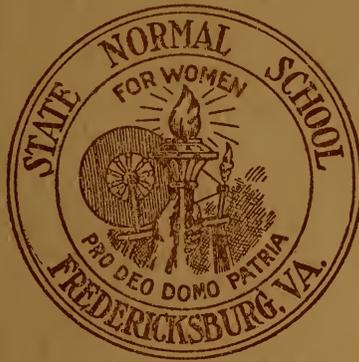


BULLETIN
of the
State Normal School
Fredericksburg, Virginia



Gardening As a Means of Correlating
Home and School Activities

Popularizing the School Sciences

The Summer School

Published Quarterly in January, April, June and October



BULLETIN
of the
State Normal School

FREDERICKSBURG, VA.

Gardening as a Means of Correlating
Home and School Activities

By EULA D. ATKINSON

*Head Department of Rural Arts, Fredericksburg
State Normal School*

Popularizing the School Sciences

By W. N. HAMLET

*Head of Departments of Mathematics and Science,
Fredericksburg State Normal School*

The Summer School

JANUARY, 1919

Foreword

IN PRESENTING the two articles in this Bulletin, we recognize that the real value of any phase of education extends only so far as it co-ordinates with real life. To this end our desire is not alone to aid the teachers in successfully teaching the subjects of Gardening and School Sciences from a class-room viewpoint, but to teach them in such a manner as to make them serve as factors in solving the problems of real life for comfort, prosperity and happiness. We trust this bulletin may be helpful to you in your work and when it has served your purpose may we ask that you pass it on.

Please read the announcement of the Summer School.

E. H. RUSSELL, *President.*

Gardening as a Means of Correlating Home and School Activities

By EULA D. ATKINSON

*Head Department of Rural Arts, Fredericksburg
State Normal School*

"War gardens" has, during the last two years, become a familiar and even intimate term with the masses of our American people. Uncle Sam sent out the warning note. Word was passed from family to family that we must not only conserve, but we must produce. Every garden that furnished fresh food for a family made it possible to send other foods, most needed, to our soldiers "over there."

American women, who in time of peace, indulged in ease and luxury, now took to gardening as a means of doing their "bit" and gradually others went into it because it became "the thing." Many of these will remain in it because they have tasted the joys of gardening and because it has proven its value. War gardens will become permanent as "Victory Gardens."

War gardening has given a tremendous impulse to school garden work. For many years leading educators and garden experts have realized the value of home and school gardens, but the development has come slowly and nothing but a war could have given it the place that it now occupies. Much has been written and said of its value educationally, but the results of the war gardens have furnished arguments in its favor that are fundamental and conclusive. Never before have school gardens been so much in demand and as a part of the school curriculum. The school garden movement owes much to the response of the five million boys and girls to Uncle Sam's call for volunteers in the United States School Garden Army. This united force of boys and girls did much to increase the food production of our nation last year. At the same time it has shown what a tremendous force organized garden work is for good.

Our system of education has been criticised as being inadequate because it is undemocratic, it reaches only a few of the masses; it fails to hold the interest of the parent and the child because it does not function in the life of the child, the end being too remote to be appreciated; the course of study is not vitalized, &c., &c.

The results of the school garden army movement indicates that much can be done through this activity to render the above criticism invalid or at least not so forceful. War garden experiences have shown how communities may be made more democratic. People in all walks of life have been brought together in a common enthusiasm and a common sympathy and have forgotten their smaller differences and selfish interests in the accomplishment of bigger things. Co-operation has accomplished so much that men will hesitate in the future to undertake anything without it.

Garden activities will interest boys and girls and thereby keep them in school longer and encourage more of them to get a high school education; it will make teaching better, because it gives concrete problems on which to base abstract principles; it will make learning easier, therefore teaching easier. There is not a subject in the school curriculum that may not be made more vital through the garden experiences. I once saw a small boy from Georgia stand up at the great corn show at Columbia, South Carolina, and talk to several thousand people on "How I grew My Acre of Corn." He could do this because his work had been a success and he knew it. This is what is meant by saying school work must be brought into closer touch with home-life and everyday experiences. This is the kind of education that will be appreciated, not only by the children, but by their parents.

I watched with interest an illustration of the school community spirit this fall in our own school. When the United War Work Campaign was put on, the girls began to look about them to see how they might earn some part of their pledges. Happily they decided to husk corn for the nearby farmers. The labor question was such a problem that not only were they in demand on the nearby farms, but farmers all over the county began to send in requests for the girls to come to their farms. These girls worked every Saturday and often in the afternoons until cold weather. One farmer told me that they had saved many barrels of corn and that they had made it possible for him to plant cover-crops. They not only earned money for the fighting men, but they took their places on the farm and enabled the farmers to improve their land for the next crop. It was a beautiful spirit of co-operation between school and community.

The school garden proper is located on the school grounds and is under direct supervision of the teacher. It may be a general garden, where the children of one grade are responsible collectively for the care of the plots or it may be divided into individual plots. Wherever the latter is practicable it has seemed to have some advantages over the general plot idea. It furnishes

a basic element of ownership. Many a child has been called on to work in his parents' garden, but the instinct of ownership has been completely overlooked and the task robbed of most of its joy. It teaches a regard for property rights of others. The child is careful not to abuse his neighbors garden because he has learned the golden rule. It occupies moments of the child's life that would otherwise be idle ones and thus lessens the tendency to vandalism that often leads to breaking windows or otherwise defacing school property just because there is nothing better to do. It increases his appreciation of the garden because he treasures that which causes him effort and work. In the arrangements of plants to give pleasing effects, the aesthetic side of his nature is developed.

Home gardens naturally grow out of school gardens and differ from them in that they are located at the home instead of the school. For the school of a short term it is the most practicable type. It can be resorted to when there is no available land at school and in some communities they seem to better fit the needs.

Much interest may be stimulated by organizing those who have home gardens into a School Garden Army or Home Garden Club. The school garden army does not mean gardens at school, but it gets its name from the fact that it works through the children and the school. The school may be divided into companies with a captain, first and second lieutenants for each company. In some cases they are divided into companies according to the locality in which they live, but there is no ruling regarding this and any convenient method may be pursued. To belong, the child must obligate himself to grow at least one food product in his garden, to do as much of the work himself as is possible and to keep a written record of work done, cost, profit, etc. Each child belonging will be furnished insignia, service flag and record book. The Training School, in connection with the school, has found that a garden day in July has proven a stimulus. At this time the children bring samples of their best products and compete for prizes. Prizes should be of the nature that represents thrift and saving. Last year war saving and thrift stamps were given. In some cases a bank account might be started. Numbers of children last year sold products from their garden and realized quite a neat little profit. A bank account would have encouraged them to have saved this rather than have spent it for worthless things.

Unless the home gardens receive supervision they do not accomplish their purpose. There is no one who can do this better than the teacher, but due to crowded conditions of many city systems, a regular trained supervisor is employed to co-operate with the teachers. The Training School Home Gardens here are

supervised by the Junior Nature Study Class of the Normal School. They do this as a part of their class work. Each girl has from four to six gardens under her supervision. She visits these at least three times during the spring. She instructs as well as encourages the children owning these gardens.

In some schools it may seem wise to have a combination of Home and School gardens. The school garden being used primarily to demonstrate principles taught in the class-room. Here they may learn how to spade, rake, hoe and weed, so that if the supervision is limited they will be more able to do the work at home. The class-room furnishes instruction, the school garden the practice, resulting in a practical garden at home.

Many teachers who will read these pages are already quite familiar with the contents and have worked along the same lines very successfully, but to those who have not, whether she be a teacher in a city, small town or in the heart of the open country a few suggestions will be offered in the hope that she may see its value to the child, the teachers and the community, that she may use this most natural way to correlate her work with the experiences of the child.

The School Garden Army, Department of Interior, Bureau of Education, Washington, D. C., will furnish all of the material needed, free of charge. No pains has been spared in preparing this material and it is all excellent and most practical. So well has it been prepared that the most inexperienced teachers can use it. There were sent out in January thirty-two leaflets on such subjects as: Planning the Garden Campaign; Forms for Enrolling School Garden Army; Class Periods in Gardening, Planning the Garden; Suggestions for Garden Soldiers, &c. From this source also may be obtained insignia, posters, service flags and record books.

Locate the garden in a well drained, fertile spot, preferably south and west of the house. To lay off the garden, put a stake at each corner and mark off equal distances on each side of this stake, taking a radius longer than the distance from stake to stake. Describe two intersecting arcs. Draw a line through the middle. The points established by the intersection of these lines will be the middle of the garden. Small plots may then be staked in convenient sizes. Individual gardens in most cases are not larger than 8 feet by 12 feet.

After the location of the garden is firmly established the child should make a garden plan on paper. A convenient scale is one-fourth inch to represent one foot. This involves thought as to

distance of rows apart; arrangement of tall crops with reference to low ones; arrangement of long season crops with reference to short season ones; consideration of companion and succession crops; the time of planting each vegetable and the depth and distance of plants in the rows. The garden should correspond exactly to the plan and if any changes are found to be necessary the plan should show such changes. This would be excellent work for a drawing period.

Catalogues should be studied and seed ordered early because of the scarcity of seed and because of congested transportation conditions. No more seed should be ordered than is needed for the shortage of seed at this time may make it necessary for some one to go without them if any are wasted.

Preparation of the seed bed is a very important step. The soil is in the right condition to be worked if it crumbles in the hand when squeezed. The children may be told that the seed bed should be deep, rich and smooth and not to be satisfied until every clod is broken. This is the time also for the acid test and the application of lime and fertilizer. The tools necessary may be very simple — a spade, hoe and rake.

In selecting the crop for the garden, the child should be encouraged to raise the kind and quantity of vegetables needed by the family. They should take into consideration both those to be used fresh and those to be stored or canned for winter use. If the child wishes to raise crops for the market, he should study the local demands of the community before choosing his crops. The planting plan should be definite and should contain succession crops. Many people have beautiful spring gardens, but no gardens the rest of the year. There is work for the gardener every month and the garden should be made to produce vegetables almost every month in the year. As soon as one crop is harvested another should take its place. Certain crops should be planted every two weeks so as to give a continuous supply for the table. In the cool season of the year there should be included in the list, radish, lettuce, garden peas, turnips, beets, carrots, onion; in the warm season of the year snap beans and corn. A garden may furnish three or four crops during the year. These crops should be arranged so that the proper system of rotation may be observed. Root crops should never follow root crops, but rather be followed by beans or peas. Peas may be followed by potatoes; potatoes by corn and corn by mustard. By this method plant food is saved. It also eliminates certain insects and diseases.

Companion cropping is a method of economizing land. Crops that mature quickly may be planted between the rows of long

season crops. They mature and are used before the long season crops are large enough to be crowded by them. Radish and lettuce may be planted between rows of beans, cabbage, beets, &c. Tomatoes, egg plants and celery may be planted between the rows of spring Irish potatoes. Lettuce plants may be set between cabbage plants. Beans may be planted with corn or sunflowers.

Early crops may be secured by the use of the hot bed. This may be planted weeks before the garden is workable. It also develops, in most cases, stronger and more vigorous plants.

From the time the garden is planted until the products are harvested the care of the garden involves several phases. There should be careful and systematic tillage to keep out weeds and to keep in moisture. The soil should never be allowed to pack or harden about the plants. If some of the plants have been sown too thickly it will be necessary to thin them in order that they may have room to grow. It may be necessary in dry seasons to water gardens, but this, to be successful, must be kept up if once begun. It is better to have provided for drouth by preparing a deep, well drained seed bed and by keeping a mulch on the soil surface. In transplanting, the young plants should be carefully watered until they begin to grow. Insect pests and diseases must be prevented, if possible, by spraying and crop rotation. Every gardener should know the remedies for biting and sucking insects and should lose no time in applying them when the insects appear.

That part of the crop not disposed of otherwise should be canned or stored for winter use and this is just as important a part of the garden work as producing the crop. The work is incomplete until the products are all disposed of economically. The child should be given this instruction as a part of this garden work.

It can readily be seen how each step in garden work involves theory and practice and how it gives ample opportunity for the development of scientific principles of agriculture, for example: the preparation of the seed bed involves the study of the soil, fertilizers and drainage; the care involves methods of watering, tillage, mulches, sprays and spray pumps, friends and enemies of the plant.

Whether the garden be at home or at school, the work should be preceded by careful class-room instruction. The success of the whole project depends largely on the enthusiasm of the teacher. In order to arouse enthusiasm she must herself be enthusiastic. She must have the power of inspiring the child to do his best work. If the teacher has this ability as well as the proper point of view towards the work, it will be a success.

Popularizing the School Sciences

By W. N. HAMLET

*Head Departments of Mathematics and Science
Fredericksburg State Normal School*

It is scarcely worth while to discuss whether or not our so-called school sciences are popular with pupils and patrons, for notwithstanding the universally recognized importance of the sciences in modern life, wherever free election is allowed, the number taking science is not always "100 per cent. efficient." And yet if a school offers a course that is vital to the masses, a course that convinces them of its worth, they will, even at a sacrifice, take advantage of it. It must, therefore, be concluded that the science courses either do not offer the right material or that they have sadly failed to convince the masses of the fact.

The average person does not need to pursue any science for its special training. He needs, however, and is convinced that he needs, an insight into the broad, general principles of science, and ability to comprehend the significance of a particular science in so far as it touches his life. The ideal course in any science for pupils who are to enter the industries or become home-makers must be planned to meet the present conditions and planned to attain definite ends. It, therefore, should be complete in itself. Public school science should not be a preparation for advanced work. If the science is to be vitally useful to the masses, it must be the science of the schools, since college science is only for the few and then, too, is almost wholly toward professional training. In an ideal science course, it is essential that the pupils be made to appreciate the intimate relation of the scientific principles to the ordinary affairs of life, and to realize their application to life and to industries. To confine science teaching merely to instruction in text matter and in principles, without bringing the pupils to realize and appreciate how this matter and these principles vitally touch the ordinary affairs of life and business, is to largely waste the pupils time and opportunity, and may, perhaps, lead them into the habit of regarding such instructions as valuable. Such an ideal course does not intend, nor does it advocate degrading science teaching to the sordid plane of usefulness alone. It intends and advocates, however, that the teaching shall

appeal to the masses through the use of materials, illustrations, &c., that touch their everyday life, and at the same time that by an insistence upon a thorough understanding of the scientific principles involved, it should combine usefulness and scientific training. "Principles are the foundation on which applications rest. To teach either one exclusively is hazardous, for when separated one is as barren as the other is superficial. To specify — although no lesson can more vitally touch the life of the masses than bread-making. To instruct in the mere mechanical process of bread-making, without thoroughly teaching the underlying scientific principles involved, is not teaching science; nor is it scientifically teaching.

Interest in science can best be aroused by dealing with materials, processes, &c., employed in the home and in industries; *i. e.*, teaching scientific principles of everyday affairs. And that the instruction may be of lasting effect and benefit the facts and principles must be interlocked with the pupil's experiences. Starting with these known and experienced facts of the commoner things of life, by proper instruction there can be developed many of the most important laws and principles of science.

Such a course should not deal extensively with principles and laws whose usefulness does not appear, except upon pursuing the science in some technical sense, but should deal with laws and principles that co-ordinate and correlate with the experiences of everyday life and the usefulness of which those in the common walks of life will appreciate. If the principles of a particular science are presented rationally and vitally, they will form a basis for the understanding and interpretation of new everyday problems.

Of course, training is the primary object of all school work, but in the study of science training can be given, and perhaps best given, while information of practical value is also given. General facts and principles can be illustrated with materials met with in daily life as well as, if not better than, with substances rarely met.

About the first thing attempted with a new class in any particular science is to impress its numerous practical uses and to prove it a practical subject. Any particular science is practical and deals with things practically, then why not, in its teaching, make it deal with practical things? In its teaching, why not apply its principles to the home and to life? In most cases they can be applied and scientifically applied, and so applied that the teaching need not lose any of its dignity or sacrifice any of its

science. The teaching of any particular science could be made more practical and vastly more popular by supplementing the class work by trips to plants that are practically utilizing the principles taught, and by inviting practical men, using the principles, to talk occasionally to the classes.

The science of common things, if properly taught, should bring out the underlying principles of many common things, that those ignorant of the principles look upon as almost supernatural and it would thus awaken interest in the common affairs of life.

The contentions that "the chief aim of science teaching is to train to observe accurately, to think logically and to draw correct and sound conclusions" can just as well, and in a far more interesting and profitable manner be obtained by dealing with common things scientifically.

It is in the laboratory chiefly that the practical side should be emphasized. To be specific, one of the first exercises in chemistry is a study of the Bunsen burner. The students are taught about this laboratory burner, but in the home they call the plumber immediately, if the gas range or the mantle light does not burn properly. They can properly handle the laboratory burner, but do not recognize it in its home uses.

They know the explosive properties of a lighted mixture of hydrogen and air, but what about lighting a mixture of coal gas and air in the oven of a gas range?

They know the coagulating effect of heat on protein, but how many in after life apply this knowledge? They know the text-book definitions of acids, bases, &c. How many realize or utilize these properties at home? If clothes become stained by either acids or bases, they forthwith call upon the cleaner, to neutralize any acid or basic effect upon the person, they run for the doctor, &c. They know the book ingredients and proportions in many useful articles, yet how many pay excessive prices for the mixed articles. They know the color effects of certain reagents, yet they express surprise and amazement when the magician pours into contaminated vessels, many colors from a single liquid. They know the chemical and common names of substances, while using the text, yet in life they go to the drug store and pay 25c or 50c for the following prescription:

R̄ Sodii Chloridi.....oz^{ss}
 Aqua q. s.f. oz. iv.

An almost endless list of the practical uses of the principles learned in chemistry might be made, but these will suffice to il-

lustrate how the drudgery of everyday life may be made less monotonous, how a broader outlook is provided through scientific knowledge, and interest awakened that makes the student better fitted to meet the ordinary problems which everyday life presents.

It is almost impossible for most teachers of science to understand what can be meant by saying, "that science should be made attractive." Science is attractive. It is the unattractive make-up that teachers put upon its teaching that makes it fail to interest those who come in contact with it. It is the failure of the teacher, who in his very introduction of the subject discourses learnedly and "like an inspired idiot" on the fact of dealing with a practical subject and teaching a practical thing and then does not teach it in a practical way, nor make its teaching deal with practical things. It is not in the particular science, but in the fact that the instruction is not adapted to the real, vital needs of the pupils that results in the lack of interest.

In the laboratory work, if taught from a printed manual, the pupil is furnished the name of the experiment or exercise, the materials to be used are specified, the apparatus is described and frequently drawn in detail, the method of procedure described and often specific instructions given as to what to observe, &c. The purpose of the laboratory work is surely to "provide experiences and object illustrations for an understanding and appreciation of laws and principles; to teach skill in manipulation; to induce inquiry, initiative skill in observation; to teach a degree of exactness and neatness; to give ability to apply the laws and principles taught to the common, everyday affairs of life and if possible to instill a desire for further investigation." There can be little serious thinking on the part of any one unless there is a problem to be solved and a motive for its solution, and there can be no problem with a motive unless it be the "outgrowth of experiences or situations in life." For a student to have a problem with a motive for its solution insures that he will think and will try to devise a means for its solution. The printed laboratory manual which is supposed to accomplish the purpose of the laboratory work, proposes the problem which frequently is in no way connected with the student's experiences, and therefore to him is not a real problem at all, and the proposed problem perhaps fits into no situation of his life and therefore lacks motive and all stimulus to think is removed. And even should the printed experiment be a real problem to the student, the author removes all necessity for thinking out a means of solution by detailing the procedure and frequently erases all initiative in observation by describing the things to be observed. Often, too, the instructor

makes the motiveless task much more burdensome by requiring long write-ups and elaborate drawings, and adds chaos to confusion by imposing meaningless terms and calculations.

If our science teaching is to be brought into vital contact with the life of students, it must be built upon experience, must meet the needs and must appeal to the interests of the students. The aim and end of the teaching must be not to turn out scientific experts, but students able to think their way out of life difficulties of reasonable severity.

To give a sufficiently wide scope to science teaching, a working laboratory is necessary. This does not mean any elaborate collection of apparatus and materials. With such a laboratory prepared and the class assembled about the table, the teacher begins a discussion with the students (the very presence of the apparatus and materials on the table will turn the discussion in the right channel). In the discussion, the teacher by proper questioning can bring out the students' experiences and likewise make him formulate problems and from the proposed problems get the students settled upon certain ones, and by skillful guidance lead them to suggest methods of solving. By pointing out the virtues and the defects in the suggested methods of solution, they can be led to workable ones, then the exercise become the students' problem and a problem with a motive. The method of attack becomes the students' thought-out method. A problem, a motive, a method of solution — all formulated from experience, dealing with the students' needs and appealing to his interest.

The Summer School

Teachers, the war is over.

Many of you during the past year at a financial and personal sacrifice have stood loyally in the schools of our State. Others, compelled by a sense of patriotism or financial necessity, have responded to the call for service in other fields. But now the war is over. Virginia needs you. From the school-houses of our Commonwealth, the children are calling as never before for your patriotic service.

In making your plans you are doubtless thinking of a summer school. Fredericksburg extends you a most cordial invitation.

The State Summer School to be held at Fredericksburg this year promises to be one of the most interesting and helpful in our history. Already an unusually large number have reserved rooms. The school will open June 17th and continue for six weeks. An exceptionally strong faculty has been employed and students will have the benefit of the best instruction.

The courses offered will accord with those required by the State Board of Education.

In the professional department, there will be two courses leading to the Elementary Professional Certificate. One course will be in the Primary Department and the other in the Grammar Department. The professional courses in this school are growing in popularity every year and the number of students taking these courses this year promises to be larger than ever before.

In connection with the professional courses two observation classes will be taught for four weeks by experienced critic teachers.

In addition to the professional courses, there will also be offered the usual summer institute giving instruction in the regular branches preparing for the First and Second Grade Certificates.

The excellent library and laboratory facilities of the State Normal School are open for the free use of the Summer School students.

The Summer School also has the opportunity of attending a most attractive and instructive series of Chautauqua lectures con-

tinuing for one week in the city. This affords the privilege of hearing some of the leading thinkers and speakers of America discuss vital topics of the day. There will also be given the choicest musical programs by the best talent.

Fredericksburg is only 55 miles from Washington and 62 miles from Richmond and enjoys the best and most convenient railroad and boat accommodations and connections.

The delightful home atmosphere and ideal health conditions of the school combined with the pleasant associations in the attractive and historic city of Fredericksburg, all tend to make a session at the Fredericksburg Summer School one of comfort and pleasure as well as profit.

The cost is less than your ordinary living expenses would be for the same length of time at any summer resting place, with additional advantages of preparing yourself for your winter's work.

As the accommodations are limited, students are advised to make reservations early.

For catalogue, write

E. H. RUSSELL,
Fredericksburg, Va.

