THE VISITOR

Devoted to the Interests of Agriculture and Manual Training in Minnesota High Schools

Published Monthly by the Division of Agricultural Education, Department of Agriculture, University of Minnesota

VOL. V — UNIVERSITY FARM, ST. PAUL, MINN., MARCH, 1918 — NO. 7

Entered as second class matter at the postoffice at St. Paul, Minn., under the act of August 24, 1912.

WAR SERVICE ROLL

Minnesota teachers of agriculture who are engaged in war service. If you know of others, kindly inform us. This roll is to have a permanent place in the Visitor. Will you help us to keep it accurate and up-to-date?

J. Charles Bowe, 239 Airplane Squadron, Kelley Field No. 1, San Antonio, Texas.

P. W. Chase, Aviation School, San Diego, California.

G. N. Danfort, Third Officers' Training Camp, Yaphank, N. Y.

R. R. Johnson (awaiting call, Ransomville, N. Y.).

Charles Kelehan, First Lieutenant, Co. K, 136th Infantry, Camp Cody, Deming, N. M.

Archie Lang, 337th Field Artillery, Camp Dodge, Iowa.

R. J. Lewis, Lieutenant, Signal Reserve Corps, Aviation Section, Fort Omaha, Nebraska.

Fred F. Moore, Co. 2, Officers' Training Camp, Camp Funston, Kansas.

Ernest G. Roth, Officers' Training School, Camp Custer, Battle Creek, Michigan.

C. J. Skrivseth, Co. F, Second Battalion, 163d Depot Brigade, Camp Dodge, Iowa.

Arthur J. Souba, Navy Instructor in Food Chemistry, Dunwoody Institute, Minneapolis, Minnesota.

Otto A. Stangel, 36th Co., C. A. C. N. A., Presidio, San Francisco, Cal.

Arthur V. Storm, U. S. A. Ambulance Service, Section 568, American Expeditionary Forces, Overseas.

N. B. Swanson, Co. C, 313th Engineers' Corps, Camp Dodge, Iowa.

T. W. Thorson, Musician, U. S. N., Battleship New Jersey.

H. G. Zavoral, Veterinary Corps, Camp Funston, Fort Riley, Kansas.

SOLDIERS ALL!

(Tune, Battle Hymn of the Republic)

We are soldiers in the army
Of the "food production" war;
Boys and girls of dear America,
And loyal to the core;
"Our President" appealed to us
To raise of food, a store,
So we'll go farming on.

Chorus

Soldiers in the garden army
Soldiers in the garden army
Soldiers in the garden army
So we'll go farming on.

We'll put the guard in garden,
And we'll put the "aid" in spade;
We will rake, and hoe, and weed, and sow,
'Til earth its debt has paid;
For food is ammunition,
And with food, the foe'll be laid,
So we'll go farming on.

Chorus

We love our grand "Old Glory,"
That still waves for peace and right,
In our battle fields, the gardens,
We will work with all our might;
Our weapons are the garden tools,
And they will win the fight;
So we'll go farming on.

Chorus

America! Your sons, their lives
Are laying at your feet;
Best of mothers! for your children,
None shall ever sound retreat;
Across the seas, the stars and stripes,
Its triumphs will repeat;
So we'll go farming on.

Chorus

God who watches o'er us
Will give strength and comfort too;
God helping us, we can not fail,
If to ourselves, we're true;
Soldiers All! for God and country
We are bound to see it through;
So we'll go farming on!

Chorus

Contributed to the United States School Garden Army, by Mary C. Mitchell, William Cullen Bryant School, Boston.

NON-UTILITARIAN REASONS FOR MAKING A STUDY OF AGRICULTURAL SUBJECTS

The Visitor Asks Readers to Give Such Reasons and Discuss Young Woman's Comment

"Give a reason other than utilitarian, for agricultural education for boys in the country or for home economics for girls." "How would this relate city boys to agricultural education?" These two questions were asked of a class in Principles of Education. One young woman gave the following as her answer:

"An agricultural education for boys in the country, and home economics for girls, besides having utilitarian value offers much to the students. It broadens their minds in many directions, giving them a knowledge of the vital questions of the day along agricultural, economical, and financial lines. It has a conventional value in that it teaches them things and facts which a man should know in order to be educated. It gives them a chance to express thoughts and opinions and it also points out to them the importance of agriculture as a profession, if one may be allowed to call it such. It makes them more efficient workers—more efficient in producing goods for the world's supply of food. It teaches them the wonders of nature, bringing in a little sentiment which makes a course more interesting. There is a theoretical value bound up in many subjects which are necessary in education.

"In home economics the girls, besides getting subjects which can be put to direct use, get training in subjects which have theoretical, conventional, sentimental values and in a great number which are preparatory; that is, which prepare the way for other subjects. The girls are made broader minded in the subjects of foods and clothing. They are made familiar with processes of the manufacture of staple products, etc. They are taught how to keep well, facts concerning body nutrition, and what foods do in the body. They are made familiar with food situations and economic conditions.

"In both agriculture and home economics, students are given a view of life, making them realize the conditions under which people are living, and they are made more efficient, socially.

"City boys could take this course and still not necessarily become farmers. Their views would be broadened. The food situation, farming and agriculture are the most vital problems of the day, and an education along this line would broaden any boy."

The foregoing answer was not printed as an example of a complete or perfect answer to the questions, but simply to provoke a discussion of the topic by our readers. The Visitor will be pleased to receive comments on the topic and also on the young woman's answer.

SLIDES TO LEND

Federal Government Announces List of Sets That Are Now Available

Many of the high schools of the state are equipped with stereopticons or other projectors. The following list of slides which may be borrowed from the United States Department of Agriculture, States Relation Service, Agricultural Instruction Division, Washington, D. C., may be of interest:

I. The preparation and use of illustrative material for elementary agriculture	41 slides
II. Rural consolidated schools	54 slides
III. Some types of children's gardens in the United States	50 slides
IV. Some features of high school instruction in agriculture	38 slides
V. School gardens — How and why	53 slides
VI. Agricultural extension in secondary schools.	48 slides
VII. The home project in teaching agriculture.	50 slides
A-1. Types and breeds of beef cattle	33 slides
A-2. Dairy Cattle and Dairy Judging	56 slides
A-3. Types and Breeds of Horses	41 slides
A-4. Breeds of swine and sheep	48 slides
A-5. Breeds of poultry	48 slides
A-6. Poultry housing and handling	42 slides
A-7. Flowers (colored)	21 slides
A-8. Common birds of farm and orchard (colored)	26 slides

Transportation charges both ways are to be paid by the school receiving the slides. A lecture syllabus accompanies each set.

HOW TO MAKE HECTOGRAPH

Simple Rules for Manufacture and Use of Teacher's Labor Saver

Those who do not have a mimeograph with which to make copies of drawings, examination questions, score cards, laboratory exercises, etc., will find the following suggestions for a hectograph of value:

1. Obtain a rectangular tin pan (a cake or bread pan will do) about an inch deep and an inch larger, each way, than the paper to be used.
2. Measure the pan with water to see how much material is needed.
3. Six ounces of ground white glue should be used to one pint of glycerine.
   a. Add a little hot water to the glue and dissolve in a double boiler to prevent the glue from burning.
   b. When the glue is thoroughly dissolved, add the glycerine.
   c. A few drops of carbolic acid or oil of cloves will prevent the pad from moulding.
   d. If the pad proves too soft, melt and add more glue.
   e. If too hard, melt and add more glycerine.
   f. If there are bubbles on the surface, prick with a pin.
4. If the surface becomes rough set in moderately warm place, as on the radiator. Pan must be level.
5. Make writing or drawings with hectograph ink, and heavy pen on hard paper. Make a broad line.
6. Allow ink to dry. Do not use a blotter.
7. For typewriters, a copying ribbon should be substituted for the regular ribbon. Then proceed as for written work.
8. Dip a sponge in cold water. Press nearly dry. Moisten surface of the pad.
9. Place written sheet of paper, face downward, on pad. Smooth paper with hand so that all parts stick to the pad. A piece of broomstick six inches long makes a convenient squegee for this purpose.
10. Leave paper on pad for about three minutes and then gently remove.
11. Moisten the pad again.
12. Place a sheet of hard paper on inked surface and smooth it as in original copy.
13. Remove the paper carefully and repeat the process as many times as desired.
14. If the pad is covered with strips of paper to the edge of the writing the paper used in copying can be more easily removed.
15. When through copying, wipe the surface with a sponge dipped in slightly warmed water.

NEWS ITEMS

W. E. Jones, agriculturist at Brainerd, has put on a city-wide campaign for garden and poultry growing among the boys and girls. Mass meetings have been held to get the interest and co-operation of the parents. The Commercial Club, women's clubs and other organizations are encouraging the work. Garden, canning, and poultry clubs have been organized. Mr. Jones will have an assistant to help in the canning and drying demonstrations.

Boys' and girls' club rallies have been conducted by the following agricultural teachers during the last month: H. W. Hartle, at Owatonna; E. Thorson, at Elbow Lake; H. A. Nelson, Detroit; M. H. Coe, Barnum; W. E. Jones, at Brainerd; and J. W. Sheay, at Hutchinson.

What does it cost to produce milk? This question has been answered in Special Bulletin No. 19, prepared by the Division of Agronomy and Farm Management. The report is based upon studies at Northfield, Halstad, and Cokato in Minnesota. Copies of the bulletin may be had without cost by addressing the Office of Publications, University Farm, St. Paul, Minnesota.

The Visitor is in receipt of the January number of The North Woods. This little magazine is the official organ of the Minnesota Forestry association and of the state forest service. D. Lange, a well-known naturalist of St. Paul, will be a regular contributor. In addition, there will appear, from time to time, articles on all phases of woods life and forest development. This should be of interest to the teachers of the state.

To Make Weed Seed Cases

A wad-cutter, jack-knife, cardboard and paste furnish the necessary tools and materials for making weed and economic seed cases. Pamphlet filing cases are easily made and make good handwork for grade pupils.

SUMMER IS THE TIME TO COLLECT MATERIALS FOR THE LABORATORY

Suggestions for the Gathering and Arranging of Specimens for Classes in Agriculture

Very frequently the agricultural departments in high schools are criticized for not having enough suitable laboratory material with which to work. This is indeed a serious charge when we realize that there is such an abundance of material growing everywhere which can so easily be secured by the agricultural instructor. The summer is the time for these things to be gathered, properly prepared and stored for class work. We know these things can not be gotten during the winter, so let us get busy now and supply our laboratory with a good collection of grains, grasses, corn smut, grain smuts and rusts, insects, fruits, plant disease specimens, potatoes, vegetables, seedlings for grafting, soil samples and anything else that can help to strengthen the agricultural work. A great deal of this material should be grown on the school plot, but much can be gathered at various times while out among the farmers doing extension work.

School fairs and exhibits at the state and county fairs have become pretty well established as a valuable educational feature of the work of the agricultural departments in the various schools in Minnesota. With the development of the project work in these schools and the extension of the boys' and girls' club work, this feature is going to be even more important in the future than it has in the past. Much of the material gathered for these exhibits can also be used for classroom work during the year. The following suggestions may be helpful to those who have not appreciated the value of a good supply of laboratory material or who have not had much experience in collecting and putting up the various materials used at fairs or for school instruction:

To Put Up Green Material

It is often desirable to put up various products in the green state and to retain the natural green color. This is very desirable in plant disease specimens on leaves or on seed pods such as green beans or peas. Make a saturated solution of copper acetate and acetic acid and keep as a stock solution. This is done by putting copper acetate into the acetic acid as long as any will dissolve. Boil the solution for five minutes, strain it through a cloth, and preserve with 5 per cent formalin solution.

To put up the material take part of the saturated solution and dilute it one to four with pure water. Put the material into this and boil for two or three minutes and put into the jars in which it is to be kept. The copper acetate takes the place of the chlorophyll in the leaves, thus retaining the green color and the greenish solution aids further in retaining the natural color. It is desirable to use clear glass jars, if possible.

Putting Up Cereal Sheaf Samples

Every fair and every school makes use of sheaf samples of grain. But these are not, as a rule, put up to make the best appearance. More attention should be given to the way things are shown at the fairs. Too often the products are crowded so as to show quantity rather than quality. It is not the amount of a product that helps to make the fair a success, but rather the selection for quality and the arrangement that adds most from the educational point of view.

To make effective sheaf samples, the grain should be cut before it is too ripe. This should be done by hand in the field, so as to be able to select the best plants with long straw. If the grain is cut with the binder the straw is broken or bruised, which makes it difficult to make a nice looking sheaf. When the straws are all gathered they should be carefully stripped, care being taken to remove all leaves with sheath, so as to leave the glossy stems free. They should then be made into bundles not less than three inches in diameter, just below the heads. The bundles should be tied with ordinary heavy cord or twine at first and hung up with heads down. When partly settled and ready to use they should be retied with quarter-inch or half-inch dark red ribbon, making one or two turns around bundle, and tied in small bow knot. This should be done just below heads, near the butt and at the middle. Exhibits at the fairs would be much more attractive if some sort of uniform system could be used in putting up sheaf samples.

To Make Grass Sheaves

Grass sheaves are put up in the same way as the grain, except that the green color should be retained. This can be done by drying the samples over a fire and then keeping them in shaded rooms so they will not bleach out. They may also be wrapped in burlap. For alfalfa or clover, the samples should be cut when crop is about ready to cut for hay. Care should be taken so as not to lose the leaves. The bundles should be about six inches in diameter at the butt. They should be tied rather tightly with half-inch delicate red ribbons at the butt and rather loosely with quarter-inch or half-inch ribbon near middle of bundles.

Head Samples Needed

The agricultural men should make especial effort this summer and fall to collect head samples and threshed samples of grains for classroom use next year. The Visitor intends to give especial attention next year to methods of using such materials, both for laboratory work and classroom instruction. To collect head samples, secure a large number of shirt or collar boxes, in which the heads can be put when cut, and they will be ready for use when needed. These boxes may then be stored in tin boxes, such as rectangular bread boxes or in airtight chests, where they will be away from rats and mice. Threshed samples can be gotten from farmers, seed companies, or at county fairs. The best way to keep these is in two-quart Mason jars for grains and other larger seeds, and quart jars for the grasses and legumes. Carbon bisulphide can be put into the jars and storage boxes occasionally to kill any insects that may tend to injure the seeds. Samples of smutted or rusted grains or any other pathological specimens should be collected in sufficient quantity for class use. These samples can be dried in the open or in plant presses and then easily kept in good condition. Diseased fruits may be preserved in alcohol or 30 per cent solution of formalin.

Soil Samples Desirable

Samples of soils for classroom work should be collected and may be stored in ordinary trash garbage cans or other similar containers. Each school should have a complete set of all the soil types of the community for the classroom work in soils. These may be gotten while out on extension work and may be conveniently stored in two-quart Mason jars, which should be carefully labeled. A supply of the various acid soils should be secured to use for laboratory work. Let us make the collecting and use of laboratory materials a feature of our work this summer and the coming year.

Crayons for Cloth Charts

Crayons for making charts on cloth or paper may be made from ordinary colored chalk crayons as follows: Melt some paraffin and drop the crayons into it. When the air bubbles stop, the crayons may be removed, and when cool are ready to use.

HOW WATER ENTERS A ROOT HAIR

An interesting apparatus for illustrating how root hairs take up water may be constructed as follows:

Place several large lima beans between moist blotters or cheese cloth in a plate seed tester until the hulls or testa have become stretched and are about to burst. Then split the hull along the scar side and remove from the seed. Fasten the hull snugly over the end of a piece of 3/16-inch glass tubing, 4 to 6 inches long with a rubber band. Wrap the band a sufficient number of times to make a water tight joint. Round the sharp edges first in a flame to avoid cutting the bean hull. Next place about an inch of strong syrup in the tube. Mark the top of the syrup with a string or other device and suspend the covered end of the tube in a tumbler of clear water. Osmosis takes place rapidly.

This is superior to the egg method of illustrating osmosis to agriculture students in that a vegetable membrane is used, and too, it is less expensive. A 1 cc. pipette cut in two at the bulb makes two funnel tubes that are more satisfactory than the straight glass tubes. In this case a convenient way of introducing the syrup is as follows: Plug the tube near the bulb, with a pellet of paraffine. Now fill the bulb with syrup, fasten the bean hull in place, and then remove the plug by passing the tube quickly through a flame or by passing a hot wire down through the tube. Then proceed as above. An ordinary glass tube may be drawn to this shape, if preferred.