

COLORADO AGRICULTURAL COLLEGE  
FORT COLLINS, COLO.  
EXAMINED AND CHECKLISTED

Bulletin 307-A

October, 1931

## HEALTH AND NUTRITION OF THE SCHOOL CHILD



Betty Breniman, a healthy, happy  
school child.

---

COLORADO AGRICULTURAL COLLEGE

EXTENSION SERVICE

F. A. ANDERSON, DIRECTOR

FORT COLLINS

---

Cooperative Extension Work in Agriculture and Home Economics, Colorado Agricultural College and the United States Department of Agriculture Cooperating. Distributed in Furtherance of the Act of Congress of May 8 and June 30, 1914.

# HEALTH AND NUTRITION OF THE SCHOOL CHILD

By MIRIAM J. WILLIAMS

Alert, alive and happy, the healthy school child will show many outward signs of good growth and developments easily recognized by the adult who is an interested observer of children. Nine-year-old Betty Breniman of Larimer County, Colorado, whose picture is on the cover, is such an example. All of the signs in the first list are related to a child's nutritional condition and are affected by food and health habits. The characteristics under "Good" can be reached by nearly everyone.

## Signs of Good Growth and Development

<b>Good</b>		<b>Bad</b>
Alert, happy .....	<b>Expression</b>	Listless, inattentive, passive
Clear, bright .....	<b>Eyes</b>	Dull, dark, circles beneath, squinting, inflammation
Moist, red, clean .....	<b>Tongue</b>	Coated, poor color
Sweet .....	<b>Breath</b>	Offensive
Glossy and pliable .....	<b>Hair</b>	Very scanty, dry, brittle
Ruddy color in cheeks; pink color in lips, ear lobes, finger nails; skin a healthy tan .....	<b>Color</b>	Lack of pink color; excessive sallowness or unhealthy pallor
Clear and smooth; slightly moist .....	<b>Skin</b>	Dry, pimples, excessively roughened
Head up, chin in, abdomen in and flat, chest up, back curve within normal limit.....	<b>Posture</b>	Any or all of these: forward head; dropped chest; hollow back; relaxed abdomen; slouchy, ungraceful appearance
Firm and strong .....	<b>Muscles</b>	Flabby, relaxed
Plentiful and firm.....	<b>Fat</b>	Excessive, flabby, or so lacking that the skin can be raised in deep, thin folds between the fingers
Definite gain in weight and height during a year .....	<b>Weight</b>	Growth at a standstill; condition of over or underweight which is a handicap
Good muscular coordination; bodily repose .....	<b>Body Control</b>	Inefficient muscles; undue restlessness
Cheerful .....	<b>Disposition</b>	Irritable
Tendency to eat all food.....	<b>Appetite</b>	Finicky; cravings for certain foods
Clean, well enamelled, no cavities; firm gums; teeth well spaced and even .....	<b>*Teeth</b>	Showing signs of poor development and improper care and diet
Good body development shown in broad, deep chest, straight legs, strong, normally shaped joints, etc.....	<b>*Bones</b>	Evidence of rickets as seen in narrow chest, bow legs, enlarged joints, weak arches, etc.

\*Influenced by growth prenatally, in infancy and early childhood.

Some easily recognized physical defects (requiring professional attention) which interfere with good growth and development:

Good		Bad
Unobstructed .....	<b>Breathing</b>	Signs of adenoids, enlarged tonsils
Able to pass required test.....	<b>Vision</b>	Defective, uncorrected
Able to pass required test.....	<b>Hearing</b>	Defective

### Health and Food Habits of the School Child

Good		Bad
Enough hours at night with open windows .....	<b>Sleep and Rest</b>	Irregular, late hours; poor ventilation; no allowance for day-time relaxation
6-8 yrs.—12 hrs. per day 8-10 yrs.—11½ hrs. per day 10-12 yrs.—10 hrs. per day 12-14 yrs.—10½ hrs. per day 14-16 yrs.—11 hrs. per day 16-18 yrs.—9 hrs. per day (From table by Dr. Thomas Wood)		
Rest a part of each day.....		
In the sun and air every day except in most severe weather .....	<b>Outdoor Play</b>	Little outdoor play; mostly indoor recreation
Inside and out; regular elimination; regular bathing; hands washed before meals; teeth brushed night and morning .....	<b>Cleanliness of Body</b>	Habits which interfere with regular elimination; careless habits in care of teeth and body
Sit tall; stand tall .....	<b>Carriage</b>	Slouchy standing position; crouched position at desks
Simple, comfortable, warm, easily laundered .....	<b>Clothing</b>	Very heavy or scanty; elaborate
Three nourishing meals eaten without undue haste and containing essential foods; 4 to 6 glasses of water daily .....	<b>Food and Water</b>	Inadequate breakfasts; hastily eaten, poorly planned lunches; heavy suppers; meals lacking in essential foods

### A Good Lunch at School or Home Is An Aid to Health

The testimony of many teachers is on record to prove that one of the best means of promoting health teaching is thru the school lunch. By health teaching they mean an actual improvement and change in health practice of their pupils. Lunch time at school affords something definite around which health teaching can be based.

**Why A Good Lunch at Noon Is Important.**—1. Children and adults alike need food to:

Furnish fuel,— heat and energy, to the body;  
Build and repair body tissues, muscles, bones, teeth; and  
Regulate and protect body processes.

Unless these needs of the body are met, the result is a slowing down of physical and mental activity and growth.

2. These results have been noted where a hot lunch was served at noon and the lunch hour supervised:

Better condition of health, improvement in signs of good growth and development, gain in weight.  
Improved attendance, improved school work, higher standards in scholarship, easier discipline.  
More cordial relations between teacher and families, more community cooperation.  
Opportunity to teach health, simple manners and courtesies that were not available before.

#### The School Lunch May Be:

<b>Good</b>	<b>Bad</b>
A hot dish in cold weather. Milk in hot dish, or to drink, or in food carried from home.	Heavy bread sandwiches with dry fillings, pancakes or biscuits.
Sandwiches of good bread with simple fillings, or a hearty dish at school.	Lunch chiefly of bread, meat, sweets.
Fruit or raw vegetable, or both.	Food difficult to digest as fried foods, pickles, rich cake, pastry.
A simple dessert of cookies, spice cakes or dried fruit may be added.	Paper sack type of container, carelessly packed.
In easily cleaned container and attractively wrapped.	No supervision of lunchroom, conditions or time.
In a supervised lunchroom, clean hands, clean room, time required to stay for lunch.	

Milk may be brought in a small jar, cream bottle, or thermos bottle and served with a straw. The thermos bottle may contain hot cocoa or soup made with milk. Other milk dishes which may be carried in the lunch are cottage cheese, cup custards, simple puddings made with milk.

The vegetable in the school lunch may be lettuce, shredded cabbage or ground carrot added to the sandwich. Celery or a raw carrot cleaned and wrapped in paper is popular and easy to eat. Cooked or canned fruit or baked apples may be carried in glass cup or waxed paper container. Tomatoes in season or fresh fruits are always good.

Sandwiches may be either dark or light bread spread just with butter or a simple, fairly moist filling of cheese, egg, meat, vegetable mixtures or sweets.

Some inexpensive sandwich fillings are :

- Raw ground carrot with peanut butter.
- Mashed baked beans with tomato or chili sauce.
- Cottage cheese with shredded cabbage or lettuce.
- Hard-cooked egg with bacon or salad dressing.

#### **A Hot Dish During Cold Weather Is Important**

Health conditions of pupils are always improved when good nourishing food is available at noon. Hot food of course stimulates digestion and makes it possible to insist upon an unhurried lunch. Digestive disturbances which appear later in life are traceable to hurried habits of eating, when food is habitually retained in the stomach a longer time than normal or when unusual strain is put upon some digestive organ or secretion.

Often breakfasts are hasty, especially where children must go on a school bus. To many children, meal-time is associated with haste, confusion and unpleasantness. This same impression becomes even more habitual if lunch at school is eaten in hasty snatches while playing, or amid confusion in the schoolroom. Unless there is some enforcement of order or establishment of routine, pupils cannot usually be depended upon to eat their lunches without haste.

The Plummer School in Larimer County follows this procedure: At noon, all file out and wash their hands, using paper towels to dry them. Each child then spreads a clean paper towel on his desk, opens his lunch and stays 20 minutes at his desk. Then the paper towel and crumbs are discarded and the time is free for play.

#### **Simple Ways of Handling Hot Lunch**

The hot dish at noon may be handled in several ways. The most simple one within the possibilities of every school is called the glass-jar method. Another plan is to serve a hot dish at cost, or to have the food donated and prepared by pupils as a special assignment each day.

The glass-jar method requires by way of equipment a container, such as roaster, or boiler with a false bottom and lid, or an oven. The boiler is partially filled with water, then jars brought from home (filled and fitted with rubber and lid) are set in the container and the whole heated over the school heater, or a special stove if found advisable, until contents are hot. This requires no dishes and no extra preparation, yet means a warm dish which is so essential to health.

An even more simple and inexpensive method according to some is to secure an oven which can be set over an oil stove, a broiler tray or other shallow tray to fit the oven, an oven thermometer, and hot-dish holders. The jars are set on the oven rack in the morning as each child comes to school, with space between each to allow for circulation of air. Allow about one and one-half hours for the oven and food to heat very gradually, seeing that the temperature does not rise above 300°. Water is placed in the drip pan beneath so that in case jars do boil over, there will be no scorched food. The moisture given off also helps keep a uniform heat.

A hot dish may be prepared as a part of special schoolroom assignment. In some schools, arrangements are made with parents to have the food donated,—those who have a plentiful supply of milk providing that, others bringing vegetables for soup, sugar and cocoa, etc. No charge is then necessary. Lessons in bookkeeping, planning amounts, care of the food, etc., are developed in connection with this scheme.

Dishes suitable for the glass-jar method are: Cocoa, cream soups or chowders made of milk and vegetables or fish, scalloped dishes



Fred eagerly awaits the steam-hot jar of soup which has been heated in a rooster covered roaster.



Jars brought from home are placed in the portable oven to heat. A drip pan of water catches food which boils over and keeps an even, moist temperature.

made with milk or tomatoes, a creamed vegetable, meat or eggs, meat stew, baked beans, cereals to be eaten with milk, some simple desserts which are appetizing **when warm.**

In a few schools where vacuum bottles seem prohibitive in price, and the heating stove has no free surface for oven or broiler, the food from home is carried in small pails which are set over the hot-air register at recess time. The food is then warm by noon. This method is not as satisfactory as where a heating surface is available, or vacuum bottles are used, but it is better than cold food.

#### **Milk an Important Part of the Low-Cost Diet**

Whether on the farm or in town, there is no food that will help provide an adequate diet at such a low cost as milk. It supplements the inexpensive cereal foods and vegetables which in themselves would provide an inadequate diet.

President Hoover's Emergency Committee for Employment has, thru a sub-committee, worked out a plan for a low-cost diet which provides food necessary for good development and growth. They recommend:

Every meal: Milk for children

Every day: Milk for all

This means that all the family will have milk once, and the children three times. Another way of expressing the quota of milk is:

A quart daily for each child

A pint daily for each adult

**How To Secure It.**—The well-provided-for rural home will have its own supply of fresh milk. Otherwise, milk may be purchased as fresh milk or condensed unsweetened milk or dried whole or dried skimmilk. A tall can of condensed milk is about equal to 1 quart of fresh milk. One pound of dried milk makes 5 quarts of fluid milk. The local creamery or dairy may have a supply of fresh skim or buttermilk at a low cost. If dairy cows are few and far between and the supply of fresh milk limited, dried skimmilk makes a most economical substitute, especially when secured in large amounts. It is particularly adapted to cooked dishes requiring milk.

**Why Is Milk Given First Place As a Food?**—1. More body needs are supplied thru milk than thru any one other food. It is not a "perfect" food in itself except for the very young, but the best all-round assistant.

2. Milk builds muscle. Athletes and other men and women who need muscles trained to obey, usually choose milk as their beverage. It contains a very complete protein which helps build and repair muscles and other tissue.

3. Bones and teeth are chiefly composed of two minerals, calcium (or lime) and phosphorus. Both of these are present in milk. A glass of milk contains as much calcium as:

6½	pounds lean beef,
129	slices of white bread made with water
33	slices white bread made with milk
26	slices of whole-wheat bread made with milk
9	eggs
32	apples
18	potatoes
8	cups shredded cabbage

This does not mean that these other foods are not valuable but they cannot supply calcium to any great extent. Cottage cheese and other kinds of cheese are rich in calcium because they are made from milk.

A building is not strong unless good building material goes into it. Strong, straight bones and teeth that will resist decay can only be built if the right kind of material goes into them. The older person with an attractive smile which reveals pretty, well-shaped teeth, has almost without exception had a good dietary history with plenty of milk and other wholesome foods. Such teeth will usually last.

4. The fat in milk, from which butter is made, is valuable for the person who wants a clear smooth skin with firm tissue beneath.



Vitamin A is present in whole milk and helps protect the body from illness and disease. It aids growth, also. Milk usually helps people who are underweight to gain—because it is such an efficient food, but it does not add unnecessary fat.

Girls who are afraid they will be “fat,” can drink milk with safety because it adds only a few calories. One of the best reducing diets contains skimmilk or buttermilk. Regardless of body weight, teeth, bones and other organs need the protection which calcium gives. Cut down calories on other things, if necessary.

1 cup whole milk .....	-160 calories
1 cup skim or buttermilk.....	- 90 calories
5 English walnuts .....	-175 calories
2 tablespoons sugar .....	-100 calories
1 small piece fudge.....	-100 calories
1/8 of a pie with top crust.....	-350 calories

5. Milk provides energy which is readily available for work and play. Because of its ease of digestion it is suitable for young and old alike.

**How to Use the Full Quota of Milk.**—Use milk in many ways besides as a drink with meals: In cream soups, milk gravies, creamed meat and vegetable dishes, cereals cooked in milk and served with top milk, milk toast, cocoa made of milk but with a small amount of sugar and cocoa, breads and other baking done with milk, desserts made with milk as custard and bread pudding, ice cream, malted milk and milk shakes.

**Why Do Some People Dislike Milk?**—Sometimes children and adults alike express an aversion to milk. Possibly this dislike arose from an objectionable flavor which made a lasting impression. Cleanliness in the handling of milk and care of the cows before and after milking is of prime importance. Feed of dairy cattle also affects flavor. All utensils in which milk is put or carried should be washed in hot soapy water, thoroly scalded in clean hot water and exposed to the sun away from dust and flies.

If milk actually causes a digestive upset or case of “poisoning,” as occurs in a few individuals, calcium can be secured in other ways. It means, however, a diet that is rather difficult to carry out. Dentists and doctors sometimes recommend certain substitutions where milk is difficult to tolerate.

Milk should be clean, cold, and served in an attractive way to make the best appeal. When good milk is disliked, it is usually a mental prejudice entirely. This may have been fostered by some older person’s openly expressed dislike or by their more silent but just as expressive attitude and avoidance of milk. A good example is the best guide in forming good food habits.

In the school lunchroom lies the possibility of making milk popular, thru examples thru the appeal of its importance, use of straws, etc. There are many possibilities of varying its form if a hot dish is served at noon. Where the local supply is limited, the teacher can do much to encourage the use of fresh, canned and dried milk, and to encourage boys to become 4-H dairy calf club members.



Each Plummer School child (Larimer County) has a clean towel for his desk, a bottle of milk and 20 minutes for an unburied lunch.

**Cereals with Milk Form the Basis for a Low-Cost Diet.**—Wheat, corn, oats and other grains are valuable sources of heat and energy. When supplemented with the protein and minerals found in milk, the basis for a low-cost diet is formed.

Vegetables, fruits and protein foods are also needed in small amounts to make a nourishing diet.

Wheat and corn can be milled at home with little or no outlay of cash. Coarsely ground wheat makes a fine breakfast cereal when it is properly cooked.

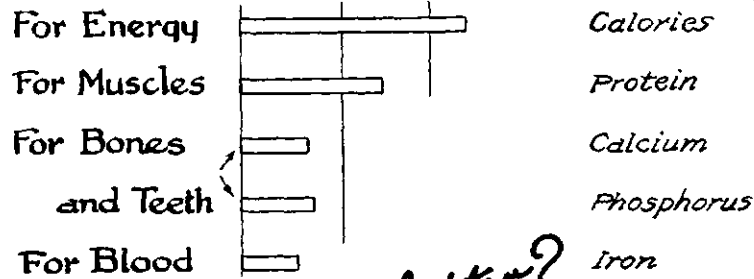
Wash and clean the wheat. Dry thoroly in the oven, stirring frequently, but do not allow it to brown. Use a coffee mill, meat grinder or feed mill with a fine attachment. As a cereal, it should be cooked in boiling salted water, first over the direct flame, and then

# TOAST AND COFFEE

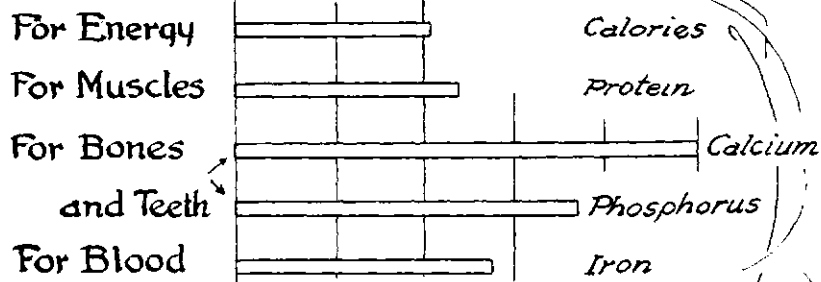


Vitamins  
A B C

2 slices toast (white) ?	+	-
1 Tb. butter	+++	-
1 Tb. rich cream	+++	++ ?



*Which is better?*



# CEREAL AND MILK



Vitamins  
A B C

$\frac{3}{4}$ cup cooked whole-wheat cereal	++	++	-
$\frac{1}{3}$ cup whole milk	+++	++	?
1 Tb. rich cream	+++	++	?

in a double boiler until it is thoroly cooked. Serve as a cereal with top milk, with fruit and sweetening as a pudding, fried as a mush and served with meat.

Finely ground wheat may be used for a cooked porridge or flour for bread, muffins, etc. Corn can be cracked and ground at home, also, and served in the same ways suggested for wheat.

The use of bran, a by-product in milling, is a doubtful practice, for the coarse fibers may be very irritating and injurious to some digestive systems. Finely ground whole wheat is much more desirable. Clean, entire wheat may be used if it is first soaked over night and cooked several hours until the grains have burst and the starch is thoroly cooked.

It is doubtful if a more inexpensive and nourishing dish can be secured than a cooked whole-grain cereal and milk. A good breakfast for the school child will frequently include cereal and milk.

#### Vegetables and Fruits Are Necessary the Year Around

Vegetables and fruits are necessary to supplement a diet rich in cereals. The Emergency Committee recommends the following in the low-cost diet as being the minimum amount necessary to protect health:

Every day—

Potatoes

Tomatoes (or oranges) for children

A green or yellow vegetable

A fruit or additional vegetable

Two to four times a week—

Tomatoes for all

Dried beans and peas or peanuts

Members of the last group, dried beans, peas and peanuts, are called legumes. They serve as meat extenders or meat substitutes since they are relatively high in protein. The protein in legumes is classed as partially incomplete since it will not support life and growth as will the proteins in milk, eggs and meat. It is wise to supplement these legumes with milk, cheese, eggs and small amounts of meat. Dried beans are relatively high in calcium, phosphorus and iron and a good source of vitamin B, so they make a good inexpensive food. For some people, however, they are difficult to digest, and are not recommended for young children.

Where dried beans are grown in quantity, they are often served as a vegetable in addition to meat and potatoes. This is not as satisfactory as to have them served as a hearty main dish, with more succulent vegetables as carrots, cabbage, tomatoes, etc., to supplement.

Both the meat and potato dinner and the meal with beans as the main dish, need other vegetables. Some menus illustrate:

Good Menus	Poorly Balanced Menus
Pork roast—Browned potatoes	Pork roast—Potatoes
Stewed tomatoes and onions	Cooked dried beans
Bread and butter	Bread and butter
Baked apples	Apple pie
-----	
Baked beans with salt pork	Baked beans with salt pork
Cabbage slaw—Milk	Fried Potatoes—Cheese
Brown bread and butter	Bread, butter, coffee

In referring to vegetables, then, we mean those other than dried beans and peas, since these dried vegetables are classed as a more hearty food.

**Why Are Vegetables and Fruits Necessary?**—1. Vegetables and fruits are classed as regulating and protective foods because they help keep the body in good working order and help protect it against invasions of illness and lowered vitality.

2. They are high in roughage or cellulose. This means that the undigested part of some foods serves as an intestinal broom, sweeping before it the waste matter which, if allowed to accumulate, will cause an endless amount of trouble. A clear complexion, bright eyes and good color are only possible when a body is internally clean. Many fruits and vegetables contain mild acids which help stimulate peristaltic action and these contribute to the same end—good elimination. The concentrated type of winter diet that some people use—in which meats, fats, refined cereals and sweets predominate—is largely lacking in regulating and protective matter. The tendency is toward constipation, which is the sure fore-runner of trouble.

3. Vegetables and fruits are relatively rich in vitamins. The green and yellow vegetables seem to be associated with an unusually good source of vitamins, particularly vitamin A. Colorful vegetables, then, the most attractive to the eye, are also most healthful.

Raw vegetables and fruits are given particular emphasis because of their vitamin C content. One or two raw fruits or vegetables daily is a good thing to include. Citrus fruits and tomatoes are especially rich in vitamin C. For young children, a daily source of vitamin C, as oranges or tomatoes, is considered essential.

4. As for minerals, vegetables are a valuable contributor. Particularly in iron, do green vegetables rate high. Iron enables the blood to make red corpuscles and aids in regulation of other body processes.

5. Tomatoes deserve special tribute since they are inexpensive, an excellent source of vitamin C, and a good source of vitamins A,

**B and G.** They help stimulate appetite, increase resistance to disease and aid in digestion. There are few vegetables or fruits which contribute so highly to our general well-being, and tomatoes have the additional advantage of being very inexpensive. Tomatoes may be served cold or hot as a vegetable dish, in soup, combined with many other vegetables as onions or corn. They may be baked or stewed with starchy and protein dishes, as in macaroni with hamburger and tomatoes, Spanish rice, and spaghetti with tomato sauce. Tomatoes are delicious strained and served cold as a breakfast drink, or as an appetizer before a meal. In food value and structure, the tomato is really more of a fruit than a vegetable, and its use as a refreshing fruit drink is becoming more widespread.

**How to Use More Vegetables and Fruits.**—Vegetables which are not overcooked and are well seasoned are attractive and palatable, indeed. Again, prejudice against these is usually founded on someone's example or attitude toward them. Overcooking is the biggest single crime committed against them. Color, an appealing thing to most children, is a point in their favor since, generally speaking, colorful vegetables are the most healthful.

In the school lunch, vegetables and fruits have a place. Lettuce, shredded cabbage or finely ground carrots are an excellent addition to sandwich fillings. Celery and lengthwise strips of crisp carrot



Mr. Witt stores his vegetables in an easily made pit lined with straw.

are easy to carry and eat. Sometimes a vegetable salad in a custard cup or waxed container can be included. Fruit or tomatoes are, of course, a part of many well-planned lunches.

**The home garden** is in most cases the simplest solution to a year-around supply of fruits and vegetables. Records kept in Colorado show that the value of a garden in lessening winter food bills has been from \$75 to well over \$100, and it also has meant that a more abundant supply was provided in each case. Even a small tenth-acre plot will yield richer return per square foot when planted to a garden than to practically any other crop.

To secure a year-around supply of vegetables at a low cost, it is necessary to can and store. Tomatoes are easily canned and need no special canning precautions as do the non-acid vegetables. Cabbage, carrots and other root vegetables can be stored with little effort and expense.

Boys of school age can be interested in helping with storage of vegetables at home in the fall.

"Medium-sized, mature root crops should be selected for storing. In cutting off the tops one should not cut too close to the roots. All root crops may be stored together, in late fall, after the vegetables have ceased to grow. Immature, unusually large, irregular or cut and bruised roots should of course not be stored.

"A large barrel or heavy box may be placed in the ground in such a position that it will be convenient to get into during freezing weather. A pit may be dug so that the barrel or box can be placed in a semi-horizontal position. The box can be covered with a lid or the barrel with the barrel head. The container may be covered with straw and dirt in sufficient layers to protect the roots from freezing.

"Cabbage may be stored successfully by pulling the entire plant, attaching strings to the roots and hanging the cabbage to rafters in a cellar, to allow air to circulate around the heads, or by wrapping the heads in paper and laying them upon a shelf.

"Onions should be well cured and dry before storing in a cool, dry place. Squash should be stored in a warm, dry place, and pumpkins where the air is cool and fairly moist. Root crops should be buried in boxes of sand if placed in the cellar, and the sand should not be allowed to dry out." From "The Home Vegetable Garden" by A. M. Binkley.

#### Supplementary Information on Vitamins

**Vitamin A—fat soluble**—promotes growth and increases resistance to disease, especially infections of the eye, nose, throat and lungs. It is found in milk and milk products, egg yolk, green and yellow vegetables, glandular organs as liver and sweetbreads, cod-liver oil. This vitamin is stored in body tissues as a reserve substance for protecting and regulating the body.

**Vitamin B (and G)—water soluble**—is related to the proper functioning of the digestive tract, aids appetite, promotes growth and nervous stability. It is found in plant tissues, in dried beans, whole-grain cereals, yeast, glandular organs, milk, meat, eggs, etc. Vitamin G is sometimes classed with B. It prevents pellagra, a disease common in the South. Vitamin G is found chiefly in animal tissues, as milk, meat, eggs.

**Vitamin C—water soluble**—is related to the proper development of bones and development and calcification of the teeth, and contributes to normal health and growth. It prevents scurvy, a comparatively rare disease in this country now, but stages of which are traceable where fruits and vegetables are scarce. This vitamin is easily affected by heat except in an acid medium, so raw fruits and vegetables or canned tomatoes are necessary to insure a safe amount. Canned tomatoes, citrus fruits, uncooked vegetables and fruits are the best sources.

**Vitamin D—fat soluble**—promotes growth and is essential to the proper building of bones and teeth. It is especially important during the pre-natal period, infancy and early childhood. Without sufficient vitamin D and a proper balance of calcium and phosphorus (bone-building minerals), a softening of the bones, known as rickets, occurs. Direct rays of sunshine (ordinary window glass screens out the important ultra-violet rays) have the ability to activate a substance in the skin which manufactures vitamin D in the body. Cod-liver oil is the next best source, and is usually recommended for infants and children during winter. A few foods, as egg yolk, butter and liver contain vitamin D, but hardly in the amounts needed during early growth.

#### References

- Signs of Health in Childhood—Dr. Hugh Chaplin.
- Foundations of Nutrition—Mary Swartz Rose.
- Market Basket Wisdom—U. S. D. A.
- Material from National Dairy Council.
- School Lunch bulletins.

#### Acknowledgments

This material has been approved by Miss Inga M. K. Allison, Head of the Department of Home Economics of Colorado Agricultural College. Mrs. Anna W. Buoy, Larimer County Public Health Nurse, gave valuable suggestions and assistance.