you are acquainted, close the room up tight, and all those lamps will not generate enough formaldehyde to properly disinfect that room. Let us understand before we begin what disinfection aims to do. It aims to destroy infected matter; it is not necessarily sterilization. Sterilization is another thing. In most of your work, you don't care whether you sterilize or not. I am not speaking of surgical work, but such disinfection as is employed in contagious disease. If a person with a contagious disease has occupied a room, and you want the room safe for somebody else to sleep in, you must destroy the specific disease producing agents. It is not necessary to destroy all living microscopic bodies. The two things are quite different. Take, for instance, a typhoid stool, you know it is infective; that it can be disinfected very easily by pouring a little boiling water on it, about as much as the amount of the stool, and allowing it to stand to cool; it is then disinfected. But it is not sterilized. We do not care whether it is sterilized or not so long as it is incapable of conveying typhoid fever. That is the distinction between disinfection and sterilization. Deodoration, as you all know, means the destruction of bad odors. Sometimes bad odors creep in where one has been careless, but as a rule bad odors have no business

to exist, and if we are alert in the matter of cleanliness there will be no bad odors. Deodorization can be used sometimes where circumstances are such that call for its use, but it does not necessarily disinfect. It is better to prevent the development of bad odors than to try to destroy them. Antiseptics, you all know what that means, may or may not be disinfectants. Antiseptics are substances that prevent the growth of organism, but are not always germicidal. It is not my intention to go into the long list of germicides. You find every book filled with them, but my intention this morning is to bring the matter down to the **simplest basis** and to see what we can do with the things always at hand. You will have **no manufacturing chemist** at hand on the march or in camp, and you will have to **get results with what you have at hand.** Let us discuss for a few minutes the way in which disinfectants act. We can begin by stating that there is no necessity whatever for trying to disinfect the atmosphere; the atmosphere is probably not infected; and if it were, I doubt if we could disinfect it with the means at our disposal.

NO ATMOSPHERIC DISINFECTION

Lyster, in his early laboratory work, operated under a carbolic acid spray, the idea being that the atmosphere was alive with living germs and the spraying killed them. We know now that the atmosphere is not alive with germs. In order for a disinfectant to act, it must come in immediate contact with the germ to be killed. We do not know as much as we would like of the philosophy of disinfection, but we know sufficient to justify this statement, if we destroy germs by chemical disinfectants, there has been a destructive union. When, for example, corrosive sublimate is used for the purpose of killing germ life, we find that a definite amount of the salt will kill a definite amount of germs. Just as a certain amount of hydrochloric acid will neutralize a certain amount of caustic soda. Both factors in such a union have lost their characteristics. But if you have an infected stool and mix corrosive sublimate with it, the chances are a great part, if not all of it, will combine with protoid material, other than the infected germ, and you may or may not accomplish what you have set out to do. Some of the germicides act as protoplosnic poisons. Hydrocyanic acid, for instance, acts in that way in all probability. They combine with material, but its action is not quite clear. Nevertheless, it results in the death of the germ. Then we have the oxidizing and reducing agents, and the elements reacting for the disassociating action of the electric current. We know sea water is not germicidal, but, suppose we pass an electric current through the sea salt. By that we disassociate the halogen compounds and in the nascent they are active germicides. As a matter of fact, if the electric current be passed through rain sewerage, reeking with living germs, you bring about a complete disinfection of it through such disassociation of salts contained in it.

THE ACTION OF SUNLIGHT

Then, we have sunlight. We cannot explain how sunlight acts, but we know it does, but it only acts under certain conditions, and in a very limited degree. We have all been taught that fresh air and sunlight are great purifiers. If you take a clear transparent gelatine, such as is used in laboratories, and inoculate that gelatine with thousands of bacteria, and put part of it in a shadow and the other where the sun can strike it under the most favorable conditions you will find after exposure of half an hour that many of the germs that have been exposed to the sunlight will not grow, and those under the shadow will grow abundantly. Such observations led to some very interesting experiments with furs and textiles, which could not be disinfected with heat or chemicals without destroying them. The results of these experiments were of no practical use. It was found that after purposely infected furs had been placed in the direct sunlight for varying lengths of time only the tips of the furs were disinfected. In other words, the slight shadow cast by the hairs a short distance down into the fur protected the sun's action. While interesting, the experiment was of no practical use. Now, we come to the universal purifier, upon which you can always rely, and practically always get; that is heat.

THE UNIVERSAL PURIFIER—HEAT

On the road and in camp we can always get fire and hot water. Don't think it necessary to burn all infected objects. It is often easier to burn useless infected objects than to disinfect them. Use heat so as to disinfect without destroying. It is not always necessary to use the excessive grades of heat we are sometimes told. You have to remember that not all germs are equally resistant, and it is interesting to note that those most lowly resistant are the ones we deal with most frequently. Very few of the known disease producing germs are of high resistance. The anthrax germ is of high resistance, but only very rarely encountered in our work. The tetanus germ is resistant, but we combat its lethal activities with antitoxin, and on all the fronts we have a supply of antitoxin. Cholera, typhoid fever, dysentery, diphtheria, etc., are lowly resisting germs. They do not even require boiling water for their destruction. The reason why the term boiling water is used, is to eliminate the use of a thermometer. If you have an orderly who has never been trained in the laboratory, and you tell him to bring the temperature of water to 70° or 75° C., he may not know what 75° C. means, and you do not always have a thermometer at hand; but if you tell him to boil it, he knows what

it means. If you have a thermometer about you, and desire not to seriously injure objects being disinfected, you can disinfect practically everything you want if you expose them to water of 80° C. temperature for half an hour.

DISINFECTING WITH STEAM

Another means of disinfecting by moist heat is steam. You ask, how are we to get steam on the road? With a very little ingenuity you can make a steam sterilizer, if you remember that it is only a glorified potato steamer, such as is in every kitchen; a tin can with a perforated false bottom, 6 inches from the bottom of the can, and a cover to the can, makes an excellent sterilizer. About 4 inches of water in the can, the false bottom put in place and the objects to be sterilized put into the chamber, the can covered and put on the fire and the water kept boiling for one-half hour is all that is needed. That is only a modication of the Serbian barrel you have seen referred to in the books. The Serbian barrel is only a barrel with a cover and holes in the bottom. It is placed, after being filled with obects to be disinfected and covered—over a receptacle containing boiling water. The cracks between barrel and water receptacle are plastered up with mud and the steam allowed to pass through the barrel for the required time. You can make one in a few minutes, and there is no reason in the world why it should not do the work. Boiling water is one of the most useful things you can use, you can get it anywhere. I am not speaking about disinfecting surgical instruments in the operating room, but of what you can do and must do on the road.

DISINFECTION AND ISOLATION

Another question comes up in connection with this matter. To what extent are you going to use disinfectants, and to what extent are you to try isolation when cases of infectious diseases break out among troops? You will not be supplied with equipment such as you find in our big municipal hospitals for the care of contagious disease. Can anything be done to prevent the spread of disease? I think it can, and usually without much disinfection at all. I suppose if I were to say to most men in this audience, "I will take you into an operating room, shall not give you any chemicals at all, and I want you to define a reasonably safe aseptic system," I don't believe there is a man in the audience who could not write out a reasonably safe system. If you remember that, when the time comes to care for germ infective cases you can easily win the fight. In many hospitals now the contagious diseases are isolated by housing them in separate buildings, or in a separate part of the building, and for convenience, this is desirable. But it is not a necessity. Unless you are absolutely careful of every aseptic detail you and your nurses will serve as a transmitter. In my own judgment careless doctors and attendants are the great transmitters of disease. I expect that is an extremely unpleasant statement, but when you examine into the facts, I think you will agree with me. A man who does not carry out on himself and insist that his associates and aids do likewise the most scrupulous aseptic precautions, is more apt to carry infection to the next person, than any amount of infected air, so-called. Doctors and nurses must not only be informed on what is meant by surgical aseptic, but must practice it by keeping themselves and all appliances surgically clean. Just now we have a few cases of measles in camp. There is a general opinion that the most infectious stage of measles is during the catarrhal condition that precedes the eruption.

MEASLES AN ILLUSTRATION

We do not recognize measles when it is most infective. When aware that it is measles, what should we remember? We are to remember that the infectious material from that case is not, as we were formerly taught, blowing about by the air, but we are to remember that the infectious material of that disease has leaked away from the patient through the eyes, nose and mouth, and so far as we know, nowhere else. Consequently, all the bed clothing, the pillow slips and body clothing of that individual are the things infected, and probably the only things. Any man, woman or child, with whom that individual has come in contact are to be isolated and kept under observation until we know whether they have or have not measles. When that is done, you have done all you can do. That is all there is to it. There is no sense whatever in burning a lot of sulphur and putting out formaldehyde in cases of that kind. The bed clothing, body clothing and pillow slips can be boiled and that is all that you can do. By doing that and isolating contacts outbreaks of measles can be held up. If you consult the daily reports in headquarters office, you will see for two months we have had an occasional case of measles, but we have had no spread. It would be a serious matter for us to have an outbreak of measles in this camp at the present time.

Pneumonia following measles is a serious matter, and we could not properly care for a large number of measles cases under our present surroundings, but by putting into practice the simple method of isolation of contacts for a period of observation, and the boiling of body clothing and bed clothing, it can be kept down.

DIPHTHERIA, TYPHOID, SMALLPOX

Similarly with diphtheria. We know that in cases of diphtheria the infectious matter comes from the throat and nowhere else; nothing from the skin, nothing from the urine, and nothing from the bowels. It is the same way in cases of typhoid

fever, dysentery and cholera. The infectious agents do not come from the skin, they are not breathed out, not coughed out, but they come from the bowels and urine in cases of typhoid fever, and from the bowels only in cases of cholera and dysentery. You have but to disinfect the excreta. You can use almost anything you please, chloride of lime is one of the very best and cheapest and one of the most effective things we have. When we come to smallpox, I trust you don't encounter it, but if you do it is your own fault, and I hope you may have all the inconvenience possible, for you can prevent it by seeing that every man in your command is successfully vaccinated. Don't take the man's word when he says he has already been vaccinated several times and it don't take. I have had that said to me time and time again. In most cases I have found that if the operation be properly performed and trustworthy virus used a successful vaccination results.

I think from what I have said you will see that the principles of isolation are rather simple. You must know how the infectious matters leave the body; how they invade other bodies, and that it is not necessary to have elaborate apparatus for the destruction. Suppose we were all on the march with troops and had nothing but soap and water for washing purposes and infectious diseases appeared. Could we prevent the spread of such diseases and render tents and bedding safe for the use of other men?

HOT WATER, SOAP AND ELBOW GREASE

I do not believe that there is any method of disfection that is better than **hot water, soap and elbow grease.** Of course, we cannot take housewives on the road with us, but if we could I would turn the housewives loose and let them "house-clean." Any germ that can resist the house-cleaning process deserves to live. If all of you will tackle a shack or a tent and clean it the same vigorous way a woman cleans up a house when she puts her mind on it, it will be a perfectly safe place to sleep, and I wouldn't hesitate to sleep there, or let my children sleep there. There is no better way to rid quarters of danger than that.

What is the effect of airing quarters? Does the air have any effect in destroying germs? Only indirectly. Very few of the infective organisms with which we are acquainted will stand drying for any length of time. None of them will withstand absolute drying, except in the spore stage. The atmosphere has a drying effect. Sunlight has a psychological effect; soap and water and elbow grease has a real effect. As most important adjuncts we have bacterial prophylactic vaccines and the anti sera. Cleaning up, the use of prophylactic inoculations, vaccines and anti sera, aseptic handling of cases and the isolation of contacts for observation will usually solve most of our difficulties.

USEFUL GERMICIDES

As to useful germicides the list may be small. All of the caustic alkalis are germicidal. Ordinary unslaked lime is an excellent disinfectant. When unslaked lime is mixed with the mass until it reacts alkaline, the mass is disinfected in two or three hours. It is not sterilized, we don't care about that, but it is disinfected. Lime is usually supplied, because it is cheap, non-poisonous and effective.

Acids possess a germicidal action. Nitric acid and sulphuric acid, and many of the organic acids possess this property. Certain salts are used, but I would not suggest the routine use as they are uncertain in their action. I cannot do better than advise you to pin some faith to chloride of lime and freshly slaked lime as two of the best.

GASEOUS DISINFECTANTS

As to gaseous disinfectants. One that is used is sulphur dioxide. For a century or more sulphur dioxide was the only gaseous disinfectant used, and we believed in it; but investigations show that in its dry state it has very little germicidal value.

It is known that if steam be introduced into the room with the sulphur dioxide we have a germicide, but you bleach everything in the room. The brass work is tarnished, and as a result it is objectionable. Sulphur dioxide is now limited largely, not to disinfecting purposes, but to the purpose of getting rid of vermin, for the destruction of rats, mice and insects, and there is probably nothing better. Another gaseous disinfectant that I know none of you will use, yet it has a high germicidal power, is hydrocyanic acid. It is a very deadly poison, as you all know. In the hands of other than a trained and competent laboratory man hydrocyanic acid should not be used.

THE FORMALDEHEYDE DELUSION

We thought the millennium had been reached when formaldehyde was introduced. It came to us as a gas that had wonderful power. As formaldeheyde gas is incompletely burned methol alcohol, we burned wood alcohol under such circumstances that combustion was incomplete, and we thought we had sufficient formaldeheyde to do the work. So formaldeheyde lamps were sold to all of us. In five minutes sufficient formaldeheyde was generated to start our eyes watering, and we supposed germs were being killed. But it soon became evident that none of the lamps generated sufficient formaldeheyde to disinfect a room. When that fact was made known larger lamps were made, but with little or no advance. The next step taken was the disengagement of formaldeheyde from its solution. Apparatus was devised in which the formaldeheyde solution was subjected to high heat —the gas thus disengaged was led into the closed room by a tube passed through the keyhole. The

best of such plans did not accomplish more than 85% of disinfection; it did not render free of danger over over 85 of 100 purposely infected articles placed in the room. Then it was suggested to try out the old plan of using the spray, or a modification of it. It has been found by experiments and otherwise, that equal parts of saturated solution of formaldeheyde and water, when atomized over all horizontal surface of a room, in closets, in bureau drawers and bedding, will completely disinfect a closed and sealed room in from six to eight hours. The method has one defect; it is painful to the muscus membranes and in susceptible persons causes deomatitis. The irritation of the mucuous membrane is not a serious matter. The most effective way I know of for applying formaldeheyde is in water, equal parts of formaldeheyde and water sprayed on in a house with an atomizer, so you can get the combined action of formaldeheyde in solution, and of the gas that is disengaged from it.

If I bring you any message at all in this lecture, it is this: that **you can get results by ordinary house-cleaning methods.**

ISOLATION

Some of you have doubtless read those interesting articles by Dr. Chapin, of Rhode Island. He has been advocating the abandonment of terminal disinfection. I think he is right. He strongly advocates the abandonment of many former methods of isolation. He maintains that one can keep various infective cases side by side in the same hospital ward without any transmission. About two years or more before Dr. Chapin whote those articles, large hospitals in France and England had fully proven out that point. They had simply taken large wards, separated these cases one from the other, not by partitions, but by screens, had them all in the same room. They had specially trained attendants, who had been trained in surgical asepsis. A nurse, when she was in attendance upon a case of measles, for instance, knew perfectly well what was expected of her before she went to attend a case of diphtheria, etc. She wore, when she attended a case of measles, an overslip to cover her clothing, her hair was also covered, and when she left the case she left her overslip in the measles room. Her hands were washed with soap and water, and if need be, disinfected. She then could go safely to the scarlet fever case and put on the gown she should wear with that case, and when she left that case she could go to the diphtheria case. The records of those hospitals has shown that in not one instance has there been any more mixed infection or transmission of infection where these methods have been used than by the old methods which involved great expenditures, and which have been found to be often defective. So, we are coming now, I think, to see these things in a very common sense way.

CONCLUSION

If we know where the infection occurs, know the places through which the infectious agents escape from the individual, and know the agents by which these infectious agents can be killed, we will realize that we can control these cases **without elaborate equipment.**

ANIMALS CONCERNED IN TRANSMITTING DISEASES

From Medical War Manual No. 1, Sanitation for Medical Officers,
By EDWARD B. VEDDER, M.D., Lieut.-Col., Medical Corps, U. S. A.

NOTE—For the extermination of insects, see SECTION V—CONVENIENCES—MICE, INSECTS, VERMIN—beginning on page 325

Human Diseases Are Carried:

1. By the Dog:
   - Rabies
   - Foot-and-Mouth Disease
   - Helminthiasis
   - Flukes
   - Tapeworms
   - Infantile Splenomegaly

2. By the Cow:
   - Tuberculosis
   - Actinomycosis
   - Anthrax
   - Cow-pox
   - Tetanus (through vaccine)
   - Foot-and-Mouth Disease
   - Septic Sore Throat (in milk of cows suffering from Mastitis)
   - Rabies (rare)
   - Tenia Saginata

3. By the Horse:
   - Glanders
   - Rabies (rare)
   - Tetanus
   - Sporotrichosis
   - Anaphylaxis
     - Serum Sickness, acute anaphylaxis after use of antitoxins, odor of horses

4. By Swine:
   - Trichiniasis
   - Tenia Solium
   - Tuberculosis (rare)

5. By Sheep:
   - Anthrax

6. By Goats:
   - Malta Fever

7. By the Antelope
   - Sleeping Sickness

8. By the Cat
   - Rabies
   - Cestodes
   - Trematodes

9. By Rats:
   - Bubonic Plague (through fleas)
   - Trichiniasis (through hogs to man)
   - Rat-Bite Fever

10. By Ground Squirrels
   - Bubonic Plague

11. By Birds:
   - Psittacosis (from parrots)

12. By Fish:
   - Cestodes

13. By Anthropods, chiefly Insects:

   Ticks and Mites
   - Rocky Mountain Spotted Fever
   - African Relapsing Fever
   - Japanese Fever (mite)

   Mosquitoes:
   - Yellow Fever
   - Malaria
   - Filariasis
   - Dengue

   Fleas:
   - Bubonic Plague
   - Infantile Splenomegaly
   - Trench Fever

   Lice:
   - Typhus Fever
   - European Relapsing Fever

   Flies:
   - Sandfly Fever or Pappataci Fever
   - Sleeping Sickness or Trypanosomiasis
   - Typhoid and other Infections

   Crustaceans:
   - Guinea Worm, Dracunculosis, transmitted by the cyclops

   Mollusks:
   - Typhoid Fever transmitted by Oysters, Clams, etc.
   - Trematode Infections, transmitted by Snails

DIET FOR INVALIDS

SOME TEMPTING, NOURISHING, EASILY DIGESTED DISHES FOR THE SICK AND CONVALESCENT

(From Iowa State College Bulletin, "Home Nursing")

Invalid diet is classified as:

I. Liquid: Including broths, milk, cocoa, cream soups.
II. Soft Diet: Including soft cooked eggs, milk toast, custards.
III. Solid: Including cereals, eggs, vegetables, meat, desserts.

The doctor will prescribe the diet and the nurse must see that it is properly prepared and served. She should never consult the patient as to his diet. If he should express a desire for a certain food which is allowable, it may be served at the next meal.

Before bringing in the tray, have the patient ready for the meal—face and hands bathed and pillows adjusted. If an invalid's table is not available, a pile of magazines may be put on each side of the patient's knees on which to set the tray. The tray should be made just as attractive as possible—never crowded. It is better to serve too little and bring more on request than to destroy the appetite with an overloaded tray. Serve hot foods **hot** and cold foods **cold.**

Some foods though not especially nourishing are useful as stimulants to the appetite. Among these are fruit beverages, beef tea and oysters. Milk and eggs are the main articles of food in soft diet. These should both be cooked at a low temperature because of the albumen, which is rendered very indigestible by boiling.

Toast should be crisp all through, not just browned on surface. It may be softened with hot milk or water.

Cereals should be thoroughly cooked.

Cream soups add variety to the milk diet.

Desserts, as gelatin and ices, furnish an attractive means of serving liquid foods in solid form.

SOME INVALID RECIPES

Grape Eggnog—1 egg, 1 tablespoonful sugar, 2 tablespoonfuls grape juice, ⅛ teaspoonful salt. Separate white of egg from yolk, beat yolk, add sugar and salt. Beat white of egg. Add grape juice to yolk and pour slowly over egg white, blending carefully. Serve cold.

Egg Lemonade—1 egg, 1 cup cold water, juice 1 lemon, 3 tablespoonfuls sugar. Beat eggs thoroughly, add sugar and strained lemon juice. Add water gradually and stir until well mixed, and serve cold.

Lemon Whey—¼ cup milk, 2 tablespoonfuls lemon juice. Add lemon juice to milk and let stand 5 minutes. Strain through double thickness of wet cheese cloth.

Peptonized Milk—Contents of one Fairchild's Peptonizing tube, 1 cup cold water, 1 pint milk. Put the peptonizing powder into a quart bottle, add the cold water and shake well. Add milk (cold) and shake mixture again. Place the bottle in water which should be hot enough to feel warm to the hand. The bottle should remain in water 5 to 10 minutes as directed by physician. At the end of that time, place the bottle upon ice to check further digestion and to keep milk from spoiling.

Beef Broth—2 lbs. meat from the shoulder or shin, 2 lbs. bone, 3 quarts cold water, 1½ teaspoonfuls salt. Cut the meat into small pieces and put it with the cracked bone into kettle and cover with cold water. Set in slow oven and cook from 8 to 12 hours. Strain through colander, add salt to taste and cool quickly; when cold remove the fat. Serve cold as a jelly, or heat to the simmering point but do not boil.

Note: Reheat in double boiler; not direct heat, as it coagulates albumen.

Chicken Broth—Cut 2 lbs. chicken into pieces; cover with 2 quarts cold water; add 1 small onion, simmer three hours or until meat is tender. Remove meat, cool stock, remove fat, reheat and add ¾ cups cooked rice. Season and serve.

Egg Broth—1 cup hot meat broth, 1 egg, ½ teaspoonful salt. Beat the white and yolk of egg separately. To the yolk add gradually the hot broth, stirring constantly. Add salt and fold in well beaten white. Reheat and serve.

Raw Beef Sandwich—Scrape beef with dull knife, place between buttered slices of bread. Cut in fancy shapes. Toast in oven. (Meat for this purpose must be inspected).

Fruit Whip—4 tablespoonfuls fruit pulp, white of 1 egg, 2 tablespoonfuls powdered sugar, lemon juice to taste. Beat white of egg until stiff, add pulp, sugar, and lemon juice to taste. Beat until stiff. Serve with boiled custard.

Oat Jelly—⅓ cup rolled oats, ¼ teaspoonful salt, 1½ cups boiling water. Add oats mixed with salt to boiling water gradually. Boil 2 minutes, then steam in double boiler 45 minutes to 1 hour. Force through a fine strainer, mould, chill and serve with sugar and cream.

Note: When the jelly begins to harden, add 1 tablespoonful dissolved gelatin and ½ cup whipped cream, mould in small cups and serve with strawberries and cream as a dessert or as a breakfast dish.

Poached Eggs—Eggs for poaching should be as fresh as possible. If not perfectly fresh, the tendency to flatten may be overcome by adding a small amount of vinegar to the water in which they are cooked. They may also be kept round by stirring the water until it is whirling vigorously and dropping the egg into it.

Salt may be used instead of vinegar; the eggs thereafter need not be salted at table.

Eggs Scrambled in Milk—2 eggs, 2 slices toast, ⅛ teaspoonful salt, 2 tablespoonfuls milk, 1 teaspoonful butter. Beat whites and yolks separately, add salt to yolks. Fold in whites. Add to hot milk and pour into a buttered pan. Cook until creamy, stirring and scrapeing from the bottom of the pan as it thickens.

Beef Broth Custard—¾ cup beef broth, 2 eggs, ¼ cup ground carrot, 1 tablespoon chopped pepper, 1 teaspoonful salt, ⅛ teaspoonful pepper. Beat eggs and add the other ingredients. Pour into ramekins and bake in a moderate oven until firm.

Egg Lemonade—2 tablespoonfuls syrup, 2 tablespoonfuls lemon juice, ¾ cup cold water, 1 egg. Mix syrup and lemon juice. Add cold water. Beat the yolk and white of the egg separately. Fill a glass half full of lemonade. Add ⅓ of the beaten white and cover with one-third of the beaten yolk. Pour over a small portion of the lemonade, and repeat until all of the egg and lemonade are used. Set glass on small plate with doily. Place two straws in glass of lemonade. Serve on a tray with a yellow flower.

A Nutritious Beverage—1 quart milk, 1 pint cream, 4 eggs, a few grains salt. Beat the eggs, add to cream, milk and salt. Mix thoroughly. Divide into four parts. Season as desired. This is sufficient for four feedings.

Creamed Egg—1 egg, ¼ cup milk, ½ tablespoonful butter, ¼ teaspoonful salt, 1 slice toast. Beat egg slightly, add salt. Heat milk and butter in double boiler, add egg and cook until creamy. Remove crust from bread, toast a golden brown, place egg on toast, garnish and serve at once.

Toast—Cut bread in ¼ in. slices, remove crust and toast a golden brown. It should be crisp all through.

Milk Toast—2 slices of toast, 1 teaspoonful butter, 1 tablespoonful flour, 1 cup milk, ½ teaspoonful salt. Melt the butter, add dry ingredients, stir until thoroughly blended; add milk gradually and cook until it thickens. Pour over buttered toast.

THE NURSE'S KITCHEN

Some Other Invalid Recipes

Cream Toast—Make thin slices of golden brown toast, crisp and dry. Place the slices in a wire sieve, and steam until soft over hot water. Then butter and put in a soup plate—about three slices cut in half. Over them pour white sauce. Make this by heating a cupful of milk in a double boiler and then adding two tablespoonfuls of flour rubbed into two tablespoonfuls of butter. Cook gently over a low heat until the flour has lost its starchy taste. Season with salt and pepper and serve very hot. Such a dish loses its appetizing qualities if it is not hot when served, so it should be carefully covered in transit from the kitchen to the room.

Egg-nog—Heat the yolk of an egg until it is creamy and add a pinch of salt; then add enough milk to fill a glass three-quarters full. Last, add the white beaten stiff, and sprinkle with grated

nutmeg. This is nourishing and excepting in cases where raw egg cannot be digested, is easily assimilated. Use whiskey or brandy in egg-nog only if patient needs stimulant on doctor's orders.

Lamb Broth—Lamb broth can be taken by almost every one. Here is a good recipe for making it. Have a pound of the neck of lamb cut into small pieces and put it in a granite or aluminum saucepan with two cupfuls of cold water for two hours. Then bring it to the boiling point and let it cook just below the boiling point, for three hours. Strain and season with salt. This can be made in a fireless cooker.

Chicken Broth—This can be made in the same way as lamb broth. Use the neck, the wings, and the back of chicken, and reserve the other parts for other uses. If rice can be taken, a little rice well boiled, can be added to either chicken or lamb broth.

Clam Broth—Wash six clams and put them in a kettle with half a cupful of cold water. Steam until they have opened, strain, and serve. Clam broth and beef broth may both be frozen, just to the mush stage, and then served in a sherbet glass. A feverish patient often finds this broth sherbet very tempting.

Cornmeal Gruel—All gruels must be thoroughly cooked, not very thick, and free from lumps. Put three tablespoonfuls of cornmeal into a third of a cupful of cold water, salt to taste, and then add two cupfuls of boiling water. Boil twenty minutes, stirring constantly, or else cook in a double boiler an hour.

Cracker Gruel—Break a soda cracker or two, buttered thin, into a cupful of boiling milk, and cook, stirring constantly, for three or four minutes. Season with salt.

Oatmeal Gruel—Cook half a cupful of prepared oatmeal in a quart of boiling salted water for a quarter of an hour.

Rice Gruel—Cook two tablespoonfuls of rice in two cupfuls of salted water. When the rice is cooked to pieces, strain and dilute to taste with hot milk.

Stewed Prunes and Figs—Wash prunes or figs to be stewed and then soak in cold water for ten hours. Cook for half an hour in the same water. Sweeten slightly if necessary.

Spinach on Toast—Cook some well-washed spinach for twenty minutes in boiling salted water, drain it and rub it through a sieve. Have ready a piece of buttered, thin toast which has been quickly dipped in boiling water. Moisten the spinach with a little melted butter, season with salt and pepper, and pile neatly on toast.

Apple Snow—Bake an apple in an earthen dish, covered. Remove core and skin before baking. Then rub it through a sieve, add it to the well-beaten white of an egg and beat for twenty minutes. Sweeten to taste and serve piled up in a glass cup.

Orange Whip—Squeeze the juice from an orange. Beat the white of an egg and add a tablespoonful of sugar and a little of the orange juice, beating stiff again. Then pour the rest of the juice into a glass cup, pile on the white and serve.

Custard with Fruit—Very often good boiled custard can be served to advantage with fruit. The fruit adds attractiveness to the custard and so tempts the appetite. A few prunes, neatly cut in pieces, can be covered with custard; dates can be used in the same way; orange pulp cut in dice can be added to it or a spoonful of apple snow can be placed on top of custard.

Grape Fruit and Orange—Grapefruit pulp cut in dice and served in a glass with the juice of an orange and very little sugar, with a tablespoonful of brandy or sherry, if that is allowed, makes a most refreshing dish for an invalid.

Bavarian Cream—Bavarian creams of all sorts make delicious and nourishing desserts for invalids. For chocolate Bavarian cream, soak half a box of gelatin in cold water for at least a half hour. In a double boiler, heat one pint of milk and two ounces of grated chocolate; add the gelatine and stir until dissolved. Next add half a cup of sugar and remove from the stove. Turn into a deep bowl and add one teaspoonful of vanilla; set this bowl into a pan of ice water and stir until it thickens like a sauce; then add a pint of cream whipped stiff. Stir lightly, pour into a mold, wet with cold water, set it on ice and serve with whipped cream. This must be made very early in the morning if it is to be used for lunch or tea. If a fruit cream is desired substitute fruit juice, stewed and strained, or the juice from canned fruit, for the milk, omitting the grated chocolate. Both raspberry and peach Bavarian cream are delicious.

Orange Albumen—White 1 egg, ⅓ cup orange juice, ½ glass crushed ice, sugar if necessary, stir white of egg with fork. Add orange juice—strain over ice.

Milk Whip—¾ cup cream milk, 2 teaspoonful sugar, few grains nutmeg, pinch salt, ½ teaspoonful vanilla or 3 teaspoonfuls sherry, few pieces of ice. Put in Mason jar, shake thoroughly, serve at once.

Whey—1 cup milk at 98 degrees F., ½ rennin tablet dissolved in cold water, mix, pour in bowl, allow to set. When thick cut in cubes and allow whey to rise. Strain.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

PRACTICAL DIETETICS

Iowa State College of Agriculture

I. CONSTIPATION

1. Lack of exercise
2. Lack of water
3. Overuse of condensed foods
4. Lack of bulk in food
5. Improper habits of eating
6. Astringent foods
7. Lack of digestive fluids
8. Indigestible food
9. Improper care of skin
10. Use of drugs

Preventive Treatment

Hygienic treatment should supercede the use of medicine.

1. Laxative diet
2. Exercise
3. Massage
4. Cold morning bath
5. Thorough mastication
6. Proper clothing
7. Abundant use of water as a beverage.
8. Regularity of habit

Typical Laxative Foods

Oranges	Spinach
Lemons	Asparagus
Limes	Cauliflower
Grape fruit	Tomatoes
Molasses	Rhubarb
Apples (without skin)	Coarse breads
Prunes	Olive Oil
Raisins	Oatmeal
Figs	Bacon
Dates	Butter
Berries	Cream
Grapes	Buttermilk
Honey	

Fruit is more laxative eaten between meals, one-half hour before breakfast or late at night

Laxative Foods for Children

(Foods recommended for child of 3 years)

Oatmeal	Orange juice
Cornbread	Stewed figs
Cracked wheat	Olive Oil
Gingerbread	Oatmeal water
Brown bread and honey	Peaches
Cream and water	Butter
Stewed prunes	Cream
Baked apple	Buttermilk

Constipating Foods for Children

Cheese	Scalded milk
Spices	Crackers
Pickles	Eggs
Nuts	Candy

TYPICAL LAXATIVE MEALS

Breakfast—Apricots, wheat grits and cream, bacon, bran muffins, hot water.

Bran Muffins—1½ cups bran, ½ cup flour, ½ teaspoonful soda, 1 teaspoonful baking powder, 1 teaspoonful salt, 1 egg, 1 cup sour milk, 3 tablespoonfuls fat, ⅓ cup sorghum. Sift dry ingredients together. Beat egg, add milk, fat, sorghum and the dry ingredients. Bake in gem pans in a moderate oven until well done.

Dinner—Baked potatoes, pork chops, tomato salad with mayonnaise dressing, graham bread, prune pudding.

Prune Pudding—2 doz. large prunes, 2 doz. marshmallows, ¼ cup chopped or ground nuts, ¼ cup whipping cream. Wash prunes, soak over night, stew gently until tender but not mushy. Remove pit with sharp pointed knife and fill with marshmallow. Bake in oven until marshmallow melts. Cover with whipped cream and sprinkle with chopped nuts.

ANEMIC CONDITION

Causes of Condition

1. Improper ventilation.
2. Improper diet.
3. Lack of outdoor exercise.
4. Insufficient rest and sleep.
5. Improper clothing.
6. Over excitement.
7. Constipation.

Note: One cause of anemia is the lack of iron in the system. This lack is caused by improper diet and may be remedied.

Percentage of Iron in Edible Portion of Various Foods

Egg yolk	.0085
Lima beans	.007
Beans (dry)	.007
Peas (dried)	.0056
Entire wheat	.0053
Raisins	.005
Lean beef	.0038
Oatmeal	.0036
Spinach	.0032
Figs	.0032
Eggs	.003
Dates	.003
Corn (dried)	.0029
Prunes	.0029
Dandelion greens	.0027
Lima beans (fresh)	.0025
Cocoa	.0024
Beans (string)	.0016

Suggestions for Planning Meals

1. Simple, well cooked foods.
2. Meals at regular hours.
3. Five light meals rather than three heavy ones.
4. An abundance of fresh fruits and vegetables.
5. A generous amount of easily digested fats.
6. Well cooked cereals.
7. Milk and eggs for muscle building.

Foods Advised

Eggs—Boiled, scrambled, omelet, custard.

Fish—All kinds broiled or boiled. Not fried.

Cereals—Graham and brown bread, oatmeal, grits, cornbread.

Vegetables—All kinds.

Milk—Buttermilk, cream, butter, milk.

Desserts—Junket, bread pudding, rice pudding with fruit, blanc-mange, lemon jelly.

Fruits—All fruits used freely.

Beverages—Cocoa, lemonade, orangeade and other fruit drinks.

Foods Forbidden

Fried foods	Pickles
Pastry	Gravy
Confectionery	Sauces (rich puddings)
Cake	Tea
Rich preserves	Nuts
Jam	Coffee

Note: These suggestions for feeding the anemic patient are very similar to those used in the feeding of the tuberculous patient. The treatment needed in both cases is dietetic and hygienic rather than medical.

Dietetic and hygienic treatment is the ideal method of caring for the human body. If used regularly and continuously it would not only help to correct such conditions as have been mentioned, but would become a vital factor in the prevention of disease.

MENUS FOR ANEMIC PATIENTS

Breakfast—Stewed prunes, puffy omelet, oatmeal and cream, cream toast.

Food Arranged According to Per Cent of Iron—Puffy omelet, stewed prunes, oatmeal and cream, cream toast.

Dinner—Baked potato, escalloped spinach, mayonnaise dressing, boiled mutton chop, combination salad, graham bread, chocolate bread pudding.

Escalloped Spinach—1 can cooked spinach, 2 cups dry bread crumbs, ½ cup meat stock, 4 hard cooked eggs, 1½ cups sauce made with meat stock, buttered crumbs, 1 tablespoon lemon juice. Drain spinach and chop. Soak bread crumbs in ½ cup meat stock and add to spinach. Cut hard cooked eggs in small pieces. Butter a shallow baking dish, put in layer of spinach and bread crumbs, then layer of eggs. Cover with sauce. Continue in this order until dish is nearly filled. Cover with buttered crumbs. Bake in hot oven until crumbs are brown.

Chocolate Bread Pudding—2 cups stale bread crumbs, 3 cups hot milk, 1½ squares chocolate, 2/3 cup sugar, 2 eggs, ¼ teaspoonful salt. Soak bread in hot milk. Melt chocolate in pan over hot water, and add to bread and milk. Beat eggs, add sugar, salt and vanilla. Add to first mixture. Pour into buttered pan. Set in dish of hot water and bake in moderate oven until firm.

III. TUBERCULOSIS

Tuberculosis is a disease in which treatment is almost wholly dietetic and hygenic.

The appetite must be watched closely. Oil is given to afford an easily assimilated basis for renewed organic growth.

A change of climate sometimes stimulates the appetite, but unless it does, it is of little benefit.

Diet

Soups—Oyster, mutton, chicken or clam broth, barley, rice, bean, cream of celery or tomato, beef tea, peptonied milk gruel.

Fish—Fresh fish broiled or boiled, oysters or clams.

Meat—Roast beef, mutton, lamb chops, bacon, poultry, game, steaks.

Fats—Butter and salad oils used abundantly.

Eggs—Except fried.

Farinaceous— Cream of wheat, oatmeal, hominy, rice, cornbread, milk toast, muffins, biscuit.

Vegetables—Potatoes, spinach, onions, asparagus, peas, tomatoes, string beans, lettuce.

Desserts—Apple pudding, custards stewed fruits, rice, tapioca with fresh cream.

Beverages—Milk, cocoa, chocolate, water, buttermilk, cream.

Avoid fried foods, hash, gravies, veal, pork, cabbage, turnips, cucumbers, pies, pastry, candy.

IV. RHEUMATISM

Suggestions

Use starch and sugar moderately. Avoid the over-use of protein food.

The patient should partake of water freely to assist in eliminating the waste products from the body. Lemonade and mineral waters are recommended.

Suggested List of Foods

Animal Foods

Eggs	Fish	Chicken
Milk	Oysters	Buttermilk
	Beef (in moderation)	

Vegetables		Fruits
Spinach	Cauliflower	Oranges
String beans	Squash	Grape fruit
Navy beans	Onions	Lemons
Cabbage	Turnips	
Celery	Apples	Limes

Foods to be Avoided

Meat and eggs in excess	Coffee
Chocolate	Tea
Sweets	Highly seasoned foods.

Precautions

Well planned meals prevent accumulation of waste and consequently are vital factors toward physical equilibrium.

Breakfast—Grape fruit, cream of wheat (no sugar), poached eggs, graham bread.

Dinner—Mashed potatoes, cheese fondue, graham bread, lettuce and celery salad, lemon ice or baked apple and cream.

Cheese Fondue—1 cup scalded milk, 1 cup soft stale bread crumbs, 1 cup or ¼ lb. mild cheese cut in small pieces, 1 tablespoonful fat, ½ teaspoonful salt, yolk of 3 eggs, white of 3 eggs. Mix first five ingredients, add yolks of eggs beaten until lemon-colored. Cut and fold in whites of eggs beaten until stiff. Pour in a buttered baking dish and bake twenty minutes in moderate oven.

V. DIABETES

The disease is characterized by grape sugar in the urine on an ordinary diet, and is hereditary in one-third of all cases.

The most effective treatment is dietetic and hygienic.

TREATMENT

Preventive Treatment

Where distinct heredity is feared, exposure to cold and wet, all excitement of the nervous system as well as indulgence in alcohol and sweets should be avoided.

It is necessary in all cases to use great caution in regard to diet and general hygiene.

Avoid:

Shocks and blows affecting the nervous system.

Injuries to the back of the head and blows over the liver.

Exposure to cold, wet and fatigue.

Emotional strain and anxiety.

Over-indulgence in starchy foods.

Alcoholism.

Dietetic Treatment

I. Foods Allowed in Diabetes:

1. Soups and broths made of meat of any kind without vegetables.
2. Crustaceous foods, crabs, lobsters, shrimp.
3. Fresh fish of all kinds.
4. Salt fish, cod, mackerel and herring may be allowed unless they increase thirst too much.
5. Fresh meat, fowl and game of all kinds, ham, bacon, smoked beef, tongue, sweetbreads.
6. Olive oil and animal fats and oils, such as butter (in moderation), cream, cod-liver oil, bone marrow.
7. Spinach, dandelions, beet tops, horseradish, radishes, celery, lettuce, endives, pickles, cucumbers, gherkins.

II. Foods Permissible in Moderate Quantities:

(Vegetables Prepared Without Flour or Sugar.)

2 tablespoonfuls per day	Pumpkin
Salsify	1 tablespoonful per day
Celery (cooked)	Green peas
Turnip	Carrot
Cabbage	Brussels sprouts

Raw Vegetables Per Day

8 radishes
2 sticks celery
2 medium size tomatoes

Choice per day from these lists:

Nuts per Day

2 walnuts	3 almonds
6 hazelnuts	8 Brazil nuts

Fresh Fruits per Day

1 thin slice melon	1 tablespoon strawberries
1 small tart apple	12 cherries
1 peach	½ medium sized pear
1 tablespoon raspberries	—Van Noorden.

III. Forbidden Foods:

1. Sugar in any form. Syrup, molasses, confectionery, jams, honey.
2. All farinaceous foods, all pastry of every description. In fact, everything made of flour.
3. Sweet potatoes, beets, corn, beans of all kinds (except string beans), peas, carrots, parsnips, squash and potatoes.
4. The soft parts of clam, oysters, and muscles containing glycogen (animal sugar.)
5. Liver of all animals.
6. All sweet fruits, such as figs, dates, prunes, bananas, apricots, plums.

Suggestions

Frequent feeding is desirable for the diabetic. Besides the three regular meals several lunches should be given.

The most difficult of all starchy foods for the patient to forego is bread. A bread made of bran may sometimes be used.

Bran cakes—2 cups bran, 2 tablespoonfuls melted butter, 2 whole eggs, 1 egg white, ½ grain saccharin, 1 teaspoonful salt. Tie bran in piece of cheese cloth and wash by squeezing water through and through. Wring dry. Dissolve saccharin in 1 teaspoonful water. Mix bran, beaten eggs, saccharin and salt. Beat remaining egg white stiff and fold in at last. Shape with knife and tablespoon into small cakes, bake until golden brown.

MENUS FOR DIABETIC PATIENT

Breakfast

Bacon ..... 3½ slices
Orange ..... 1 medium
Egg 1
Bread ..... 1 slice 3x2½ inches
Butter
Cream
Tea

Dinner

Steak ..... 1 small slice
String beans ..... 1 heaping tablespoon
Lettuce ..... 12 leaves
Butter
Cream
Tea

Supper

Ham ..... 1 small slice
Asparagus ..... 1 heaping tablespoon
Spinach ..... 1 heaping tablespoon
Bread ..... 1 slice 3x1½ inches
Butter
Cream
Tea

Allow During Day

Butter ..... 4 squares
Cream (heavy) ..... 16 tablespoons
—Allen.

Patient should guard against taking cold and when possible should live in a moderately warm climate. Flannels should be worn next the skin in winter, and the body should be kept warm, for there is less heat producing power than normally because of the lack of starches and sugar.

The skin should be maintained in good condition by frequent baths and massage. Only a moderate amount of exercise should be taken, but this should be in the open air.

VI. OBESITY

Diet to Regulate Weight

Special Rules:

1. Eat slowly, masticate thoroughly.
2. Do not have more than three courses or five kinds of food at any one meal.
3. Eat moderately, not to satisfy.—Thompson.

SUGGESTIVE MENUS

Breakfast

One cup hot water, 1 egg, boiled or poached, 1 slice toast, ½ grape fruit or one orange.

Lunch

Soup (ample bowl vegetable); 100 grams of meat (beef, mutton, veal, fowl, fish); 1 slice bread; fruit; choice of 1 apple, 1 bunch grapes or a small portion of berries.

Dinner

One cup bouillion; meat, 150 grams; potatoes, 100 grams; vegetables, 100 grams (spinach, cabbage, cauliflower, celery, radishes, lettuce); fruit, 1 apple, pear, peach, orange or ½ grape fruit.—Chittenden.

Note: A study of these menus shows that starches, fats and sugar should be used sparingly if at all.

All foods should be used in moderation and no highly seasoned foods should be used.

A Preventive Dietary for Obesity

Foods Allowed:

Fish—Fresh fish of any kind except salmon and mackerel.

Meats—Lean beef, mutton or lamb, chicken, turkey (without stuffing).

Eggs—Boiled or poached, but not more than two a day.

Farinaceous—Stale bread, dry toast or crusts in moderate quantity.

Vegetables—Spinach, lettuce, celery, radishes, asparagus, cauliflower, cabbage, tomatoes, onions, turnips, squash.

Desserts—Ripe fruits, acid varieties preferable.

Foods Forbidden:

Soups—Rich cream soups and purees.

Fats and oils—Olive oil, cream, fat bacon, lard.

Desserts—Pastry, cakes, preserves, confectionery, nuts, jams, rich puddings.

Vegetables—White and sweet potatoes, peas, beans, corn, lima beans, beets.

Farinaceous—Little white bread, rice, hominy, crackers, brown bread, macaroni, spaghetti, tapioca.

Symond's Table of Height and Weight for Women at Different Ages*
(Based on 58,855 accepted applicants for life insurance.)

HEIGHT	AGES							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
4 ft. 11 in.	111	113	115	117	119	122	125	128
5 ft.	113	114	117	119	122	125	128	130
5 ft. 1 in.	115	116	118	121	124	128	131	133
5 ft. 2 in.	117	118	120	123	127	132	134	137
5 ft. 3 in.	120	122	124	127	131	135	138	141
5 ft. 4 in.	123	125	127	130	134	138	142	145
5 ft. 5 in.	125	128	131	135	139	143	147	149
5 ft. 6 in.	128	132	135	137	143	146	151	153
5 ft. 7 in.	132	135	139	143	147	150	154	157

*McClure's Magazine, Jan. 1909.

VII. UNDERWEIGHT

The man who said, "It does not matter so much what kind of a disease the body has, as the kind of a body the disease has," expressed the generally accepted idea that the normally behaved body is more nearly able to resist disease. The body that meets the requirements with regard to weight is likely to have greater power to resist disease. The above table gives the relation between height, age and weight and serves as a guide in feeding the family.

Suggestive List of Foods to Increase Weight

Butter, cream, olive oil, bacon, baked potatoes, well cooked cereals, well baked bread, chocolate, cocoa, milk, cream soups, cream toast, custards, eggs, apples, raisins, prunes, figs, dates, oranges.

Mineral Giving Vegetables

Lettuce, celery, radishes, cabbage, spinach, cauliflower, turnips, tomatoes, carrots, parsnips.

The fats and carbohydrates are especially important as flesh builders, but the minerals given by the non-starchy vegetables are equally important, in that they help to maintain the normal activity of the body.

SUGGESTIVE MENUS

Breakfast

Orange

Cream Toast Scrambled Eggs and Bacon

Dinner

Cream of Celery Soup

Lamb Chops Buttered Peas Baked Potato

Lettuce Salad with French Dressing

Rice and Fruit Pudding

Supper

Pittsburg Potatoes Graham Gems

Rhubarb Sauce Ginger Bread

Rice and Fruit Pudding—¾ cup rice, ½ cup apple juice from cooked apples, 1 cup cooked sliced apples, 2 eggs, ¼ cup sugar, nutmeg. **Note:** Other fruits may be substituted if desired. Cook rice in salted, boiling water and drain. Beat whites and yolks of eggs separately; add 2 tablespoonfuls sugar to apple juice, heat and pour over beaten egg yolks. Cook until it thickens and add one half of the cooked rice. Place mixture in bottom of baking dish and cover with cooked apples; add 2 tablespoonfuls sugar to beaten egg whites, season with nutmeg and fold in the remainder of cooked rice and pile on top of the apples. Bake in a moderate oven until top is well browned.

Pittsburg Potato—4 cups cubed potatoes, 2 tablespoonfuls onion, 1 pimento, 4 tablespoonfuls fat, 4 tablespoonfuls flour, 1 teaspoon salt, ½ teaspoon pepper, 2 cups milk, ½ cup cheese. Cook potato cubes with minced onion in salted water until the potatoes begin to get tender. Add the pimento cut in small pieces and cook five minutes longer. Drain and put in baking dish. Make a sauce of fat, flour, salt, pepper and milk, then add grated cheese. Pour over the potatoes and bake until golden brown.

(Paste or Write Here Scraps or Memos. of Your Own)

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CARE OF THE NOSE AND THROAT

The nose, mouth and throat are the gateways through which disease germs enter the body. Keep nostrils, mouth and throat clean and free from germs that breed disease. An antiseptic wash for the nose, mouth and throat should be regularly used. The germs of cold and grippe, diphtheria, croup, scarlet fever and other diseases may find lodgment in these gateways of the body if you do not keep them in a sanitary condition.

Spraying the nose and throat with an antiseptic douche will go a long ways toward warding off diseases, many of which enter the system through these organs. In Rigg's disease of the gums, poisonous germs of the mouth and throat infect the gums, and these should be rendered harmless by a germicidal wash. Bronchitis, pneumonia, rheumatism, appendicitis and other serious ailments may result from germs lodged in the nostrils, mouth or throat.

A little vaseline or preparation of camphor and menthol rubbed into the nostrils every night before retiring and again before going out in the morning will do a great deal toward preventing colds and will also prevent the formation of adhesions of hard mucous matter in the nose.

COLDS AND SIGNS OF COLDS

Snuffing and sneezing, a person with a cold is exceedingly miserable—an object of pity, but unless care is exercised he will have company in his misery. Colds are contagious and careless sneezing and coughing scatter cold germs to be breathed in by other unfortunates and start more colds.

When you develop a cold it means that cold germs have begun to grow in your nose and throat and produce poisons that are absorbed into your body and give you that peculiar, miserable feeling that only a cold can produce.

The best way to keep from catching cold is to accustom yourself to sudden changes of temperature. This can be done by taking a cold sponge bath over the back and front of your chest every morning. Next best is to avoid draughts. Keep the feet dry and escape the chill which causes congestion in the nose, throat and chest. Also avoid crowds, people who carelessly cough and sneeze, and hot, poorly ventilated rooms.

To break up a cold take a hot drink at bed time and a strong laxative. Fresh air day and night is the best tonic in the world. If a cold hangs on for a month or longer be examined by your physician. It may mean the saving of much trouble and sickness.

Preventions—Colds can be easily prevented if care is taken to avoid these things which lower the resistance of the body, and if one pays special attention to building up the resistance of the body. How important this is may be seen in the fact that athletes in training seldom, if ever, contract colds.

How, then, are we to know that a cold is impending? First of all, in most cases there is a feeling of chilliness and slight feverishness. The head also feels stuffy and full; the mucous linings of the nose and throat feel dry and parched, due to congestion at these points. Frequently there is a feeling of languor, and an "aching" of the bones, especially at the joints. Headache is often present, and lack of appetite, bad breath and coated tongue almost invariably. The victim is usually constipated.

Respiration—Winter colds bear a very close relation to respiration; indeed, many people testify to warding off colds by deep breathing, and one remedy for catarrh consists solely of breathing exercises. Any cold means congestion. A cold in the head means the presence of acute inflammation of the membrane lining the nose, generally an infection caused by germs gaining access to the tissues. During undue or unaccustomed exposure to cold the smaller blood vessels are contracted, consequently less blood is brought to the surface, resistance weakens, and the germs can attack more easily. Disregarding the weather conditions, the outsire air is always preferable to the room atmosphere.

Good respiration will counteract this. A full breath quickens circulation; the rich blood, purified by the extra amount of good air in the lungs, races along, expands the tiny blood vessels, and sends a glow of warmth over the body. The work of the germs is canceled. The next time you go out and feel the chill wind strike through you, and you start to hunch up your shoulders and contract your chest to get rid of the shivers, stop! Throw your head up, assume the correct standing posture with chest out and weight well forward. For a second you will shiver. Then take a deep breath, expanding your lungs to the utmost of their capacity and exhale slowly. Always remember to breathe through your nose. The nose serves to warm and moisten the air so that it will not irritate the delicate structure of the lungs. Now start walking forward briskly, swing your arms easily, and breathe as deeply as you can.

First Aid—Under the heading of "Things to Do for a Cold," a bulletin of the Life Extension Institute of New York City condenses into a table these valuable hints on emergency treatment:

"On first sign of a cold, a hot foot bath lasting half an hour, and a drink of hot lemonade—or, better still, hot flavored tea (one-half ounce of whole flaxseed to a pint of boiling water, flavored with lemon peel or licorice root) will often break its force."

"A brisk purge is also advisable."

"A mild menthol-oil spray may be used occasionally in nose and throat."

"Neck and chest and nostrils may be rubbed with camphorated oil."

"If the throat is sore a gargle or spray of peroxide of hydrogen, one part to three parts of water, may be used."

"Also cold compresses to the neck, or gauze pads saturated with equal parts of alcohol and water."

"An alcohol rub-down is also good as a first-aid measure. Used externally alcohol is a real friend; internally, it is a dangerous enemy."

"The spread of septic sore throat and other germ diseases by milk is very common. Pasteurised milk is safest during epidemics."

"If there is severe headache, face ache, earache, pain in the chest, sore throat, or high fever, there should be no delay in calling a physician."

Home-made Cough Syrup—Here is a formula for a home-made cough syrup that is highly recommended: One ounce each of horehound and licorice, two ounces of gum arabic, one pound of molasses and one teacupful of vinegar. Boil the horehound in a quart of water, dissolve the licorice and gum arabic in a little water first. Strain the horehound before adding the other ingredients. Now add the molasses and last of all the vinegar when it is nearly done.

LA GRIPPE

La Grippe, or Influenza, which often starts with a simple cold, is quite different from a cold, and it is very important to distinguish between them. The after effects of La Grippe are often very serious.

It starts, like a simple cold, with sneezing, coughing and fever, with complaint of a headache and a feeling of soreness in the muscles, so that one will say his "bones ache." He will complain of sore throat and languidness.

The patient must be put to bed—and kept there until all symptoms have disappeared. La Grippe can usually be recognized by the fever, which is higher than that of a simple cold, and by the cough, which is rather rare at the beginning of any other kind of cold, and most especially by the fact that the patient feels really sick and prostrated and his "bones ache."

La Grippe is caused by a distinct germ, which gains access through the nose and throat. If the germ reaches the lungs it may cause pneumonia or bronchitis; in the joints, they become painful and swollen with a type of inflammatory rheumatism; if the germ reaches the heart it may cause severe heart disease.

A person catches La Grippe from others who have it. The patient must be quarantined. The secretion from the nose, what he coughs up from the throat, and the practice of sneezing into the open air instead of a handkerchief, transmit the disease.

La Grippe usually starts with a hard, dry cough, without any expectoration, and this may persist for weeks. Nausea and vomiting may occur and occasionally diarrhoe. The fever varies greatly, often from normal to 104 in one day, and may last, or come and go for weeks.

Remedy—When an acute cold develops it is best to put the patient to bed on the chance that La Grippe germs may be there. Begin with the usual treatment for a simple cold. If a cough and fever develop it is probably La Grippe and a physician should be called at once.

Quinine probably hastens the control of any recovery from La Grippe better than any other remedy; bromo-quinine is better than the sulphate; patient should be put to bed and encouraged to sleep. The cough, if severe, may require a sedative but this should be given only by a physician. A mustard plaster on chest will usually help the cough.

The most important caution is that the patient be kept in bed until all the symptoms have been dispelled. The patient will probably remain weak and amaemic, in which case tonics should be given.

Keep the bowels open both during the course of the disease and afterwards, and take "good care" of the health for several months; germs may remain in the system and reinfect, if resistance is lowered. Unfortunately one attack does not leave one immune to that disease.

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of Your Own)**

ONE OR TWO CHILDREN'S TROUBLES

German Measles—Rare in children under two years of age; no relation to ordinary measles; one attack does not protect from another. The rash spreads rapidly over the body downwards; it appears in single red pin-point spots, not in groups or patches, as in regular measles. The child is not very sick, only slight fever, if any, and watering of the nose and eyes, as with a cold.

Isolate the child for a week after eruption appears and guard against cold, as bronchitis is possible. For specific treatment follow advice of a physician. While it is not a serious disease there may be uncommon symptoms or development and it should be taken properly in hand.

CHICKEN POX

The eruption usually appears in pimples widely scattered over the body, scalp and face, occasionally groups of several together. The pimples become blisters very soon, and scabs follow. Pus may form under the scabs. New pimples appear as old ones dry. There is a great deal of itching but scratching or rubbing only makes it worse and leaves scars afterwards, somewhat like small-pox scars. There is some fever.

It is very contagious. Isolate patient and call a physician, who will apply antiseptic and cooling ointments that will heal and disinfect and at the same time allay the itching so that the child can resist the impulse to scratch. Isolation necessary for about three weeks.

ADENOIDS

This is a small tonsiller structure back of the nose in the throat If it is enlarged or diseased, in children or adults, it should be removed. Only a physician, of course, can do this. Signs of trouble here, however, to give warning, are as follows:

Restlessness at night, mouth breathing, snoring, bad general health and nervousness, or indolent, inactive mind and poor memory. Frequent head colds, nasal discharge becoming chronic, earache or inflammation of ears; any or all, or two or three of the above symptoms together may indicate adenoids, and one should have the patient examined by a competent physician at once. The disease is one of childhood, in that the tonsils usually waste away after the age of puberty.

TONSILS

Enlarged or diseased tonsils cause catarrh and sore throat, and when any of such symptoms appear, therefore, a physician should be consulted and make an examination. Diseased tonsils cause remote diseases which obtain access by infection, and especially pave the way to rheumatism.

VACCINATION

Vaccination time is best when a baby is three to six months of age, unless he is delicate or has skin diseases. Consult physician as to suitable time. About three weeks will see vaccination through; it is rare that it is severe in its effects, and in any event you can rest assured that for one with which vaccination goes a little hard, small pox would have been most severe and particularly dangerous, and is therefore all the more fortunately averted.

If vaccination does not take it must be repeated; it is very rare that it will not finally succeed. One should be revaccinated every six years. If an epidemic of small pox appears every one who has not been recently vaccinated successfully should have it done at once.

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Scraps or Memos.
of Your Own)**

HOME REMEDIES IN A NUTSHELL

Colds for Children—Molasses, stewed, with castor oil added, is palatable and an excellent first aid remedy.

Poultices—Wormwood and arnica for sprains and bruises. Steep the herbs in water; add cornmeal to thicken.

Linseed—Stir it into hot water—for inflammation.

Hop Poultice—Boil hops in hot water, add cornmeal, mustard and ginger.

Bread and Milk Poultice—To make a bread poultice break a quantity of coarse bread crumbs, not crusts, in a heated bowl and cover with boiling water. Place a plate over the bowl till the water has been soaked up by the bread; strain off the water and put the water-soaked bread in a flannel bag.

Emergency Flash Light—Keep a small flash light hung on the inside of the door to your medicine cabinet, and use it to prevent taking of wrong medicine by mistake. It is also far more convenient than turning on and off electric lights as one moves around the house at night waiting on one who is sick—and less likely to disturb or wake the patient.

Accidents—Disinfectants—In the last analysis, disinfectant washes simmer down principally to three: iodine, lysol, and hot water—especially hot water. One should have on hand always iodine and lysol, with apparatus for making water hot at once. We might add carron oil, for burns.

A Stopper Hint—When putting a stopper into a bottle always give it a half turn round after it is in. This will prevent it from sticking.

Back and Chest Plaster—For backache and pain in the chest a belladonna and capsicum plaster is advisable; can be obtained at all drug stores.

Mustard a Cure-All—Mustard is the nearest approach to a univerasl cure-all. Few pains will not give way before a mustard plaster, and a wide range of internal inflammations from colds and other causes may be stopped by its timely application. It is the first best resort in threatened pneumonia, congestion of the lungs or undetermined cold on the chest.

A Mustard Ointment is made as follows; three tablespoonfuls of mutton tallow, 2 tablespoonfuls of goose or hen's oil, 1 tablespoonful of spirits of camphor, 2 tablespoonfuls of ammonia, 1 tablespoonful of ground mustard; mix and put in a covered glass jar.

Rub over the lungs and throat or on any sprain or hurt when the skin is not broken.

The Efficient Borax—Borax is an efficient and ever-present remedy for many ills, and owing to its inexpensiveness, it is within the reach of the housewife of most limited means. Applied locally on linen, it has been found to be a remarkable cure for **erysipelas**; for **catarrhal difficulties** it will give relief if snuffed in the nostrils, making a solution of one dram of borax to one-half pint of soft water; as a gargle it benefits **sore throats**; for weak and **inflamed eyes** it proves desirable as a wash.

Cure for Fever Blisters—Carbolic acid, 6 drops; glycerine, 1 teaspoonful; rosewater, 10 drops.

Ivy Poisoning—Tansy tea, made good and strong; wash affected parts frequently, and drink some three or four times a day. Make it nice and fresh for every drink. It is blood cooling and purifying and it makes one less susceptible to the poison.

Macaroni "Straw"—A stick of macaroni will serve in place of a glass tube for a patient who cannot sit up to drink, or will sometimes induce a child to drink its milk when otherwise it would not.

Oranges and Lemons—Oranges possess a special value in lung diseases, the acid (citrate of potash) tending to prevent pneumonia. They are a good laxative, if three or four are taken daily. They are said to destroy the craving for alcoholic stimulants.

Lemons contain citric acid, which combines with alkalis and circulates in the blood as alkaline salts. Hence lemons make blood and urine less acid, or rather more alkaline—blood never becomes acid in life.

For Over-Fatigue—Hot milk heated to as high a temperature as it can be drunk is a most refreshing stimulant in cases of cold or over-fatigue. Its action is very quick and grateful. It gives real strength as well as acting as a food.

Court Plaster—Before using a piece of court plaster prick it all over with a fine needle. This prevents the usual unpleasant drawing sensation.

To Prevent a Blue Bruise—If sweet oil is applied to the skin after a blow or bruise it will not turn black and blue.

Castor Oil for Wounds—Castor oil is an admirable dressing for slight abrasions, burns and minor wounds. First wash wound with some antiseptic solution or paint with tincture of iodine and then cover with gauze saturated with castor oil.

Sugar and Salt for Wounds—Sugar is used as a dressing for infected wounds on the European battle fields, and with good results. The British Government has found that wounded men on ships, whose injuries have been washed with common sea water, make better recoveries than those treated in field hospitals, the conclusion being that the salt waters of the ocean are an ideal antiseptic.

Ptomaine Poisoning—Treatment: Castor oil, at first; starvation; heat applied to abdomen to relieve pain; more castor oil, at last.

Garlic for Wounds—Garlic applied to a wound stops the infection and heals quickly, whereas many modern antiseptics used in fashionable practice injure the tissues. Garlic has been tested thoroughly at the Paddington Infirmary in London, England, as well as in field hospitals in France.

An old French peasant woman was found to have dressed the sores and wounds of soldiers in the war zone with remarkable results. An army surgeon investigated, and garlic is now sold by the ton where it was formerly sold by the ounce in English chemists' shops. Garlic juice, diluted with three or four parts of distilled water, seems to be the standard dressing.

Ointment for Eczema—Pulverized zinc oxide and amyl, ½ ounce each, vaseline, 1 ounce; for local use. Apply to parts affected and wrap with a cloth. Wear rubber coat or kid fingers from gloves. Do not bathe eczema spots for three days after applying paste, but keep spots covered well with paste.

For a Burn—Apply equal parts of white of egg and olive oil mixed together, then cover with a piece of old linen.

Or hold burned portion of the skin over heat.

Or apply at once cooking soda, then cover with cloth and keep same wet with cold water.

Nose Bleed—When the nose is bleeding never hold it over a basin or hold the head down in any way. This only causes further rush of blood to the broken tissue in the nose. The head should be held up and back, the flow being caught in a handkerchief or cloth.

One of the most effective and simple means of checking nose-bleed is to press on the upper lip. Near the under surface of the lip runs the artery that supplies the interior nasal passages where the ruptures occur. If this is pressed, the flow of blood is mechanically checked, thus allowing the blood around the broken tissues to congeal and seal up the opening.

If merely pressing with the finger does not succeed, place a wad of paper under the lip and fold the lip over it, holding it down tight.

As a further remedy for nose bleeding, if prolonged, a little powdered alum may be placed within the nostrils. Above all, absolute rest and quiet is enjoined. Do not blow the nose at any cost. Allow the blood to fill up the nostrils and wait for the coagulation to occur. The overflow will undoubtedly find its way into the mouth, which may easily be cleared away.

There is always a cause for nose bleeding, and a specialist should be consulted for correct diagnosis and condition treated. Cases of nose bleeding are on record that could not be controlled, resulting in exsanguination.

Bran Baths for Nervousness—One of the best aids for the nervous woman who is trying to reduce her fractious nerves, is the bran bath just before retiring at night. This not only has a soothing effect, but incidentally softens and whitens the skin.

To make the bath, buy ordinary bran at a feed store and keep it in a tin box away from mice. Make a bag of cheesecloth, from 12 to 18 inches square, and stuff it with bran until about as full as a pine pillow. This bag is put in a bathtub half filled with warm water, and squeezed until the water is brown and bubbly. It is not well to remain in the water longer than five or six minutes; if possible, the bather should rest ten minutes and then be massaged. If there is no one to do the massaging rub the body thoroughly with a rough towel or knead it with the hands.

Insomnia Remedies—There are two very simple but effective remedies for the kind of sleeplessness that comes from overwork or nervous exhaustion. One is to have the feet very warm. Put them against a rubber bag filled with hot water, which is better than an earthen bottle as it will retain the heat for hours. The second method is simpler. Discard the pillow, turn over and lie on the stomach with hands clasped under the forehead to lift the head a trifle. This will often send one to sleep.

When you are tired and nervous, a good rubbing all over the body with the following lotion will be very restful; diluted alcohol six ounces, cologne water six ounces, tannin ten grains. Lie quietly in bed after the rubbing for half an hour.

The Tired Feeling—Much fatigue, otherwise not readily accounted for, is unquestionably owing to over-eating, especially of protein foods such as beans, cheese, etc., which do not fully digest and consequently leave poisons in the system.

To Reduce Superfluous Flesh—Deep breathing is essential and may be practiced almost anywhere in the open air, although of course you can obtain the greatest benefit from this exercise when you can wear a loose garment that will allow absolute

freedom of the muscles. When practicing deep breathing indoors stand by an open window and accompany your breathing with a simple arm exercise.

The process of reducing by means of exercise is a far saner method than that of using hot baths, for the exercise strengthens the muscles and may be applied to only those parts of the anatomy that need the treament; while the baths reduce the weight of the entire body and have no strengthening effect.

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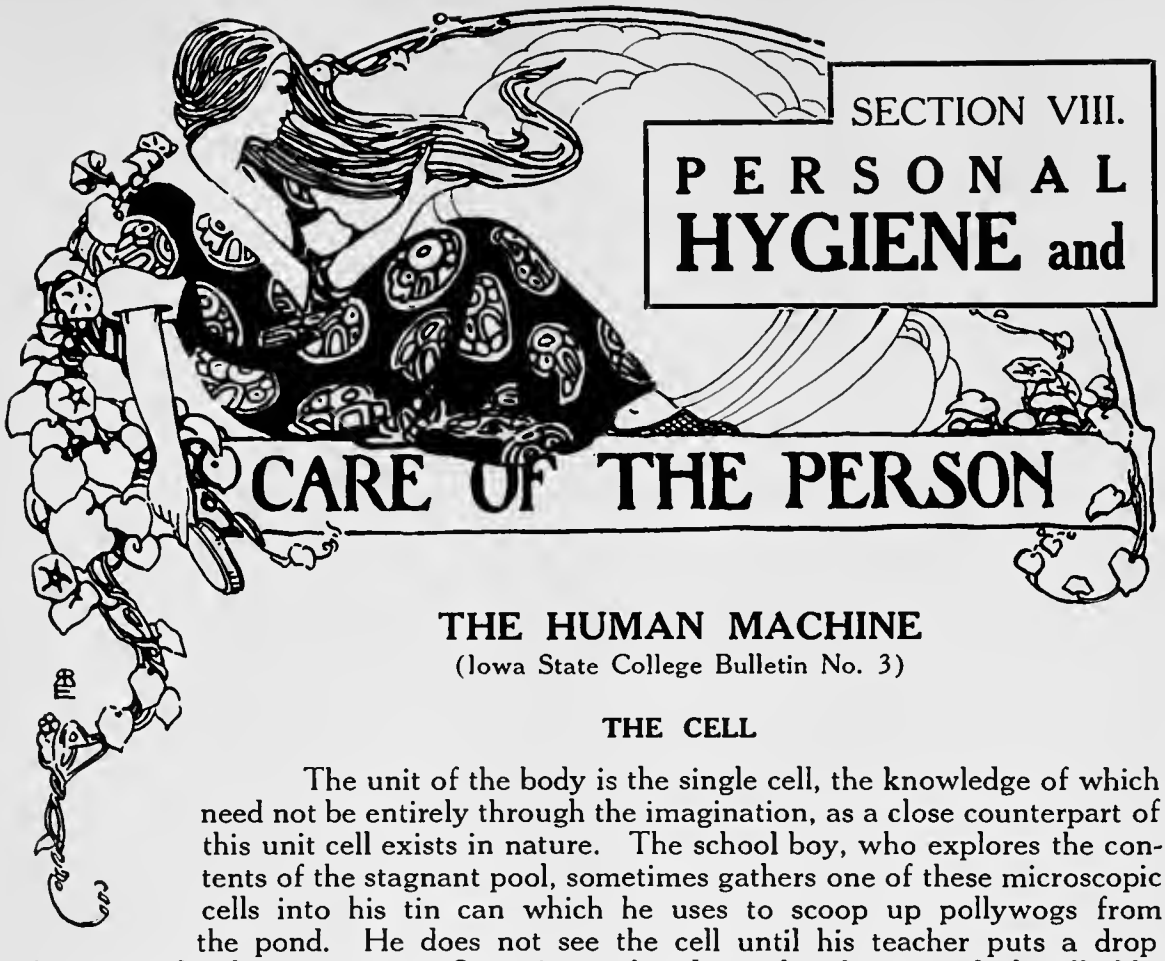

SECTION VIII.

PERSONAL HYGIENE and CARE OF THE PERSON

THE HUMAN MACHINE

(Iowa State College Bulletin No. 3)

THE CELL

The unit of the body is the single cell, the knowledge of which need not be entirely through the imagination, as a close counterpart of this unit cell exists in nature. The school boy, who explores the contents of the stagnant pool, sometimes gathers one of these microscopic cells into his tin can which he uses to scoop up pollywogs from the pond. He does not see the cell until his teacher puts a drop of water under the microscope. Sometimes after doing this she sees a little jelly-like mass under the cover glass. This mass moves about and presently after stretching out a portion of itself into an arm-like shape, it gathers in a morsel of food. The jelly-like mass, called the ameba, is the lowest form of animal life and closely resembles one single cell of the body.

The one cell of the ameba performs all the necessary functions of its life processes. It must in turn act as arms, means of locomotion, and digestive system. The results are elementary, because the facilities for work are most elementary. There are no specialized forces and consequently no high type of life. The human body occupies a position of the strongest contrast to this simple one-celled creature and it owes its high position in the scale of life, to the fact that there is every provision for specialized activities and for perfect cooperation between the organs that perform those activities. The millions of cells that make up the body are so formed, so grouped and so related as to fit each cell and each class of cells for its special work.

POSITION AND STRUCTURE OF ORGANS

Body Cavities—The body is divided into two cavities by means of a tough membrane called the diaphragm. The upper cavity is called the thorax. The lower cavity is called the abdominal cavity.

I. Organs of Respiration

These organs are located entirely within the chest cavity or thorax.

The thorax is lined with muscles which have an inner lining of a delicate membrane called the pleura.

The trachea is a tube which connects the nasal passages with the lungs. It is made up of a series of cartilaginous rings which are connected by means of muscles.

The right and left bronchi branch from the lower end of the trachea to the right and left lung. The bronchi are like the trachea in structure and they, with their many branches, form a net work of tubes through the lungs. Each tube leads to a small cell or air chamber. The spaces between the tubes and air cells are filled in by connective tissue, which joins all parts of the lungs into a spongy mass of tissue. The whole is given stability by the tough cartilage in the bronchi that extend through the lungs.

II. Organs of Digestion

The digestive system begins with the teeth and extends through the entire body. It is really one long tube called the alimentary canal. The chief subdivisions of the system are, mouth, stomach, intestines.

The mouth consists of lips, teeth, tongue and palate (roof of the mouth). The mouth leads directly into the pharynx, which lies directly back of the trachea. The pharynx is the upper part of the long tube called the oesophagus. The oesophagus is connected with the pharynx at its upper extremity and with the stomach at its lower extremity. The oesophagus is a muscular tube. It is located midway between the right and left side of the body lies directly back of the trachea.

The stomach is a muscular bag lined with a mucous membrane. It lies directly below the diaphragm and to the left side of the body.

The mucous membrane which lines the stomach contains many glands which supply the digestive fluids. The capacity of the stomach is about three pints.

The narrower end of the stomach joins the small intestine at the right side of the body, directly back of the liver. This opening of the stomach into the intestines is called the pylorus.

The small intestine is a tube-like organ composed of muscle and lined with a delicate membrane. It occupies the middle portion of the abdominal cavity and lies directly below the stomach. The many folds of the small intestines are attached to the body wall by means of a membrane called the mesentery.

The small intestines join the large intestines at the lower part of the abdominal cavity on the right side of the body. The appendix is attached just below this point.

The large intestine extends up the right side, across the abdominal cavity, just below the stomach and down the left side of the abdominal cavity.

The mucous lining of the intestines contains glands which produce digestive fluids.

The pancreas and liver are glands which supply digestive fluids, which are poured into the intestines. These fluids and their uses will be studied in a following lesson.

III. Organs of Circulation

The heart is a muscular organ located in the central part of the chest cavity, between the lungs. It is slightly nearer to the left than the right side of the body. It is just above the diaphragm.

The heart consists of right and left sides, which are entirely separate compartments. Each side consists of a large chamber called the ventricle and a small chamber called the auricle. The ventricles are provided with a very strong muscular wall.

The valves are little trap doors which control the direction of the flow of blood. They are located between the auricles and ventricles and between the ventricles and arteries.

The arteries are muscular tubes that carry blood from the heart to all organs of the body. The veins are muscular tubes that carry blood from the organs to the heart. The veins have little pocket-like valves.

IV. Organs of Excretion

The skin, which covers the entire body, is composed of three layers: The outer layer, called the epidermis, is the tough, protective layer. The second layer, or dermis, contains the blood vessels which feed the skin. The under layer consists of a loose tissue and contains the glands which secrete the perspiration. This secretion is conducted to the surface of the skin by means of tubes that extend from the gland to the surface of the skin and deposit the secretion through the pores of the skin.

The lungs are active as excretory organs. Their structure has been considered under respiration.

The kidneys are bean-shaped glands. The center of the kidney is a basin called the pelvis. Opening into this pelvis are great numbers of ducts which end in small cavities which secrete the urine. The secretion is carried by the ducts to the pelvis of the kidney, and from the pelvis through a long tube called the ureter to the urinary bladder.

The intestines are provided with a strong layer of muscles which contract and force the wastes from the body. This makes the intestines very important organs of excretion.

V. Protection

The skin covers the delicate parts of the body and prevents the entrance of harmful material and organisms.

The bony frame work of the body gives the body its shape and stability and protects the delicate organs from injury.

The bone is fed by means of a tough covering called the periosteum. This membrane contains many blood vessels which feed the bone through its spongy surface. The process of feeding is aided by the fact that the bones are hollow and are filled with marrow. The bone is provided with a system of canals or tubes which conduct food throughout the entire bone.

The organs of the chest cavity are protected by the spine, ribs, clavicle, sternum and scapula.

The spine consists of 33 bones called vertebrae. These bones are separated by masses of spongy bones. They are bound together by strong tissue called ligaments. The ribs are flexible bones which have the front ends attached to the sternum and the back ends attached to the spine.

The scapula is the broad, flat bone called the shoulder blade.

The clavicle is the collar bone. It is attached to the sternum in front and to the scapula at the back.

The brain and other organs of the head are protected by the skull which is made up of separate bones. The frontal occupies the front part of the head, the two temporal bones are directly above and back of the ears, the occipital bone is located between and below the temporal bones, the two parietal bones are located between the temporal bones and above the occipital bones.

The organs of the abdominal cavity are protected by the spine, the ribs and the pelvis. The pelvis is a strong arch-shaped bone. It is attached to the spine. It curves up and toward the front, forming a sort of basin which supports the organs of the abdominal cavity.

The nervous system sends its branches to every part of the body and serves as protection because it gives warning of danger. The blind man feels the presence of the stove through the nerves of sensation, and avoids being burned.

VI. Organs of Stimulation

The chief organ of stimulation is the brain. The brain consists of a fore-brain called the cerebrum and the hind-brain. The hind-brain is made up of the cerebellum which is at the extreme back of the head, the pons varoli, which is directly under the cerebellum

and the medulla oblongata, which joins the spinal cord. The medulla oblongata is also known as the bulb.

The outer covering of the brain is a tough membrane which conforms to the many convolutions of the brain. These convolutions are a striking example of the economy of nature. Much of the brain surface has been stored away in the skull because of these convolutions.

The spinal cord is a tube having thick, protective walls. It is composed of white and gray matter just as the brain is. The spinal cord joins the brain just below the bulb (or medulla oblongata) and occupies the central cavity of the spinal column. The spinal column protects this delicate organ from injury. The spinal cord sends out nerve branches to all parts of the body.

VII. Organs of Activity

Motion—The bones of the body are so constructed as to aid motion. The fact that they are hollow makes them light, gives them added strength, and prevents shock to the organs of the body.

The bones are provided with joints to suit each purpose. The head is attached by a pivot joint, because it is necessary to turn the head in all directions. The elbow has a combination of hinge and pivot joints.

The upper arm and the upper leg are attached by ball and socket jonts which allow them to move freely. Hinge joints, which allow free motion backward and forward, are located at the wrist, knee and ankle.

The joints are held in position by means of tough cords called tendons.

The bones are covered with layers of tough muscle that contract and expand when they are stimulated by the nerves which lie within the muscles.

Speech—The larynx is the upper end of the trachea. It is composed of tough walls of cartilage. The vocal cords are tough muscular cords which are stretched across the larynx. As the air is forced over these cords, they are caused to vibrate. The vibration causes the sound. The hard palate acts as a sounding board and intensifies this sound. The muscles of the lips and tongue contract and help to formulate the sound into speech. The teeth help to retain the sound, and are an aid in the process of speech.

VIII. Organs of Sensation

Sight—The eye is protected by a tough outer coat called the sclerotic coat. This is seen in the white of the eye. The inner coat called the choroid contains blood vessels which nourish the eye. It also contains black pigment whcih prevents the entrance of light except through the cornea.

The cornea is the front part of the eye ball. This part of the eye is covered with the sclerotic coat and is transparent. It is not covered with the choroid coat. The choroid coat is folded back to form the iris which is the colored part of the eye. The opening in the iris is called the pupil which allows the rays of light to enter the eye. The pupil is provided with muscles which contract when light is too strong. This is one of Nature's plans for protecting the eye.

Directly back of the pupil of the eye, there is a lens which helps to bring the rays of light to a focus. The portion of the eye in front of the lens is filled with a fluid called the aqueous humor. The portion of the eye back of the lens is filled with a liquid called the vitreous humor. These liquids act with the lens in bringing the rays of light to a focus.

The inner coat of the eye is called the retina. It contains the fibres of the optic nerve and is the sensitive plate for the rays of light. The optic nerve branches out from the retina and connects with the visual center of the brain.

Hearing—The sense of hearing is due to the vibration of sound waves upon the tympanum which is a tough membrane that is stretched across the opening between the outer and

inner ear. The outer ear collects the sound waves and conducts them to the tympanum and then on into the inner ear.

The inner ear consists of a chamber which contains three small bones called the anvil, stirrup and hammer. Sound waves are picked up by this chain of bones and carried through a sort of spiral chamber to the cochlea. The inner ear stands in relation to sound just as the retina does to sight. It is the sensitive surface that picks up the sound waves and conducts them to the auditory nerve. The fibers of the auditory nerve lie in the inner ear and branch out into the auditory nerve which is connected with the brain.

The eustachian tube connects the inner ear with the pharynx.

Smell and Taste—The nerves of taste end in little papillae, which give the rough appearance to the tongue. The sense of taste is conducted to the brain by the stimulation of the papillae and by means of the nerves of taste.

The nerves of smell end in the same way in the nasal passages and produce the sense of smell.

Position—Some physiologists consider that the sense of position is due to the fact that the controlling nerves end in the semi-circular canal of the ear. The change in the position of the fluid in this canal stimulates the connecting nerve and causes the sensation of changed positions.

Hunger and Thirst, Cold and Heat—These sensations are due to the bodily conditions that exist at the nerve ending. The sensation is carried by the nerve to the brain.

The structure of the body illustrates most clearly the value of specialized working forces which are perfectly cooperative and thoroughly organized into one powerful whole.

THE RUNNING OF THE MACHINE

I. Digestion of Food

A dinner may consist of roast beef, potatoes, bread and butter, plum pudding and tea. How is that food digested, or in other words, changed in such a way that it can become a part of the body?

In this study of digestion, begin with the bread and let that represent the whole class of starchy foods. The principal foods in this class are potatoes, corn, rice, cereal foods of all kinds, all kinds of flour and foods made from them, peas and beans.

Digestion in the Mouth—The bread is thoroughly masticated by the teeth. This breaks it into fine particles and makes it easily dissolved. The salivary glands, which are located below the jaw bones and near the ears, manufacture the saliva and deposit it in the mouth. The flow of saliva is increased by the thorough mastication and is also stimulated by the flavor of the food.

The saliva contains water which moistens the food and a substance called ptyalin which changes the starch to dextrine. The change to dextrine is the first step in the change of starch to sugar. There is a slight change to maltose.

Digestion in the Stomach—The bread passes into the stomach and the digestion continues until the bread becomes mixed with the acid of the stomach. After that starch cannot be digested in the stomach. There is very little digestion of starch in the stomach.

Digestion in the Intestines—The bread passes from the stomach into the intestines, where it is acted upon by the amylopsin of the pancreatic juice. The juice is poured into the intestines from the gland called the pancreas. The amylopsin changes the starchy part of the bread to a substance called maltose. The maltose is acted upon by the intestinal juices and changed to glucose and fructose, in which form it is found in the blood.

The slice of bread has been acted upon by the teeth, saliva, amylopsin and intestinal juice and has now entered the blood circulation. As the glucose passes into the liver, a portion of it is stored away for future use in the form of glycogen. Glycogen is also stored

in the muscles and white blood corpuscles. This supply acts as a reserve source of heat and is given out in the blood stream as needed.

The dinner suggested provided roast beef. Its digestion will be considered in the same way. The digestion of the roast beef represents the process of digestion for all protein. The chief protein-giving foods are lean meat, eggs, cheese, milk, fish, peas, beans, macaroni.

Digestion in the Mouth—The beef is thoroughly masticated by the teeth and is softened by the saliva. The saliva has no power to digest protein.

Digestion in the Stomach—The stomach is provided with a digestive fluid called gastric juice. The gastric juice consists of hydrochloric acid, pepsin and rennin. The acid acts as an antiseptic and helps to counteract the effect of harmful substances that may have entered the stomach. The rennin changes the protein of milk into a curd. Gastric juice as a whole is only slightly active in the digestion of protein. It does change protein to proteose and peptone, but only slightly. The stomach is more a storehouse for food that is waiting to enter the intestine, than a means of digesting food. The chief purpose of the gastric juice is to aid in digesting protein, converting proteids into peptones, a substance easily assimilable to the blood stream.

Digestion in the Intestines—The pancreatic juice is a strong alkaline fluid. The action of the ferment called amylopsin has been studied in the digestion of the slice of bread. The ferment called trypsin is the active ferment in digesting protein. The mass of food which enters the intestine from the stomach is strongly acid. The ferment trypsin cannot act in an acid medium, but the strong alkali of the pancreatic juice is sufficient to neutralize the acid at once. The trypsin acts upon the protein and changes it to peptone and proteose. The pancreatic juice is aided by the intestinal juice in preparing peptones and proteose for the blood. The ferment of the intestinal juice breaks up the peptones and proteoses into simpler forms. The digested protein foods are taken by the cells in the form of amino acids.

The butter and the fat of the plum pudding in the suggested dinner are digested by means of ferments, not yet considered, and the action of these ferments will be studied next. The chief fatty foods are butter, cream, olive oil, cheese and fat meats.

Digestion in the Mouth—Fatty foods are thoroughly masticated and moistened in the mouth, but no digestion takes place there.

Digestion in the Stomach—The fatty foods pass into the stomach and are stored there until they pass into the intestines; but very little digestion takes place. Fats are slightly emulsified in the stomach and stomach lipase has slight action upon fat.

Digestion in the Intestines—The pancreatic juice contains a ferment called lipase. This ferment has the power to change fats into fatty acids and glycerin. It also splits the fat into small globules, making an emulsion of the fatty mass. The contents of the intestine are alkaline and the fatty acids combines with the alkali, making a soapy mixture very similar to the soap which is made by heating fat and lye together.

SUMMARY

Ferments	Fluid	Organ	Results
Ptyalin	Saliva	Mouth	Starch to maltose
Amylopsin	Pancreatic	Intestine	Starch to maltose
Investase	Intestinal	Intestine	Sucrose to glucose and fructose
Rennin	Gastric	Stomach	Coagulates casein
Pepsin	Gastric	Stomach	Protein to proteose and peptones
Trypsin	Pancreatic	Intestine	Protein to proteoses and peptones, polypeptids and amino acids
Erepsin	Intestinal	Intestine	Splits peptone into amino acids and ammonia
Lipases	Gastric and Pancreatic	Stomach and Intestine	Fat to glycerin and fatty acid

2. Assimilation of Food

The process of digestion has changed the food into soluble form which can be absorbed by the tissues. The next step in the feeding of the body is the absorption of these foods. This takes place almost entirely in the small intestine. The surface of the small intestine is provided with microscopic tube-like projections called villi. The villi absorb the food and through the villi it is conducted into the circulation of the blood.

Starch and Sugar—After starch and sugar are digested, they are absorbed and enter the blood as glucose. They are taken to the liver and a portion of them stored as glycogen. This supply of glycogen is given out into the blood from time to time, in the form of glucose. The glucose must be carried to each cell of the body and become a part of each cell of the body before the body receives any benefit from it. As the oxygen in the cell combines with the food, the blood becomes a part of the cell or is assimilated. As this process takes place, a gas called carbondioxide is formed. This gas is a waste that is disposed of by means of the lungs.

Protein—The digested protein is absorbed by the villi of the small intestine and poured into the blood. The protein was changed to peptone by the gastric juice in cooperation with the tripsin in the pancreatic juice. The erepsin of the intestinal juice breaks the peptone into simpler substances which can be safely taken into the blood.

Steps in Digestion of Protein—Proteose, peptone, peptid, amino acid.

Fat—The digested fat is absorbed from the small intestine by means of tube-like vessels called lacteals. From the lacteals the digested fat enters the blood circulation.

3. Circulation

The blood is the medium for carrying food to all parts of the body and for removing wastes from the body.

Structure of the Blood—The blood consists of red blood corpuscles, white blood corpuscles and a fluid called plasma. The red blood corpuscles carry oxygen to the tissues of the body by means of the hemoglobin which they contain. The white blood corpuscles have a number of uses, but they are chiefly of value in removing poison from the blood. For this reason they are active in healing a wound. The plasma is the fluid part of the blood and is 90 per cent water.

The heart is a pump which forces the blood through the body. (Study structure of heart in Lesson I.)

The veins open into the auricles. The arteries open into the ventricles. (Study veins, arteries, auricles and ventricles in Lesson I.) It will be well to secure the heart of some animal and to locate these organs.

The flow of blood is regulated by means of the two sets of valves. There is a valve between each auricle and its connecting ventricle. There is also a valve between each ventricle and its connecting artery.

Course of Blood—To study this take the circulation at some given point and trace the blood back to that point. Beginning with the left auricle, the blood flows into the left ventricle. The valve prevents the backward flow into the auricle. From the left ventricle, certain branches of the aorta feed the head, neck, shoulders and arms. Other branches feed the organs of the pelvic cavity and the legs. From these organs the blood is carried by the veins to the right auricle, from the right auricle to the right ventricle, from the right ventricle through the lungs, from the lungs to the left auricle, from the left auricle to the left ventricle, and then it takes the same course through the body again.

Important—The blood which leaves the left ventricle to pass through and feed the organs of the body never reaches the left ventricle again until it has passed through the lungs. The lungs are the repair station for the blood. They supply the blood with fresh oxygen and provide an outlet for impurities.

The nervous system stimulates the action of the muscles of the heart and thus regulates the system of circulation. The perfection of the heart action depends primarily upon the healthy, normal condition of the nervous system.

4. Respiration

The nasal passages are provided for the entrance of air into the lungs. If the air is taken in through the mouth, it is an indication that there is an obstruction in the nasal passage, or that an improper method of breathing has become habitual.

The lining of the nasal passages is covered with a hair-line growth called cilia. This sieve formed by the cilia helps to strain out the dust and other injurious substances and provides a strong argument in favor of proper habits of breathing.

The air passes from the nasal passages to all parts of the lungs, if deep, full breaths are taken. Proper breathing means that the ribs and the diaphragm are exercised. This cannot happen if the clothing is too tight. This will not happen unless the attention is called to the importance of long, deep breathing. It is the function of the process of respiration to remove the impure air from the lungs, to introduce pure air and to strengthen the controlling muscles by means of exercise. The fulfillment of this function of the body and upon a sufficient amount of pure air to breathe.

Nature demands that we:

1. Breathe deeply, exercise ribs and diaphragm.
2. Breathe through nostrils.
3. Hold chest high.
4. Hold shoulders down and back.
5. Do not handicap ribs and diaphragm by tight clothing (belts and corsets).
6. Ventilate sleeping and living rooms.
7. Ventilate school room.
8. Ventilate church, lecture room, office room, factory and railway train.

Note—Ventilate means—Provide means for the entrance of pure air and the exit of impure air.

5. Excretion

Food is taken into the body. It is acted upon by ferments and so digested. The digested portion is taken into the blood and carried to the cells of the body. These processes leave waste matters that interfere with the working of the organs of the body, very much as soot and ashes interfere with the working of a heating plant.

Nature has foreseen this condition and has amply provided the body with means of removing these wastes. (Study organs of excretion, Lesson I.)

The surface of the skin is covered with pores that are the opening of tube-like ducts that leads to the perspiratory glands in the under tissues of the skin. These glands gather poisonous wastes and pour them out upon the surface of the skin (chiefly carbon dioxide). The perspiration collected by these glands consists of water and solid matter. The evaporation of the water removes heat from the body.

The skin and the kidneys work hand in hand. If the skin is suddenly chilled, the action of perspiratory glands is retarded and the kidneys become overworked. If the skin does its duty the kidneys are relieved. (Study structure of kidneys in Lesson I.)

The tubules of the kidneys gather waste substances from the blood and deposit them into the basin of the kidney. From this it is discharged through the urinary bladder.

The amount of secretion from the kidneys is increased by the use of proteins, the use of water, and by exposure to cold. Water acts as a solvent for the solid constituents of the urine, for that reason an abnormally great secretion of urine removes too much water from the kidneys and thus prevents the solution of the solids in the urine.

The lungs act as organs of excretion in that they remove carbon dioxide and other substances which are waste products after digestion and assimilation have been completed. (Study respiration, Lesson II.)

The intestines remove the waste of digestion. The regularity and thoroughness of their work depend upon the care of the body.

Foods: Foods containing cellulose give bulk to the food and help to strengthen the muscular lining of the intestines, because they force the muscles to push in order to force the food through the body. Foods like lettuce, celery, cabbage, cauliflower, onions, prunes, dates and rhubarb are laxative because of their bulk. Other foods like cream, butter, olive oil and fat meats are laxative because they are lubricants. Exercise and ample amount of water and massage are also important in promoting the proper excretory function of the intestine.

The body is so wisely planned that the cells are able to render harmless a certain amount of the poisonous wastes of the body and each of these organs in the excretory system have an important function to perform. Nature has planned so well that a little common sense habitually made use of in attention to diet, ventilation, exercise, sleep, rest, clothing and power of relaxation would make aches and pains strangers to the human family. Take care of the excretory organs. Give the body a thorough cleansing by means of them.

CARE OF THE MACHINE

The essentials of success in the management of any machine are, thorough knowledge of its parts and their uses, an appreciation of its value, a thorough understanding of the results of harmful treatment and an active conscience concerning the care of the machine. These essentials of success apply most vitally to the care of the human machine. Disease is not an accident, but failure, with reference to some of these essentials.

This lesson will give some definite suggestion concerning the care of each system of the body.

1. Organs of Digestion

Plan the meals wisely. Make them provide the body with just food enough to sustain the body, not to destroy it. Make them provide foods to suit the age, occupation, climate and condition of system. Make them represent a wise amount of each of the five principles. (Study lesson on foods.)

Masticate food thoroughly. This increases the flow of the digestive fluids and renders the food more soluble when mixed with the digestive fluids.

Do not eat when excited, angry, anxious or over-tired.

Experiment—A scientist introduced a piece of metal into the digestive tract of a dog and then studied its progress with an X-ray instrument. The metal was seen to move through the system very easily until the dog was made angry. At that the metal ceased to move. The dog was soothed and the metal moved on as at first. This illustrated the ill effect of overwrought feelings upon the process of digestion.

Do not eat highly seasoned foods. Seasonings are a stimulant to the nerves of taste and are of value if used moderately. They also stimulate the flow of digestive fluids and so are of value if used moderately. The overuse of seasonings and spices weakens the nerves of taste and the nerves that control the flow of digestive fluids because it makes them work harder than nature intended them to work. Do not eat at irregular intervals. Do not eat

a heavy meal late at night. Do not eat rich foods frequently. Do not use condensed foods like cheese too freely. Do not use iced drinks. Use tea and coffee moderately if at all. Do not fill the system with medicine. Let proper diet and proper habits of eating keep the body in good working order.

2. Organs of Circulation

Perfect circulation carries food to each cell of the body and carries away the waste material from each cell of the body. Perfect circulation depends upon:

a. Exercise in the open air.
b. Clothing that does not restrict the organs of the body, whether the article of clothing be collar, shoes, belt, corset or gloves.
c. Absence of stimulating foods in the diet, whether it be too much meat, too much tea or coffee, or too much of highly seasoned foods.
d. Sufficient rest and sleep.
e. Power to keep the nerves under control and thus, to relax the muscles of the body.
f. Sufficient recreation of the proper sort. Recreation is that which recreates, which makes as good as new. So-called recreation that does not pass that test should not be indulged in.

3. Organs of Respiration

The perfect working of these organs depend upon:

a. Breathing through nasal passages.
   The cilia in the nasal passage sift out the dust and other solid matter that would act as an irritant if not as a poison to the throat and lungs.
b. Habit of taking long, deep breaths.
   This fills each sac of the lungs with pure air and helps to remove impure gas and solid matter from the lungs. It also strengthens the muscles that control the ribs and strengthens the diaphragm.
c. The habit of holding the body properly.
   The chest cavity is expanded by holding the chest out, the chin up and the shoulders down and back.
d. Attention to good ventilation in homes, school, church, railway train, office and factory.
   The air of the room is being filled with impurities from the breath of the occupants. These impurities are taken back into the system if there is no arrangement for the exit of impure air and the entrance of pure air. Good ventilation is especially needed in the sleeping room and all public places.
e. Sufficient amount of outdoor exercise.

4. Organs of Excretion

a. Care of organs of respiration as discussed in 3.
b. Care of kidneys.
   A sufficient amount of water is necessary to dissolve the solid matter that accumulates in the kidneys.
   A moderate use of stimulating foods like meat, tea, coffee, spices and rich foods. These are too stimulating to the kidneys.
   A moderate use of sugar and starch is wise. An overuse is one of the causes of diabetes.
   Sufficient rest and relaxation; lack of nerve control is one of the causes of diseased kidneys.
c. Care of the skin.
   If skin fails to do its work the kidneys are overworked and thus weakened.

d. Protection from cold.

Severe chilling of the body prevents the skin from doing its work and thus weakens the kidneys.

e. Removal of waste through intestines.

The muscles of the intestines must be strengthened by exercise, just as the outer muscles must be strengthened. Foods which contain bulk help to strengthen these muscles, because it is necessary to push in order to force these foods through the body. Some of these laxative foods are lettuce, celery, radishes, onions, green corn, tomatoes, turnips, rhubarb, prunes, figs, dates, apples. Other foods are laxative because they are lubricants. These foods are water, butter, cream, olive oil, fat meats, molasses and honey.

Exercise stimulates the action of the intestines.

Massage strengthens the muscles and stimulates action.

Regular habits of eating, thorough mastication, moderate use of sweets aids the action of the intestines in removing wastes.

Too great stress cannot be laid upon the importance of the organs of excretion. Ample provision has been made by nature, but personal carelessness too often causes disease. Wastes that are not removed are reabsorbed by the tissues and act as poisons. This condition is made evident by tendency to take cold, frequent sore throats, headaches, rheumatism. These and other conditions indicate a debilitated condition of the system.

5. The Nervous System

The proper working of all of the organs of the body depends most vitally upon the condition of the nervous system, since all stimulus to activity, whether it be digestion, circulation, respiration, excretion, sensation or thought, comes from the nervous system. The care of the nervous system must, in the first place, take proper food into consideration. Foods that are too stimulating, like tea, coffee, meat and highly seasoned foods, should be used moderately.

Fresh air, exercise and sufficient protection from cold help to keep the nervous system in healthy condition.

The habit of sleeping seven or eight hours each night is of prime importance.

The habit of working earnestly at something that is thoroughly worth while, for at least 9 hours a day, helps to keep the nerves in good condition if this work is followed by periods of recreation of some sort.

The habit of nerve control is absolutely essential and more easily acquired when the other points mentioned have been earnestly regarded. The nerves are delicate organs and become weakened if they are constantly kept alert. They must be allowed to relax and to rest thoroughly at some time during each day.

The body is a wonderful mechanism, and like every complicated machine, it must have thoroughly intelligent and conscientious care if it is to perform satisfactory work and last its full time.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

TAKE STOCK OF YOUR LOOKS

Every woman can be good looking—if she will take as careful stock of her looks as she does of her pantry and not neglect the little things.

Begin with the item of health. Is it "all there?" If not, what is missing? Find it and correct it. There are signs or symptoms which will reveal the deficient items in every case. Without the health right, one can no more build good to look upon than a picture can be wrought by the most skilled artist without the canvas upon which to put the pigment.

Is your breath bad? It may be due to decayed teeth, catarrh, a sluggish condition in the stomach or the alimentary canal. Your breath may be bad and you not know it—you would not catch the odor yourself. Nothing is more offensive to those you come near than the whiff of a foul breath, but few friends have the courage to tell you of this. If you are occasionally subject to this, find the cause, learn to recognize it when it appears—and put a stop to its recurrence.

The item of indigestion, or constipation, is neglected by far too many of us. It is the most fertile cause of many blemishes to good looks, as well as the most frequent miscreant of bad breath. It makes for headaches, pimples, muddy complexion, a general feeling of dullness, an ugly disposition and any number of other complaints.

The remedy at times may be in laxatives; but permanent correction of the condition can be found only in exercise, careful eating, and the copious drinking of water, including hot water sipped slowly a half hour before breakfast. The exercise must take the form of abdominal movements and massage of the liver and bowels. There are literally hundreds of good "health exercise" systems published from time to time in magazines and countless are the books printed on the subject. The particular system selected is of less importance than that you take up one good, simple system of not too many or too difficult movements, then follow it regularly, and put your thought into seeing that the movements are gone through with in a way to really exercise the muscles until they are tired (but not exhausted) and that you do not in a few days get into the habit of listlesly performing the motions without any real muscular "pep." The glass of hot water is a most wonderful tonic. Put some lemon juice in it—no sugar—or a pinch of salt if not the lemon. Take it as hot as you can. Sip it slowly—don't just drink it down. Do this on rising, before dressing. It passes immediately through the stomach, clears the latter of the alkalis or other juices left there, and puts it in fresh clear condition to start the day right when the breakfast reaches it, and it passes on into the bowels and puts them into fit condition for their work.

After the hot water, take the exercises. After the exercises take your morning bath.

You are then in literally clean and fit condition, inside and out, to break your fast, and start the fresh day with a fresh body.

Take a glass of cold water just before retiring at night.

Drink at meals, moderately if you want to, but rather between courses; **do not** use water to "wash down the food." No matter how dry the latter keep it in the mouth until the saliva takes care of it.

Drink copiously between meals—two glasses of cold, not ice cold—water, an hour or two after each meal. A copious water diet, as above, and a breakfast principally fruit, will almost guarantee freedom from constipation and indigestion. Add the exercises for the ab-

dominal muscles and massage the liver and bowels, and the guarantee is absolute, unless of course the patient is chronically wrong, or persistently indulges other habits or appetites that counteract all of his good work through these agencies.

Continuous daily eating of foods that do **not** agree with him, dissipation, alcoholic indulgence, and most especially irregularity in stools—which must be rigidly regular at the same hours every day—these things, usually will cancel the most patient and faithful attention to "cures."

Coated tongue and hot dry lips go with a bad breath and announce also a bad condition along the alimentary tract.

Dry and yellow skin is usually due to the fact that one does **not** drink enough **water.**

To you who are too stout; cut down on your diet—and cut again, and again—and don't "make up for it" by an occasional big meal, just as you are beginning to feel starved. Get out of doors and take lots of exercise. Avoid sweets, milk, cream, fat meats and especially potatoes. Live mainly on lettuce, cabbage, spinach, just a very little of lean meats, young onions, celery, tomatoes, and very acid or tart fruits when you take any. Take salted toast instead of bread and butter. Cease to give yourself fat making food and you will cease creating fat cells.

But you must really practice self-denial, and stay actually hungry most of the time for many weeks until your entire system has become accustomed to the new regime. It is astonishing how you will get used to it and get over that constant hunger, if you interest yourself in other things than food, and exercise enough.

The Bath—On the whole, the warm bath, at about bodily temperature—not the **hot** bath, is best for the average individual. It should be followed by colder water—let the cold water run into the bath until there is a decided chill to it, then take a quick plunge that almost makes you gasp but is not a real shock to the system—then get out and rub yourself vigorously with a rough towel until the skin glows.

The warm bath opens the pores and cleans you; the colder plunge closes the pores and prevents your taking colds easily; the rub starts the circulation and tones up the system, leaving the skin in a glowing, healthful condition.

The **very** cold plunge or shower alone, strenuously advocated by many people, is not good for the average individual of sedentary habits of life. It is suitable under proper conditions for the athlete, or for those who lead a very active life; under certain specfiic conditions it fits specific cases but it is not ordinarily desirable for the ordinary man.

BATH, COMPLEXION, FACE AND SKIN

Bath Bags are made by filling a thick muslin or thin calico bag with two thirds of bran or oatmeal, and bits of soap and orris root, to give a sweet savor. Let this soak in the water before entering the bath, then make a splendid lather all over the skin. Use this only two or three times a week. Use a bag only twice; once it sours it does more harm than good.

Good Bran Bags can be purchased from almost any druggist. But if you prefer you can make them yourself. Mix equal parts of powdered oatmeal and bran together and to a pint add half a cup of powdered soap. To this add about an ounce of powdered orris root. Fill small bags and use in the bath.

Bath Powder—Mix 8 avoirdupois ounces each of powdered borax and white castile soap. Perfume with a mixture of oil of lavender flowers, 1 fluid drachm; oil of rosemary, 1 fluid drachm; oil of bergamot, 2 fluid drachms; oil of lemon, 4 fluid drachms; oil of cloves, 8 drops.

Bath Lotion—To wipe over the body with a wet cloth as a refreshing lotion; one-half pint of pure cologne, two ounces of spirits of camphor, two ounces of spirits of ammonia, five ounces of salt, and enough boiling water to make a quart. It can be rubbed into the skin with the hands, and is particularly good to use as a rub after a long walk or much exercise. Shake bottle before using.

Care of the Skin—Does your skin look wilted, dry and drawn? Are you prematurely old looking? Do not blame it on hardship, but on your own indolence. Probably you seldom wash your face clean. Not one woman in ten really has a clean face. If you think your duty done by a dab with a wet cloth night and morning, with possibly an extra dab between if you have a social engagement, then is your face not clean.

It is not necessary to spend money on getting a clean face. Cream lotions and massages are desirable; they are not indispensable.

Use Complexion Brush—A good complexion brush with stiff bristles, costing from 75 cents up, will last for years if kept sanitary.

With such a brush and pure soap and water one can get beneath the upper layer of oil into the underlying tsisues, and the dead, wilted look will disappear with the increased circulation induced.

Do not wash with hard water. If your water has lime in it or if filtered with alum see that it is softened with a pinch of borax, soda, or a drop or two of benzoin.

You may not be able to afford skin foods and massage creams but you can fill small bags of cheese cloth with oatmeal or barley and use them once a day on the face.

Perhaps costly lotions for cleaning the skin are not for you; but skim milk is cheap and effective, so also is a wash basin filled with lukewarm water in which a potato or slices of lemon have been soaked.

Some complexions will not "accept" soap and water, others cannot endure oil cosmetics. There is as much difference between complexions as there is between digestion—what is food for one is poison for another. As a general rule for the average skin, the soap and water bath at night is of great benefit. To retire with the dust and grime of the day remaining on one's countenance is to treat one's face to insult.

Simple Beauty Rules—If the girl with the bilious yellow complexion and dark circles under the eyes, and the one whose chest is undeveloped from improper breathing and habitual stooping, and the one whose eyes are dull from perhaps a half dozen reasons, would follow some simple hygienic rules in their own homes instead of putting their money into things "guaranteed to remove every blemish," or bust developers or patent lotions, eye brighteners—there would be more pretty girls and fewer quack beauty parlors.

Here are a few simple rules of beauty and hygiene:

First—A daily bath, or at least a sponge followed by a good brisk rubbing.

Second—Five minutes spent in deep breathing exercises.

Third—Five minutes exercise or massage for the liver.

Fourth—Eight glasses of water a day—two when you get up, two during the morning, two during the afternoon, and two before you go to sleep.

Fifth—Seven or more hours of sleep in a room with open windows.

Sixth—Persistent cheerfulness.

Fruit Aids Beauty—Many fruits are appetizing, nourishing, refreshing and purifying, besides being food of a high order, therefore are of value to women in search of beauty.

Apples, grapes, figs and dates are very nutritious and furnish a wholesome way of eating sugar. Black grapes and ripe peaches are fattening and easily digested when baked and eaten with cream; unless the digestion is good they should not be eaten raw in connection with farinaceous foods. Oranges, lemons, limes, grapes and apples are especially good for the complexion.

Nourishing Cold Cream—Cold creams are like soap; that which agrees with one skin may not with another. Only by experimenting can one secure the mixture that is nourishing. Some persons are strong advocates of witch hazel cream, and there is no doubt of its efficacy for those with whom it agrees. Besides being soothing, it has the virtue of bleaching the complexion.

Fresh Cream—There is a most delightful cream which works veritable wonders if employed as soon as it is made and never after it has been mixed more than a week or so.

Bleach for the purpose four ounces of sweet almonds and pound them until they are quite smooth, add the yolks of three eggs and mix with fresh milk or cream; boil as you would a custard until it thickens; then add the perfume you prefer. Seal while hot.

Complexion Cream—One of the best preparations for the complexion is an equal quantity of tincture of benzoin and glycerine. It is applied as any cold cream.

For Dry Skin—When the skin becomes dry and peels from the face, the skin lacks the natural oil. To make the face smooth again, a good greasy skin food should be used to supply the oil that is lacking in the skin. Each night massage a good skin food into the face for about ten minutes, then leave a portion of the cream on the face over night. Don't use powder or soap on the face for a few days. Instead of soap cleanse the face with oatmeal, which is at any time an excellent cleanser.

To Whiten—For whitening the throat make a thick soap jelly by shaving a bar of white soap into a pint of boiling water. Allow it to dissolve and cool. Lather the throat with this, then rinse in hot water, and massage the throat with a cut lemon. Lemon is one of the best bleachers.

A lotion recommended to whiten a red nose is made of seven and a half grains of tannic acid and two and a half ounces of camphor water. After the acid is dissolved the nose is moistened several times, day and night, the liquid drying on.

Lavender Water is easily manufactured at home at small cost. Take half a pint of rectified spirits, two drams of essential oil of lavender, and five drops of attar of rose. Shake well together till properly mixed. Keep it in a well-corked bottle.

An Astringent Wash will harden the flabby tissues and counteract the oily condition of the skin. Take a half pint bottle and into it put one and one-half ounces of cucumber juice, half filling the bottle with elder flower water and adding one ounce of eau de cologne. Shake well. Add one-half ounce of simple tincture of benzoin, shake slightly and fill with elder flower water. Night and morning apply this with a soft sponge.

Freckles—An excellent lotion for light freckles is made of the following: Milk 4 ounces, lemon juice 1 ounce, spirits of wine 2 drams.

Blackheads—To treat the skin for blackheads bathe the face in warm water, which is not too hot but pleasantly soothing to the skin. When the skin is pink and soft annoint it with green soap. Rub it thoroughly into the pores for three minutes and rinse the face with warm water, using a camels hair complexion brush. Then use cold water until the face has become thoroughly cold. Wipe thoroughly with sterilized gauze or cheese cloth. Fill the skin with cold cream dabbed on all over, let it remain for half an hour and then wipe off with a soft cloth. Continue the treatment nightly until blackheads have disappeared.

An excellent eradicator for blackheads is made of one ounce tincture of green soap and thirty drops peroxide of hydrogen. Mix and apply with absorbant cotton, rubbing thoroughly. Let it remain on half an hour and then wash off with cold water. Repeat four times a day.

Starch Face Powder—Here is a simple "starch" treatment which will improve the best of skins and is especially good for brown ones. Milk-wet starch has a decidedly whitening effect on a brown skin, and when dry, makes a perfect face powder.

Bathe the face for five or six minutes in ice cold milk, then before the liquid has time to dry, seize upon tiny cheese cloth bag half filled with powdered starch and holding it over your up-turned face, shake it gently, shifting its position every few seconds until the facial skin is lost to view beneath a coat of white dust. The palm of the hand should now be passed over the face, with a gentle kneading motion, as this "evens" the powder and masks the skin imperfections.

Eyebrows—To increase the growth of the eyebrows, rub pure olive oil in regularly each night.

Wrinkles should be taken in hand early—before they become visible at all. Thirty is none too young to begin a treatment to ward off wrinkles; by forty the little lines may have established themselves beyond repair. All facial blemishes show up much more plainly if the skin is not perfectly clean, healthy and fair; so a dingy, yellowish face should be assiduously guarded against. Soap should not be used on the complexion more than once a week, when a thorough scrubbing and steaming are given. Cold cream should be well rubbed in every night before retiring and the face

bathed afterwards in hot and then cold water. This cold cream treatment will not remove wrinkles, but it will keep the face in such condition that they will not form so readily and can be more easily eradicated.

Wrinkles, unless too deeply seated, in a woman past middle age, will usually yield to persistent massage treatment in conjunction with a good skin food.

If the face is bathed every morning in a cupful of fresh milk, in which a teaspoonful of table salt has been tossed, the muscles will tighten and sagging lines will disappear.

Scars on Face—Many people are bothered with scars, left usually by hard ugly pimples. The face should be carefully steamed every night until the skin is quite clear.

Make a cone of paper and fit one end of it to the face and the other to the outside of a pitcher or a tin pail or kettle. Pour a quart of boiling water into the pail and place the face in the cone. Let the face remain over the steam until the steam ceases to be given off, which will probably be about ten or twelve minutes.

After the steaming pat the face dry, rubbing it gently, and apply some cold cream. The face should be massaged after the effects of the steaming have passed away, and while massaging gently pinch the spots where the scars or marks of the pimples remain.

Puffy Eyes—Bathe the eyes each morning, using an eye cup, and massage gently underneath them. This will help to remedy the puffiness.

You may have some internal trouble that causes the puffy condition under the eyes and makes your complexion sallow. Water is a good complexion clearer. Take olive oil each day or lemon juice unsweetened. The external trouble cannot be remedied permanently while internal causes exist.

Care of the Lips—The best way to treat cracks in lips, that sometimes make their appearance in cold weather, provided the cracks are not where they will break open whenever one laughs, is by astringents instead of greases. Many persons use cold cream or camphor ice at the first sign of such trouble, but they are not so quickly efficacious as spirits of camphor. It is drastic treatment to apply a stinging liquid to a raw spot but if one screws up courage enough to do it the result justifies the hurt. Creams and greases keep the sore places soft and while they undoubtedly allay the pain they do not aid in healing. Any lotion that keeps air from the raw spot relieves, but does not cure. An astringent, by drying the surface, helps form a scab, a natural protection, and healing goes on more rapidly.

When afflicted with a deep crack like a cut in the middle of the lower lip, constant treatment with spirits of camphor is very beneficial. If out of doors all morning a tiny phial of the spirits should be carried so it can be used frequently. It feels like hot shot for a second but the sting soon passes away. The spirits should be put on night and morning also. Camphor ice will act in the same way, but much more slowly. It is often necessary if the wound is located where it must be induced to "heal soft"—that is, if hardening it cannot be done because it breaks open whenever one laughs, or for other cause.

Tincture of benoin may be applied in precisely the same way as the camphor spirits. If it is strong enough to cause an uncomfortable sensation of "drawing" it may be diluted with a few drops of glycerine, using but little of the latter for it neutralizes the astringent.

Another pleasant and healing application is made by a solution of one grain of permanganate of potash in a tablespoonful of clean rose-water. While this is wet on the surface, French chalk should be dusted on.

Cleanse Crack—It is always well to wash any sore spot with a weak solution of boracic acid before applying the astringent. The object of the acid is thoroughly to cleanse the sore.

Red Blood—There is little doubt but that continued cracking of the lip indicates a thin condition of the blood and a physical state below par. Tonics containing phosphates are usually prescribed and iron may be taken. This of course is a matter for physicians to decide and one should certainly be consulted when the lips cannot be healed.

Little sore spots that sometimes stay so long in the corner of the mouth may come from the stomach; frequent applications of bicarbonate of soda will sometimes cure them.

Superfluous Hairs—To treat, take enough pure peroxide of hydrogen to wet the hair and add a few drops of ammonia, which will bleach the hair and make it less conspicuous.

Another Method, to bleach hair on arm: dampen baking soda with cold water and rub over the arms; leave it on several hours, then bathe the arm. Repeat daily until the hair is the shade you desire.

Peroxide and ammonia will bleach superfluous hair and will not destroy the growth.

CARE OF THE SKIN

(Iowa State College Bulletin)

Care of the Skin—"The care of the skin takes on special significance when it is known that from one to two and a half pints of waste matter pass through the skin every twenty-four hours. An exposure to cold or lack of sufficient protection prevents this process, throws the strain upon the kidneys and is liable to derange the excretory organs."

The skin is a very important organ of excretion and must be kept in perfect working order.

Baths—The cleansing bath ranges in temperature from 90 to 95° F. This is so near the normal temperature of the body that no shock is felt, especially if the bath is taken in a warm room. The soap should not contain an excess of alkali. The strong soaps take oil from the skin and leave it dry and rough. All soap should be rinsed from the skin by the free use of clear water. The toweling should be brisk and thorough. The thorough rubbing after the bath increases circulation, and by so doing helps to keep the skin well fed and firm. The cleansing bath is the best taken at night, since it is not only cleansing but relaxing. The fact that much impurity is deposited upon the skin through the perspiration glands makes the daily cleansing bath necessary for comfort, self-respect and good health. If the deposit is not removed the excretion is retarded, because the pores of the skin are closed by the deposit upon the surface of the skin.

The tonic bath is best taken in the morning. It should be cold enough to cause the contraction of the blood vessels at the surface of the body. This contraction sends an additional amount of blood to the heart. The additional blood stimulates increased heart action and sends the blood bounding back to the surface of the body again. This reaction leaves the skin warm and the circulation active. A cold bath should never be taken in a cold room. It should not be taken when one is greatly fatigued and it should not continue more than a minute. The cold bath should be followed by a brisk rubbing. While the cold bath is most beneficial for the normal person, it should not be persisted in unless it leaves the person warm and vigorous.

The curative baths are Turkish, alcoholic, electric, salt, milk and hot water. The Turkish bath opens the pores of the skin and gives the skin a thorough cleansing. It then closes the pores by a cold bath, and relaxes the muscles by a thorough rubbing.

A plain hot water bath opens the pores of the skin and draws the blood away from the inner parts of the body. It is too stimulating to the nervous system to be taken frequently. Its chief purpose is to relieve inflammation in the deeper parts of the body.

Prevention of Colds—Careful care of the skin as has been indicated, helps to remove wastes and helps to maintain the normal condition, and for these reasons becomes a vital factor in the prevention of colds. The fact that a person is easily susceptible to colds indicates that the body is not in good working order. Prevent colds by proper diet, good ventilation, moderate amount of heat in living room, an ample amount of outdoor exercise and a sufficient amount of sleep and rest.

The Hands—It is not necessary for the hands to be rough and red, even though they perform much work. A good, mild soap (like plain castile) and some simple lotion (like glycerine and carbolic acid) will keep the hands soft and sufficiently moist, if used faithfully.

The Face—Do not let the face carry all the worries that have been experienced in a lifetime and do not allow it to become rough and dry. Keep the muscles relaxed by massage. To keep the skin moist and pliable, use a mild soap, and very little of it. Follow the washing by a rinsing in cold water.

Skin Blemishes—Do not depend upon outward applications to remove blemishes of the skin. They are the result of some failure to care for the body properly. Prevent them by proper diet, exercise, ample amount of fresh air, ample amount of sleep, proper clothing. The care of the body determines its condition. Care for the body and there will be no blemishes of the skin. Be careful to use your own soap and your own towel. Diseases of the skin are often contracted by using the public towel and the public soap.

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THE HAIR AND SCALP

A few general rules for the care of the hair:

Avoid strong soap and alkalis, such as soda and ammonia, hair tonics of which you are not sure, and too much hot water. These all dry up natural oil and make the hair harsh and given to falling.

Depend on regular brushing of hair rather than on tonics. Ten minutes of stiff brushing twice a day will do wonders for preventing the hair thinning.

The hair is improved by heating the brush before using. Frequently hold the brush to the fire, then brush the scalp. Hair, highly charged with electricity, is snappy and will fly about in the most unruly manner, but it can be evenly brushed with the heated brush.

Keep the hair absolutely clean. This may be assisted by a dry shampoo if a wet one cannot be given frequently. For a dry shampoo, powder the hair and scalp well and brush until every particle of powder is gone.

Hair should always be thoroughly dried, as the mingling of water with natural oil causes fermentation, which means dandruff and falling locks. Give the hair plenty of light and air, but do not expose it to the hot rays of the sun for long at a time. It bleaches the hair and often blisters the scalp, drying up the natural oil.

So long as the scalp moves freely over the skull there is hope for the bald head.

Be particular not to use the brushes and combs of another, and do not use your own in an unsanitary condition. One cause of the baldness of men is their carelessness in this respect.

Do not burn your hair, twist it into tortuous knots, strain it back from the temples or wear it always in the same coil.

After washing the head thoroughly withsoft water and soap put a teaspoonful or more of lemon juice in the last rinsing water. This will make the hair soft and fluffy.

CARE OF THE HAIR

(Iowa State College Bulletin)

The Hair—The hair is provided with oil by the sebaceous glands that lie at its roots. Regular and vigorous brushing of the hair increases the flow of oil and keeps the hair glossy. The hair is fed by the blood vessels that enter the inner layer of the skin, in which the hair root is imbedded. A good nervous system, which promotes good circulation, is one of the essentials in producing a healthy growth of hair.

It is as necessary for the scalp to be kept clean as for the surface of any other portion of the skin to be kept clean. The hair should be thoroughly brushed to remove dust. It should be left loose and free at night to allow the moisture to evaporate and to permit air to pass through it freely. The scalp should be thoroughly rubbed at least once a week. This promotes a good circulation and thus gives the hair a vigorous growth.

HAIR AND SCALP MISCELLANIES

Washing the Hair—The hair should be washed at least once a month. Soft water, mild soap and thorough rinsing in clear water are essential to a successful washing.

Dry Cleaning—Part the hair and rub coarse corn meal on the scalp. Use at least two cups of corn meal. After the meal has been thoroughly rubbed over the entire surface of the scalp, brush thoroughly until all traces of the meal have been removed. Drv cleaning removes dust and stimulates the hair, because of the thorough rubbing. It also removes the superfluous oil. Too frequent washing removes too much oil and leaves the hair too dry and brittle. For this reason it is well to use the dry cleaning occasionally.

Hair Too Oily—It is an interesting fact that the majority of scalp troubles begin with an appearance of oiliness. This condition often develops when a girl is "run down." Build up by sleep, fresh air and nutritious diet.

An excellent preparation for application to an oily scalp is composed of the following: Precipitated sulphur, 1 drachm; salicylic acid, 15 grains; glycerine of starch, 1 drachm; alcohol, 6 drachms; water up to 4 ounces. This may be scented if desired.

To Brighten the Hair—To brigthen dead looking hair use diluted peroxide of hydrogen, which is applied in the following manner; first wash the hair thoroughly, using ammonia to cut all grease. Dry the hair, preferably in the sun. Half fill a saucer with hydrogen peroxide, add one-half as much water, dip into it a clean hair brush and apply the mixture thoroughly to the hair. This will not be sufficient to make any noticeable change in the color.

Brush the hair with the damp brush and stand in the sunshine, if possible, until the hair is thoroughly dry. Do not repeat the process for two months at the earliest unless you want to make the hair much lighter. This in no way injures ashly looking hair, but it really improves its appearance. However, it must never be lavishly used.

To Make Glossy—A very good preparation to make the hair glossy is composed of two drachms of castor oil and six ounces of cologne water. A few drops of this dressing or brillantine are poured into the palm of the hand. A soft, spotlessly clean hair brush is gently rotated on the palm so that the dressing may be evenly distributed on the bristles. Now apply it to the hair, which should have received a previous brushing with stiffer bristles. The brillantine is gently spread over the hair and a soft silk handkerchief is used to give the final polish.

Medicine Dropper for Hair—When using hair tonic or hair-dressing the most economical and satisfactory way is to use a bent glass medicine dropper. This permits the exact quantity wanted to be deposited where needed at the roots of the hair.

A Home-Made Hair Tonic that is really wonderful in its results, is absolutely harmless, and actually retards falling hair and tones the scalp in every way, is made as follows:

Take 2 teaspoonfuls of sulphur and mix with about five cents worth of glycerine. Pour over a package of sage about a quart of boiling water; let steep on back of stove about two hours; when cool strain into bottle and add sulphur and glycerine. Then add small quantity of alcohol, just enough to keep the tonic from souring—about 2 tablespoonfuls. The sulphur may not all be dissolved; that does not matter—simply shake well each time before using. It is the sulphur in the tonic that stops and cuts dandruff, and dandruff causes the hair to fall out. Rub the scalp with the finger ends until it feels hot, then rub the tonic into the scalp.

Restores Graying Hairs—Moisten a sponge or soft brush with the above tonic and draw this through the hair, taking one strand at a time. The graying hairs in the head will begin to disappear after two or three applications, the natural color is restored and it becomes thick, glossy and lustrous.

Ten minutes spent every evening will give you almost a new head of hair in two months, put new life into the hair roots, restore the gray hairs and stop additional hairs graying. The hair will grow several inches under the treatment. The scalp must be regularly massaged with the fingers each time before and after the application is made.

Gray Hair—Stop the Causes—They are many: poor health, shock, extracting too much of the natural oil of the scalp by too frequent shampooing, etc. If the hair is dry, rub yellow vaseline on the scalp every other day, then brush it thoroughly.

It is difficult to entirely restore color to hair that has turned gray. The application of oil will sometimes do it, and very occasionally an extremely stimulating tonic is beneficial. Try one made of one ounce of castor oil, an ounce of strong ammonia in liquid, two ounces of French hrandy, and

six ounces of rose water. This may be massaged into the scalp every other day, not oftener.

For Dandruff Only—Warm borax water will remove dandruff; it has no general tonic effect, however, for hair and scalp otherwise.

Though dandruff is not originally a disease, it may easily become the predisposing cause for many disorders of the scalp, just as neglect to keep the body clean brings on its train of consequential evils.

The permanent benefit—It is necessary when troubled with dandruff to massage the scalp thoroughly, after which you will find the following treatment very beneficial: moisten the scales of dandruff with olive oil; when crusts are soft, wash scalp with tincture of green soap. Rinse thoroughly and apply almond oil to the scalp. Rub in with your finger tips, then use the following shampoo: Ammonia muriate, ten grains; glycerine, one ounce; rose water, five ounces. Rub this briskly into the scalp. At the end of ten days use the following shampoo:

Soap Jelly Shampoo—Shave a small cake of best white castile soap into a pint of boiling water and let stand until thick, then add a teaspoonful of glycerine and a few drops of your favorite perfume. The glycerine is softening and healing to the scalp.

The hair must be wet enough so that the "jelly" will adhere; then by rubbing until a thick lather forms the whole head and scalp will be thoroughly cleansed before using the abundance of warm water always necessary for rinsing. After a careful rinsing continue with waters gradually cooled until quite cold.

For Dry Hair—If the hair is dry and brittle and you have abused it in any manner, such as getting it wet with salt water and then drying in the sun, you must take immediate steps to keep it from falling out. The hair should be shampooed with an egg mixture. No ammonia, borax, or any sort of alkali must be used on hair that has been thus abused.

Split-end Hair—If your hair shows split-ends and a tendency to fall out, have the split ends clipped off, and if the hair is long enough to permit it, have at least two inches of it cut off. Then every night brush the hair thoroughly with a stiff (not a wire) brush and after the brushing have a tonic massaged into the scalp.

Egg Shampoo—Yolk of one egg, one pint of rainwater (lukewarm), an ounce of rosemary spirits. Beat the mixture up thoroughly and use it warm, rubbing well into the skin of the head. Rinse in several waters. The scalp should be massaged every night, moistening the finger tips with olive oil, and the following lotion may be applied:

Lotion—Glycerine, 1 ounce; eau de cologne, ½ pint, liquid ammonia, 1 drachm; oil of geranium, oil of rosemary, ½ drachm of each; tincture of cantharides, 1 ounce. Briskly agitate for ten minutes and then add camphor julep ½ pint and again mix well and stir. A few drops of essence of musk or other perfume can be added.

Shampoo for Golden Hair—Golden hair requires the most careful brushing and cleaning. An infusion of camomile flowers is a good shampoo for light hair. An effective dry shampoo for such hair is made of alcoholic ammonia, half an ounce; the same tincture of quinine, two drachms of essence of wood violet, and alcohol sufficient to make eight ounces. The shampoo should be applied by rubbing it well into the scalp and drying the head with a rough towel No water is required.

Massage your Scalp but do not rub the hair. Separate the hair and rub vaseline on the scalp Gently, then place the tips of the fingers firmly on the scalp and work all over the scalp with a rotary motion and move the scalp with each rotation of the fingers; loosening the scalp with each rotation does much good.

Eyebrows and Lashes—Use as a tonic for the eyebrows one ounce of yellow vaseline and eight drops each of oil of lavender and rosemary. Place a drop of the tonic on an eyebrow brush and smooth eyebrow carefully after the face has been washed.

Do not use this preparation on the lashes. Apply only yellow vaseline to them, using a small camels hair brush and rubbing gently along the roots.

Do not Cut Eyelashes—Try melting yellow vaseline and putting it on the roots of the lashes with a tiny camels hair brush, being careful not to get any of the oil in the eyes. This is excellent to promote growth of scanty lashes.

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CARE OF THE TEETH

A famous old Frenchman was once heard to say that a woman with really good teeth could never be plain. Although this may be rather a sweeping statement there is no doubt that an otherwise plain appearance is often redeemed by a perfect set of teeth and the effect of many a pretty face marred by bad teeth.

CARE OF TEETH

(Iowa State College Bulletin)

The tooth consists of root and crown. There is a small opening at the end of each root through which the nerves and blood vessels pass. This opening leads to the pulp cavity which extends through the entire inner part of the crown and root. The greater part of the crown consists of dentine, which is covered by a layer of hard enamel as a protective layer. The dentine of the root is covered with a layer of cement.

Effect of Acid on Teeth

The chief element in the composition of the teeth is lime, and lime is easily decomposed by acid.

Experiment—Drop a few drops of hydrochloric acid upon a piece of lime and notice what happens. The gas bubbles that are seen show that the lime is being decomposed by the acid.

This experiment shows the effect of acids upon the lime in the teeth.

Source of Acid—The bacteria cause the fermentation of the lodged particles of food. The acid formed eats into the lime in the tooth and may continue to eat until the nerve is exposed, if the tooth is not cared for.

Effects of Tartar—Tartar is composed of lime which is deposited from the saliva. Tartar forms on the inner side of the lower front teeth and at the base of the crown of the teeth. It forms a hard crust which prevents the removal of acid and bacteria by means of the brush. The tartar should be thoroughly removed by a dentist at least once a year.

Removal of Acid—Brushing with a solution of baking soda neutralizes the acid. Brushing with clear water, after this, removes all acid from the mouth.

Removal of Food Particles—A thorough brushing after each meal, before breakfast and after supper is the ideal method of caring for the teeth. A thorough brushing means a brushing of at least five minutes. The brush should come in contact with all parts of the teeth, upper and lower, front and back, inner and outer surface. A good powder should be used several times a week, but all traces of powder should be removed by brushing with clear water. If the brushing is followed by a thorough mouth rinse of listerine solution it is much better.

Care of Child's Teeth—Each child should have his tooth brush and be taught to use it as soon as he is two or three years old. It is very desirable that he acquire the habit of caring for his teeth. In this way tooth brushing becomes as much a part of the day's routine as eating and sleeping.

Dentist's Care—The dentist, like the doctor, should be given a chance to prevent trouble rather than to correct it. Let the dentist do his work at the first warning. Remember that mastication is an important step in digestion. Save the teeth.

A Few Don'ts—Do not bite thread with the teeth. It may break the enamel after a time. Do not crack nuts with the teeth. Nature did not plan them to be used as cast iron hammers. They are not strong enough for that. Avoid drinking extremely hot drinks or extremely cold drinks. Either practice may weaken the enamel of the teeth. Do not forget that a gum-boil may mean an abcessed tooth and that the dentist should be consulted.

Tooth Building Food—Since the chief element in the composition of the teeth is lime, such foods must be included in the diet, as contain lime. Some of these foods are spinach, lettuce, celery, tomatoes, cabbage, parsnips, mushrooms, turnips, corn, beets, asparagus, cauliflower, carrots, string beans, potatoes, radishes and onions. These are the chief lime-producing foods and help to build up the teeth.

The teeth are so absolutely necessary to good digestion that too much care cannot be taken to preserve them. If the child's teeth decay prematurely it is not an accident and may not be altogether the result of a failure to keep them clean. It is very frequently the result of a poorly nourishd body and it is quite as necessary to study the feeding and general care of the body as to study the care of the teeth.

MISCELLANIES ON TEETH

Night Cleansing—Perfectly formed, even white teeth are a natural gift, but much can be done to improve the color and keep them in good condition, chief among these little attentions being careful brushing night and morning. Now, while everyone cleans his or her teeth in the morning, very many, unfortunately for their teeth, neglect to do so at night, and this is a very grave mistake. During the night particles of food which have lodged between the teeth do incalculable damage. If but two or three minutes is given to brushing them at night much decay is arrested.

Tartar—The presence of tartar upon the teeth is a source of worry to many, as it is not only unsightly but causes the teeth to ache and makes tender gums. Tartar can be removed quite easily. Procure a small quantity of magnesia, wet the tooth brush in warm water, dip into the magnesia, and rub the teeth upon which the tartar has collected. If one application does not entirely remove it, give a second treatment the next day.

The Best Mouth Wash—Used by the Medical Corps in the Army: Five drops of lysol in a glass of warm water. Lysol is a soapy carbolic preparation. The lysol wash is a most efficient disinfectant for germs located in the mouth as well as a deodorizer; the alkali in the soap neutralizes the mouth acids.

The brush for cleaning the teeth should be fairly stiff, but not hard enough to injure the gums.

Children's Teeth—At the first sign of decay a dentist should be consulted and a cavity filled. Neglect to do this results in the loss of the teeth eventually, and although the modern art of dentistry is now so perfect that false teeth or crowns can be procured to look exactly like one's own they can never be quite the same, and children especially are entitled to early care and sound, natural teeth.

Once mature years have been reached nothing can be done for the shape of the teeth or toward regulating their position, but those who have care of children should see that these matters are promptly attended to by the dentist, for much of the pain and discomfort which so many people experience with their teeth through life can be prevented by a little attention in childhood.

Four Essentials—For the care and preservation of the teeth: Proper diet, proper tooth brush, proper tooth powders or pastes and proper mouth bath.

Dental Floss—The passing of dental floss back and forth between the teeth at least once a day is desirable. Care should be observed, however, not to injure the gums by making them bleed.

Use Magnesia—A mouthful of magnesia taken into the mouth every night, allowing it to penetrate every nook and cranny, will correct tendency to acidity and prevent the decay which comes from chemical decomposition of particles of food. A good milk of magnesia is even better for this purpose.

Sore Gums—If the gums are sore and festered, if caries have formed around or between the teeth, do not fail to consult a reliable dentist without delay. Such a condition of the mouth and gums may poison the blood and seriously impair the general health.

Digestion—A healthy digestion is important in keeping the mouth sweet and clean; saliva free from elements that tend to cause decay of the teeth is essential to a wholesome condition of the alimentary canal.

(Paste or Write Here Scraps or Memos. of Your Own)

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CARE OF THE EYES, EARS AND NOSE

(Iowa State College Bulletin)

The Eyes—Keep the body in good health. The general health has a direct influence upon the vigor and the activity of the eye.

Do not hold the eye to close work for too great a length of time. This is too taxing for the muscles of accommodation. If it is necessary to do the close work, rest the eye frequently by looking at some distant objects. This gives an opportunity for the muscles of accommodation to relax.

Do not hold the printed page too far from or too close to the eye. Eighteen inches is about the proper distance. Fine print is too taxing to the eye. A glossy paper is more taxing upon the eye than paper with a dull finish.

Soft, restful colors are less taxing to the eyes than the bright, glaring colors. Soft tan, dull green and soft gray are restful colors and are good colors to choose for wall coverings, especially for school room walls. A highly finished white wall is irritating to the eye. Red is an irritating color and should not be used for wall colorings.

Reading while a train is in motion is taxing to the eyes, because the muscles of accommodation are required to work too hard, n adjusting the lenses of the eye to suit the motion of the printed page before the eye.

A poor light is not true economy. The poor light is a direct means of injuring the sight, and expert care of the sight is more expensive than adequate lighting facilities. It is possible to have good lights in the farm home, now that gasoline lamps, denatured alcohol lamps and the home gas plant have been perfected to such a degree. The light from sun or artificial source should not shine directly into the eyes. School room seats should be so arranged as to prevent this. The bed of the invalid should be arranged with this thought in view. Infants who are out for an airing should have eyes protected from the sunlight.

Veils with large spots are injurious to the eyes and should not be worn. Bright red veils should not be worn.

Expert care of the eye is needed when it becomes necessary to hold the printed page other than at normal distance from the eye, when severe headaches seem to indicate that the eyes are not normal and when the school child is unable to read blackboard work readily.

Imperfect organs of sight not only prevent the full enjoyment of surroundings, but impair the general health.

Care of Ears—A study of the structure of the ear will suggest the danger of using sharp instruments of any kind in removing substances from the ear. The tympanum or sounding board of the ear is a delicate and tightly stretched membrane which is easily punctured. A study of the location of the eustachian tube will show the close relation between the ear and throat, and demonstrate the fact that the hearing may be impaired by a diseased throat. Avoid colds by taking care of the body. Keep the throat in good condition and you will also help to keep the ears in normal condition.

Avoid taking young children where the ears will be shocked by loud and discordant noises. Loud noises are stimulating and irritating.

Care of the Nose—The nostrils have been provided with a sieve of fine hairs called cilia. The function of the cilia is to exclude dust in order that the throat and lungs may be protected from irritation. The cilia do their work as best they can, considering our carelessness. We sweep carelessly and raise a large amount of dust. We fail to ventilate prop-

erly and so irritate the lining of the nostrils. We fail to care for the body properly and so continue to take cold easily. Repeated colds leave the cavities of the nose filled with wastes and leave the membrane weakened.

Suggestions—Use dustless sweeping powder. Use a vacuum cleaner. Use a paraffin mop, use a cotton flannel broom bag and dip the bag in melted paraffin. In these and other ways remove the dust from the house. Keep the body in good condition and aid in prevention of colds. Breathe through the nostrils and thus prevent the entrance of dust.

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CARE OF THE HANDS AND NAILS

The most amazing amount of damage is done to the hands and nails where women grow negligent in their care and because they do long continued work fall into the lazy habit, after a time, of letting the hands go "till they get through." Girls in offices, or at a sales counter, frequently injure their hands astonishingly by not washing them often enough. And the woman in the home contracts the same habit far more often than she thinks she is ever going to allow herself.

When cleaning hands that are really stained with dirt which has remained in the pores for several hours, soap and water should not be the first application, for nothing but a soft grease will be effective. Vaseline is one of the best dust removers, for it penetrates all cracks, softening instead of hardening the matter. A fluid soap used directly afterwards extracts the grease, bringing the foreign matter with it. In cases of extreme soil mere washing leaves the skin in a dingy condition. This is the explanation of many unsightly hands and a defect that is easily remedied. There are other oily applications as beneficial as vaseline for this purpose, among them being sweet almond oil, or soft cold cream. A necessary feature of these is that the application must be either liquid or one that liquifies quickly, or it will only be a dust collector.

Wash Hands in Grease—It takes less than five minutes to get into condition if a pot of grease is kept near the washstand and is used in liberal quantities, as for instance a lump the size of an English walnut at each cleansing. This takes about half a minute. Then the hands must be dipped into warm (not hot) water. Any simple soap may be used, but strong kinds should be avoided. A nail brush is necessary, but one of an inexpensive quality will be as cleansing as a costly one. The finger tips require several extra strokes. Rinsing must be thorough.

How to Dry the Hands—Drying is not the simple process that many persons think and in the manner of doing it lies half the secret of having pretty nails.

Each finger must be taken separately, the towel rubbed down the sides, back and front, beginning at the tip. The common mistake is to begin at the finger base and rub up, which simply trains the cuticle down over the nails and thickens the tips.

Every nail must be wiped individually commencing at the top and pressing gently down to the crescent of the base of the nail. Only in this way will good shape be preserved. The fact that knuckles are not thoroughly dried is many times an explanation of redness.

For Rough Hands—Use a mixture of glycerine and bay rum, equal parts; rub over the hands each time after having them in water any length of time; dry them over the fire, not with towel. Use the preparation before retiring at night. Perfume the mixture if you like. You will never have rough hands with this treatment.

Paste for the Hands—Stir a teaspoonful of powdered borax and five drops of tincture of benzoin into four ounces of rose water and then add finely powdered oatmeal and almond meal in quantities sufficient to make a paste. Before retiring spread this on the hands and cover them with large gloves. On arising in the morning rub off with a cleansing cream.

For whitening the hands an excellent formula to be used after washing is made of 15 grains of powdered borax, 15 grains of common table salt, one-half dram of spirits of ammonia, one dram oil of orange, two ounces of glycerine and six ounces of almond.

Chapping—Rub a few drops of glycerine into the hands when washing, while they are still soapy. Then thoroughly dry them. Wear loose gloves. With this treatment the hands will not chap.

If the hands perspire apply this lotion; cologne four ounces, tincture of belladonna one-half ounce. When you have rubbed this in until the moisture is absorbed powder with orris root or talcum powder.

If the perspiration on the hands is excessive bathe thoroughly with this astringent lotion several times daily: Rose water, six ounces; elder flower water, two ounces; simple tincture of benzoin, one-half ounce; tannic acid, 10 grains.

If the hands and arms turn unusually red try this liquid-white, which will hide, but will not reduce redness: Pure oxide of zinc, one ounce; glycerine, one dram; rose water, four ounces; essence of rose, 15 drops. Shake well and apply with a soft sponge or an antiseptic gauze. The skin must be well wiped off before the liquid dries.

Home Manicuring—In these days, when beauty culture is a fine art, every woman who has consideration for her appearance sees that her nails are well kept and daintily manicured.

This does not involve the expenditure of either a great deal of time or trouble; neither is it necessary to engage the services of a professional manicurist. A few simple instruments, and five minutes devoted to their care two or three times a week will serve to keep the nails in perfect order.

All that is required is a pair of sharp scissors, a file, a few emery boards, an orange stick, a cuticle knife and a chamois leather-covered nail polisher.

The Process—Before attempting to manicure the nails, soak the hands in a basin of warm soapy water, so that the cuticle may become perfectly soft and easy to manipulate.

Filing—When this has been done, file the nails carefully. They should be cut so that the extreme edges of the nail and the tip of the finger are even, and each nail should be cut to follow the curve of the finger to which it belongs. Pointed nails are not only unfashionable but positively ugly. After filing, rub each nail with an emery to ensure its being perfectly smooth at the tip.

The Half-Moon—Now loosen the cuticle or skin round the base of the nail with the cuticle knife. This should be done carefully. If the skin gets cut in the process a raw bleeding appearance will be the result. The skin should first be lifted away from the nail, and then when perfectly loose pressed back to reveal the little half-moon at the base.

In some hands these half-moons are visible on all the fingers, even when the hands have been neglected, on others they are only visible after long treatment, but in the majority of hands they will be quite plainly seen after two or three manicures. They are, however, such a decided adjunct to the beauty of the hand that it is quite worth while to take a little trouble to cultivate them.

Hang Nails—Often after loosening the cuticle small portions of the skin will adhere to the nails. These can be removed at once by dipping an orange stick into soapy water or a little vaseline and rubbing the nail with it. Any "hang nails" must be clipped off as closely as possible, but it is a good plan to avoid cutting the cuticle whenever possible, as doing so only helps to render it hard, thick and coarse.

Finishing—A piece of cut lemon rubbed over the nails will remove any stains, and a little white vaseline should then be smeared on, wiped off with a soft rag, a little pink polishing powder dusted on, and the chamois-leather nail polisher applied. When all is finished, dip the finger tips again into the soapy water to cleanse them from the vaseline and powder, and dry the hands on a soft towel. It is a good plan to press the cuticle around each nail carefully back each time the hands are washed and dried, as this will serve to keep the little half-moon visible.

Blunt Instruments—When purchasing a cuticle knife care should be taken to see that it is not too sharp. Except the scissors, all the instruments used for manicuring should be rather blunt, as when sharp they are apt to injure the surface of the nail, leaving it rough, and also to cut and bruise the cuticle.

Bleach the Nails—Finger nails that retain their grayish tinge at the tips should be bleached. This can be done with borax dampened with ammonia, or ammonia and peroxide of hydrogen. Moisten the nails on the underside, slip some cotton or a cambric handkerchief over the orange stick, and wipe the nail edges. In most cases the nails are instantly turned a shell white.

For Brittle Nails—If nails break easily rub with cold cream or white vaseline or cocoa butter and their brittleness will be lessened.

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CARE OF THE FEET

Pink toes, arched feet, thin and slender ones, are as much an attraction as a straight nose, well curved lips and telling eyes. It is not perhaps given many of your friends to see your feet frequently unshod, but your own sense of comfort and well-being as well as your self-consciousness of cleanliness and neatness are involved in the question of your feet.

We often ignore the item of sensible care of the feet—not merely the trimming of toe nails and the treatment of soft and hard corns or callous places but the reasonable way of treating this important part of our physical makeup so as to avoid unnecessary suffering. For instance, there is the shoe question, which is in summer time so annoying and weighty. A foot specialist declares that canvas shoes, or soft thin tan ones, are or ought to be the only eligible kind for summer wear. To bring back our feet, our poor misused, ill-treated feet, to their normal and natural state, means much to health and temper.

Should we happen to be enjoying ourselves for a brief space in the country the chance to wear sandals, or in some other way "almost nothing," should not be missed; it is benefiting and refreshing to the utmost. Are we less fortunate, let us adapt ourselves and go stocking footed around the house for a while each day.

When you bathe your feet, add a little alum, to water hot and cold alternately; it will help a great deal in keeping them in good condition and you will find your general comfort greatly increased. Some prefer sharp salt water, some bismuth, but an addition of the one or the other is very much to be recommended.

A little cold cream or olive oil rubbed in and then carefully wiped off, then powdering, is delicious for tired feet.

It is not a bit hard to avoid sore feet, even for the most trying occupations; it is all in the knowing how—and what is most important is following the dictates of one's own good common sense and experience.

FEET AND THEIR CLOTHING

(Iowa State College Bulletin)

Physical efficiency depends upon the normal condition of all of the organs of the body and two of the members that have much to do with the physical efficiency are the feet. Many feet are ruined by being carelessly shod in the early life of the child. The mother who is careless in this respect has much to be responsible for.

Precautions—Be sure that the heel of the shoe is low enough to throw the weight of the body upon the ball of the foot. This height varies with different people. Be sure that the shoe fits snugly around the heel and instep. The shoe that is loose at the heel slips and fails to protect the heel or instep. The instep especially needs protection because of the weight it has to carry and because of the number of small bones which are bound together by ligaments.

Be sure that the widest part of the foot (across the foot at the great toe joint) exactly coincides with the widest part of the shoe. Be sure that the shoe is amply wide at the toes. There should be room for the toes to move freely. The freedom of motion insures good circulation and good circulation insures proper nourishment of the feet. The toe of the shoe should be so shaped as to allow the great toe to lie in a vertical position rather than to be crowded into an oblique position.

The shoe should be made of firm, but porous leather. A dense leather does not allow the moisture to evaporate and so makes the feet tender. The fact that the leather is stiff retards the free action of the joints and muscles and so weakens the feet.

The sole of the street shoe should be thick enough to protect the sole of the foot from dampness. The low shoe should not be worn except in warm weather. Severe colds, weak throats and weak lungs are directly traceable to low shoes and to thin soles.

Care of Feet—The feet are covered so closely so many hours of the day, that careful bathing, rubbing and dressing are absolutely necessary. Careful bathing in water at body temperature relieves inflammation. A thorough rubbing in cocoa butter promotes good circulation, tends to relax the muscles, and makes the skin firm and well nourished. Corns will probably disappear when pressure or friction is removed. If it seems necessary to trim them, sterilize the knife, and do not trim too deeply, as a serious infection may result.

MISCELLANIES ON FEET

Tender feet generally arise from the neglect of cleanliness, the use of thin cotton or silk stockings and boots or shoes that are either too stiff and tight or misshapen or not sufficiently porous to admit of the escape of perspiration.

Tight boots and shoes, and water-proof ones, which are also air-tight, are the most common causes of tender feet; they also are the cause of headaches, dizziness, dyspepsia, diarrhœa and even apoplexy. Boots and shoes too narrow across the toes or the tread of the foot, or insufficiently long for ease and comfort, though large enough elsewhere, either cramp or distort the fore part of the foot and toes, or arrest the nails in their forward growth, forcing them back upon the sensitive flesh at their roots and sides and causing them to grow in thickness and width only—results which may be gradual but are always painful—usually the effect known as "ingrowing nails."

Corns are pests that make a vixenish temper excusable. Yet they are curable. The surest preventive is a perfect-fitting shoe and absolute cleanliness. When they first arrive they may be kept quiet by tying the feet up at night with a piece of lemon over the offending member. Soak the next day in hot water. This, if repeated for several nights, will so soften the corn that it can be easily pinched out. Never cut a corn; blood poison is worse, on the whole, than a bad disposition and a scolded family.

Tired Feet—Bathing the feet with alcohol when tired, or rubbing them with a little cocoa butter after a mustard bath, is restful. A wash of bran and soda will ease the "burn" of tired sore feet.

Bath for the Feet—You may secure much comfort for the feet by giving them a bath lasting at least 20 minutes in water which is kept constantly as hot as can be endured and to which has been added household ammonia in the proportion of a tablespoonful to every quart of water. After bath for ten minutes the feet should be rubbed under the water as vigorously and continuously as their tenderness will allow and wiped dry with a soft towel.

To Keep Feet From Swelling—Dip the feet every night in hot water and rub them with vaseline. Don't wear the same pair of shoes two days in succession.

The Toe Nails require attention the same as the finger nails, only they should never be cut down at the corners but nearly straight across; they should not extend beyond the flesh. The cuticle should be loosened after the bath, when it will peel off easily.

Inflamed Joint—If the joint of the big toe becomes inflamed, wear a shoe that is wide enough to keep the toes from being pinched together. Put a piece of absorbent cotton between the great and second toes, large enough to keep them apart; then take an adhesive plaster and bandage the ball of the foot firmly, holding the joint in place. By holding the joint in place with the plaster the inflammation will soon leave and it will become normal.

Chilblains—A chilblain lotion that is found soothing is made from half an ounce of gylcerine and twenty grains each of tinctures of iodine and opium. It is kept over the places on bandages, the cloths never becoming dry. If the irritation is on the feet, woolen stockings should be worn, and the greatest care given not to getting the toes damp.

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PERSONAL CLOTHING

(Iowa State College Bulletin)

Effect Upon Health—The entire body should be uniformly clothed. Materials differ in their ability to conduct heat. Poor conductors like fur and wool are most suitable for winter. Too much clothing causes waste of energy. Good conductors like linen, silk and cotton are best for summer. Black and dark shades of any color are warmer, because they have the power of holding the rays of sunlight. White has the power of refracting the rays of sunlight, hence keeps the body cooler. The garment that does not fit the body comfortably impairs the circulation and affects the general health.

Effect Upon Character—Perfectly fitted, well-made clothing that is suitable in style, makes the wearer unconscious of her clothes. It makes her genuine and wholesome rather than careless, superficial and extravagant.

Color and design are very important factors in dress. Poor material in gaudy colors is conspicuous. It indicates cheapness in the garment and lack of taste in the wearer. It should be avoided. Dull, ugly colors are depressing. Fabrics in soft, rich colors, harmoniously blended, are pleasing and modest. They are artistic and have a refining influence upon the appearance and character of the person wearing them.

Care of Clothing—Clothing must be well aired, since damp garments remove too great an amount of heat from the body. The frequent airing and sunning helps to destroy disease germs and to remove waste matter that has been thrown off by the skin. These wastes are scales from the skin, oily matter from the glands, and substances left on the surface by perspiration. All dust should be removed from the clothing, since dust may be an active carrier of disease germs. Clothing must be kept in proper place to prevent waste of time and loss of temper. Clothing must be kept in good repair for the same reasons.

Purchase of Clothing—Before making a purchase, every woman should decide what style of garment is required, what materials will harmonize best with her present wardrobe, what amount of money may be spent and what quality of material should be secured from that expenditure. She should also know the amount of material required for each garment.

Suggestions—It pays to buy one good garment rather than two cheap ones. All wool fabrics wear well and do not fade or soil easily. The demand for woolen cloth exceeds the supply, hence many devices are used to make the supply go a long way and to deceive the buyer.

Standard cotton materials wear well, are cheap, and plentiful. Cheap cotton materials are often filled with starch and when washed are coarse and loosely woven.

Do not buy fifteen-cent dress goods called "linen suitings." It is impossible to sell genuine linen at such a price. The fifteen-cent material is cotton, starched and glazed to make it look like linen.

The quality of the material depends on the strength of the fibers, the fineness or coarseness of the fabric, its weave, color and method of finish.

PROPER ATTITUDE OF THE BODY

(Iowa State College Bulletin)

Chest—Cultivate the habit of holding the chest up and out. This enlarges the chest cavity and strengthens the lungs. It allows an increased amount of oxygen to enter the lungs and so aids in the oxidation of food.

If the chest is raised the diaphragm is raised, and pressure is removed from the organs below the diaphragm. The habit of walking, sitting and standing with the chest dropped and sunken not only weakens the lungs, but it weakens the organs below the diaphragm, because it throws too much weight upon them.

It is also true that the raised chest gives one a feeling and appearance of courage and efficiency that can never be enjoyed by the person with the dropped and sunken chest.

Shoulders—Hold the shoulders down and back. This position enlarges the chest cavity and so strengthens the entire body.

Precautions—Have the kitchen sink and the ironing table high enough to prevent the necessity of stooping. Stand erect while using the broom. Do not make the work more difficult by standing in an unnatural cramped position.

Do not allow the child to acquire the habit of reading with the eyes too near the book. This not only injures the eyes, but it compresses the chest and weakens the organs below the diaphragm.

Abdomen—Stand with the abdomen "sucked in" and the chest forward. If the body is held in this position, the weight of the body will be thrown upon the ball of the foot and the body will be relieved of much jar.

Prevention of Jar—The ball of the foot is a springy, elastic cushion which is intended to bear the weight of the body. Its elasticity prevents jar upon the spinal cord, while the habit of walking with full weight upon the heels throws much of the jar upon the delicate spinal cord that lies within the bony spinal column. Nature has also protected this delicate cord by placing spongy, bone cushions between the vertebrae of the spinal column.

Walking Up Stairs—Stand erect, take a full breath, hold the chest out and the chin up. With the body in this position, climbing stairs is not difficult. It is only when the shoulders are bent, the diaphragm lowered, the chest compressed and the chin lowered that climbing stairs is difficult.

Relaxation of Muscles—When a muscle is not in use, let it rest. The tightening of the muscles deprives the body of energy. Do not waste that energy. The muscles of the face can in no way aid in the process of walking and yet how frequently one sees the muscles of the face all tense and stiff as one walks along the street. Those rigid muscles mean energy wasted. Learn to relax the muscles frequently. They become tired, just as the eye would if it were constantly contracted to decipher very fine print.

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SECTION IX.

MOTHER AND BABY
AND THE GROWING CHILD

THE EXPECTANT MOTHER—HER FOOD

Most of both the mental and physical suffering usual to the expectant mother—the fear and doubts, the helplessness, the hopelessness, as well as the headaches, dizziness, heart-burn, faintness and loss of appetite—spring from the same cause: the wrong food wrongly eaten, and the pampering and lack of exercise and fresh air to which the woman resigns herself as a matter of course.

For ages, diet for the prospective mother has been based on superstition and old wives' tales. Both mother and child have suffered. Some women overeat on the supposition that they must "feed two." Others actually starve themselves in the belief that this will reduce the size of the baby or soften its bones, or perform some other imaginary function of worse than only imaginary desirability.

Years ago midwives believed sick pregnancies the only safe ones, and were dubious over the mother who awaited the coming of her baby in health and content. Science has dissipated such insanity. The safest and in every way desirable delivery is the one approached with cheerfulness and in perfect health; it will usually be attended with less pain and most probably free from unpleasant after-consequences.

And the best means, practically the only means, for attaining this health and cheerfulness is moderate daily exercises in the open, fresh, clean air and out-of-doors—not over-exercise, of course, not jumping, running, climbing or lifting—and proper diet—with emphasis again on this item—proper diet.

These things are essential to the health of a woman at all times; but a woman who during the most of her days may ignore the question of perfect health, will be pretty certain to crave it now, for her baby's sake as well as her own. And the secret of it is the **same at this time** as at any other—only this is the time when she will **take notice of it.**

The woman must choose her food for its nutritive qualities rather than its quantity, and must eat inteligently—and again **not too much.** Her dizzy spells, heart-

burn, headaches and other ills, are almost all merely **from indigestion.** She does not take her usual exercise, and she is more subject than normal to indigestion. There are no special weird and mysterious differences in her functions due to the pregnancy.

Get that one sane fact well fixed in your mind, expectant one, and half your battle is over! Follow usual **common sense** in feeding **yourself,** only be a little more particular than ordinarily. Don't try to work out mysterious, theoretical ideas of what the **child** needs—he needs what **you** need. Get yourself in perfect physical trim and keep yourself so; feed yourself simple, wholesome, nourishing food such as agrees with you and builds up your health and strength. Nature will select from the store of your own nourishment what the child needs—and no more. Especially, however, don't over-eat—don't clog the system with too much, don't give it food too rich, until the intestines, poisoned, perhaps constipated, with undigested and indigestible matter, send back the poisons therefrom into the blood.

All of which, after all, as above stated, resolves itself into simple rules you **ought to observe all the time,** but probably—well don't, and more or less won't **—except at this time for your baby's sake.**

A PROPERLY BALANCED DIET

A balanced diet for the prospective mother—and for practically everybody else—should be about as follows (it will vary with different physical or digestive temperaments):

There should be some fresh (uncooked) food every day. This may be fruits or such vegetables as tomatoes and lettuce. Figs or evaporated prunes may take the place of fresh fruits if the latter are not always obtainable. Stewed fruits rank next. The seeds of berries should be removed by straining or otherwise. If raw apples, melons, pineapples, etc., cause indigestion, nine chances to one they are not properly masticated and if scraped or mashed instead of taken in bites or chunks the soft pulp will cause no distress whatever.

Vegetables easily digested are white and sweet potatoes thoroughly cooked and mashed or creamed, peas, rice, lima beans, onions, well cooked, tomatoes, carrots, asparagus, spinach, string beans, lettuce, beets, Brussels sprouts.

Coarse cereals, such as oats, wheat, barley, are good breakfast foods. Breads are best if made from corn-meal and unbolted or whole wheat flour rather than fine white flour.

In meats, chicken, turkey, beef, lamb and fish take leadership.

Milk and eggs should lead over all; they contain every property needed. They pall, however, if not varied with other foods.

If you live in the country and have plenty of fresh eggs, milk, butter, vegetables. and a supply of chickens, you need not worry much about your diet as a prospective mother, except to see to the addition of some fruit and that you eat cornbread or whole wheat bread for about half of your bread indulgence.

Summing up: The prospective mother, as well as every other woman, should have a diet of a little meat, a generous allowance of fruits and vegetables—and much water, milk (or other wholesome liquids)—and then—**more water and more milk.**

ARRANGEMENT OF MEALS

During the last two or three months of pregnancy, **one** rule usual at other times may be varied. When the child is attaining its greatest growth, the energy and strength of the mother is greatly drawn upon, and she begins to need more than normal nourishment. This should be met by eating **oftener** than three times a day—not by more abundant meals. The meals should all be **light and simple.**

For this period a good menu is about as follows:

Breakfast—Fruit, egg or cereal, coarse bread, toasted or plain, beverage (preferably milk)—a **very little** coffee if a stimulant is needed.

Mid-Forenoon—Milk, egg-nog (mild), gruel or broth, oatmeal or Graham wafers.

Noon Meal—Meat, vegetables, salad with a simple cream dressing, light dessert, custard, fruit or ice.

Mid-Afternoon—Grape juice or other fruit juice or fruit pulp, glass sweet milk or buttermilk, cracker or biscuit.

Supper—Meat or consomme, fish, cold cereal, wafers, stewed fruit.

Bed-Time—Milk (malted preferred), gruel of corn-meal, made with milk and water.

At each of the above meals eat lightly and stop while **still a little hungry.**

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FOR HIS MAJESTY HIMSELF

Bed for Baby—A clothes basket makes an excellent bed for a young child. Choose the ordinary oblong basket and line it with pale blue silk or silesia, drawing the lining down far enough to cover the outside and gathering it to fit neatly around the bottom. If desired, wadding may be placed between the basket and lining.

Make a soft little mattress to fit the bottom, and sew around the edges of the basket a flounce of lace deep enough to nearly reach the floor. A dainty canopy may be made by shaping over one end of the basket wires or small willow boughs on which a piece of lace or swiss has been shirred; and the narrow ruffle of lace decorating the front edge of the canopy may be tied back with dainty blue ribbons.

A Trunk for Baby's Clothes—A plain matting or cretonne covered shirtwaist box is the best kind of a trunk for baby. Get one about thirty inches long and sixteen wide. Make a tray twenty inches long and nail cleats inside the box to rest it on. It will slide back and forth and can be removed without effort. The tray holds a pin cushion, soap, toilet articles, etc., while there is abundant room for clothing in the bottom.

The Child's Bath—One can introduce play and fancy into so many things connected with the daily necessaries that are often so disagreeable to children. What ordeal is worse for the average child than being "scrubbed"?

A Pretty Towel embroidered in yellow ducks affords an element of attraction in the bathing hour; if done in the simple tapestry stitch the embroidering of the ducks will take but a short time. Sometimes towels can be obtained already stamped for the illustration; if one cannot be found, trace it with carbon upon the towel. Work over the outline thus, transferred in yellow, insert a black eye, and the duck is complete. One duck placed after the other, in a line, and a blue patch of tapestry stitch at the end of the towel will make the ducks appear as though they are waddling toward a pond. The towel can be simply hemmed, hemstitched or scalloped, and buttonhole stitched in white mercerized twist.

The Small Washcloths can be decorated with a fish in outline stitch or a tiny boat. A make-believe game of "Going to the Seashore" will ofttimes bring an otherwise reluctant child willingly to the dreaded tub.

If the child is quite small, a rubber doll that he may take into the tub with him will give untold delight.

Diet for Young Children—Questions are often asked as to exactly what a child may be allowed to eat during the period between the first and second birthdays. There are certain broad rules which can be laid down. Milk looms large as a food—not as a drink, please, for which plain water should be given—with broth, gravy, boiled fish and chicken, bread crumbs soaked in bacon fat, a properly boiled egg or only the yolk, if the white has been allowed to get tough and hard, and always some rusks to chew and nibble.

Vegetables Valuable—At eighteen months old a further stride can be made, and mutton or broth freshly roasted may be given, first in small quantities. Here you will generally find it best to pound the meat. However, if the child has the inestimable advantage of a good digestion (which it should have, barring some hereditary delicacy or the sad results of bad treatment) and has learned already to eat slowly and bite its food properly, there is no reason why the meat should not be given simply cut up. It is far better then,

for the child is using the teeth as well as accustoming himself to eat properly, and although it takes a little longer for the feeding process the time is well spent.

It should be the aim of every one in charge of children at this age to make their little charges form the habit of eating slowly and masticating properly. Any amount of after trouble caused by the bolting of food will then be saved.

By the time a child is two, vegetables may be made to play their own part—both potatoes and green vegetables. The latter usually have to be introduced somewhat carefully and in small quantities, for children as a rule dislike them. Potatoes should be carefully cooked, and it may be well to remember that the most valuable part, from the point of view of the growing organism, at least, is that which lies quite close to the skin, where only the salts so much needed are found, and this part, unfortunately, is too often peeled off and thrown away.

Fruit, too, is permissible after the second birthday, if properly prepared and in good condition. Of course, it is often given before, but generally speaking the second birthday rule is a wise one. An exception may be made in favor of a slice of ripe apple, which forms an excellent safeguard to the teeth if eaten at the end of a meal, especially one which otherwise ends with soft or sweet food; and, of course, fruit juice should have been well represented in the dietary all along.

Starchy Food Dangerous—Just a word about milk puddings. The ordinary ones —rice, tapioca, sago, and so on—are all simply forms of starchy food, and this is an element to diet which may very easily be overdone. Far more children suffer from indigestion from an excess of starch than is commonly realized. Indeed, usually the first thing done in home doctoring of the child, when digestive disturbance manifests itself, is to cut off meat or its equivalents and keep the child on farinaceous food, whereas precisely the opposite course should be followed.

Hints for Mothers—Keep your baby away from sick people and out of crowds. Do not try to teach baby to stand. A healthy baby will stand and walk when strong enough to do so.

Visit the school where you send your children, and satisfy yourself that it is sanitary, properly heated, lighted and ventilated and not overcrowded.

Give each child who goes to school a pretty folding drinking cup or a supply of individual paper cups.

BABY'S FIRST TEETH

The embryonic teeth begin to develop at least six months before birth. It is probable that a nutritious diet for the prospective mother lays the foundation for healthy teeth in the baby and that lack of proper food for the mother may deprive both her own and the baby's teeth of some part of their normal vigor.

Every child has two sets of teeth. The first set, known as the deciduous or "milk" teeth, is replaced beginning at about the sixth year with the permanent or "second teeth." Nearly all so-called "teething" troubles belong to the first period, as a disturbance is rarely connected with the coming of the permanent set.

At birth each tiny tooth of both sets lies partly imbedded in a cavity of the jaw-bone, covered and surrounded by the softer tissues of the gum. As the baby grows, the teeth grow also, and if the baby is healthy they are ready to cut through the gums beginning at about the seventh month of life.

There are twenty of the milk teeth, five in each half-jaw. The teeth appear in groups of five to eight weeks; after the second, a pause of one to three months; after the third, one

of from two to three months; after the fourth, one of from two to four months. Thus, by the time a baby is one year old, it may have six teeth; at one and one-half years there should be twelve; at two years, sixteen teeth; and at two and one-half years the entire set should be cut.

There is considerable variation, both as to the order in which they appear and in the time, so that the mother need not be alarmed if her baby does not follow the average as stated, but if the baby has no teeth at the end of the first year it can hardly be said to be developing properly; probably the diet is at fault, or some disease is retarding the growth of the baby in general, and the doctor should be consulted.

THE CARE OF THE GROWING CHILD'S TEETH

(U. S. Department of Labor, Children's Bureau)

By the end of the second year the baby should have his milk teeth complete and until the sixth or seventh year, when the permanent set will begin to appear. These teeth must serve all the purposes that the final set will serve later. Since this is the time the child is learning to chew his food, a process necessary not only for proper digestion but for the strengthening and developing of his jaws and for the proper growth of the permanent teeth, it is important to keep the first teeth in the best possible working order. The condition of the teeth is a fair index to the general health of the child.

Until the child is old enough to use a toothbrush himself, the mother should wash his teeth every day; but as early as possible the child should learn to care for his own teeth. If the teeth cannot conveniently be cleaned after each meal, the mouth may at least be rinsed. Children should be taught that it is of special importance to wash the teeth and mouth after eating nuts, or any sweet, sticky, or pasty food. The teeth should be carefully cleaned at bedtime, since the fermentation of food particles left in the mouth, which leads to the decay of the teeth, proceeds more rapidly at night, when the mouth is still.

The child should be taught to brush the teeth from the gum downward or upward toward the cutting edge. When the teeth are brushed crosswise, the tendency is to push whatever is on them into the cracks and crevices of the teeth or under the edges of the gums. The inner surfaces of the teeth should also be brushed up and down, and the grinding surfaces should be scrubbed in all directions; after the scrubbing is finished the mouth should be thoroughly rinsed with warm water.

Some hard food, like a stalk of celery or part of a ripe, juicy apple, eaten at the end of a meal scours the surface of the teeth and leaves a fresh clean taste in the mouth.

Children should be taken regularly to a good dentist once or twice a year after the first set of teeth is complete. If cavities appear they should be filled with soft fillings, and each tooth should be saved as long as possible. If the temporary molars are extracted before the sixth year molars come in, the latter will be apt to crowd forward into the space left vacant, and when the later teeth come they will be pushed out of their regular places, destroying the natural line of the mouth. The first molars furnish the grinding surfaces necessary to proper chewing of the food. If they fall out too soon the child is hardly able to chew hard or tough food, and is likely to swallow such food in chunks.

The care of the child's first teeth is important also because the health of the permanent set is largely dependent upon that of the first set. The second teeth are much larger than the first, and, consequently, need more room in the gum. For necessary development the jaws must be given plenty of exercise. Consequently, the child should have a mixed diet, including some hard food which he cannot swallow without chewing. Toast, crusts, hard crackers, certain fruits, like apples, salad, vegetables, and meats, should provide the food elements needed for healthy teeth if the child is thriving.

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of Your Own)**

FOOD FOR YOUNG CHILDREN

(Extracts from Farmers' Bulletin No. 717, U. S. Department of Agriculture).

A little child who is carefully fed in accordance with his bodily needs (as these are now understood) receives every day at least one food from each of the following groups:

1. Milk and dishes made chiefly of milk (most important of the group as regards children's diet); meat, fish, poultry, eggs and meat substitutes.
2. Bread and other cereal foods.
3. Butter and other wholesome fats.
4. Vegetables and fruits.
5. Simple sweets.

As to the amounts that should be served, a good rule is to provide three or four glasses (1½ pints to 1 quart) of milk a day; an egg or its equivalent in moderately fat meat, fish, poultry or meat substitute; fruit and vegetables each once a day; 1 to 2 ounces of butter or other wholesome fat; and all the bread or other cereal food the child will eat. One or two ounces of sugar, candy or other sweet (including the sugar used in cooking) may also be allowed, if this does not prevent eating the other foods mentioned.

SUGGESTIONS FOR BILLS OF FARE

Breakfast—Orange (juice only for the youngest children). Farina with milk. Bread and butter.

Apple sauce. Oatmeal with milk. Toast and butter.

Baked pears (pulp only for the youngest children). Milk toast. Cocoa.

Stewed prunes (pulp only for the youngest children). Corn-meal mush and milk. Toast and butter.

Grape fruit (juice only for the youngest children). Milk toast with grated yolk of hard-boiled egg.

Apple (scraped for very little children). Toast. Hot milk.

In each case enough milk should be given to make up the required daily amount, which is about a quart.

Dinner — Meat soup. Egg on toast. String beans. Rice pudding.

Roast beef. Baked potato. Asparagus. Bread and jelly.

Lamb stew with carrots and potato. Twice-baked bread. Tapioca custard.

Creamed potatoes. Green peas. Stewed plums with thin cereal-milk pudding.

Baked halibut. Boiled potatoes. Stewed celery. Boiled rice with honey or syrup.

Broiled meat cakes. Grits. Creamed carrots. Bread, butter, and sugar sandwiches.

In each case enough milk should be given to make up the required daily amount, which is about a quart.

Supper—Baked potatoes, served with cream and salt, or with milk gravy. Cookies.

Bread and milk. Apple sauce. Sponge cake.

Potato-milk soup. Twice-baked bread. Marmalade sandwiches.

Graham crackers and milk. Baked custard.

Milk toast. Stewed peaches. Cup cake.

Celery-milk soup. Toast. Floating island.

In each case enough milk should be given to make up the required daily amount, which is about a quart.

There are many variations possible within the range of foods suitable for young children. These are given with detailed instructions in the Bulletin from which the above is taken. Every housekeeper having the feeding of young children should send for a copy of the Bulletin.

The following will suggest the possibilities in this line; many of the directions or recipes for these foods will be found in the RECIPES Department of this work, **The Home-Keeping Book.**

Milk Served in Various Ways

Bread and Milk
Cereals and Milk
Milk Toast
Cocoa
Milk Soups
Milk Vegetable Soups
Milk Stew
Cereal Milk Puddings
Rice Pudding
Custard and Other Milk Puddings
Junket
Boiled Custard
Floating Island
Tapioca Custard
Baked Custard
Simple Ice Creams

Meat, Fish Poultry, Eggs and Meat Substitutes

Broiled Chopped Meat
Meat Stews
Poultry
Fish
Eggs
Coddled Eggs
Meat Substitutes

Bread and Other Cereal Foods

Bread and Milk Toast
Twice Baked Bread
Breakfast Cereals
Cooked Cereal Breakfast Foods

Butter, Cream, Table Oil and Other Fatty Foods

Vegetables and Fruits

Simple Sweets

A REVIEW OF THE DAY

At the close of the day the mother might ask herself questions like the following to make sure that she has taken into account the things to which her attention has been directed:

Did the child take about a quart of milk in one form or another?

Have I taken pains to see that the milk that comes to my house has been handled in a clean way?

If I was obliged to serve skim milk for the sake of cleanliness or economy, did I supply a little extra fat in some other way?

Were the fats which I gave the child of the wholesome kind found in milk, cream, butter, and salad oils, or of the unwholesome kind found in doughnuts and other fried foods?

Did I make good use of all skim milk by using it in the preparation of cereal mushes, puddings, or otherwise?

Were all cereal foods thoroughly cooked?

Was the bread soggy? If so, was it because the loaves were too large, or because they were not cooked long enough?

Did I take pains to get a variety of foods from the cereal group by serving a cereal mush once during the day?

Did I keep in mind that while cereals are good foods in themselves, they do not take the place of meat, milk, eggs, fruit, and vegetables?

Did I keep in mind that children who do not have plenty of fruit and vegetables need whole-wheat bread and whole grains served in other ways?

Did each child have an egg or an equivalent amount of meat, fish, or poultry?

Did any child have more than this of flesh foods or eggs? If so, might the money not have been better spent for fruits or vegetables?

If I was unable to get milk, meat, fish, poultry, or eggs, did I serve dried beans, or other legumes thoroughly cooked and carefully seasoned?

Were vegetables and fruits both on the child's bill of fare once during the day? If not, was it because we have not taken pains to raise them in our home garden?

Did either the fruit or the vegetable disagree with the child? If so, ought I to have cooked it more thoroughly, chopped it more finely, or have removed the skins or seeds?

Was the child given sweets between meals, or anything that tempted him to eat when he was not hungry?

Was he allowed to eat sweets when he should have been drinking milk or eating cereals, meat, eggs, fruit, or vegetables?

Were the sweets given to the child simple, i.e., unmixed with much fat or with hard substances difficult to chew, and not highly flavored?

Was the child made to eat slowly and chew his food properly?

A young child may be considered well fed if he has plenty of milk, bread, and other cereal food; an egg once a day or its equivalent in flesh foods; a small portion each of carefully prepared fruits and vegetables, with a small amount of sweet food after his appetite for other foods is satisfied. If there is too much or too little of any of these, his diet is one-sided.

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of Your Own)**

CHILDREN'S BUREAU

(From Bulletin of U. S. Department of Labor, Washington)

FEEDING THE CHILD THE SECOND YEAR

Much of the illness and suffering among babies commonly attributed to the "second summer" or to teething is actually due to errors in feeding. The baby's delicate digestive mechanism, accustomed to dealing only with milk, cannot all at once undertake the task of adjustment to a varied diet of solid foods, but must be strengthened by the gradual addition of new foods until the organs are trained to more complicated operations. The safe rule for feeding the baby is to add but one new food at a time to his dietary; to watch carefully the effect of each one and to withdraw it and return to the simpler diet at the first sign of trouble. These rules are particularly important in summer, when a baby is more readily upset.

The following list shows the day's meals for a baby in his second year:

7 a. m.—Milk, zwieback, toast, or dried bread.
9 a. m.—Orange juice.
10 a. m.—Cereal, cup of milk.
2 p. m.—Broth, meat, vegetables, stale bread, baked apple.
6 p. m.—Cereal, milk, toast or bread.
10 p. m.—Milk (may be omitted).

Milk—At this time the baby should be taking about one quart of milk in 24 hours; part of this may be poured over the cereal.

Cereals—Oatmeal should be cooked three hours with a little salt in the water. It should be served without sugar, or with a very little only. The lighter cereals should be cooked at least an hour.

Breads—Bread for young children must have been thoroughly baked and should be quite dry when used; that is, at least two days old. Tender toast is made by cutting thin slices from such a loaf and allowing them to dry still more, then toasting them to a delicate brown over a quick fire. Toast thus made is crisp all the way through and may be used in many ways. Many children will like to eat it broken into bits in broth or milk. Hot breads and biscuits, griddle cakes, and muffins are not suitable for young children.

Fruit—The child may have a small portion of baked apple or prunes once a day in addition to his morning feeding of orange juice. The apple should be baked very tender, and all the skin, seeds, and hard parts should be removed. Prunes should be very carefully washed, soaked all night, then cooked until very tender with very little sugar. A small portion of the strained pulp may be given instead of apple, and the juice may be used also.

Meat—The child may have about a tablespoonful of scraped meat, or a soft boiled or coddled egg once a day. Beef, broiled, boiled, or roasted, the tender part of a lamb-chop, or the delicate meat of chicken or fish may be used. All meat should be scraped or minced very fine, as no child of this age can be trusted to chew it properly.

Vegetables—A small portion of some properly cooked green vegetables, like spinach or tender string beans, may be given. Such vegetables should be fresh. They should be cooked, then drained and mashed or strained through a colander.

FEEDING THE CHILD OF THREE

(Bulletin, Children's Bureau)

At the beginning of the third year the child's diet may be increased by adding more solid food, especially meats and vegetables. According to the U. S. Department of Agriculture, every healthy child of three should have at least one food a day from each of the following five groups:

1. Milk and dishes made chiefly of milk (most important of this group in children's diet); meat, fish, poultry, and eggs.
2. Bread and other cereal foods.
3. Butter and other wholesome fats.
4. Vegetables and fruits.
5. Simple sweets.

The meats should be beef, boiled, broiled, or roasted; lamb chops; the white meat of chicken or delicate fish. All meat should be free from fat, gristle, or bone and finely minced when given to the child.

Eggs should be very soft boiled, coddled, or poached, or soft scrambled. Fried eggs should never be given to a child; but the grated or mashed yolk of a very hard boiled egg may sometimes be used.

Meat broths made from mutton, beef, or chicken have little nutriment, but if these are thickened with arrowroot or cornstarch, and especially if milk is added, they become a valuable food Well-cooked vegetables, strained and added to warm milk, are not only good foods but serve to teach the child to like vegetables.

Cereals should be thoroughly cooked and served with milk or thin cream and a very small amount of sugar or none.

Bread for a child should be at least two days old. Toast, zwieback, or hard crackers may be given once or twice a day.

Baked potatoes moistened with a little butter, thin cream, beef juice, or platter gravy may be given.

Asparagus tips, spinach, stewed celery, squash, string beans, carrots, young peas, well-cooked and mashed, or put through a puree sieve, are all good for a child. A small portion of one of these vegetables may be a part of the child's dinner each day.

Fruits should be continually used. At this age sweet oranges, baked apples, or stewed prunes are most useful. The juice or mashed pulp of fresh ripe pears or peaches may be given in the third year, but there is much danger in using overripe or green fruit, as well as in giving too much. It is especially necessary to be careful in hot weather when fresh fruit decays rapidly. Bananas should never be given to a young child.

A child under 4 years of age should never have dried or salted meats, sausage, pork, game, liver, kidney, goose, or duck. Fried and raw vegetables, hot fresh breads, cakes, and pastries, salads, candy, syrups, tea, coffee, beer, cider, and soda water are all unsuitable foods for a child.

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FEEDING THE CHILD OF FOUR.

(Bulletin, Children's Bureau)

During the fourth year, milk still remains an important part of the child's food, but much of it may now be given in the form of bread and milk, milk soups, or milk puddings, or it may be poured over the cereal. Some children object to drinking milk, and in such cases it is wise to offer it under some such disguise. The cereal need no longer be strained, but must be very thoroughly cooked.

The diet at this time should include all the articles advised for the two earlier years, with the addition of more meats, vegetables, and fruits. Baked potatoes, with a little butter, are a staple food at this period. Bread and butter, or toast and butter, and plenty of hard crusts or zwieback are important. Eggs or meat, such as roasted, boiled, or broiled beef, mutton, chicken or fish, should be given at least once a day.

The child of four will probably thrive on three or four meals a day, the heaviest being taken in the middle of the day. If he appears to be hungry, a light lunch, such as milk, may be given in the interval between breakfast and dinner, or between dinner and supper, but no nibbling should be permitted between meals. A child should be taught to come to the table with that vigorous appetite for his food which leads to good digestion and assimilation.

Food should be carefully prepared to fit it to a child's powers and should be served in an appetizing fashion at proper intervals. Young children should not be offered "tastes" of the family meals, as this habit tends to destroy the appetite for the simple, rather restricted diet adapted to their need.

Children should have an abundance of pure, cool drinking water. This is especially important in summer, when they are perspiring freely. If there is any doubt about the purity of the water it should be filtered or boiled, or both.

Since it is always difficult for children to chew their food properly, it should be finely minced, mashed, or softened for them throughout these early years.

Never under any circumstances should children be given coffee, tea, or strong cocoa. They should have no highly seasoned or spiced foods, rich pastries, raw vegetables, onions, corn, or cabbage. Bananas and all partly ripened fruit are apt to make trouble.

If children are inclined to be constipated, they should have plenty of laxative foods. These are cereals, particularly oatmeal; the coarser breads, such as Graham and whole wheat; fruit and fruit juice, particularly oranges and prunes; and vegetables like string beans, asparagus, and spinach.

Many children suffer from malnutrition; that is, they fail to secure the food materials they need for development and growth, and, consequently, they are undersized, pale, often slow and listless, and do not show the eager, alert habits of healthy children. Malnutrition may be due to lack of sufficient food of any kind, to improper food, bad cooking, or some fault of digestion, or to illness which makes it impossible for the child properly to utilize the food he eats.

It is a wise precaution, therefore, if children are out of sorts, have decayed teeth, bad breath, or seem tired and disinclined to play, to have them examined by a good doctor, and to take all the trouble necessary to get them into sound eating habits. The neglect of these early symptoms may mean a lifetime of only partial health and efficiency.

FEEDING THE CHILD OF SIX

(Iowa State College Bulletin)

Children need mineral matter to build strong bones and good teeth. Do not handicap them for life by neglecting to supply these important food substances.

Eggs and milk are valuable muscle building foods. A quart of milk a day included in the diet will help a child to make normal growth.

The child beginning school should be carefully watched to see that he keeps up to a normal standard of health under the new conditions.

A child should be taught:

To chew his food thoroughly.
Not to touch food with dirty hands.
Not to eat foods that have been exposed to dust and flies.
To use his own drinking cup.

FOODS SUITABLE FOR THE CHILD OF SIX

Breakfast—Cereals with cream, eggs (not fried), stewed fruits, oranges, toast (dry or milk), rice with cream, bacon.

Protein Foods—Creamed eggs, macaroni with cheese, creamed potatoes with peanuts, chicken, beef, mutton, creamed codfish.

Vegetables — Baked potatoes, lettuce, carrots, creamed onions, green peas, string beans, asparagus.

Desserts—Junket, custard, rice pudding, plain ice cream, sponge cake, plain cookies, fruit jelly, fruit gelatin with cream, fresh fruits.

FOODS RICH IN MINERALS

Eggs, milk, spinach, pea puree (dried peas), celery, ground raisins, prunes, whole wheat bread, nut bread (whole wheat), cauliflower.

SUGGESTIVE MENUS

Breakfast—Stewed prunes, oatmeal and cream, toast, milk.

Baked apple, rice with cream, bacon, toast.

Orange, poached egg, milk toast.

Dinner — Cream celery soup, baked chicken, baked potato, fruit gelatin.

Macaroni with cheese, spinach, whole wheat bread, baked custard.

Mutton broth with rice, creamed carrots, lettuce salad, Graham bread, fresh fruit.

Supper — Creamed toast, sponge cake, apple sauce.

Cream potato soup, bread and butter, cookies, junket.

Creamed codfish on toast, whole wheat bread, stewed raisins.

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CLOTHES FOR THE GROWING CHILD

(U. S. Department of Labor, Children's Bureau)

Very much of the comfort of a child depends upon his having the right kind of clothing. This is especially true in summer. One hot day a mother came into an infant-welfare station in a large city bringing a screaming baby who would not be pacified. The trained and sympathetic eye of the nurse in charge saw that the little feet were covered with knitted woolen socks. She asked the mother to take them off. Immediately the screams ceased and the baby stretched his naked feet in delight at being relieved of the intolerable irritation.

During the hot months, children should wear just as little clothing as possible. Babies require only a diaper and one other garment, while runabout babies and children up to five will be amply clothed in waist and drawers, with one outer garment, preferably a cotton slip, apron, or rompers, or one of the many similar garments illustrated in the pattern books.

The one-piece dress is a great boon to busy mothers, being easy to make and to wash and iron. If the kimono sleeve is used, the dress will be cooler, but in some garments the set-in sleeve is less clumsy and wears better. Rompers, loose at the knee and low-necked and short-sleeved, may be used for little girls and boys alike. Denim overalls are rather cumbersome for the hottest weather but are adapted to cool days.

Starched, frilled, and fussy garments are all alike unsuitable for young children, whose clothing should be such as will make them perfectly comfortable and permit the freest play. No child should have to think of his garments during the play hours; he should, of course, be subject to reasonable restrictions upon wilful or mischievous soiling or destruction of his clothing.

Cotton is the best material for outside garments, since a child of this age should have no clothes that cannot be washed. Mothers disagree as to the comparative merits of white clothing and colored. White garments may be boiled, and thus the amount of rubbing necessary to get them clean is very greatly lessened. On the other hand, white dresses are soiled almost as soon as the child begins to play out of doors. It must be remembered that while white or light colors show the soil sooner, there may be just as much actual dirt on the darker ones. It must also be remembered that light colors like blue, green, lavender, or pink are almost certain to fade unless they are washed with special care. Striped and check ginghams fade less than plain materials, but often shrink badly in washing. Such materials should be shrunk before being made up. Seersucker and cotton crepe materials of many kinds have the great advantage of needing no ironing. These rough materials are not very cool, and if used for summer wear should have short sleeves and round neck to avoid chafing of the skin of the arms and neck. Percale, galatea, madras, and the better grades of gingham or dress linen are all good materials for children's clothes. For hot weather almost any of the thin materials may be used.

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SECTION X.

THE INDOOR GARDEN

CUT FLOWERS

Every house should have growing things within. Where it is possible to have an outdoor garden, one confronts, of course, unlimited possibilities which embrace a study in themselves.

When one is confined to indoor gardening, however, it is astonishing how much may be accomplished. This most naturally and conveniently takes the form of the window box, sun room box, or perhaps piazza box; it is a constant source of surprise to work out how much can be grown in these to add to the charm of a home and make it seem that some of "God's out-of-doors" has been brought within.

The boxes are heavy when filled with earth, hence should be made not too large. It is better to place two boxes end to end to fill a long space. They should be supported through with strong brackets. There must be holes in the bottom for drainage, or the earth will turn "sour;" there must be, therefore, a pan or other means to catch the drain and either carry it off or hold it until it dries or is mopped up. The boxes should be painted every two years—the color of the house or other woodwork next them, as it is the flowers which we want to "stand out" for notice, not the receptacles.

In the bottom of the boxes should be an inch layer of gravel, charcoal, broken up flower pots or other coarse material; charcoal is best, as it helps sweeten the soil. The soil should be sifted; it should be obtained from a florist or should be made up of a mixture of humus, fine sand, rich garden soil and old stable dressing, well rotted from the cow barn. Sods may be overturned and the soil scraped therefrom, instead of garden soil; and bone meal is even better than stable dressing. The garden soil should make up about half the quantity, humus about a fourth, sand and fertilizer in smaller amounts. Wood ashes or chimney soot may be added, but not coal ashes. The whole should be well mixed and by frequent turning exposed to light and rain and much sun, to "season" somewhat before using.

Set the edge plants first, those chosen to droop over the sides, such as periwinkle, sweet alyssium, moneywort, etc. If the plants to be set in a bed are of uneven growth, place the taller ones at the ends, especially if a window box.

The plants to select depend upon your own taste, but the background cannot be disregarded. On a gray house, red geraniums look well, or there are fine shades in pink and salmon. These colors do not look well together; only strongly contrasted colors do, and not always these—white and red geraniums are too strong a contrast, while white goes well with pink. White flowers look especially well in window boxes in the evening, when they shine out brightly in the dusky light.

Flowers and Children—Possibly the city child finds growing plants a more wonderful something than the child of the country, but a window box in the nursery is an unfailing delight to any child—and the child may be taught to water and tend it; and little formal gardens, Japanese or others, may be obtained from any city florist, all ready to transport bodily to the home, for nursery or for the living room. Tiny ones for the dining table are becoming more and more frequently seen, perhaps one of the most charming table decorations it is possible to have.

Bulbs Indoors—Bulbs planted and grown at home are far more satisfactory than those bought ready to blossom. The latter have usually been "forced," are not hardy and will wither under any slightly adverse conditions. Buy large bulbs, not small ones; the latter cannot be forced and will not make large, attractive plants; all the care you can give them will not bring forth more blossoms than are inherently in them.

Bulbs run through quite a list; tulips, daffodils, jonquils, narcissus, crocuses, and Roman and Dutch hyacinths. Consult florist from whom you buy as to how many of a given variety to plant in a given sized pot or box and the time required for them to grow and blossom; then select a variety so planned and planted that one will follow another and you will have some abloom throughout all the season. The florist will also instruct you as to soiling and which bulbs require much or little watering when in their growing stage.

When you plant them for rooting, label them. Put them in a dark closet. Water occasionally if the soil and bulbs seem dry. Some varieties will root in two weeks; others require up to four weeks. When removed from the dark closet, put them in a dull light, to start their growth slowly; forced in a strong light they will make all foliage and no blossoms. Leave them in the dull light for a week or ten days.

When you transfer to the window, give them a sunny room but not the direct sun all the time. If forced too fast, by too much bright sun and too warm a room, they make long, spindly trunks and all leaves, with few blossoms, and they do not last as long as those grown more normally.

The Chinese lilies grown in water are treated about the same as bulbs grown in soil. Rocks or pebbles in the water are to hold them in position and give their roots something to grasp; the pebbles do not nourish them. Smooth, clean, fairly large pebbles an inch or more in size are best.

All Flowers grown in a gas lighted room, or a room with a gas heater without outside vent pipe, or in a very hot room of "dry" heat, are sensitive, do not do so well as otherwise, and positively must have their "faces washed" (the foliage washed down thoroughly) every day or two.

Ferns and Kindred Plants—Ferns will keep in furnace heated rooms if sufficiently and properly watered. The Boston fern is one of the best for the purpose.

Horseradish does well and looks well until it gets too large and harsh; it grows rapidly and is beautiful when young.

Parsley does well in window boxes and is decorative both there and on the meat platter. Some varieties of mint do well, especially mentha, which is also used for a delicious adjunct to iced drinks.

Beyond the above the possibilities of indoor gardening run into opportunities of almost countless variety to one who will take up the art and study it out. The items here are only to give one a fair start along the lines simplest and easiest for beginners.

There are wonderful possibilities in common carrots, and radishes and even beets are decorative as well as useful. Nasturtiums and geraniums, heliotrope, mignonette, primroses, morning glories, pansies, violets, foliage, asparagus, petunias—all are readily grown in window boxes both within and without the casement.

Simple, Homely "Hanging" Plants—For a boy who loves an experiment, take a fat carrot and cut off its tail. Of course, the grocer has already cut off its head. Now scrape an opening in the top about as large as a good sized spool. Pierce the rim of the opening at three equi-distant points and run a string through each hole, catching the three strings together to form a miniature hanging basket. Hang it in a sunny window and fill it with water. Keep it filled—and you will be rewarded with an adorable green fernery which will sprout from the outside and entirely hide the carrot itself.

Here's another hanging basket: Put a small sweet potato in a wide-mouthed bottle. Cut a hole in a sponge large enough for the mouth of the bottle to come through. In all the little holes of the sponge sow rice or bird seed. Hang it in a dark place by strings to the neck of the bottle, until all have sprouted. Put in a sunny window and train the potato vine around the strings.

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Scraps or Memos.
of Your Own)**

THE DECORATIVE USE OF FLOWERS

Being Extracts from Bulletin Under the Above Title Issued as Farm House Series, No. 8, Cornell Reading Course, State Department of Agriculture, Ithaca, N. Y.

With no consideration of the part that structure and odor of flowers play in the perpetuation of plants, or their value as reservoirs of honey or as storehouses of medicine, this lesson deals with only their aesthetic service, "To minister delight to man, to beautify the earth."

The term flowers, as used in the title of this lesson, refers not only to blossoms, but to leaves, berries, seed packs, and any other form of plant life that has decorative qualities. An arrangement of flowers may be a work of art in which every essential of design in form and color may be exemplified.

TO KEEP FLOWERS

In order that flowers may keep, as well as to protect the plants, flowers should be cut, not picked nor "pulled," preferably in the morning or the evening. When cut they should be plunged as soon as possible into deep water and allowed to stand in a cool room or cellar for two or three hours before they are arranged. If some time elapses before they are arranged, it is better to snip the ends of the stems again. They should be placed so that the blossoms are supported, especially if they are fragile; often long-stemmed blossoms will keep much longer if "rested" in this way during the night.

Flowers stay fresh much longer if the temperature in which they are grown can be maintained. Sometimes such flowers as heliotrope and dahlias will keep much longer if the stems are thrust into boiling water or into a direct flame for a moment, and immediately after plunged into cold water. Green branches cut in winter should be placed in ice water.

Flowers keep fresh longer if the leaves below the water are removed, for the decaying vegetable matter poisons the water. If glass vases are used it would not, of course, be advisable to strip the leaves from the stems, but the water should be changed very frequently. The ends of the stems should not rest on the bottom of the container. With a large surface of water exposed to the air flowers will remain fresh longer than when the surface is small and confined.

EFFECTIVE PLACING

The placing of an arrangement of flowers often determines its form; therefore the position it is to occupy should be considered from the first. The observer's point of view should influence the arrangement. Some plants look their best in a jar placed on the floor. Pond lilies never look so well as when floating in a shallow dish on a taboret or a stand that is lower than an ordinary table. Some plants or bouquets are most attractive when placed on a window sill and silhouetted against the light. White lilies or golden glow light up a dark corner effectively. Drooping branches or vines arrange themselves naturally when placed on a mantelpiece or in baskets or other receptacles hung against the wall. Various flowers suit various moods, different occasions, different rooms. The flowers that supply the most charming and intimate features of the home breakfast table would probably be out of place at a banquet.

TABLE DECORATION

No phase of flower arrangement is more constantly recurring than that of table decoration. Beauty resides in quality rather than in quantity, and it is often more in evidence when stem and leaf and growth are seen than when these have been obliterated by

a mere mass of color. Table decoration should be so low that conversation may be general, and so that persons sitting opposite each other need not play hide and seek. Flowers with a very delicate odor, or with no odor at all, should be selected for the table. There may be either a central arrangement or something at each plate, or, for a very special occasion, a combination of both. Little flat water cups cost only forty cents a dozan and are very appropriate for certain flowers. For a small table there may be a central arrangement and others that are subordinate. The shape of the centerpiece should repeat the shape of the table; it should be round for a round table, or long and narrow if the table is that shape. The color of the flowers should harmonize with the color of the china and of the room.

The decorations should be appropriate to the occasion and should reflect its spirit. Forget-me-nots, daisies, and buttercups are suitable for the child's birthday; rosebuds, wild clematis, or virgin's bower, sweet peas and daffodils for a young girl, unless lilies, marigolds, black-eyed susans, peach blossoms, iris or other flowers in season happen to have a happier significance. Bride's roses, lilies of the valley, apple, peach, or any other fruit blossoms, are a good selection for the bride. For the mother's birthday, violets, many of the roses, and other flowers, among which her favorites should be given first choice, would be appropriate. Bachelor's buttons, sweet williams, or johnny-jump-ups may suitably celebrate the young man's coming of age. Laurel, oak leaves, chrysanthemums (a court flower) and other stately blossoms would be appropriate decorations for a dinner.

MANNER OF ARRANGEMENT

The decorative elements in plants are line, form and color. Those plants whose chief attraction is in form or line should be used singly or in small groups, so that these qualities may be seen to best advantage. Those whose pre-eminent attraction is their color may be massed. Those which are thrice blessed, possessing beauty of form, line and color, may be arranged singly, in small groups, or in large masses, according to the characteristic to be emphasized or the place and purpose for which they are chosen.

Line is the dominant attribute of goldenrod. One stem, or at most three, is more effective than a large mass. When goldenrod is bunched in the usual manner, the forceful grace of its wandlike stem is lost entirely; also the greenish-yellow of the flowers as seen in mass is disappointing.

In orchids, lilies and iris, form is the chief element of beauty and should have first consideration. Such flowers should never be massed.

Color is the dominant attraction in pansies, sweet peas, violets, and nasturtiums; therefore, the more of these the better. Peonies are difficult to arrange simply and singly and are much more splendid when massed.

In many plants form and color are both so attractive that the plant may be selected for either characteristic, but in the decorative arrangement one idea should be dominant.

The rose is one of the best examples of threefold adaptability. One long-stemmed rose in a slender vase, which will keep it in position, is a thing of beauty in line which should give joy to a whole household; a group of three at different stages of opening, with their leaves, is an example of beauty of form which would furnish a noble decoration; and a mass of full-blown roses would present a glory of color which might well be the special decorative feature at a wedding, a graduation, or a church service in June. The chrysanthemum and the poppy are almost equally adaptable.

In some cases foliage is the attractive feature, and it possesses the same elements of line, form and color. Rushes and grasses are lovely in line. Some varieties of oak are so impressive in form that they should be arranged so that the shape of each leaf in the spray should be seen. The acanthus and the ivy have furnished inspiration for generations of sculptors. The begonias and many varieties of autumn foliage rival flowers in bril-

liancy of color; more often, however, foliage is the background and should be subordinate to flowers. In many cases it is necessary to remove some of the leaves so that they do not compete with the flowers in interest. Carnations should preferably be arranged with their own foliage. Often they come from the florist accompanied by asparagus or sword ferns, a combination incongruous in both form and color. Perhaps some day a lover of carnations will develop a variety of them profuse in leafage and will grow it to furnish foliage for the flowering varieties.

Nature is very careful about the foliage she uses with flowers, and uses a different green with white lilacs from the one she uses with the colored species. At times she sends the flowers before the leaves, as in the case of the azaleas and many of the fruit blossoms, so that the contrasting character of the erratic stems is not missed. There are always leaves when violets and sweet peas and nasturtiums bloom. Fewer blossoms with a little of the foliage make a much more attractive arrangement than a mass of blossoms and no leaves. Even though buds must be picked with the blossoms in order to secure enough foliage, it should be considered no sacrifice since they, too, contribute to the general effect.

The nature of the plant growth should suggest the manner of arrangement. Branches of trees should be arranged so that their strong, rugged character is preserved. Vines should appear to run or droop or climb. When grace and delicacy distinguish plants these characteristics should not be lost in arrangement.

Whole plants, such as the primrose, the cyclamen, and many bulbs, such as daffodils, jonquils, and tulips, furnish a ready-made arrangement difficult to equal. Violets or hepaticas, ripple grass or dandelions, carefully selected and sometimes judiciously pruned, are charming. One bit of sod from a New England pasture has been known to furnish ten varieties of plants, and is a wild garden in itself. Taken early in March and brought into the favoring warmth of the house, it is a prophecy of the spring easily read by a family of children, who receive thereby a vision of the beauty of a little grass plant not so easily perceived when the plants come in battalions.

CARE OF FLOWERS AND PLANTS

Insects—With regard to potted plants generally one should chase the wooly white mealy bugs and little red ants away with a toothpick. Drown the red spider with a squirt gun.

If bugs and spiders shatter your preparedness program, cut plants off within an inch of their lives and throw them away. They'll grow again.

The green flies, which are not so green as they look, won't bother your plants if you keep them well bathed and fed—the plants, not the flies.

When a fern turns yellow, slice a raw potato and put it on top of soil; this will draw out the worms, which are generally the cause.

Ammonia water applications are good for plants that do not seem to thrive. Soapy water is also good for the soil about plants.

Ivy—The hardy ground ivy will thrive in almost any situation, even in a room not always well lighted. Select two or three pieces of ivy, each about a yard in length, place the ends in a two-quart jar kept filled with water. Twine the plant about the pedestal of a statue.

Rubber Plants need a sun-bath every day. Their feet should be kept damp but not wet. The leaves should be washed twice a week in good soap suds and rinsed in clear water. When the pots get too full of roots, repot the plants. Every rubber plant should have a prepared food "square meal" twice a month. Give it also a dose occasionally of diluted ammonia.

Palms—Add some milk to the water with which you wash palms. This causes the leaves to shine, and helps their good health.

Mint will grow in water, as many other plants, if left in a sunny window and given plenty of air.

Lettuce can be kept growing all summer, from the early varieties started in boxes in the house to endive, the lettuce of autumn, which may be sown from June to August. Endive is tender as a young plant but bravely withstands the early frosts.

Onion Crates Tabourets—By removing the thin slats from the top and bottom of onion crates and removing the wire of the corners until the sides have been interlaced, then replacing the wires and fastening securely, they make excellent fern stands. They can be stained or painted any desired color, and are really very attractive.

To Prevent Broken Pots and Flowers—Flower pots on piazza railings are easily knocked off, and both pot and flower broken. All flower pots have holes in the bottom. Nail a small-headed nail about three or four inches long on the top of the banisters, over which slip the pot and all the trouble is ended.

To clean flower pots and trays of brass, rub them with a piece of lemon, pour boiling water over them, and finally polish them with a soft dry cloth.

Tea leaves, moistened with vinegar, remove the discoloration in glass caused by flowers.

To clean deep flower vases, mix a tablespoonful of coarse salt and a gill of vinegar. Pour in the vase and let it stand for a while. Shake well and rinse with clear water.

Care of Cut Flowers—The principal drawback to cut flowers is that they wither quickly. Some seem to have more luck than others in keeping them fresh. For instance, in the matter of violets, it is impossible to wear them several times without noticing the overpowering stale odor which proclaims them beyond redemption.

Keep Wrapped—Of course, many people find that they cannot wear cut flowers even for one afternoon, because the body heat seems to wilt them, but if this can be avoided it is quite possible to find a bunch almost as fresh the second day as on the first, if properly guarded overnight.

Keep the box that your violets came in and when you take them off hold the stems under running water for a few minutes, taking care not to wet the violets themselves. Then wrap them up in the oiled paper and put them back in the covered box outside the window, if it is cool, or in the refrigerator; but in either case keep them wrapped.

Preservation—This treatment seems to restore the flowers and hold in them the delicious odor which so soon becomes rank if they are kept unwrapped in a close room.

Some find that a pinch of salt in the water will keep cut flowers fresh longer; and so it does in some cases. In others it seems to change the color a little. With roses it is successful, but not so much so with violets. A piece of gum camphor is said to be an excellent preservative in the water. Others advocate a small lump of charcoal. In any case, the water should be changed daily and the flowers kept in a cool place overnight.

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THE KITCHEN GARDEN

SECTION XI.

SUGGESTIONS FOR UTILIZING LIMITED AREAS

(Farmers' Bulletin No. 818, U. S. Department of Agriculture, in Its Entirety "The Small Vegetable Garden")

ESSENTIALS OF GARDENING

The primary needs for successful vegetable gardening on a small scale are the same as those for gardening on a large scale. On limited plots, however, greater emphasis must be placed on intensive culture and carefully arranged rotations so that every available foot of space may be made to produce the maximum yield.

The essentials of all gardening are soil of suitable texture containing available plant food, water to dissolve the plant food so that the plant rootlets may make use of it, seeds or plants which will produce the desired crops, sunshine and warmth to bring about germination and plant development, and cultivation. Much also depends upon the gardener and the care he bestows on his enterprise.

Other factors—location and exposure—cannot always receive much consideration in gardening small plots since there is ordinarily little room for choice. Such spaces are located usually in yards, or the choice of location is restricted in other ways by the necessity that the spaces be accessible to dwellings. When a possibility for the exercise of choice does exist, however, several considerations should be kept in mind by the gardener. It should be recognized that frost is less likely to injure vegetables planted on high ground than those planted in low places or valleys into which the heavier cold air commonly settles; that crops will mature more rapidly on land that has a sunny, southern exposure than on other plots; that the garden should be fairly level, but well drained; and that a warm, sandy loam will produce an earlier crop than a heavier soil that retains more water and less heat.

The soil is the storehouse of plant food and should, therefore, have a relatively open texture so that the rootlets of vegetables may extend themselves readily in their search for sustenance. A high proportion of humus or rotted vegetable material is desirable in the soil, since it produces an open texture, adds nitrogen,

insures the presence of beneficial bacteria, aids in unlocking plant food from mineral particles, and increases the moisture-retaining properties of the soil.

About 50 per cent. of ordinary earth is not soil at all, but consists of air and water. Water makes the soluble plant food that is present in the soil freely available, while the air in the soil makes possible bacterial development and facilitates chemical action, which makes additional plant food available.

IMPORTANCE OF A GOOD SEED BED

The cultivation of crops is important because the stirring and loosening of the soil directly conserves moisture to some extent, kills weeds, which draw moisture and plant food at the expense of the crops, and incorporates air into the soil.

Too much emphasis cannot be laid on the preparation of a good seed bed. A seed bed of fine tilth—made such by deep plowing, careful harrowing, and fining of the soil—is the foundation of good gardening. It is essential for the proper germination of seeds and growth of young plants. The soil must be friable and free from clods. A clod locks up plant food and prevents its utilization by the plant. Good soil and fine tilth furnish best conditions for root development. Upon the fine, hairy, fibrous, feeding roots, which are possible only in well-tilled soil, the plant depends for its stockiness and growth.

The careful gardener will regard his whole garden as a seed bed and will cultivate and fertilize it accordingly.

FERTILIZERS

Fertilizers, the plant foods for the garden, should be carefully selected. Nitrogen, which stimulates leaf growth, is best supplied by turning under rich, well-rotted or composted manure or rotting vegetable matter. Sheep manure and poultry droppings will hurry plants along more rapidly than most chemical fertilizers. These substances, as well as bone meal, also a valuable fertilizer, usually may be obtained from seed stores.

PLANNING THE SMALL GARDEN

With a little forethought a comparatively small tract of land may be made to supply the average family with fresh vegetables throughout the growing season. Most owners of small gardens are content to raise a single crop on each plot of land at their disposal. It is quite possible, however, to grow two or three crops of some vegetables in one season, and if these are properly selected the home-grown produce should be both better and cheaper than any that can be purchased on the market.

Just what vegetables are to be grown depends, of course, upon the individual tastes of the family. In general, the aim of the home gardener should be to raise vegetables in which freshness is an important quality. Peas, string beans, Lima beans, asparagus, and sweet corn, for example, lose much if they are not cooked almost immediately after they are picked. On the other hand, as good potatoes usually can be bought as can be grown. Moreover, potatoes occupy a large area in proportion to their yield and consume in a back yard or small garden valuable space which, in most cases, could be put to much more profitable use. This may be true also, in some cases, of corn, cucumbers, squashes, and melons.

It will pay the home gardener to grow certain specialties of which he may be fond, and which may be troublesome or expensive to purchase. Okra is an example of this class, and little beds of parsley, chives, or other herbs take up very little room and provide the housewife with additions for her table, which are most welcome if they can be picked at the right moment without trouble.

THE GARDEN DIAGRAM

If the small garden plot, however, is to be made to bring the maximum returns in economy and pleasure to the owner, every available foot of it must be made to work con-

tinuously. This can be accomplished only by careful planning, and it is recommended, therefore, that a complete lay-out for the garden be drawn up in advance. On the plan the gardener may indicate the approximate date when each of his projected crops is to be planted. No more space should be allotted to each than is needed to furnish a sufficient quantity of the vegetable for family consumption or for other known needs. In many cases, also, space should be left between the rows for the interplanting of later crops and for easy cultivation. Plants which make a high growth and cause heavy shade should not be located where they will interfere with sun-loving small plants. It is well also to separate perennials, such as rhubarb and asparagus, which are not cultivated, from plants which must be tilled.

THE DIAGRAM AS A RECORD

If a garden is planned in this way and the scheme carried out, the plan should be kept for use the following year, with notes of the success or failure of the different items in it. For example, if too much or too little of any vegetable was grown, this fact should be recorded. It is not desirable, however, to follow too closely the same plan in succeeding years. The same kind of vegetables should not be grown twice, if this can be avoided, in the same part of the garden. The danger of attack by diseases and insects is heightened when vegetables of the same kind follow each other repeatedly in a given space, such as a row or bed. If a radically different kind of plant is grown in a space, on the other hand, disease spores and insects, though present in the soil, probably will not attack the second crop.

In making a diagram of the garden it is well to use a tough paper, such as heavy wrapping paper, which will stand repeated handling and use out of doors. A fairly large scale should be adopted, so that full notes can be kept in the spaces representing rows. If the garden is fairly large or abnormally long, the diagram may be made in separate sections for the sake of convenience.

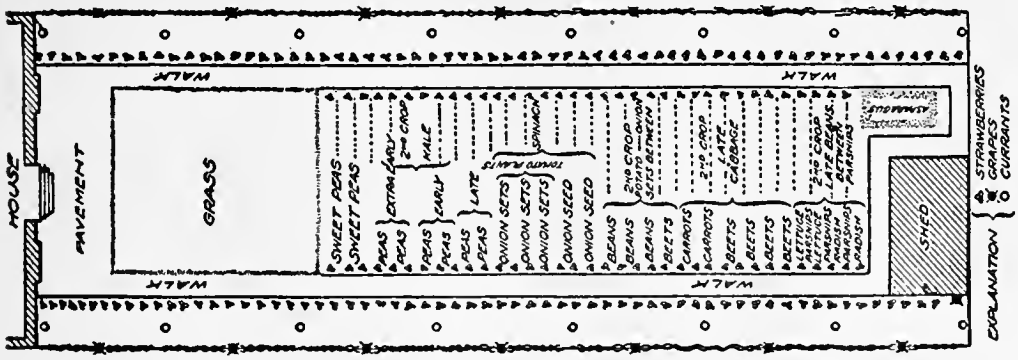

Fig. 1—A typical back-yard garden plan, showing a possible arrangement for permanent and annual plants.

A BACK YARD GARDEN

The garden shown in the diagram (fig. 1) was a city back yard, 25 by 70 feet in dimensions, near New York City. It happened to be bounded on two sides by a board fence, and advantage was taken of this fact to plant and train grape vines. Stawberry plants were set alongside the flagstone walks and currant bushes between the walks and the fence. In the space between the bushes and the strawberries low-growing vegetables, such as bush beans, peppers, eggplants, and the like were set out. In a space about 12 feet

wide between the walks low-growing, quick-maturing varieties of early vegetables were planted in such a way that later-maturing varieties could be put out at proper intervals between them. The early plantings consisted of radishes, early beets, lettuce, carrots, and a few parsnips. The beets gave way later to a few late cabbage plants. The sunniest portion of the yard was turned over to tomatoes, of which there were about a dozen plants trained to a single stem and set about 18 inches apart in each direction. Early and late peas were put out in the least sunny portions of the yard. Later, in the fall, spinach, kale, and potato-onion sets were planted in order to provide a supply of green succulents for the winter and early spring.

IMPORTANCE OF SUNLIGHT

In making the garden plan the gardener should recognize that no amount of fertilizer, watering, and cultivation will make up for the absence of sunlight in a garden. Careful consideration should be given to how many hours a day any part of the yard is in shadow from buildings, fences, or trees. If a successful garden is to be maintained, the greater portion of the plot must have at least five hours of sunlight a day. As a rule, foliage crops, such as lettuce, spinach, and kale, do fairly well in partial shade, but even these need sunshine two or three hours a day. Plants which must ripen fruits, such as tomatoes and eggplant, should have the sunniest locations.

CHOOSING CROPS

Vegetable seed should be ordered in advance of the time for planting in the open, so that they will be on hand for planting in flats or frames, and also for use outdoors, as soon as the weather and the condition of the soil make planting possible. Before ordering seed it is a good idea to look over the garden plot, decide on the best location for each vegetable, and determine how much seed will be required for the space available for each variety. The garden plan may then be drawn.

SEED FOR A FAMILY OF FOUR

The following are the approximate quantities of seed that should be purchased for a garden which is to supply vegetables for successive plantings throughout the season for a family of four:

Beans, snap	1 pint	Parsnips	½ ounce
Beans, pole Lima	½ pint	Salsify	1 ounce
Beans, bush Lima	½ pint	Squash, summer	½ ounce
Cabbage, early	½ ounce	Squash, Hubbard type	½ ounce
Carrot	1 ounce	Cauliflower	1 packet
Celery	1 ounce	Eggplant	1 packet
Cucumber	½ ounce	Parsley	1 packet

Kale, or Swiss chard ..... ½ ounce

For most of the vegetables listed the planting may consist of the entire quantities mentioned. Relatively small quantities of cauliflower, eggplant and parsley will be sufficient for most families, however.

The following vegetables undoubtedly will be planted in larger amounts than those just mentioned, and the amounts of seed given will be a guide for ordinary requirements. Some families may need more of the various vegetables and others less:

Beet	2 ounces	Radish	1 ounce
Cabbage, late	½ ounce	Spinach	¼ pound in spring and ½ pound in fall
Corn, sweet	1 pint		
Lettuce	½ ounce		
Muskmelon	1 ounce	Tomatoes, late	¼ ounce
Onion sets	2 quarts	Turnips	1 ounce
Peas, garden	2 to 4 quarts		

The entire supply of seeds of string bean, bush Lima bean, sweet corn, lettuce, peas, and radish should not be planted at one time, but successive plantings two to three weeks apart should be made so that a fresh supply of the vegetables may be had throughout the season.

Of early Irish potatoes one peck to half bushel will be required, and of late potatoes half bushel to 1 bushel, or more, depending upon the amount of ground available for this purpose. If abundant space is available, it may be well to grow enough Irish potatoes to last throughout the winter.

If the family wishes to raise vegetables to supply current needs and also to supply a surplus for canning, the amounts indicated above should be increased considerably.*

AIDS TO EARLINESS

The hotbed, the "flat" or seed box, and the cold frame are the gardener's greatest aids in raising early crops. The hotbed and the flat enable him to plant seed and produce seedlings long before most of the seeds may be planted out of doors and before those which have been planted in the plot have begun to germinate. The cold frame enables him to get the seedlings produced in the hotbed gradually accustomed to outdoor conditions and to raise these into strong, sturdy planting stock by the time the garden is ready for them. Resetting from a hotbed into a cold frame, or from one flat into another, or into pots, gives most plants a better root system and makes them stockier and more valuable for transplanting into the open ground. Besides being used in hardening plants that have been started in the hotbed, the cold frame is utilized in mild climates instead of a hotbed for starting plants before seeds can be planted safely in the open. In the extreme South the cold frame is much more extensively used than the hotbed, but each has its place in garden economy.

Still another method of giving plants an early start is used extensively for beans, cucumbers, melons, sweet corn, and other warmth-loving plants. This consists in planting enough seeds for a "hill" in berry boxes filled with soil. The boxes are kept in the house or in greenhouses until the garden soil becomes warm, by which time the plants should have reached a considerable degree of development. The bottoms of the boxes are then cut away and the remaining frame is sunk with the plants in their permanent location in the garden.

STARTING EARLY VEGETABLES IN THE HOUSE

The flat or seed box, which is kept in the house, is perhaps the most practical device for use by the home gardener for starting early vegetables. By its use earlier crops of tomatoes, cabbage, cauliflower, Brussels sprouts, peppers, eggplant, and lettuce can be had with little outlay for equipment. Early potatoes sometimes are forced in the same way. Seeds so planted germinate and are ready for transplanting by the time it is safe to sow the same kind of seed in the open ground. When danger of frost is over and the soil is dry enough to work, therefore, the early garden may be started with seedlings well above the surface. Transplanting, if properly done, instead of injuring seems to help such plants to develop a strong root system.

* The home gardener should find useful Farmers' Bulletins 359, Canning Vegetables in the Home; 521, Canning Tomatoes, Home and Club Work; 255, Home Vegetable Garden; and 647, Home Garden in the South. The latter is designed particularly for use in the warmer climates, but contains many suggestions that can be adapted readily by home gardeners in the North. The Department of Agriculture will supply these bulletins free on application as long as its stock for free distribution lasts.

HOW TO MAKE AND USE A SEED BOX

Any sort of wooden box filled with good soil answers the purpose, but the following specific suggestions for a box of convenient size may be useful. Construct a box 3 to 4 inches deep, 12 to 14 inches wide, and 20 to 24 inches long. A layer of about 1 inch of gravel or cinders should be placed in the bottom of the box. It should then be filled nearly full with rich garden soil or soil enriched with decayed leaves or manure. The rich soil beneath the family woodpile or around decaying logs is splendid for this purpose. The soil should be pressed down firmly with a small piece of board and rows made one-fourth to one-half inch deep and 2 inches apart crosswise of the box. The seeds should be distributed 8 or 10 to the inch in the rows and be covered. The soil should be watered and the box set in a warm place in the light. The best location is just inside a sunny window. Water enough must be given from time to time to cause the seeds to germinate and grow thriftily, but not enough to leak through the box. If a piece of glass is used to cover the box, it will hold the moisture in the soil and hasten the germination of the seeds.

When the plants are from an inch to an inch and a half high they should be thinned to 1 or 2 inches apart in the row, so as to give them space enough to make a strong, stocky growth. If it is desired to keep the plants which are thinned out, they may be set 2 inches apart each way in boxes similar to the seed box. When the weather becomes mild the box of plants should be set out of doors part of the time so that the plants will "harden off" in preparation for transplanting to the garden later. A good watering should be given just before the plants are taken out of the box for transplanting, so that a large ball of earth will stick to the roots of each one.

THE HOTBED

Locate the hotbed in some sheltered but not shaded spot which has a southern exposure. The most convenient size is a box-like structure 6 feet wide and any multiple of 3 feet long, so that standard 3 by 6 foot hotbed sash may be used. The frame should be 12 inches high in the back and 8 inches in the front. This slope is for the purpose of securing a better angle for the sun's rays and should be faced toward the south.

The hotbed not only must collect any heat it can from the sun, but also must generate heat of its own from fermentation in fresh manure. Fresh horse manure, free from stable litter, is best for generating heat.

If the hotbed is to be an annual affair, make an excavation 18 inches to 2 feet deep, about 2 feet greater in length and width than the frame carrying the sash. Line the excavation with plank or with a brick or concrete wall. A drain to carry off surplus water is essential. This may consist of either tile or pipe extending to a low portion of the garden or a trench partially filled with coarse stones covered with a layer of hay or sod and then filled level with soil.

After a sufficient amount of fresh horse manure has been accumulated fill the hotbed pit, and while it is being filled tramp the manure as firmly and as evenly as possible. When the ground level is reached, place the frame in position and bank the sides and ends with manure. Place about 3 inches of good garden loam on top of the manure inside the frame and cover it with the sash. After the heat has reached its maximum and has subsided to between 80 and 90 degrees F., it will be safe to plant the seeds. Select the plumpest, freshest seeds obtainable. Use standard varieties, and get them from reliable seed houses.

Keep the bed partially dark until the seeds germinate.

After germination, however, the plants will need all the light possible, exclusive of the direct rays of the sun, to keep them growing rapidly. This is a crisis in plant life, and

ventilating and watering with great care are of prime importance. Too close planting and too much heat and water cause the plants to become spindling. Water the plants on clear days, in the morning, and ventilate immediately to dry the foliage and to prevent mildew.

THE COLD FRAME

The cold frame, so useful in hardening plants started in the hotbed and for starting plants in mild climates, is constructed in much the same way as the hotbed, except that no manure is used, and the frame may be covered either with glass sash or with canvas. A cold frame may be built on the surface of the ground, but a more permanent structure, suitable for holding plants over winter, will require a pit 18 to 24 inches deep. The cold frame should be filled with a good potting soil. The plants should have more ventilation in the cold frame, but should not receive so much water. It is best to keep the soil rather dry.

In transplanting, remember that plants usually thrive better if transplanted into ground that has been freshly cultivated. Transplanting to the open field is best done in cool, cloudy weather and in the afternoon. This prevents the sun's rays from causing the plant to lose too much moisture through evaporation. In transplanting the gardener will find a child's express wagon an excellent trolley tray for bedding out his seedlings.

TOOLS

The necessary tools for preparing and caring for the small garden are few. A spade or garden fork for digging, a hoe, a steel-tooth rake, a trowel, and a dibble or pointed stick complete the list of essentials. The gardener will find it convenient, however, to possess some additional implements. If tree roots underlie any portion of the garden plot and must be cut away, a hatchet, ax, or mattock will be a real necessity. If the soil of the plot has become compacted, as where walks have existed, a pick may be needed for digging. Perhaps in such cases it will be most economical to fill both cutting and digging needs by purchasing a pick-ax which has a pick point at one end of the head and a cutting blade at the other. Apparatus for watering plants also should be included. This may be a watering pot of generous proportions or, where running water is available, a hose. In order that rows may be made straight and uniform a substantial line or cord should be provided.

A most convenient implement for use in the home garden, especially where the plot is fairly large, is a hand cultivator or wheel hoe. This implement is a miniature cultivator or plow, with adjustable blades, mounted on a wheel or wheels, and is pushed along by hand. Attachments make possible either the turning of small furrows, the stirring of the soil, or the removal of weeds. Much time and labor may be saved by such a device.

Among the other implements which may be useful in the home garden but which are not essential are planting and cultivating hoes of special shapes, a combination hoe and rake, a wheelbarrow, a shovel, hand weeding tools, and other small implements for special uses.

PREPARING THE SOIL

A simple test to determine when garden soil is ready for plowing or working is to take a handful of earth from the surface and close the fingers tightly on it. If the earth compacted in this way is dry enough for cultivation, it will fall apart when the hand is opened. This test is applicable only to comparatively heavy soils, but it is these which receive the most injury if they are worked when wet. On such soils overzealous gardeners not only waste their time but frequently do actual damage by attempting to work them too early.

BREAKING

The kind of preparation that must be given to the small garden and the amount of work that will be required will depend largely, of course, on the condition of the plot and the use to which it has been put. If the ground selected for the garden has been firmed by much tramping, as is often the case in back yards, it cannot be got into proper condition without the expenditure of considerable labor. When plowing with a team can be practiced, that is the best method for giving the ground its initial breaking. The surface, of course, should be harrowed a ssoon as possible after plowing.

If the plot cannot be plowed, the gardener must resort to the use of a garden fork or spade, or in the case of very hard spots, a mattock. The soil should be well loosened to the depth of the spade or fork. If heavy clay is encountered at this depth, it should not be turned up to the surface, but the slices of soil should be kept in their normal position. As soon as each spade or fork full of earth is loosened, it should be broken up by blows with the back of the implement. Later the freshly dug surface should be fined and smoothed with a steel-tooth rake. It is not sufficient that the surface be made fine; the soil should be well pulverized to the depth of the digging. Any sod or plant growth on the garden plot should be turned under to rot and form humus. In turning under sod with a spade or fork it is well to reverse each segment so that foliage will be down and roots up.

The first digging of a plot of ground which has not before been cultivated is likely to be a laborious task, and may even take away the enthusiasm of the would-be gardener. After this portion of the work is done, however, the fining of the soil, planting, and cultivation are not arduous. It may be well in many cases for the gardener to employ some one to break his ground, whether this be done with plow, spade, or fork.

IMPROVING SOIL TEXTURE

It is desirable that the soil of the garden be as open and light as possible. Where a natural loam exists in the plot good texture can be given by digging and cultivating. Where the soil is heavy, containing much clay, however, other steps are necessary. If clean sand is available this may be mixed with the soil. Well-sifted coal ashes which, unlike wood ashes, have no fertilizing value, are useful in lightening the soil. Care should be taken that no coarse cinders or pieces of partly burned coal are added to the soil with the ashes.

Lime added to the soil also will tend to lighten it and will, at the same time, correct acidity. A thin coat of air-slaked lime should be spread on the ground and worked in well. Lime is not a plant food, but its function in gardening is important none the less. By correcting acidity it makes possible the development of countless soil bacteria which aid in unlocking plant food from the mineral particles of the soil and in making these substances available for the plants. In acid soils these helpful organisms do not thrive, and in their absence vegetables do not grow at their best.

FERTILIZERS

After the soil has been got into good mechanical condition, it usually is desirable to apply some form of fertilizer. Barnyard or stable manure, which furnishes both plant food and humus, undoubtedly is the best, and applications of from 20 to 30 tons to the acre are satisfactory. This is roughly equivalent to from 400 to 600 pounds, or several wheelbarrow loads, for each plot 20 by 20 feet. The manure should be distributed evenly over the surface, and later worked in with a hoe and rake.

Frequently it is advisable also to apply commercial fertilizer. An application of 1,000 to 1,500 pounds to the acre, or 10 to 15 pounds per plot 20 feet square, usually

is sufficient. In order to supply potash, if this is needed, unleached wood ashes may be distributed over the garden at the rate of 1,000 pounds to the acre, or 10 pounds to each plot 20 feet square. Wet or leached ashes have less fertilizer value. Double the quantity of these should be used. In order to start the plants in the spring, applications of 100 pounds to the acre of nitrate of soda, of 1 pound to each 20-foot square, may be used. By far the best way to use nitrate of soda in the small garden, however, is to dissolve a teaspoonful of the chemical in a gallon of water and use the solution for watering young plants. It is important to remember that no form of commercial fertilizer will yield good results unless the soil is well supplied with humus.

Reference already has been made to the use of prepared sheep manure as a fertilizer. When this plant food can be obtained at a reasonable price, it is perhaps the safest concentrated fertilizer for use by the home gardener. It will not pay to broadcast prepared sheep manure. Small quantities should be applied under the drill when the seeds are planted or the plants set out. Later applications may be worked in with a trowel around the plants.

PLANTING VEGETABLES IN THE OPEN

WHEN TO PLANT

Vegetables may be divided into two classes—"cold temperature" and "warm temperature" vegetables. When peach and plum trees are in blossom, or, where these trees do not occur, when silver maples put forth leaves, or catkins appear on willows and poplars, it is time to sow in the open ground the seeds of lettuce, spinach, kale, endive, radish, parsley, beets, turnips, cabbage, cauliflower, Brussels sprouts, carrots, round-seeded peas, and onions. The wrinkled peas should not be planted until later, as they are more likely to rot in cool ground than are the smooth varieties. When the apple trees bloom, or when the dogwood and white oak buds unfold, it is time to plant the heat-loving vegetables, such as cucumbers, beans, sweet corn, okra, pumpkin, and squash. This is an old approximation for planting dates, but has been found in most cases to be satisfactory.

Planting times may be fixed in still another way on the basis of the occurrence of frost. Frost ordinarily will kill tender growths of vegetables, but young plants of a few kinds will survive light frosts. Among the latter, which may be called Group I, are cabbage, lettuce, Irish potatoes, early peas (smooth seeded), onion seeds and sets, parsnips, salsify, beets, radishes, and such salad plants as kale, spinach, and mustard.

A "second early" group of vegetables, which may be called Group II, may be planted as soon as danger of frost is over. In this group are included lettuce plants and seeds, radishes, wrinkled peas, carrots, and early sweet corn.

A week or 10 days after the seeds and plants of Group II are placed in the ground, string beans and late sweet corn, constituting Group III, may be planted.

A group of plants, which may be called Group IV, should be planted only after the ground has begun to warm up. In this group are cucumbers, melons, squashes, pumpkins, Lima beans, and tomato, eggplant, and pepper plants.

Detailed suggestions for planting are given in a table hereafter.

DEPTHS OF PLANTING

No general rule can be given with regard to the depth for planting seeds, since different varieties of vegetables and different soils necessitate different practices. The smaller the seeds, usually, the shallower the planting should be. In heavy clay or moist soils the covering should be lighter than in sandy or dry soils.

GARDENER'S PLANTING TABLE

Quantity of seeds or number of plants required for a row 100 feet in length, with distances to plant, times for and period required for production of crops

(Brackets indicate that a late or second crop may be planted the same season)

Kind of vegetable.	Seeds or plants required for 100 feet of row.	Distance for plants to stand—			Depth of planting.	Time of planting in open ground		Ready for use after planting
		Rows apart.		Plants apart in rows.		South	North	
		Horse cultivation.	Hand cultivation.					
Artichoke, globe	½ ounce	3 to 4 ft.	2 to 3 ft.	2 to 3 ft.	1 to 2 in.	Spring	Spring	15 months.
Artichoke, Jerusalem	2 qts. tubers	3 to 4 ft.	1 to 2 ft.	1 to 2 ft.	2 to 3 in.	Spring	Spring	0 to 8 months.
Asparagus, seed	1 ounce	30 to 38 in.	1 to 2 ft.	3 to 5 in.	1 to 2 in.	Autumn or early spring	Early spring	3 to 4 years.
Asparagus, plants	60 to 80 plants	3 to 5 ft.	12 to 24 in.	15 to 20 in.	3 to 5 in.	Autumn or early spring	Early spring	1 to 3 years.
Beans, bush	1 pint	30 to 38 in.	18 to 24 in.	5 or 8 to ft.	½ to 2 in.	February to April (August to September)	April to July	40 to 65 days.
Beans, pole	½ pint	3 to 4 ft.	3 to 4 ft.	3 to 4 ft.	1 to 2 in.	Late spring	May and June	50 to 80 days.
Beets	2 ounces	24 to 36 in.	12 to 18 in.	5 or 6 to ft.	1 to 2 in.	February to April (August to September)	April to August	60 to 80 days.
Brussels sprouts	¼ ounce	30 to 36 in.	24 to 30 in.	16 to 24 in.	½ in.	January to July	May and June	90 to 120 days.
Cabbage, early	¼ ounce	30 to 36 in.	24 to 30 in.	12 to 18 in.	½ in.	October to December	March and April (Start in hotbed during February)	90 to 130 days.
Cabbage, late	¼ ounce	30 to 40 in.	24 to 38 in.	18 to 24 in.	½ in.	June and July	May and June	90 to 130 days.
Cardoon	½ ounce	3 ft.	2 ft.	12 to 18 in.	1 to 2 in.	Early spring	April and May	5 to 6 months.
Carrot	1 ounce	30 to 38 in.	18 to 24 in.	8 or 7 to ft.	½ in.	March and April (September)	April to June	75 to 110 days.
Cauliflower	¼ ounce	30 to 38 in.	24 to 30 in.	14 to 18 in.	½ in.	January and February (June)	April to June (Start in hotbed during February or March)	100 to 130 days.
Celeriac	¼ ounce	30 to 36 in.	18 to 24 in.	4 or 5 to ft.	⅛ in.	Late spring	May and June (Start in cold frome during April)	100 to 150 days.
Celery	¼ ounce	3 to 8 ft.	18 to 36 in.	4 to 8 in.	⅛ in.	August to October	May and June (Start in hotbed or cold from during March or April)	120 to 150 days.
Chervil	1 nunce	30 to 36 in.	18 to 24 in.	3 or 4 to ft.	1 in.	Autumn	Autumn	1 year.
Chicory	¼ ounce	30 to 38 in.	18 to 24 in.	4 or 5 to ft.	½ in.	March and April	May and June	5 to 8 months.
Citron	1 ounce	8 to 10 ft.	8 to 10 ft.	8 to 10 ft.	1 to 2 in.	March and April	May and June	100 to 130 days.
Collards	¼ ounce	30 to 38 in.	24 to30 in.	14 to 18 in.	½ in.	May and June	Late spring	100 to 120 days.
Corn salad	2 ounces	30 in.	12 to 18 in.	5 or 8 to ft.	½ to 1 in.	January and February (September and October)	March to September	60 days.
Corn, sweet	¼ pint	36 to 42 in.	30 to 36 in.	30 to 36 in.	1 to 2 in.	February to April	May to July	60 to 100 days.
Cress, upland	½ ounce	30 in.	12 to 18 in.	4 or 5 to ft.	½ to 1 in.	January and February (Autumn)	March to May (September)	30 to 40 days.

Cress, water	½ ounce	Broadcast			On surface	Early spring	April to September	60 to 70 days.
Cucumber	½ ounce	4 to 6 ft.	4 to 6 ft.	4 to 6 ft.	1 to 2 in.	February and March (September)	April to July	60 to 80 days.
Dandelion	¼ ounce	30 in.	18 to 24 in.	8 to 12 in.	½ in.	Early spring or autumn	Early spring	6 to 12 months.
Eggplant	½ ounce	30 to 36 in.	24 to 30 in.	18 to 24 in.	½ to 1 in.	February to April	April and May (Start in hotbed during March)	100 to 140 days.
Endive	1 ounce	30 in.	18 in.	8 to 12 in.	½ to 1 in.	February to April	April (July)	90 to 180 days.
Horse-radish	70 roots	30 to40 in.	24 to 30 in.	14 to 20 in.	3 to 4 in.	Early spring	Early spring	1 to 2 years.
Kale, or borecole	¼ ounce	30 to 36 in.	18 to 24 in.	18 to 24 in.	½ in.	October to February	August and September (March and April)	90 to 120 days.
Kohl-rabi	¼ ounce	30 to 36 in.	18 to 24 in.	4 to 8 in.	½ in.	September to March	March and May	60 to 80 days.
Leek	½ ounce	30 to 36 in.	14 to 20 in.	4 to 8 in.	1 in.	May to September	March and May	120 to 180 days.
Lettuce	½ ounce	30 in.	12 to 18 in.	4 to 8 in.	½ in.	September to March	March to September	60 to 80 days.
Melon, muskmelon	½ ounce	6 to 8 ft.	6 to 8 f.	Hills 6 ft.	1 to 2 in.	February to April	April to June (Start early plants in hotbed during March)	120 to 150 days.
Melon, watermelon	1 ounce	8 to 12 ft.	8 to 12 ft.	Hills 10 ft.	1 to 2 in.	March to May	May and June	100 to 120 days.
Mustard	¼ ounce	30 to 36 in.	12 to 18 in.	4 or 5 to ft.	¼ in.	Autumn or early spring	March to May (September)	60 to 90 days.
New Zealand spinach	1 ounce	36 in.	24 to 36 in.	12 to 18 in.	1 to 2 in.	Early spring	Early spring	60 to 100 days.
Okra, or gumbo	2 ounces	4 to5 ft.	3 to 4 ft.	24 to 30 in.	1 to 2 in.	February to April	May and June	90 to 140 days.
Onion, seed	1 ounce	24 to 36 in.	12 to 18 in.	4 or 5 to ft.	½ to 1 in.	October to March	April and May	130 to 150 days.
Onion, sets	1 quart of sets	24 to 36 in.	12 to 18 in.	4 or 5 to ft.	1 to 2 in.	Early spring	Autumn and February to May	90 to 120 days.
Parsley	¼ ounce	24 to 36 in.	12 to 18 in.	3 to 6 in.	½ in.	September to May	September and early spring	90 to 120 days.
Parsnip	½ ounce	30 to 36 in.	18 to 24 in.	5 or 6 to ft.	½ to 1 in.		April and May	125 to 160 days.
Peas	1 to 2 pints	3 to 4 ft.	30 to 36 in.	15 to ft.	2 to 3 in.	September to April	March to June	40 to 80 days.
Pepper	⅛ ounce	30 to 30 in.	18 to 24 in.	15 to 18 in.	½ in.	Early spring	May and June (Start early plants in hotbed during March)	100 to 140 days.
Physalis	½ ounce	30 to 36 in.	18 to 24 in.	18 to 24 in.	½ in.	March to May	May and June	130 to 180 days.
Potato, Irish	5 lbs. (or 9 bu. per acre).	30 to 36 in.	24 to 36 in.	14 to 18 in.	4 in.	January to April	March to June	80 to 140 days.
Potato, sweet	3 lbs. (or 75 slips).	3 to 5 ft.	3 to 5 ft.	14 in.	3 in.	April and May	May and June Start plants in hotbed during April)	140 to 180 days.
Pumpkin	½ ounce	8 to 12 ft.	8 to 12 ft.	Hills 8 to 12 ft.	1 to 2 in.	April and May	May to July	100 to 140 days.
Radish	1 ounce	24 to 30 in.	12 to 18 in.	8 to 12 to ft.	½ to 1 in.	September to April	March to September	20 to 40 days.
Rhubarb, seed	½ ounce	36 in.	30 to36 in.	6 to 8 in.	½ to 1 in.		Early spring	2 to 4 years.
Rhubarb, plants	33 plants	3 to 5 ft.	3 to 5 ft.	3 ft.	2 to 3 in.		Autumn or early spring	1 to 3 years.
Rutabaga	¼ ounce	30 to 36 in.	18 to 24 in.	6 to 8 in.	½ to 1 in.	August and September	May and June	60 to 80 days.
Salsify	1 ounce	30 to 36 in.	18 to 24 in.	2 to 4 in.	½ to 1 in.		Early spring	120 to 180 days.
Spinach	1 ounce	30 to 36 in.	12 to 18 in.	7 or 8 to ft.	1 to 2 in.	September to February	September or very early spring	30 to 80 days.
Squash, bush	½ ounce	3 to 4 ft.	3 to 4 ft.	Hills 3 to 4 ft.	1 to 2 in.	Spring	April to June	60 to 80 days.
Squash, late	½ ounce	7 to 10 ft.	7 to 10 ft.	Hills 7 to 9 ft.	1 to 2 in.	Spring	April to June	120 to 160 days.
Tomato	⅛ ounce	3 to 5 ft.	3 to 4 ft.	3 ft.	½ to 1 in.	December to March	May and June (Start early plants in hotbed during February and March)	100 to140 days.
Turnip	½ ounce	24 to 36 in.	18 to 24 in.	6 or 7 to ft.	¼ to ½ in.	August to October	April (July)	80 to 80 days.
Vegetable marrow	½ ounce	8 to 12 ft.	8 to 12 ft.	Hills 8 to 9 ft.	1 to 2 in.	Spring	April to June	110 to 140 days.

SEED BEDS

The gardener may find it desirable to reserve a small area of his garden for a seed bed in which some of the second crops for his rotations may be grown while the ground in which they are to develop is still occupied. In this way also advantage is taken of the fact that transplanting makes for stockiness. In seed-bed culture much the same practices are in force as in growing plantlets in the flats and frames. The rows of seeds, however, are not spaced so closely in the outdoor seed beds as in the boxes and frames. When the plantlets crowd they may be thinned out or transplanted to another part of the seed bed . Late cabbage, lettuce, Brussels sprouts, cauliflower, etc., are plants that in many cases may be treated conveniently in this way.

PLANTING PRACTICES

In planting many kinds of seeds in the garden thick sowings are made to insure a good stand, and the superfluous plants later are pulled up. Straight rows or drills should be used in all cases. The use of a line will make accuracy possible. The line is stretched between stakes at the ends of the row, and with this as a guide the furrow is then opened. This may be done with the end of a hoe or rake handle, with the corner of a hoe, or the point of a special furrow hoe, with a hand plow, or with the edge of a board pressed into the loosened soil. Small seeds may be shaken out of the packet by hand in a thin stream while the packet is held close to the bottom of the furrow. Larger seeds, like peas and beans, may be dropped from the hand. Mechanical planters, built like wheel hoes, may be purchased if the size of the garden justifies their use.

DRILLS, ROWS, AND HILLS

Small plants which are to be left almost touching each other, as is the case with onions and carrots, are said to be grown in drills. Plants grown at fixed distances, as cabbages or potatoes, are in rows. When plants are grown at distances of several feet apart in both directions they are said to be in hills. Furrows are opened for planting in both drills and rows. Hills, however, may be opened with a spade or trowel. An excellent method of using fertilizer is to apply it in the drills, rows, or hills before planting. In such cases the fertilizer should be mixed carefully with the soil in the bottom of the opening before the seeds are deposited.

FINAL PLANTING TOUCHES

In planting the gardener should keep in mind that to germinate and develop properly into sturdy plants the seed must be firmly imbedded in well-fined, moist soil. The condition of the soil beneath the seeds is most important, since it is in this soil that the rootlets on emerging must find sustenance. Air spaces or cracks may cause the rootlets to shrivel. It is well, therefore, especially if the soil is at all dry, to force the seeds gently into the soil, compacting it slightly. This may be done with the back of a hoe in the case of small seeds, or with the ball of the foot when large seeds, such as beans and peas, are being planted. The seeds should then be covered immediately with soil. This should be very slightly compacted over the seeds with the back of the hoe. If weather conditions are such that there is a tendency for the soil to bake over the drills and rows before the plants appear, it is well to rake very lightly with a steel-tooth rake. It may be necessary, also, to work the ground at the sides of the rows as the plants are breaking through the surface. This should be done very carefully to avoid injury to the tender shoots.

SETTING OUT PLANTS

Plants grown in flats, hotbeds, or cold frames should be "hardened off," as has already been suggested, before they are to be planted out of doors. Another preliminary step, if the plants are too tall or succulent, is to trim away about one-half of the large

leaves. Several hours before transplanting the plants should be watered thoroughly, so that the soil will be moist enough to stick to the roots in balls of considerable bulk. After staking out rows and marking planting positions, lift the plants out with a trowel, keeping as much soil as possible on the roots. Cut or tear the plants apart when their roots are intertwined.

If the ground is moist, merely open a hole with a trowel or dibble, insert the earth-incased roots of a plant, draw soil up to the stalk and firm with knuckles and the balls of thumbs. If the soil is at all dry, pour about a pint of water into each hole before the plant is set. The surface about each plant should be raked carefully when all the plants are set.

CULTIVATION

The importance of cultivation has been referred to in the discussion of the preparation of the seed bed. It is, however, after the seeds have sprouted or after the plants have been set in their permanent locations that cultivation becomes of major importance. The gardener should never permit the surface of the soil to become baked or even to form an appreciable crust. Constant stirring with hand tools or a wheel cultivator should be practiced between the rows and about the plants. Such a stirring permits the air to penetrate the soil, where it facilitates chemical action and bacterial activity, destroys weeds which otherwise would utilize large amounts of plant food, and, finally, conserves the moisture supply. The rake is perhaps the gardener's most valuable tool in cultivating. This can be passed backward and forward over the ground until it is in an open, mellow condition. Where vegetables grow closely in the rows it often will be necessary to supplement the cultivation by hand weeding. Small implements are made for this purpose, and may be purchased cheaply. It is well also in some cases to pull up weeds by hand, especially where they grow closely about the stalks of the garden plants.

STIRRING THE SOIL AFTER RAINS

Just as the gardener should be careful in early spring not to dig the ground when the soil is too moist, so he should be careful later in the season not to cultivate too soon after rains. The stirring of very muddy soil "puddles" it into a compact, cement-like mass in which the plant food is securely locked. The garden will require attention, however, as soon as the excess moisture from a rain has soaked in or partially evaporated. Unless the ground is stirred at this time a crust will form almost inevitably. Such a crust, besides restricting the plants, prevents the access of air, and also facilitates the loss of moisture through evaporation.

IRRIGATION

When, during prolonged dry spells, the plants give evidence of suffering because of the lack of moisture, water must, if possible, be supplied artificially. Where a supply of piped water is at hand, perhaps the most usual method of irrigation is by sprinkling with a hose. If sprinkling is practiced, it should be done late in the afternoon. It is not sufficient merely to dampen the surface; a thorough wetting should be given. A more satisfactory and more economical method of irrigation, however, is to open small furrows between the rows of growing plants and to supply water in these ditches from a hose or pipe. Several hours after the water has soaked in, the dry earth should be drawn back into place.

PROTECTING PLANTS FROM DISEASES AND PESTS

Unfortunately, the gardener is not assured of success when his plants have started to grow thriftily. He must count almost inevitably upon the presence in his garden of plant diseases and pests, which, if not combated, will interfere seriously with his yields or even destroy his plants. It is hard for some gardeners to realize the importance of making

early provision to combat these enemies of plant life. It cannot be too strongly emphasized, however, that such provision is of equal importance with other phases of gardening and that it should under no circumstances be neglected. The wise gardener does not wait for the appearance of insects and diseases, but takes steps to combat them by spraying the plants at reasonable intervals from early spring until his crops have been harvested, or by other protective measures. He thus insures himself against the likelihood of loss.

The necessary implements and materials for protecting the home garden against insects and diseases should be assembled early in the season. These consist of a substantial hand sprayer and the necessary concentrated solutions, which, after dilution with water, are to be sprayed on the plants.

The diseases which affect garden plants may be divided into two groups, parasitic and constitutional diseases. The parasitic maladies, such as the blights, are caused by fungi or germs, and usually may be prevented or controlled by spraying with Bordeaux mixture. Little is known, however, of the so-called constitutional diseases, and little can be done to prevent their ravages. If some malady which does not yield to treatment with Bordeaux mixture manifests itself on isolated plants in the garden, it may be well to pull up these plants and burn them.

The insects which attack garden plants may be divided into two groups—those which eat or chew the fruit or foliage, and those which suck the plant juices. Eating insects may be killed usually by spraying poisonous solutions or dusting powders on the plants which they attack. Arsenate of lead is the poison in most general use for this purpose. This substance is poisonous to persons as well as to insects and must be used with care. It should not be applied to vegetables that are to be used soon. All vegetables should be washed carefully before they are eaten, regardless of wether they have been sprayed.

Most of the garden plants may be guarded against disease and at the same time protected from attack by eating insects by spraying at intervals of two weeks with a combination of Bordeaux mixture and arsenate of lead.

Other methods of protecting plants from the larger eating insects are to pick the pests by hand or knock them with a stick into a pan containing water on which a thin film of kerosene is floating. Insects collected by hand should be destroyed promptly. Young plants may be protected by setting over them wooden frames covered with mosquito netting, wire mesh, or cheesecloth. Cutworms may be kept from plants by setting tin or paper collars into the ground around the stalks.

Sucking insects, such as plant lice, cannot be killed by poisoning the surface of the leaves and fruit, since they feed by puncturing the plants and extracting the internal juices. Poisons which will kill by contact or substances which envelop and smother the pests are, therefore, employed against the sucking insects. The principal remedies of this sort are nicotine solutions, fish-oil and other soap solutions, and kerosene emulsion.

PRINCIPAL INSECTS AND REMEDIES.*

Insect.	Plants attacked.	Treatment.
Eating type:		
Tomato worms	Tomato	Hand pick or spray with arsenate of lead.
Cabbage worm	Cabbage group	Hand pick or apply arsenate of lead.
Cucumber beetles	Cucumber	Cover with frames. Apply tobacco dust or spray with Bordeaux mixture or arsenate of lead.
Cutworms	Tomato, cabbage, onion	Apply poison bait; place tin or paper collars around plants; hand pick; apply Paris green or arsenate of lead.
Potato beetle	Potato, eggplant, and tomato	Hand pick and apply arsenate of lead.
Sucking type:		
Squash bug	Squash, pumpkin, melons, etc.	Hand pick; spray with kerosene emulsion or nicotine sulphate.
Aphis (plant lice)	Cabbage group and other plants	Spray with kerosene emulsion, a solution of bard soap, or nicotine sulphate.

Gardeners desiring additional information in regard to insects affecting the vegetable garden should apply direct to the Bureau of Entomology, United States Department of Agriculture, but it should be understood that there is no publication covering the entire subject. Specimens of insects with some account of food plants and ravages should accompany correspondence.

* Methods of protecting gardens against grasshoppers are given in Farmers' Bulletin 691, "Grasshoppers and Their Control on Sugar Beets and Truck Crops."

The preceding table lists the insects most likely to appear in the vegetable garden and furnishes information in regard to plants attacked and the treatment recommended.

Transplanting should be done if possible in cloudy weather or late in the afternoon. If the weather is especially bright it may be necessary for a day or two to shade the plants with newspapers folded in inverted V shape and held in place with stones, earth, or other material.

The quickest crop to mature is the radish. Lettuce, turnips, peas, beets, and beans usually require 6 to 9 weeks to mature; cabbage, potatoes, early peas, onion sets, and salad greens, 10 to 12 weeks; corn from 11 to 13 weeks, and potatoes from 15 to 16 weeks.

SUCCESSIONS AND ROTATIONS

Since a number of vegetables reach maturity early in the season, it is possible to utilize the space they occupied for successive plantings of the same vegetables or for rotation plantings of different plants. The earliest of all the vegetables to mature is the radish. The gardener generally can count on being able to utilize anew the space occupied by the first planting of these vegetables in from 5 to 7 weeks, depending on the rapidity with which they are consumed. In intensive gardening, however, it is not necessary to wait until all the radishes of the first planting have been removed before other plantings can be made. Enough of the roots can be removed at intervals to make places for setting lettuce, cabbage, cauliflower, Brussels sprouts, or other plants, and the two crops—radishes and the interplanted crop—can continue growing side by side until the former is used. In a similar way, onion sets may be set out in rows that are to be occupied later by tomato plants, room being made for the latter by the removal of a few onions when the proper planting time for tomatoes arrives. Various combinations of this sort can be worked out between quick-maturing crops and the plants grown in frames or seed beds for later planting in the open.

The gardener should not plant all of his radish, lettuce, or spinach seed at once, but should make several successive plantings at intervals of about two weeks. In this way the season for these vegetables will be lengthened greatly. Successive planting is possible also with beets, peas, beans, sweet corn, and a number of other vegetables. The best of the successive crops of the quick-maturing vegetables must be crowded into the early part of the season, since most such plants do not thrive well when planted in hot weather. This is especially true of radishes and lettuce. In thhe case of lettuce this disadvantage can be overcome to a certain extent by artificial shading.

In all sections but the extreme north it usually is possible to grow fall crops of certain vegetables, notably carrots, beans, radishes, Irish potatoes, and turnips. In the southern part of the country an even larger number of vegetables may be grown in the fall. The seeds for these late crops are planted from July to September, depending on whether the garden is in the northern or southern States.

In planting rotations of crops, whether the rotations be during the same or in succeeding seasons, certain general principles should be kept in mind. In type and character of growth the succeeding plant should differ as widely as possible from the plant which it follows. This is both for the purpose of avoiding attacks by insects and diseases, and to insure that the second crop shall be properly nourished. A good plan is not to have root plants, such as beets and carrots, nor plants of the same family, such as cabbage and Brussels sprouts, or tomatoes and peppers, follow each other. It is well to divide the plants into root crops, fruiting crops, and foliage crops, and have members of the different groups alternate.

For the convenience of gardeners who wish to plan to use their soil to best advantage by means of successive plantings and rotations, the following groupings of vegetables are made:

1. **Crops Occupying the Ground All Season**—Asparagus, rhubarb, beans (pole snap), beans (pole Lima), beets (late), carrots (late), parsnips, salsify, corn (late), cucumbers, melons, squash, pumpkins, tomatoes, eggplant, peppers, onions (from seeds), leeks, okra, potatoes (main crop), rutabagas.
2. **Successive Crops**—Radish, spinach, lettuce, peas, beans (dwarf), parsley, turnips, kohl-rabi.
3. **Early Crops Which May Ba Followed by Others***—Onion sets, beets (early), turnips (early), carrots (early), corn (early), cabbage (early).
4. **Late Crops Which May Follow Others**†—Beets (late), spinach, peas (late), celery, cabbage (late), Brussels sprouts, cauliflower, kale, endive, flat turnips.

The gardener should remember that many plant diseases and insects exist in the garden from year to year. At the end of the growing season, therefore, the garden should be carefully cleaned of rubbish, the stems of plants, leaves, etc. It is necessary to burn this debris promptly, as any disease spores or insects which may be present are then surely destroyed.

CULTURAL SUGGESTIONS FOR THE COMMONER VEGETABLES

RADISH

Radishes are so hardy that they may be grown through the winter in cold frames in the latitude of Washington and farther South in the open ground. In the North they require hotbeds, but can be sown in the open ground as soon as the soil is moderately warm. They should be planted in drills 12 to 18 inches apart and thinned slightly as soon as the plants are up. On a quick, rich soil some of the earlier varieties can be matured in from three to four weeks after planting. If the plants are allowed to remain long in the open ground, the roots lose their crispness and delicate flavor, and in order to secure a constant supply successive planting should be made every two weeks. One ounce of radish seed is sufficient to plant 100 feet of row. A large percentage of the seed germinates, and if the sowing is done carefully later thinning may be unnecessary. The first radishes to appear may be pulled as soon as they are of sufficient size, and this will leave enough room for those that are a little later. The plant is not suited to hot weather, but should be planted in the early spring and late autumn.

LETTUCE

Lettuce does not withstand heat well and thrives best, therefore, in the early spring or late autumn. In order to have the leaves crisp and tender it is necessary to force the growth of the plant. The usual method of growing lettuce for home use is to sow the seeds broadcast in the bed and to remove the leaves as rapidly as they become large enough for use. It is better, however, to sow the seeds in rows 14 to 16 inches apart, and when the plants come up to thin them to the desired distance. With the heading type this should be about 12 inches apart. This will result in the formation of rather compact heads and the entire plant may then be cut for use. For an early crop in the North, the plants should be started in a hotbed or cold frame and transplanted as soon as hard freezes are over. In many sections of the South the seeds are sown during the autumn and the plant allowed to remain in the ground over winter. Frequent shallow cultivation should be given the crop and, if crisp, tender letuce is desired during the summer months, some form of partial shading may be necessary.

For head lettuce, Big Boston, Hanson, and California Cream Butter are good varieties. For loose-leaf lettuce, Grand Rapids or Black-seeded Simpson is recommended.

* In addition to the vegetables listed in this group, all of those listed in Group 2 may be followed by other crops.

† Group 2 crops also may follow early crops.

PEAS

Garden peas are not injured easily by light frosts and may be planted as soon as the soil can be put in order in the spring. By selecting a number of varieties it is possible to have a continuous supply of peas throughout a large portion of the growing season. In order to accomplish this, plantings should be made every ten days or 2 weeks until warm weather comes. The first plantings should be of small-growing, quick-maturing varieties, such as Alaska, First and Best, and Gradus. These kinds do not require supports. They should be followed by the large wrinkled type of peas, such as Champion of England, Telephone, and Prize Taker. These may be supported on brush, on strings attached to stakes driven in the ground, or on wire netting.

Peas should be planted about 2 to 3 inches deep in rows 3 to 4 feet apart. Some gardeners, however, follow the practice of planting in double rows 6 inches apart, with the ordinary space of 3 to 4 feet between these pairs of rows. With varieties requiring support this is a good practice, as the supports can be placed in the narrow space between the rows.

ONIONS

The onion will thrive under a wide range of climate and soil conditions, but a rich sandy loam containing plenty of humus is best suited to it. As the crop requires shallow cultivation and it may be necessary to resort to hand work in order to keep it free from weeds, it is very desirable that the land should be in such condition that it is easily worked. As a general rule, it is well to have the crop follow some other that has been kept under the hoe and free from weeds the previous season.

In the North seed is sown as early in the spring as the soil can be brought to the proper condition. In the South, onion sets are frequently put out in the autumn and carried through the winter with the protection of a little hay or straw. There are three methods of propagating onions: The first by sowing the seed in rows where the crop is to grow; second, by sowing the seed in specially prepared beds and transplanting the seedlings to the open ground; and, third, by planting sets which have been kept through the winter. The first method is used by large commercial growers on account of the amount of labor involved in the others.

On small areas, however, it may be preferable to plant sets. Under normal conditions these usually may be obtained at planting time for about 25 or 30 cents a quart. This should be enough for the average family. Onions planted from sets will ripen earlier than those from seed sown in the fields.

When the transplanting method is used, the seed is sown in greenhouses, hotbeds, cold frames, or specially prepared beds at the rate of 3½ to 4 pounds for each acre to be planted. One-half ounce should furnish plants sufficient for the home garden. The seedlings are transplanted when they are somewhat smaller than a lead pencil and rather stocky. The root end of the seedling is pushed into the soil with one finger, and the soil is then firmed about the plant.

The seed is sown thickly in drills about 12 to 14 inches apart. After the plants become established they are thinned to 2 or 3 inches apart. The maturity of the bulbs may be hastened by preventing the continued growth of the tops. This is sometimes accomplished by rolling an empty barrel over the rows and breaking down the tops. After these are practically dead the onion bulbs may be pulled up by hand from the soil and spread in a dry, well-ventilated place to cure. Thereafter they may be stored in crates or bags for winter use. In the North the crop ripens and is harvested during the latter part of the summer and early autumn. In the Southern States, where the crop is grown during the winter, the harvesting and marketing period takes place during the spring months.

There are several kinds of onions that may remain in the soil over winter. The multiplier, or potato onion, for example, can be planted from sets in the autumn and will produce excellent green early onions. A large onion of this type contains a number of distinct hearts, and, if planted, will produce a number of small onions. On the other hand, a small onion contains but one heart and will produce a large onion. A few of the large ones may be planted each year to produce sets for the following year's planting.

The shallot is a variety of small onion that is frequently planted in early spring for its small bulbs, or "cloves," which are used in the same manner as onions. The leaves are utilized for flavoring. Another onion-like plant is the chive, the small, round, hollow leaves of which are used for flavoring soups. These leaves may be cut freely, as they are soon replaced by others.

THE PRINCIPAL ROOT CROPS

Beets can be planted comparatively early in the season. It is not necessary to wait until the ground has become warm, if the danger of frost is past. The seed should be sown in drills 14 to 18 inches apart and covered to a depth of about 1 inch. As soon as the plants are well up they should be thinned to stand 3 to 4 inches apart. From 2 to 3 plantings should be made in order to have a continuous supply of young, tender beets.

Parsnips, salsify, carrots, and turnips are all handled much like beets. Of the five, carrots can perhaps be left closer in the row than the others, about 2 or 3 inches apart. This plant, too, is less exacting in so far as fertility is concerned. Salsify, on the other hand, demands very fertile and finely cultivated soil.

POTATOES*

The potato plant thrives best in sandy or gravelly loam soils. It may be grown with a fair degree of success on any type of soil except loose sand and a heavy, sticky clay, provided the land is well drained and contains the necessary plant food.

Successful potato production is dependent to a large extent on the thoroughness with which the land is prepared before planting the crop. Where a horse can be used, the land should be plowed from 8 to 10 inches deep, provided the surface soil is of a sufficient depth to permit it. It is never advisable to turn up more than 1 inch of raw subsoil at any one plowing; so if previous plowings have not been over 6 inches, the maximum depth at which it should be plowed is 7 inches.

Where hand labor is employed the same rule should govern as to depth. In spading, especially on grass or waste land, turn the earth bottom side up. Whether the land is plowed or spaded, it should be thoroughly pulverized immediately afterwards. Where horse labor can be used, the land after plowing should be thoroughly disked first, then spring-toothed, and finally finished with a smoothing harrow. Where land must be prepared by hand, it is good practice to pulverize the soil as much as possible when spading it up, after which it can be put in a fine condition of mellowness with a steel garden rake. The importance of thoroughly fining the soil cannot be overemphasized.

Varieties Adapted to Different Localities

Early Varieties—In the Northeastern United States and along the South Atlantic seaboard, the Irish Cobbler, Early Petoskey, or Early Standard, all of which are practically identical, may be expected to produce larger crops and be more generally satisfactory for an early crop than the others mentioned. Quick Lunch and New Queen would be regarded as second choices for this section.

In the South Central and Southwestern States, the Triumph may be expected to give results equal to or even better than the Irish Cobbler.

* Circular 87 of the Bureau of Entomology deals with the Colorado potato beetle, and Farmers' Bulletin 557 deals with the potato tuber moth.

In the Middle West, the Early Ohio should do well, while the Early Harvest and Early Rose may be regarded as second choices.

Late Varieties—In the New England States, Long Island, and northern New York, the Green Mountain, Gold Coin, Delaware, and other late varieties of that class do best.

In northern Michigan, Wisconsin, and Minnesota, the late varieties named above do about as well as the Rural New Yorker No. 2, and are superior to it in table quality.

In western New York, southern Michigan and Wisconsin, and Iowa, the Rural New Yorker No. 2, Sir Walter Raleigh, and Carman No. 3 are the best adapted varieties, and divide honors with the Green mountain in the northern portions of these States.

Throughout Maryland, Virginia, the Carolinas, Tennessee, and Georgia, the variety known as McCormick is quite generally grown as a late variety. In a favorable season the Green Mountain can also be grown.

When to Plant Potatoes

The date of planting necessarily must be governed by climatic conditions. In attempting to produce as early a crop as possible some risk must always be incurred of the plants being injured by late spring frosts. As a general proposition it is best to plant potatoes as soon as there is little likelihood of killing frosts after the plants are up and the ground is in condition to work.

The following dates of planting for various cities should be regarded only as the approximate time at which early potatoes might safely be planted:

March 15 to 25: Washington, Baltimore, Philadelphia, Cincinnati, Louisville, St. Louis.

March 25 to April 5: New York, Indianapolis, Detroit, Chicago.

April 5 to 15: Boston, Albany, Rochester, etc.

In the northern cities, late varieties should be planted from three to four weeks later.

Planting Practices

The usual method of preparing potatoes for planting is to cut them into rather large pieces, containing several eyes. When seed potatoes are unusually expensive, however, it may be well to cut cone-shaped segments of meat around each eye and to use the remaining portion of the tubers for food. Under this plan it is not necessary to prepare the seed all at one time. From day to day the cones for seeding can be cut from the potatoes as they are being prepared for the table. The cuttings then should be spread out on a piece of paper in a moderately cool room (about 50 degrees F.) and allowed to remain there until they have cured; that is, until the cut surface has become dry. A day or two should suffice for this, and potatoes then should be put in a shallow box or tray and placed where it is still cooler. Any storage condition that will insure them against frost on the one hand and undue shriveling on the other should prove satisfactory.

These seeds can be started indoors, provided it is possible to secure suitable soil and boxes. In such cases it may be desirable to plant the eye cuttings at once, and allow them to start into growth indoors with the idea of transplanting them into the open ground when danger of frost is past and the ground is dry enough to be cultivated.

The smaller the size of the set, or seed piece, used the more thorough must be the preparation of the soil. The more finely the soil is pulverized and the more uniform the moisture conditions which can be preserved in the soil, the better is the chance for the small seed piece to establish itself. A small set in rough, lumpy, or dried-out soil has little chance to live.

Generally speaking, the smaller the size of the set the closer it should be planted in the row if maximum yields are to be secured. Such sets may be expected to give the

best yields if not spaced more than 10 to 12 inches apart in the row. Plant the small eye cuttings from 1½ to 3 inches deep, depending upon the character of the soil—the lighter the soil the greater the depth of planting. Larger sets may be planted 4 inches deep.

Spacing

If an early variety is planted, and the work is to be done by hand, the rows may be spaced as close as 26 inches, whereas, if cultivation is to be done with a horse, 30 to 34 inches usually is allowed. In order to give the gardener some idea of the number of sets required to plant a plot of ground 50 by 100 feet at different spacings, the following table is submitted:

TO PLANT A PLAT 50 BY 100 FEET.

Space between rows.	Space in row between plants.	Sets required.	Space between rows.	Space in row between plants.	Sets required.
Inches.	Inches.		Inches.	Inches.	
26	10	2,769	30	10	2,400
26	12	2,487	30	12	2,000
28	10	2,678	33	12	1,874
28	12	2,231	34	12	1,765

If a late variety is planted, the spacing should be greater, say, 34 to 36 inches between the rows and 12 to 14 inches between the plants in the row. The closeness of planting should be determined, first, by the variety, and, second, by the amount of available plant food and moisture in the soil or that can be applied to it.

CORN

Corn to be at its best should be eaten within a few hours after it is picked, for its sugar content disappears very rapidly after it is removed from the garden. For this reason and because of its very general popularity it is an excellent vegetable to grow in the home garden. It should be planted on rich land and cultivated in the same manner as field corn. Beginning as soon as the soil is warm, successive plantings may be made every two or three weeks until late summer. Another method of prolonging the supply is to plant early, medium, and late varieties. The seed should be planted about 2 inches deep, in drills 3 feet apart, and thinned to a single stalk every 10 to 14 inches.

The following varieties are recommended: For early corn, Golden Bantam and Adams Early, and for medium and late varieties, Black Mexican or Crosby's Early, Country Gentleman, and Stowell's Evergreen. The last-named variety has the largest ears and is the most productive.

Corn should be planted on rich land. The cultivation should be frequent and thorough and all weeds should be kept down and suckers removed from around the base of the plant.

TOMATOES

Tomato plants should be started in the house or in a hotbed and should be transplanted once or twice in order that strong and vigorous plants may be secured by the time all danger from frost is past. Pot-grown plants are especially desirable, as they may be brought to the blooming period by the time it is warm enough to plant them with safety in the garden. If the plants are not to be trained, but are to be allowed to lie on the ground, they should be set about 4 feet apart each way. If trimmed and tied to stakes they may be planted in rows 3 feet apart and 18 inches apart in the row. The home gardener will find the latter method preferable.

In common with all plants grown in a house, hotbed, or cold frame, tomatoes require to be hardened off before they are planted in the garden. By this process the plants are gradually acclimated to the effects of the sun and wind, so that they will stand transplanting to the open ground. Hardening off usually is accompanied by ventilating freely and by reducing the amount of water applied to the plant bed. The bed, however, should not become so dry that the plants will wilt or become seriously checked in their growth. After a few days it will be possible to leave the plants uncovered during the entire day and on mild nights.

EGGPLANTS AND PEPPERS

Eggplants and peppers are started and handled in the same way as the tomato. The soil best adapted for their production is a fine, rich, sandy loam, well drained. The plants should be set in rows 3 feet apart and 2 feet apart in the row. Free cultivation is desirable, and the plants should be kept growing rapidly. A dozen good healthy plants each of eggplant and pepper should supply enough fruits for the average sized family throughout the season. Both of these vegetables are heat-loving and should not be set in the open until the ground has become warm.

BEANS

Beans are more susceptible to cold that peas and should not be planted until danger of frost is past and the ground begins to warm up. They are, however, among the most desirable vegetables that the home gardener can raise. There are many different kinds and varieties of beans, but for garden purposes they may be divided into two classes—string and Lima. Both classes are grown in practically all parts of the United States where the frost-free period is greater than three months and adapt themselves to a wide diversity of soils and climate. They grow rapidly, and, therefore, leave the area in which they have been planted free for another crop. To secure a continuous supply, it is desirable to make plantings at intervals of 10 days or 2 weeks from the time that the ground is reasonably warm until hot weather sets in.

Both string and Lima beans are subdivided into pole and bush types. Pole Lima beans should be planted with from 8 to 10 seeds in the hill, and after the plants become established should be thinned to 3 or 4. The hills should be 4 or 5 feet apart. Bush Lima beans are planted 5 or 6 inches apart in rows 30 to 36 inches apart. Bush beans of the string type may be planted somewhat closer—the plants standing 3 or 4 inches apart in rows from 20 to 24 inches apart if hand cultivation only is to be employed.

Beans of any kind should not be planted any deeper than is necessary to secure good germination. This should never be over 2 inches and on heavy soil it should not be more than 1¼ to 1½ inches.

Beans are useful in the home garden, since they thrive on practically any type of soil. The pole varieties are especially convenient, since they can be planted along the edges of the yard and permitted to climb on the fences. Some of the pole beans, both snap and Lima, will continue to bear until frost. If the pole beans are planted in the hills in the garden proper, it will be necessary to sink a pole at each hill or to provide some other form of support. Extra long poles may be used and the tops of three or four different hills fastened together tent fashion. If it is desired to keep the garden free from poles, substantial posts may be set at each end of the row and a wire or strong cord stretched between their tops. Cords may then be extended from small stakes in each hill to the wire.

CUCUMBERS, SQUASHES, AND MELONS

Cucumbers, squashes,* and melons all belong to the melon family and demand much the same treatment. All are heat-loving and should not be planted in the open until the ground has become warm. It is easily possible, however, to give the plants an early start in the house and so gain several weeks in earliness of maturity. One way is to plant seven or eight seeds in berry boxes filled with soil. Each box of growing plants should have its bottom removed at planting time and should then be sunk in the garden to constitute a hill of plants.

Instead of growing the plants in boxes of ordinary soil they may be grown on sods in a suitable receptacle. Cut sods 6 inches square from spots which the growth of grass shows to be rich. Turn these grass side down and press the seeds in among the roots and soil. Cover with about an inch and a half of good soil and keep moist and warm. At planting time the sods may be lifted and placed in hills, which first should have manure worked into them.

These plants are rank growers and occupy much space. In very small gardens it may be well, therefore, to omit them. If squashes are grown, it may be well to plant only bunch varieties. Space may be conserved by growing a few cucumber vines near the edge of the garden and training them on a fence. This is possible, too, of course, with some melons and pumpkins, but supports will be necessary for the fruits. If the plants of this group are grown in the main garden, they must be spaced from 6 to 12 feet apart each way.

CABBAGE, CAULIFLOWER, AND BRUSSELS SPROUTS

Cabbage and the other two members of the cabbage family mentioned here require much the same treatment.† All three are grown in hotbeds, frames, or flats for the early crop and are set out when all danger of frost is past. Of the three, Brussels sprouts is the hardiest. Cabbage is fairly hardy, but cauliflower is somewhat tender. All require rather moist soil and plenty of plant food. Fertilizer may be conserved by placing it under each "hill" before the plants are set. The settings should be made 18 to 24 inches apart in rows spaced about 24 inches.

MISCELLANEOUS SALAD VEGETABLES

Besides lettuce there are a number of vegetables for use as salads or cooked greens that may be grown easily in the home garden. Of the salad plants, corn salad, garden cress, and endive are perhaps best known. The first two may be planted early. Endive, however, is planted in June and July. All are grown in drills about 14 inches apart and are thinned to proper distances as they grow.

Spinach and mustard are useful greens for cooking. Spinach may be grown either in the spring or in the fall. It is grown in drills, the use of the larger plants first automatically taking care of thinning.

Mustard greens may be produced on almost any good soil. The basal leaves are used for greens and are cooked like spinach. The plants require but a short time to reach the proper stage for use and frequent sowings should be made. The seeds are sowed thickly in drills as early as possible in spring or for late use in September or October. Ostrich Plume is a reliable variety.

For use both as a salad plant and for cooked greens Swiss chard, a beet which has been developed for foliage, should be more extensively grown. One of the good points about this vegetable is that crop after crop of leaves may be cut without injuring the plant. Chard is planted like beets in drills 12 to 14 inches apart and thinned to 4 to 6 inches.

* An insect that attacks squashes and other crops of this class is described in Farmers' Bulletin 668, "The Squash-vine Borer."

† Accounts of two insects that attack cabbage are given in Farmers' Bulletin 766, "The Common Cabbage Worm," and Circular 103 of the Bureau of Entomology, "The Harlequin Cabbage Bug."

PERMANENT VEGETABLES

A number of vegetables, once established, will furnish a supply of their products year after year. Asparagus, rhubarb, and a number of garnishing and flavoring herbs are the best-known members of this group. Because they permanently occupy the space in which they grow, such plants should be in beds separated from the cultivated vegetables.

For the asparagus bed a well drained, early location should be chosen. Prepare the bed by digging a trench 18 inches wide and 20 inches deep. Fill this one-third full with well-rotted manure and tramp it down well. Half fill the remaining space with good soil, and on this set the root clumps of asparagus, 1 foot apart. Such roots, one, two, or three years old, may be purchased from seedsmen or nurseries. Cover the roots by filling the trench to the surface of the ground with good soil. The stalks should not be cut until a year after planting, and then but lightly. Full harvests may be taken after this. From a dozen to two dozen roots should be enough for the average family.

Rhubarb is also grown from root clumps. A row of six or eight plants, 4 feet apart, should furnish stalks enough for the average family. Each hill should be well prepared with manure and good soil. Set the crowns about 4 inches underground. Stalks should not be cut until a year after planting.

Parsley seeds are sown in a drill in spring. The plants will die down in the fall and put out fresh foliage the next spring. The plant is a biennial and must be replanted at two-year intervals.

Sage is a useful perennial herb which can be grown easily in the home garden. One or two bushes will furnish an abundance of leaves. These, when full grown, should be thoroughly dried and stored in cans or jars.

ANNUAL PLANTS USED FOR SEASONING

Chives are small onionlike plants having flat, hollow leaves. These are cut and used for flavoring soups, sauces, etc. The plants are propagated by bulbs. A patch of the plants a foot or so square should be enough for the home garden.

Okra, or gumbo, produces pods which are used to season and thicken soups. The seeds of okra should be sown in the open after the ground has become quite warm, or the plants may be started in berry boxes in the hotbed or in the house and transplanted in the garden after all danger of frost has passed. The rows should be 4 feet apart for the dwarf sorts and 5 feet apart for the tall kinds, with the plants 2 feet apart in the row.* If the pods are removed before they are allowed to ripen, the plants will continue to produce them until killed by frost.

Cabbage, carrots, turnips, and rutabagas, in addition to their use as early crops, may be planted early in summer and the products which mature in autumn may then be held for winter use.

VEGETABLES FOR WINTER USE

For a late crop of cabbage it is customary to plant the seeds in a bed in the open ground in May or June and transplant them to the garden in July. For cabbage of this character the soil should be heavier and more retentive of moisture than for early cabbage, which requires a rich, warm soil in order to reach maturity quickly. For the late variety it is not desirable to have too rich a soil, as the heads are liable to burst. Cabbages should be set in rows 30 to 36 inches apart, and plants standing 14 to 18 inches apart in the row.

To store cabbage for the winter the heads should be buried in pits or placed in cellars. One method is to dig a trench about 18 inches deep and 3 feet wide and set the cabbage upright with the heads close together and the roots embedded in the soil. When cold weather comes the heads are covered lightly with straw and 3 or 4 inches of earth

* Detailed information on this plant is contained in Farmers' Bulletin 232, "Okra: Its Culture and Uses."

put in. Slight freezing does not injure cabbage, but it should not be subjected to repeated freezing and thawing.

Parsnips will occupy the ground from early spring until fall. The seeds should be sown as early as convenient in the spring in rows 18 inches to 3 feet apart. The plants should later be thinned to stand 3 inches apart in the row. A rich soil with frequent cultivation is necessary for success with this crop. The roots are dug late in the fall and stored in cellars or pits, much as cabbage is, or else are allowed to remain where they are grown and are dug as required for use. All roots not dug during the winter, however, should be removed from the garden, as they will produce seed the second season and become of a weedy nature. When the parsnip has been allowed to run wild in this way the root is considered to be poisonous.

Carrots may be sown early, used during the late summer, and the surplus stored. If desired, a later crop may be sown after the removal of an early vegetable, especially for winter use. Carrots are grown in practically the same way as parsnips, but are not thinned so much and are allowed to grow almost as thickly as planted. They are dug in the autumn and stored in the same manner as parsnips or turnips.

Turnips require a rich soil and may be grown either as an early or late crop. For a late crop it is customary to sow the seeds broadcast on land from which some early crop has been removed. In the North this is generally done during July and August, but the usual time is later in the South. The seed also may be sown in drills 12 to 18 inches apart as for the early crop. After the plants appear they are thinned to about 3 inches.

The rutabaga is similar to the turnip and is grown in much the same way. It requires more space, however, and a longer period for its growth. It is used to a considerable extent for stock feed and has the advantage of being quite hardy.

FRUITS IN THE SMALL GARDEN—BERRIES

If there is sufficient space in the home garden, it may be desirable to have it supply fruits as well as vegetables. The small fruits, such as strawberries, raspberries, blackberries, currants, and gooseberries, may be produced with little trouble. A few dozen strawberry plants, and even few of the other plants mentioned, should be sufficient for a start. The plantings can be increased from year to year by resetting the young plants which spring up from runners and roots. All the small fruit plants mentioned may be set out in spring. Since most of these plants will occupy the same space year after year, they should be segregated from the part of the garden devoted to annual vegetables.

Grapes may, in many instances, be grown in the home garden more easily than the small bush fruits, since they may be planted near fences and permitted to run upon them. Grape plants also may be set out in spring before the sap rises. Fairly large holes should be dug, and these filled with rich soil mixed with wood ashes.

TREE FRUITS

Tree fruits probably cannot be grown in most small home gardens because of the relatively large areas of soil their roots occupy. The use of dwarf trees, however, makes possible the growing of a few fruit trees in the larger yards and garden inclosures. Though strawberries, cucumbers, and a few other vegetables may be grown near the trees while the latter are small, most vegetables must be grown in the open, where they will receive abundant sunlight. If fruit trees are grown in connection with gardening operations, therefore, they should, where possible, be well removed from the main garden plot.

Apple, peach, cherry, pear, plum, apricot, and quince trees may be purchased on dwarfing stocks. All may be set out in the spring before growth starts. The trees should be set in holes several feet square in which rich soil has been placed. They should be set an inch or so lower than in the nursery.

**(Paste or Write Here
Scraps or Memos.
of Your Own)**

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ALPHABETICAL INDEX

Where to find the information contained in this volume.

How to Use the Index—Note the following:

On subjects of a general nature, particularly where treatment is in a written discussion or study rather than in brief paragraphs or specific recipes, always **look on pages preceding and following,** as well as on the page given. Other matter bearing on the subject will thus be found, often matter on the specific subject and almost invariably on such closely related subject-matter as to be of material relation to the subject sought.

But do not get the "Index Habit"—do not turn to the Index always before you do anything else. The Index is intended as a guide where you want **everything bearing on** a given subject. It is not necessary where you want a simple recipe only, or the solution to some simple problem. For illustration, if you are on the subject of Breads: You will probably find the Bread Recipe you want under the Classification, Breads, in Part 2, Cooking and Recipes, of Section IV, The Kitchen and Cookery. If you want to look up War Breads using no wheat or wheat substitutions, you will look for them in the Food Administration Supplement. If you want to look up every pertinent reference made to Breads, Breads as a Carbohydrate Food, Breads in Diet Value, Bread Substitute Materials, etc., etc., you will consult the Index on Breads, as well as on Flour, on Substitutes, Children's Foods, Invalids' Diets, on Corn Meal, and under such other related headings as are suggested to you by the purposes for which you want the information; and you will thus get together a complete scientific study on every angle of the Bread question.

Familiarize yourself in a general way with the Book itself, and you will find yourself able to turn naturally, for all usual purposes, at once to the Section and page you want, without any poring over the Index. The Book is almost self-indexed in the way of its arrangement; with a very little familiarity it at least becomes so for all practical ends.

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i, ii, iii, etc., to xvi—Preliminary Pages in fore part of Book.

S-1, S-2, etc., to S-80—Supplement Section.

1, 2, 3, etc., to 502, Main Body of the Book.

xvii, etc.—Index Pages at back of Book.

Use the Supplement—It contains the latest Food Administration Special War Economy Recommendations and Recipes for Savings—**Save and Serve the Cause of Freedom.**

Don't Expect to Find every sort of individual recipe in the **Index.** Look for it under its proper classification in the Book itself. We do not encumber the Index with such items as Waldorf Salad or Peach Pie, which one will naturally look for under Salad or Pie (Pastry). Only such recipes are indexed as to the classification of which one might be uncertain.

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