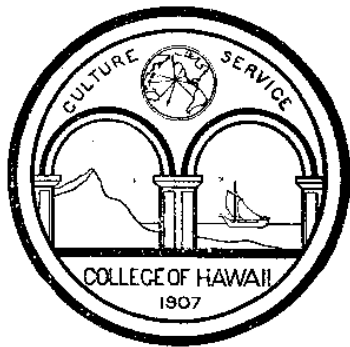


COLLEGE OF HAWAII
DEPARTMENT OF BOTANY AND HORTICULTURE

School Gardens
in Hawaii



HONOLULU:
PUBLISHED BY THE COLLEGE
OCTOBER, 1910

LIBRARY
COLLEGE OF HAWAII

Circular

School Gardens in Hawaii

BY
PROF. VAUGHAN MACCAUGHEY
OF THE COLLEGE OF HAWAII

(Reprinted from "Southern Workman," July, 1910)

Manila:
Pub. by the college.

Oct. 1910

School Gardens in Hawaii

School gardens are preëminently local products. They reflect their environment as truly as does a placid, green-girt lake. They are affected largely by immediately impinging conditions. General statements may be made concerning the educational principles involved, but the practical development and success of any school garden must ultimately find its basis on keen sight into, and compliance with, environmental influences.

The evolution of the school gardens as a part of the educational system of the Territory of Hawaii, is a fitting illustration of the above remarks. The Hawaiians (or Sandwich Islanders, as they were called in the early days) were naturally an agricultural people. Their food supply came chiefly from the fertile lowlands that engirdle the islands, and from the bounteous ocean. Taro, coconuts, breadfruit, bananas, yams, sweet potatoes, and a few wild fruits of minor importance constituted their vegetable food. Fish, fowl, hog, and dog supplied the remainder of their diet. The pounded and fermented root of the taro, forming a starchy paste called poi, was their chief dish. "Poi and fish" is a by-word here for a meal. The limited area of the islands restricted nomadism; the entire lack of large game cut off hunting; and the absence of grazing domestic animals prevented pastoral life. Thus this brown-skinned people was compelled, perforce, to accept a stable, agricultural existence.

They were peaceable farmers and fishermen, not savage cannibals, as were their kin of the South Seas. Periodically, at various favorite places, great markets and fairs were held. Here the best handiwork and finest crops and livestock were exhibited and sold. These great fairs were surprisingly like the modern county fairs of the Middle States, and were decidedly agricultural.

DEVELOPMENT.

When Captain Cook discovered the islands in 1778, he remarked the extensiveness of the cultivated lands along the seashore; and it was appropriate that in the first band of missionaries sent hither, there should be a skilled farmer and mechanic, Mr. Daniel Chamberlain. For several years he and his family instructed the natives in agriculture and the rudiments of mechanic arts.

The first school garden was undoubtedly established by the early missionaries on the island of Hawaii. They spent

Great is the sun, and wide he goes
Through empty heaven without repose,
And in the blue and glowing days
More thick than rain he showers his rays.

★ ★ ★

Above the hills, along the blue,
Round the bright air with footing true
To please the child, to paint the rose,
The gardener of the world he goes.

—Robert Louis Stevenson.

much of their time in teaching the natives methods of producing garden vegetables and field crops. The natives rapidly absorbed the new ideas, and the demand for instruction became so great, that in 1830 an urgent petition was sent to the American Board of Missions, asking for a number of instructors to train the Hawaiian people in agricultural pursuits. The petition received the hearty support of the native population, and was signed by fifteen of the high chiefs. In response instructors were sent, and very soon there were many prosperous fields of wheat, sugar cane, vegetables, etc.

As schools gradually developed, it was natural that the agricultural phase of education should continue in importance. Those in charge of the school affairs of the islands saw that these people needed training through concrete things, object-lesson teaching, industrial and economic. Thus, in the past ten years, nearly every school in the Territory, either public or private, has given some attention to mechanical and agricultural work, largely in the form of school gardens. Excellent gardens have been established at the Lahainaluna Industrial School, the Hilo Boarding School for Boys, the Kamehameha Schools, the Boys Industrial School, and the Normal and Training School.

CHARACTERISTICS.

There are a number of local factors that make the school gardens of Hawaii decidedly different from those of the mainland. In the first place, the garden year corresponds closely with the school year. There are two main seasons: the wet season and the dry season. The wet season, corresponding roughly to the mainland winter, is the growing season; the summer is the dry season, during which gardening slackens. The school year—September to June—thus fortunately keeps pace with the development of the garden. The children can plant their seeds during the first weeks of school, and be confident of shortly reaping the results of their labors. This is in striking contrast to the gardens of the East, where extensive planting cannot well begin until late springtime, and only rapidly maturing crops can be raised before the close of school.

Secondly, the school gardeners here are not only fortunate in the coincidence of the school year and the growing season, but the climate as a whole is ideal for garden work. Uniformity is the keynote of this sub-tropical climate. There are no frosts, no violent thunder storms, no hurricanes nor cyclones. Frequent light local showers are characteristic. At Honolulu the average annual temperature is seventy-four degrees, which varies only a few degrees from day to day. The nights are invariably cool. The thousands of miles of

temperate sea on every side make fluctuations in the weather rare. The climate can be "depended upon" to an extent unknown to the weather-suspicious Easterner, and gardening can be conducted with exceptional assurance of results.

Gardening here is materially assisted by the remarkable ease and rapidity with which crops mature. In a well-ordered school garden, after the first few weeks, planting and harvesting go on continuously, hand-in-hand. A few examples, culled from the excellent report of Mr. Buchholtz, a gardener on Hawaii, will suffice to elucidate this important factor. Mr. Buchholtz's garden was at an elevation of 1,650 feet above sea level (differences in altitude are, of course, correlated with differences in the maturing period of plants). On his farm he secured four crops of potatoes in succession in the same piece of land in twelve months; radishes become eatable ten days after sowing; cucumbers, tomatoes, lima beans, grow and bear all the year round; onions grow very large, and mature in six months; pumpkins and squashes bear abundantly for several years; etc. It is evident that this is a land where plants grow easily, a contrast with the careful nursing and frequent disappointments too common in the East.

This region is unusual in the very great number of exotic plants that have been introduced, and that can be grown and studied in a school garden. In a well-organized garden the children are able to become familiar with a range of plant life quite beyond the scope of our Eastern gardens. All of the plants of world-wide economic importance can be raised here, and thus the garden work assumes a fruitful geographic and sociological aspect. The child who has cared for a little patch of rice will understand the Oriental far better than one who has not; and tales of the rice fields of India, and Japan, and Louisiana will have a new meaning for him. Pineapples, bananas, vanilla, mangoes, citrons, limes, coconuts, sugar-cane, coffee, sisal, rubber—plants of which the Eastern child has but a vague conception (being familiar with the commercial portion only) are common here, while the great quantities of fruit shipped in from California and the Northwest familiarize the children with mainland products.

THE RACE FACTOR.

A matter of great importance is the diverse nationalities represented in the public schools. These islands, inhabited at first only by a native population, are now occupied by many peoples—Hawaiian, Japanese, Chinese, Portuguese, American, British, Scandinavian, German, Porto Rican, Korean, and nearly every possible intermingling of these. The race elements represented most largely in the schools are Oriental,

Hawaiian, and Portuguese. These children come from widely dissimilar homes. Their languages, their traditions, their beliefs, their whole mental attitudes vary as widely as do their physical characteristics. The educator has problems entirely different from those his eastern brother works. He must develop each one of these boys and girls along lines which are not evidently antagonistic to their race instincts. A classroom full of children here is entirely too heterogeneous to be dealt with in toto; each unit is radically and racially different from every other unit and individual training is a para-

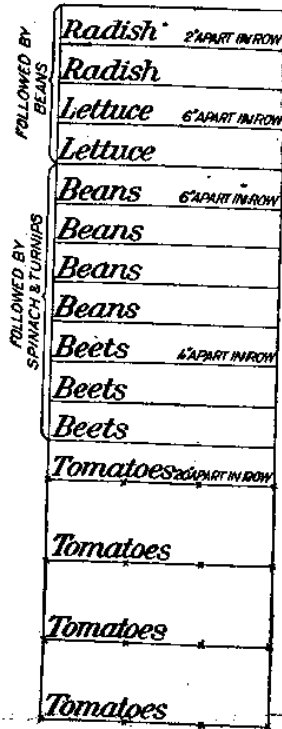


Fig. 1. A SIMPLE SCHOOL GARDEN PLAN.
(From *Farmer's Bulletin 218*.)

mount necessity. This development of the individual, and its enforced emphasis along industrial lines (for the great mass of the people are poor), finds fitting expression in the school garden. The work is with real things, which these polyglot children understand far more easily than the printed book. It is through the school garden that these children of many peoples can be most easily transformed into efficient laborers, working harmoniously together for the common welfare. It is through the school garden (one of the lost tools that the new education has grasped) that the coming generation will assimilate this new civilization, and carry it forward.

POINT OF VIEW.

A school garden may be conducted with one or more of several different purposes in view: (a) To teach the child elementary principles of plant life—elementary botany or nature-study. This garden is really a nature-study laboratory, and the interest centers, not so much in the kinds or amounts of crops raised, as in how they grow, how they secure light, food, water; their various enemies; and kindred topics. From this standpoint the garden may be made a very valuable adjunct to the nature-study work of the school,

furnishing a wealth of concrete illustrative material, and suggesting many fascinating experiments and discoveries. (b) To teach the child how to raise successfully certain kinds of plants adapted to the region. Here the basis is agricultural and economic, instead of scientific and experimental. Its value lies chiefly in its practical results, and the size of the crop becomes an item of importance. There are three possible markets for crops raised in this garden:

1 *School*—The crops may be used in the cooking department, both for demonstration and as a part of lunches prepared and eaten by the pupils. This is an excellent arrangement, because it logically and closely correlates the garden and the kitchen, and approximates the conditions of real life. The relation between raising a crop and eating it is simple and direct, appealing to the child and stimulating interest. This method has been used with considerable success at the Territorial Normal School, the garden products being used by the Domestic Science Department.

2 *Home*—Here the child either sells the results of his garden labor to his family or contributes them gratis. In either case the results are good, furnishing a definite link between the school and the home. It develops in the child the desirable ideas of responsibility and pride in one's work that are always concomitant with independent production. The lessons of diligence, carefulness, and regularity are taught without words. The boy who allows his plot to run to weeds has nothing to expect in the way of profitable returns. Nowhere is taught the lesson of negligence and procrastination so vividly as in a garden. A withered plant dead because the boy forgot to water it, speaks to him more eloquently than any teacher. He learns that real law has no circumvention.

3 *Public Market*—Here the financial interest is preëminent. The actual returns are reduced to cash. This may sometimes be desirable with gardens operated by the grammar grades; but as a general rule the relation between the child and the plant should be more personal than the dollar relation. Financial stimulus may be excellent in business, but should not be over-exercised in education.

MANAGEMENT OF SCHOOL GARDENS.

The ideally managed garden is one in which each child labors, both for himself, individually, and for the common good; his labors being carefully supervised and used educationally. A typical report, from the Waianae school, illustrates this combination of individual and communal labor: "Twenty-four of the larger boys have been divided into

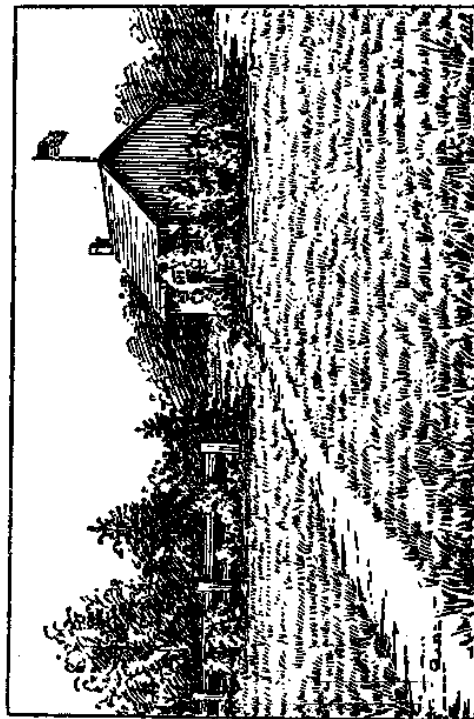
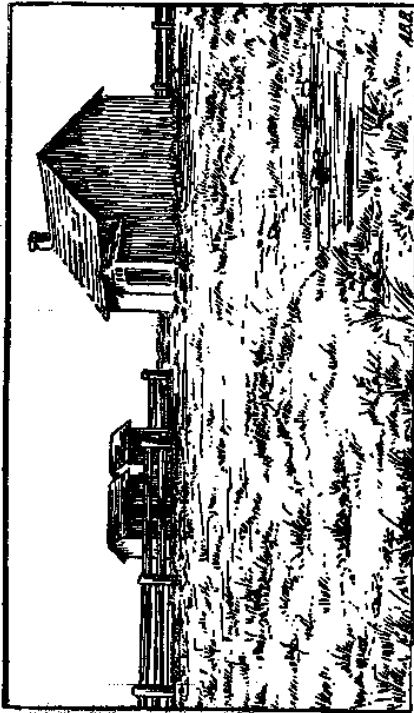


Fig. 2. THE DIFFERENCE BETWEEN AN UNADORNED AND AN ADORNED SCHOOL YARD.
From *Farmer's Bulletin* 216.

two classes, with an overseer to each. One class works from eight-thirty to nine o'clock in the morning, while the other works from two to two-thirty in the afternoon. Each boy owns two plots five by sixteen feet, on which vegetables—radishes, beets, carrots, turnips, lettuce, etc.—are being planted. Besides, as general property, the boys have sixty banana plants, which are watered every other day."

The plants suitable for school gardens in Hawaii include

the following: taro, rubber, sisal, banana, pineapple, coffee, forage grasses, vanilla, tobacco, corn, sweet potatoes, string beans, onions, tomatoes, sugar cane, Chinese cabbage, and yam.

The reports received concerning tree planting are very encouraging. This extensive advance has been made possible largely through the interest and aid of the Territorial Bureau of Forestry, which has sent much valuable information to teachers from its offices, and thousands of young trees from its nurseries.

A LIST OF VEGETABLES SUITABLE FOR SCHOOL GARDENS IN HAWAII.

Class One.—Crops Grown For Subtropical Paris.

Group I. Root Crops.

1. Beet, Early Eclipse.
2. Carrot, Danver's Half-Long Orange.
3. Radish, French Breakfast.

Group II. Tuber Crops.

4. Potato, Burbank's Seedling.
5. Sweet Potato, Hawaiian.

Group III. Bulb Crops.

6. Onion, Madeira or California.

Class Two.—Crops Grown For Foliage Paris.

Group IV. Kale Crops.

7. Cabbage, Flat Dutch.
8. Kale, Dwarf Curled.

Group V. Pot-herb Crops (used for "greens").

9. Spinach, Victoria.
10. Taro.

Group VI. Salad Crops.

11. Lettuce, Head.
12. Parsley, Champion Moss Curled.

Class Three.—Crops Grown For Fruit or Seed Parts.

Group VII. Pulse Crops.

13. Bean, Stringless, Blackwax, Bush Lima.
14. Pea, Giant Sugar.

Group VIII. Solanaceous Crops.

15. Tomato, Improved Stone.
16. Egg Plant, Black Beauty.
17. Pepper, Large Bell, Red Cayenne, Tabasco.

Group IX. Cucurbitous Crops.

18. Cucumber, Everbearing.
19. Muskmelon, Improved Rocky Ford.
20. Watermelon, Alabama Sweet.
21. Pumpkin, Sugar.
22. Squash, Crookneck.

Group X. Miscellaneous.

23. Sweet Corn, Country Gentleman.
24. Okra, White Velvet.

A LIST OF BOOKS RELATING TO SCHOOL GARDENS.

1. The Nature-Study Idea. L. H. Bailey. Doubleday, Page and Company, New York, 1905.
2. Nature-Study and Life. Clifton H. Hodge. Ginn & Company, Boston, 1903.
3. Agricultural Education, including Nature Study and School Gardens. James Ralph Jewell. 2nd edition, revised. Govt. Printing Office, Washington, 1908.
4. School Gardens. B. T. Galloway. Govt. Printing Office, Washington, 1905.
5. School Gardening and Nature Study in English Rural Schools and in London. Miss Susan B. Sipe. Govt. Printing Office, Washington, 1909.
6. Children's Gardens. Henry Saxton Adams. Trans. Mass. Hort. Soc., 1907. Part II, Boston, 1908.
7. How to Make a School Garden. Hemenway. Doubleday, Page and Company, New York.

OUTLOOK FOR SCHOOL-GARDEN WORK.

The outlook for school-garden work in the Territory of Hawaii is indeed bright. The movement, already well established, and recognized as an essential factor in the education of these peoples, will continue to develop healthily, as the whole school system normally develops. The work is as yet by no means perfected. There are many gaps to be filled, many problems unsolved, especially with regard to the actual teaching. One must constantly bear in mind that he is not raising plants, but children; and that his success is to be measured, not by bushels of beans, but by human lives. The center of the garden is the soul of the child. It should be, in verity and truth a kindergarten, a child-garden. This is no easy task. Bringing a rare fruit to maturity is mere toying compared to the mighty task of shaping and enriching a child's soul—rarest, most fragile, blossom of all. The difficulty is many times multiplied, if the child belongs to another race. But the gardening instinct is strong in all children. Perhaps it is remnant of the garden paradise from which the souls of children come. This island-world is a land run riotous with green,—heaven-climbing valleys vivid with green tropical tangles,—white glistening coral sands fringed with waving cocopalms; wide plains of undulating feathery foliage—love of these is the child's right. We are told that paradise was a garden; perhaps our children shall come through green gardens, back to Paradise again.

THE
 DEPARTMENT OF
 HAWAII