

Agriculturist

Edited By
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GARDEN LESSONS

work to make new life. Not to make a new plant, and a new one, but to make a plant and an animal better than the parent plants and animals. The union of substances from weak plants and weak animals results in weak

Pollination—If you followed the lesson three under "Home Studies" previous lesson, you found some flowers with the anthers above the stigma of the pistil. However, at the time the stigma was above the anther, due to these arrangements pollination is prevented. Usually pollination, the union of pollen grains of the same plant gives seeds which result in weak plants. Pollination or the meeting of pollen grains from a flower with an anther of another flower of the same plant gives strong seeds which produce showy flowers.

Exercises 2, 3 and 4 show two methods to bring about cross-pollination: (1) by insects, (2) by wind. You have learned in exercise 1 a method by man to bring about cross-pollination. Have you seen a red and white carnation? It was made by crossing a red with a white flower. By using sugar leets from seeds set the amount of sugar has been raised from \$10.18 per cent.

Outside of the proper use of fertilizers, there are two best methods to improve plants, (1) by seed selection, (2) by artificial cross-pollination.

Protection of Pollen—We have learned pollen is necessary to plant life. There are many ways to protect their pollen. (1) Most flowers protect their pollen from the dew by closing. (2) Some flowers droop or close at the touch of rain. (3) Some flowers wrap their stamens and pistils wrapped in papery petals—such as those of the carnation.

Artificial Cross-Pollination—If you followed the lesson closely in performing exercise 4, you noticed that insects visited some flowers more than others. Flowers attract insects in many ways. The bright colors of the corolla are like signs advertising the presence of

sweet nectar. It is said that bees like blue and violet colors and dislike reds and yellows. Do you think this is true?

Many flowers, particularly those that bloom at night, are sweet scented to attract insects. Insects can see but a short distance; probably they are attracted first by the odor from the flowers and are then directed to the nectar by the showy petals.

Flowers of grains, pines, etc., are cross-pollinated by winds. The light grains of pollen may be blown hundreds of miles.

Exercise 2 probably led you to see that many flowers are formed for insect visits. The weight of a bee on the lower lip of a pea flower causes the flower to open. A smaller insect would be too light to cause this to happen. Thus the flower keeps out small insects which would rob it of nectar and pollen and would not help in cross-pollination. Some plants have sticky hairs inside of the flower tube to keep small robbing insects out.

QUESTIONS

1. What is meant by pollination?
2. Explain the process of fertilization.
3. What is nature's great work?
4. Explain cross-pollination; self-pollination.
5. Name two natural ways for bringing about cross-pollination.
6. What is meant by artificial cross-pollination?
7. How may plants be improved?
8. Tell something of Mr. Burbank's work.
9. How does nature protect the pollen of flowers?
10. How do flowers attract insects?
11. What is meant by "robber insects"?

HOME STUDIES

1. Make a list of all the ways you know to improve crops, vegetables, cereal, fruit.
2. Ask the farmers in your vicinity what they are doing to improve their farm yield.
3. What are you doing to improve your own garden?
4. Visit a nursery and see how cross-pollination is brought about.

A Busy Day

BERNICE BARRY,

Oakland, Franklin School, B Fifth Grade

Last Wednesday we planted our seeds. In the first row we planted radishes. We planted lettuce in the second row. The lettuce was placed in the second row because it grows higher than the radishes and needs more room. In the third row we planted turnips. We planted the turnips last because they need plenty of room to spread out in. Every one did not plant the same.

First we dug a trench and put in the seeds. Then we raked the ground over them gently. After that we patted it down with our hoës.

We patted it down because the seeds were very small and sometimes they get between two big clods and can't get any air or moisture. If you pat the soil, then the big lumps will break and let the seed have air and water.

An Experiment

GUSTAVE OLSON,
Melrose School

A week ago today we took two chalk boxes and fixed them so they would balance. Mr. Mortensen, our principal, put the same amount of dirt in each box and set it up in the front of the room. One of the boxes we cultivated and the other we did not.

Today we saw that the cultivated box was lower than the uncultivated. That showed that the one cultivated was heavier than the uncultivated, and it also showed that it was the one that kept the moisture longer.

A Lesson on Cuttings

RALPH LORIMER,

Oakland, Franklin School, B Fifth Grade

One morning as I came into the schoolroom I found on my desk a little shrub and a pair of scissors. Our teacher told us that we were going to have a lesson on cuttings.

You must first cut the stem on the slant under a leaf. Next snip off a few leaves near the bottom, about a sixteenth of an inch from the stem, and plant the cutting in sand a half inch deep below the snipped off leaves. Tiny roots will come out of the axils of the cut leaves. Try it and see.

AN ANIMAL PUZZLE

An attractive prize will be given to the Junior who sends in the best answers to the following questions:

- What has the male English sparrow on his breast?
- What is the difference in markings between the male and the female birds?
- What does the English sparrow eat?
- Where do the birds build their nests?
- Do they harm or help us?
- What are the enemies of the English sparrow?
- How does he escape his enemies?
- How would you describe the sparrow's call?
- Make a drawing of the bird's bill.

GARDEN NOTES

The Emerson school gardeners of Berkeley planted their seeds last week. The gardens are staked out neatly. An adjoining vacant lot has been sowed to dwarf sweet peas and nasturtiums. The whole plot of two vacant lots has been bounded by giant Russian sunflowers. We expect to find the Emerson school children strong contestants for one of the "rotating" banners.

Saturday was market day at the Berkeley garden city. The vegetables were placed for sale on a new stand. Albert Becker, the garden commissioner, was in charge. Albert does excellent work and is a good citizen. Soon we hope to have stars for each officer.

Many new gardens have been started at the "city." Pins are to be given to the gardeners who work a plot continuously for 5 or 10 months.

A piece of ground 20x100 has been set aside for a miniature ideal farm. The fifth grade boys of the Washington school, with their teacher, Miss Wilson, come on Tuesday afternoons to work out the plan. Last Tuesday an area of wheat was planted. A part was broadcasted, a part drilled and a part broadcasted and rolled. A thorough study will be made of the factors which make for an ideal farm. (See figure A.) Several plats 10x20 have been

heard the following birds: Robin, Brewer blackbird, ruby crowned kinglet, red shafted flicker, English sparrow, linnet, lutescent warbler, Sierra junco, California towhee, Oregon towhee, California bushtit, meadow lark, valley quail, rufus hummingbird, Anna hummingbird, American titlark, California thrasher, California woodpecker, dwarf hermit thrush, song sparrow, Arkansas goldfinch, pileated warbler, California jay, Stellers jay and chicken hawk.

You Junior gardeners should take time some day to thank Mr. Morse of the Morse Seed company, 48 Jackson street, San Francisco, for your free seeds. He has furnished free seeds for sowing Berkeley vacant lots.

Have you learned much about gardening and farming? Does your teacher try the experiments which are given in the Agriculturist? We hope that she does, or that you do.

The following clubs have organized during the last week:

Jefferson club, Berkeley; Charles C. Way, organizer. A fifth, B fifth, A sixth, B sixth, A fourth grades. Nord Avenue School club, Chico; Sadie Maynard, secretary; R. M. Sisk, teacher. Lincoln club, Berkeley; Frances

PLAN
for a
TEN ACRE FARM

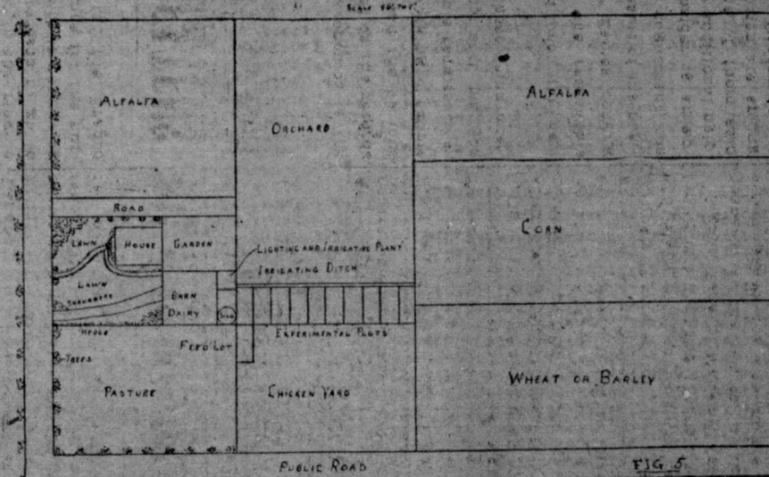


Figure A.

set aside for flower gardens.

The second grade children of the Lafayette school, Oakland, have formed an ideal farm in the schoolroom on a dirt table 4x6 feet. (See figure B.)



Figure B.

Miss Rogers and Miss Collier have taught the gardeners a great deal about plant life. The farmhouse, barn, chickens, stock, etc., were made in the art work. Alfalfa, wheat, corn and a small orchard are growing excellently.

Sunday morning several students of the university went bird hunting, not with guns, but with sharp eyes. Unless you have been in the woods early in the morning you have missed a great deal. We heard a perfect chorus of birds, saw a timid cottontail rabbit, picked flowers fresh with the morning dew, and realized that the "sleepy head" does not really live. We saw or

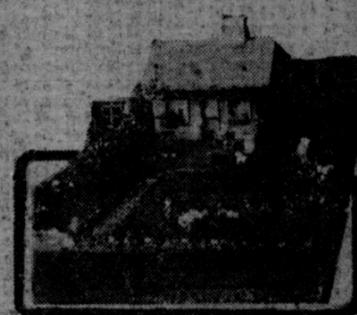


Figure C.

Miss Sellander's care made a miniature city home on a dirt table. (See figure C.) The children grew the lawn, the shrubs, the vegetables, etc. A thorough study was made of the characteristics which make a beautiful home. The higher grade of the same school has fenced a vacant lot. We are sorry that they have not joined our ranks.

The vacant lot adjoining the Whittier school has been plowed and partially fenced. Under Miss Ames' supervision we expect the Whittier gardeners to forge ahead.

