BULLETIN NOS. 2-5: STUDIES IN ELEMENTARY AGRICULTURE; RURAL SANITATION; WOODWORK FOR THE GRAMMAR GRADES; HOME ECONOMICS IN RURAL SCHOOLS

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FRESNO STATE NORMAL SCHOOL

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BULLETIN No. 2

FRESNO STATE NORMAL SCHOOL

Studies in Elementary Agriculture

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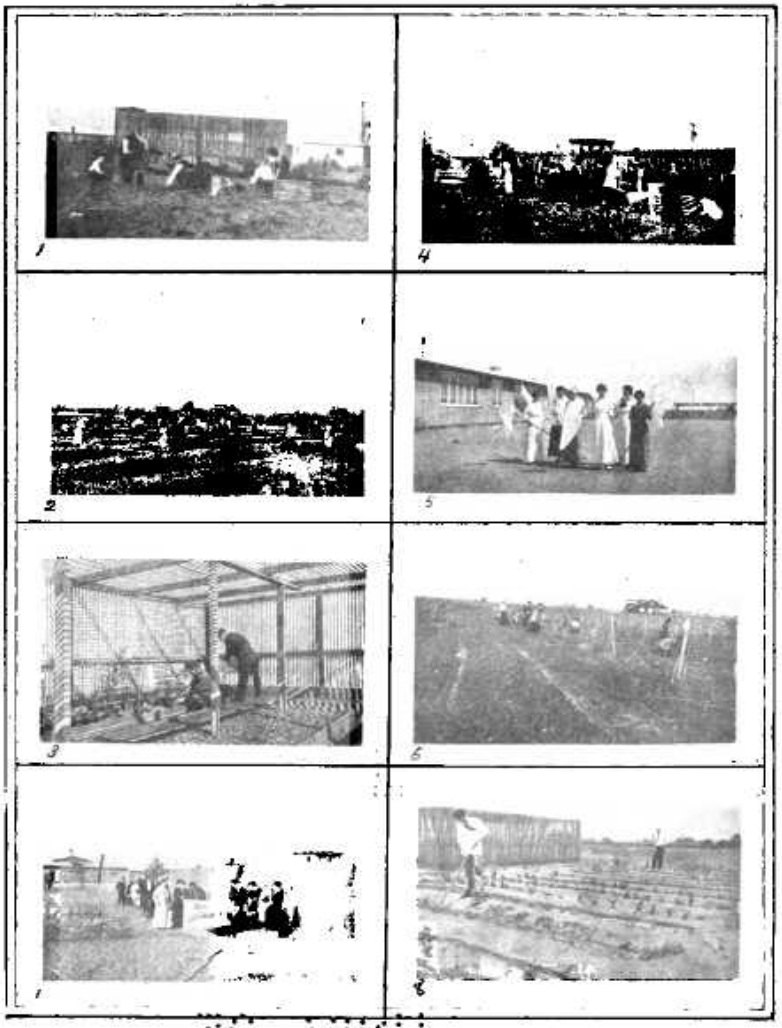
Studies in Elementary Agriculture

BY

SOLON W. CUNNINGHAM
Department of Agriculture, Fresno State Normal School



INTRODUCTION.

The subject of Agriculture has won a permanent place in the common school curriculum. It is now classed along with music, drawing and manual training as one of the special subjects. In a few more years agriculture and domestic science will form the foundation upon which the new curriculum of the common school will be built. "But what of the cultural subjects?" I hear the multitude ask. Those of the old order must yield to those of the new; to that culture that teaches human minds to conceive and human hands to put in order a beautiful home, whether it be a cottage or a large modern dwelling; to that culture that gives woman complete knowledge of the child mind and the child body to aid mother love in rearing cultured men and women; to that culture that teaches men to lay out and to build beautiful roads and to develop beautiful villages and school grounds; to that culture that teaches men and women to love God's great out-of-doors better than the man-made cities. When the subjects of agriculture and domestic science come in their fullness they will bring real culture.

The studies of the following pages constitute part of the laboratory course given with the subject of agriculture in the Fresno State Normal. They are designed to prepare teachers for presenting the subject of agriculture in the rural school. They are not predigested and ready for presentation to the child with teacher's story, introduction, description and conclusion complete, but are outlines to direct the student in preparing the studies for presentation to the child. The work of the student is complete only when, through his own efforts, each study is ready, from the teacher's story to the conclusion, for presentation to school children. Through the preparation of these studies the student gets a broad knowledge of elementary agriculture, experience in preparing subject matter and material for presenting agricultural studies and nature study lessons, and begins to find, understand, and appreciate the beauty of all things out of doors.

Acknowledgment. The author claims but little originality for the following studies. Only a few of them are his own. Every available source has been drawn upon for these studies—Government Bulletins, Textbooks, Agricultural College, Experiment Station and Normal School Bulletins. Something like a hundred and sixty studies have been given a three years' test in the laboratory, and the following chosen as being worth while. Mr. C. L. Flint, Instructor in Agriculture, Fresno State Normal, and A. E. Balch, Deputy County Superintendent of Public Schools of Fresno County, have given many valuable suggestions for the studies. The following publications have furnished many suggestions for the final preparation of this series: *Elements of Agriculture,* by

G. F. Warren; *Agriculture Through the Laboratory and School Garden*, by C. R. Jackson and Mrs. L. S. Daugherty; *First Course in Biology*, by L. H. Bailey and Walter M. Coleman; *Publication No. 34 of the University of California Syllabus Series of the Department of Agricultural Education*, by C. A. Stebbins; *Circular No. 58 of the University of California College of Agriculture, "Experiments with Plants and Soils in Laboratory, Garden and Field,"* by Frank E. Edwards; *Farmers Bulletin No. 408 of the U. S. Department of Agriculture, "School Exercises in Plant Production,"* by Dick J. Crosby and *Laboratory Manual in Biology*, by Richard W. Sharpe.

SOLON W. CUNNINGHAM.

SPECIAL APPARATUS.

Every rural school should be equipped with some little apparatus that will aid in presenting the subjects of agriculture and nature study. The following suggested list is not very expensive and would make it possible for the teacher to present interestingly many practical things in the study of insects, plants and soils. (Fig. No. 1.)

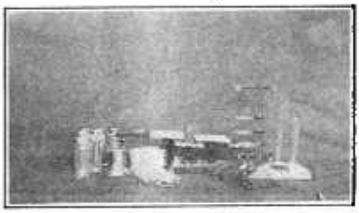


Fig. No. 1. Inexpensive apparatus every rural school should possess.

The prices given are those quoted by the Braun-Knecht-Heimann Co., 575–584 Mission street, San Francisco, at the time of the publication of this bulletin.

Harvard trip scale	$6 65
Weights (500 gram piece to 1 gram)	2 50
Gasoline burner (adjustable laboratory form)	5 00
Ring support, base 4" x 6", rings 3", 4" to 5" in diameter	1 00
2 Dissecting scopes	5 00
2 Graduate glasses, 250, c.c.	2 20
1 Set dissecting tools	1 50
2 Doz. test tubes	60
2 Test tube clamps	80
1 Doz. eight ounce bottles, plain flint glass	45
½ Doz. pipestem triangles (medium)	40
2 Test tube clamps, Stoddard's	30
2 Thermometers	1 10
1 Doz. porcelain crucibles, Royal Meissen	1 20
Total	$28 70

FOREWORD TO THE TEACHER.

You are interested in the study of agriculture and wish to make the subject more interesting to the children. The following studies open a way for you to do so. They mean a little extra work and additional reference reading on your part but the results obtained will compensate many times for the extra work. This bulletin is a guide for the teacher and should not be given to grade school children as a laboratory manual. Neither should the studies be substituted for either the school garden or the home garden, but should correlate with and supplement the garden work and the study of the textbook.

The graduates of the Fresno State Normal School are trained to use these studies. The teacher who has not studied the series should do so before outlining the work for the class. If the class be large, divide the children into groups of four to six and have the groups take turns in preparing the studies under your direction as demonstration studies for the class. The remainder of the class may observe the work, and through the writing of a short essay tell what was used and describe each step in preparation of the study.

Your school will not possess the equipment that makes possible the taking up of all of these studies. *However, take special note of the fact that the big majority of them do not require chemicals and special apparatus. The studies marked with the star can be carried out with tin cans, pie tins, water glasses and small wooden boxes (cigar boxes are excellent).* All of these can be collected by the children.

For the series of studies upon the soil, a grain sack of each of the following types of soil should be obtained, and half of each type put where it will dry and keep dry: sand, loam, clay and humous soil. (The term "humous soil" as used in this publication means a soil rich in decayed and decaying plant matter.)

Should the taking up of these studies be the first of this sort of work you have done, you will find that, through your lack of experience in handling such work, some of the studies will not give the results they should. Do not let this discourage you. Study the situation, check over your work, look for the cause of failure and work out the study again and still again if necessary. The Faculty of the Department of Agriculture of the Fresno State Normal School is ready at all times to give any aid you may ask in this work.