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AGRICULTURAL ACTIVITIES OF THE BUREAU OF EDUCATION.

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The problems of education are beyond doubt more varied when applied to agricultural teaching than when applied to any other industrial instruction. In the Philippines this work has been centered around a number of activities which are as practical as it is possible to make them. The various phases of the agricultural program of the Bureau of Education may be grouped under the following headings: (1) farming, (2) gardening, (3) food campaigns, (4) tree planting, (5) animal husbandry, (6) special projects, (7) extension work, (8) public-welfare work, (9) publications, (10) coöperation, (11) supervision, and (12) notable achievements.

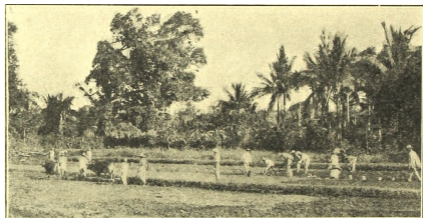
FARMING.

The Bureau of Education has a number of schools where all the activities of a well-regulated farm in the Philippines are carried on with special emphasis paid to training the boys and girls for successful farm life. There are 77 of these schools which are classified according to aims and kind of work followed, as agricultural schools, farm schools, and settlement farm schools. In addition to the schools which are readily classified there is the Central Luzon Agricultural School which has many special features owing to its position as the Insular school where the graduates of other schools may receive special vocational training in agriculture.

Agricultural schools.—An agricultural school is defined as one which emphasizes agricultural instruction by cultivating an extensive farm throughout the year, and which furnishes its pupils with subsistence and dormitory accommodations, wholly or in part at Government expense. At present, all of these schools are located in sparsely populated regions, and in several instances are the centers of agricultural colonies formed by homesteaders taking up public lands. Recent reports show that more than 1,000 homesteads have been taken near the Central Luzon Agricultural School.

There are six of these schools which last year enrolled 388 boys and 56 girls. These pupils cultivated 258 hectares, and secured a crop production valued at ₱10,892. in spite of extensive losses due to locust depredations and unusually destructive storms. These schools are located at Muñoz, Nueva Ecija; Mailag, Bukidnon; Bunuan, Agusan; Aborlan, Palawan; Kudurangan, Cotabato; and Lumbatan, Lanao.

Farm schools.—The Philippine public school system aims to complete the education of the ordinary citizen by three-year vocational courses after graduation from the four-year primary course. One of the vocational courses is offered in farming and another is offered in housekeeping and household arts. Both of these are given in the farm schools. A farm school is defined



The boys do the work. Planting scene at the Indang Farm School.

as a provincial school emphasizing intensive farming which provides neither subsistence nor dormitory facilities, and offers the course in farming for boys and the course in housekeeping and household arts for girls. The center units of these schools are the model 12 to 16 hectare farms from which it is expected to turn out efficient farmers and farmers' wives.

There are 10 of these schools which last year enrolled 1,089 boys and 35 girls, cultivated 53 hectares, and secured a crop production valued at ₱7,384, or ₱140 per hectare, notwithstanding the complete loss of crops at two schools owing to unusually severe storms. These schools are located at Batac, Ilocos Norte; Batangas, Batangas; Guinobatan, Albay; Indang, Cavite; Iba, Zambales; Cabayan, Isabela; Odiongan, Romblon; San Carlos, Pangasinan; Santa Maria, Ilocos Sur; and Tacloban, Leyte.

Settlement farm schools.—A settlement farm school is defined as a non-subsistence primary school established in a sparsely settled region, as the nucleus of a permanent settlement, the farm work being handled throughout the year on the communal plan. The crops from the 4 to 16 hectare farms not only are consumed by the pupils but often are the principal food supply of the family. The raising of fruits, hogs and chickens, and the use of work animals are very important parts of the instruction.

One of the objects of the agricultural system is to induce the mountain people to give up their roving habits and "caingin" exploitation and to form rural communities in the valleys near their present habitats. This desire caused the development of



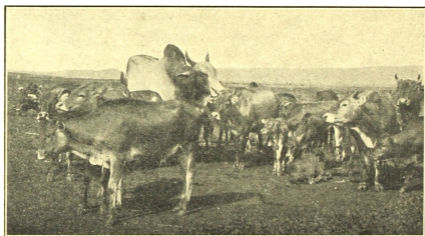
A watermelon for every pupil. This helps to explain why the settlement farm schools are popular in Bukidnon.

the settlement farm school. These schools serve people who are non-Christian, many of whom are practically without civilized customs, and who subsist upon game, wild roots, and such agricultural crops as may be secured from scratching newly-cleared forest lands, and planting a few seeds. The use of animals on their farms is unknown.

There are 65 of these schools which last year enrolled 2,321 boys and 1,138 girls, cultivated 175 hectares, and secured a crop production valued at ₱17,697—₱100 per hectare. These schools are scattered over the most remote sections of 10 provinces, as follows: seventeen in Agusan for Manobos; 2 in Albay for Negritos; 22 in Bukidnon for Bukidnons; 7 in Davao for Mandayans; 3 in Lanao for Moros; 5 in Nueva Vizcaya for Ilongots and Igorots; 2 in Rizal for Remontados; 2 in Samar, 2 in Tarlac and one in Zambales, for Negritos.

GARDENING.

Gardening was the first industrial course given in the public schools of the Islands. It is still the industrial work taken by most pupils, and it is the foundation of all other agricultural work. A vegetable garden and yard improvements are required of all primary schools and of intermediate schools having a sixth grade, which are not giving a special vocational course. Orchards and plant nurseries are required of all intermediate schools and are features of the work given at many primary schools. Seed selection and the improvement of native vegetables, and plant distribution are required. Special attention is given the teaching of the use of vegetables, the distributing of



Beginning to improve range cattle. The registered Nellore bull and the range herd of the Malibago Agricultural School.

tried-out recipes and the securing of the greatest production by keeping the land producing every month of the year. The most important feature, however, is the gardens which are maintained at the homes of the pupils as a regular part of the school work, and which are under the supervision of teachers.

Gardening is a requirement of the course of study for each primary grade, and for at least one intermediate grade in all except certain special vocational courses. Recitation periods of sixty minutes in primary grades and eighty minutes in intermediate grades, are devoted to classroom work and field practice. A big feature of the garden work at each school is the garden day exhibit. Last year there were 2,042 garden days at which 35,725 pupils and 14,321 farmers exhibited products. Figures for the past school year show that 64,117 boys and 2,000 girls

were taught vegetable gardening by means of the cultivation of 2,324 school gardens and 48,432 home gardens containing a cultivated area of 926 hectares.

FOOD CAMPAIGNS.

A great deal of attention is given the furthering of the production and use of certain food plants. This work has for five years taken the form of special campaigns for corn, legumes, sweet potatoes, and yams, the object being to get the farmers to grow more of the food consumed in the home. Remarkable results have been secured, and each year there are fewer demands for Government food distribution owing to the loss of the principal crops in a section of the country. All intermediate



Dairy cattle at the Central Luzon Agricultural School.

schools are required to grow and improve by selection and cultivation all special campaign crops.

The largest and most important campaign has been the one for corn begun in 1912 and continued up to the present. During this period remarkable increases in hectareage, average yield, and total production were secured. An important feature was the popularizing of corn as a human food. Available figures show that there has been an increase of 46 per cent in the cultivated area (443,848 hectares), 258 per cent in production (8,908,353 cavans), and 90 per cent in average yield (15.59 cavans per hectare).

The yam campaign begun 3 years ago has resulted in large increases in the production of tugue and ubi, the two yams receiving the most attention. One of the Bukidnon schools reported a production of 10,000 kilos from 2,000 square meters, or at the rate of 50,000 kilos per hectare (25 tons per acre).

Sweet-potato campaigns have been conducted for four years in Romblon, Mountain Province, and other sections where the sweet potato is one of the principal foods of the people. This crop has also received attention everywhere as one of the quick growing food crops. Emphasis has been given to the development of desirable varieties and their distribution. Legumes as well as sweet potatoes were advocated as secondary crops.

TREE PLANTING.

Tree planting has been one of the features of school work since 1906 when arbor day was first instituted by the Director



It pays to breed to a good boar. This pupil of the Central Luzon Agricultural School knows why the two hogs on the left are larger than their mother on the right.

of Education. The importance of this day will increase as Governor-General Francis Burton Harrison has issued an Insular arbor day proclamation for this year. The planting of shade, fruit and other trees of economic value receives attention throughout the year. The growing of ornamental plants and tree seedlings, and the teaching of simple vegetative propagation in a nursery is required of all intermediate schools. Many primary schools also have tree nurseries. An extensive coffee tree nursery is a feature of the Lumbatan Agricultural School; and a forest tree nursery is maintained at the Central Luzon Agricultural School. More than 50,000 coffee seedlings have been distributed from the Lumbatan nursery. There are 602 school

nurseries from which ornamental shrubs, shade trees, and forest trees to the number of 104,804 and fruit trees to the number of 83,780 were distributed last year.

The planting of trees which directly influence the food supply of the people has been emphasized for years as home work for which the pupils receive school credit. Mango campaigns, during which 20,000 mango trees were planted, were features of the school work in Mindanao and Iloilo last year. The schools of every province have adopted two or three fruits for first emphasis and are actively carrying out a campaign for more and better fruit. All farm and agricultural schools develop orchards as farm features. Extensive plantings of bananas, papayas, and pineapples are made at settlement farm schools.

ANIMAL HUSBANDRY.

The various features of animal husbandry have for several years been steadily introduced as an activity of the schools until now there are improved range cattle, dairy cattle, hogs and chickens, at a number of places. All schools doing extensive field work in agriculture are provided with work animals. The proper care and use of these animals are taught by actual field practice. At many settlement farm schools the people of the locality for the first time see animals used in farm work.

Poultry raising has been limited to the production of the Cantonese breed. A number of schools have home poultry projects. Twenty-four now have flocks which aggregate 1,912 fowls, exclusive of the 70 or more home poultry projects of pupils. Hog projects with pure-bred Berkshire boars have been established at 22 schools doing special work in agriculture. These now own 370 hogs besides those on the 10 home projects.

Every phase of cattle raising is receiving some attention. Range cattle run with well-bred Nellore bulls at Mailag and Muñoz. At the latter place there is also a small dairy herd. Two schools have range cattle; 2, registered bulls; 60 have work bullocks, and 30 have carabaos. In aggregate numbers there are now at the school 108 carabaos, 105 work cattle, 25 range cattle, 10 dairy cattle, and 2 Nellore bulls.

SPECIAL PROJECTS.

A sericulture project has been conducted at the Batac Farm School for a number of years. All processes in the production of silk are performed by pupils under the guidance of a teacher trained by the silk experts of the Bureau of Science. A fair grade of raw silk is produced, but apparently a great many

difficulties other than those pertaining to the actual production of raw silk will have to be overcome before sericulture will be a profitable industry in the Philippines.

When schools were established among the Moros on the islands of the Sulu group, the question of suitable industrial training offered new problems. The islands inhabited by these people who have for centuries been sea rovers, provided no facilities for the cultivation of crops. The main product is sea life, and sea gardening was introduced in the schools. Training in the



What the boys raise is good to eat. The girls do their part in the food campaigns, and at thousands of public demonstrations explain how palatable and nutritious foods can be prepared.

preparation of trepang, sponges, and shells for the market is given the pupils. The schools have sea gardens in which attention is given the culture of marketable sea life, especially certain kinds of sponges.

The putting into operation of a plan whereby the boys and girls may engage in home activities of an agricultural nature for which they get full credit as required school work has been accomplished in the formation of boys' and girls' agricultural clubs. A home project in either gardening, fruit growing, corn growing, poultry raising, or pig raising, may be selected by the pupil. This gives an opportunity to make the required work fit in with home surroundings.

EXTENSION WORK.

The problem of taking to the homes the instruction given in the schools has been carefully considered, and a great deal has been accomplished, but the value of bringing the people to the school farms has not been underestimated. Supervised home projects as required work for boys have been found the best means of extending instruction to the homes. It is felt that the success of the work must necessarily be judged by the way the ideas become a part of the life of the people. It must be remembered, however, that the main product is the boys and girls who are able to recognize a fact, and who are willing to do the necessary hard work in order to secure desired results.



Are the people interested? This crowd attended a garden-day celebration at San Fernando, Union; 2,000 other schools held exhibits that were equally as well attended.

Home gardening is probably the greatest factor in reaching the people. In addition to the 48,000 home gardens of the pupils, must be considered the home projects in corn growing, in legume growing, and in raising other farm crops. Fruit growing as home extension work has been emphasized. School credit is given for fruit trees planted and cared for by pupils. Selected varieties of bananas, papayas, and pineapples have been widely distributed. The extension work in animal husbandry consists in the placing of public breeding animals at the schools, the distribution by exchange of improved breeding stock, and the promotion of home projects for which school credit is given. Figures for the past year show that teachers supervised 48,432

garden projects at the homes of the pupils, 20,000 farm-crop projects, 800 fruit-tree projects, and 50 animal projects. A persistent campaign was carried on to promote the proper use of all farm products as human food.

The farmers in the locality of the school farms have always been supplied with seeds and plants free of charge. Thousands of young tomatoes, eggplants and cabbages are annually distributed from the seed beds at school. It is a definite requirement that every intermediate school maintain plots of sweet potatoes, and legumes, and a nursery for securing selected seeds and plants for distribution.

PUBLIC-WELFARE WORK.

Every school is required to improve the grounds. Each pupil shares in this responsibility. Encouragement is given the making of yard improvements at home. School credit will be given for this kind of home work during the present year. The well-kept plazas, shaded streets and roads, and the few homes with yard improvements are the direct results of school influence, as these features did not exist in any town when the public schools took up the improvement of the plazas and planted the first shade trees. Recent reports show that there are 1,468 improved school grounds, 930 of which have lawns and 380 of which are enclosed with permanent fences.

Clean-up week is annually observed by the public schools during the last week previous to the Christmas vacation. The schools have taken an active part in promoting the agricultural fairs held in various sections of the Islands. The largest of these fairs is The Manly Agricultural Cup Contest which is an annual event for the Bicol provinces. Each year a larger number of the 2,042 garden days become real fairs. These fairs are important because of the excellent opportunity they offer for reaching the people with public-welfare propaganda. The civico-educational lectures, many of which are on agricultural topics, are one of the means employed to reach the people with agricultural facts. Many people attend these lectures. It is reported that 373,185 people attended the corn lectures during the 1914 corn campaign.

PUBLICATIONS.

The classroom work and instructions for the agricultural activities are outlined in a number of publications, circulars and general instructions among which are the following:

"Practical Lessons in Tropical Agriculture," a 3 volume text,

published by the World Book Company, New York, which is used in the course in farming.

Bulletins of the Bureau of Education, Manila, No. 31, "School and Home Gardening;" No. 45, "Arbor Day and School Holidays;" "Agricultural Clubs for Filipino Boys and Girls;" the 20 follow-ups of the corn campaign; the 30 follow-ups planned for the agricultural clubs; the various issues of *THE PHILIPPINE CRAFTSMAN*; and the series of normal institute lessons.

Bulletins of the Bureau of Agriculture, Manila: No. 32, "Plant Propagation in the Tropics;" No. 27, "Citrus Culture in



One boy's garden-day exhibit. Bayombong, Nueva Vizcaya.

the Philippines;" and the various issues of the *Agricultural Review* and of the *Philippine Farmer*.

Bulletins of the United States Departments of Agriculture and Education, and of the various state agricultural colleges.

COÖPERATION.

The Bureau has endeavored to maintain helpful coöperation with other Government agencies and with the people. The Executive Bureau has coöperated closely. The Bureau of Agriculture has been more helpful than ever before. The work with the Bureau of Forestry through school nurseries and with the Bureau of Public Works in its construction of buildings and the

shading of the public highways, are examples of how the school work is made to correlate with the plans of all Government agencies.

As a whole an excellent spirit of cooperation has existed with all local officials, and the municipal councils have been willing to give agricultural education all possible financial support. In quite a few instances, however, provincial farm schools have not received the financial support from the provincial boards necessary for the development of successful school farms. There have been few instances of failure on the part of the people to support the agricultural work of the schools. The land is given



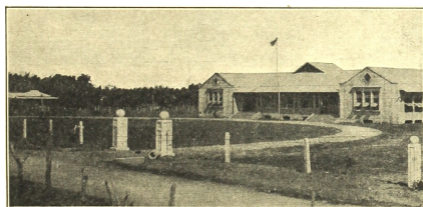
A home garden. A wholesome and profitable way to interest the boy in home activities.

free, work animals are loaned, and even buildings are constructed free of charge.

SUPERVISION.

The school agricultural work is under the direct control of the Assistant Director of Education and is in charge of an inspector attached to the General Office, who devotes his entire time to the supervision of the agricultural activities. Special teachers are employed in agricultural and farm schools. The work in gardening is handled mainly by teachers of the regular teaching force and is under the supervision of the division industrial supervisors. Special teachers of gardening are, however, employed to advantage in the larger schools.

Likewise a corps of well-trained teachers is necessary. Definite plans provide for giving teachers the particular training they need. The graduates of the College of Agriculture are employed in the farm schools, and the graduates of the Central Luzon Agricultural School are widely employed in settlement farm schools. Both teachers and pupils are pensioned for one and two years' work at the Central Luzon Agricultural School which institution provides high-school vocational courses in agriculture for teachers. Two years of instruction in gardening are also given all male students in the Philippine Normal School. Definite courses in agriculture and gardening as taught in the various types of schools, are given in the Manila Vacation Assembly to teachers who are sent in from the provinces to receive



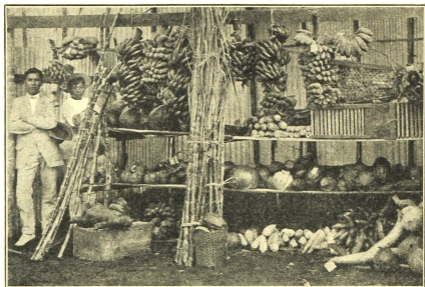
Adequate ground improvements are possible on such sites. The provincial high school grounds, Lucena, Tayabas.

training as institute instructors in these subjects. They, in turn, teach these particular courses in the various provincial normal institutes in June to all those who teach gardening in the public schools.

NOTABLE ACHIEVEMENTS.

Melchor Roldan, a schoolboy of Narvacan, Ilocos Sur, was awarded a gold medal by the jury of awards of the Panama-Pacific International Exposition as the champion corn grower of the Philippines. Melchor grew corn at the rate of 150 bushels per acre and has been elected vice-president for the Philippines in the National Top-Notch Corn Growers' Association.

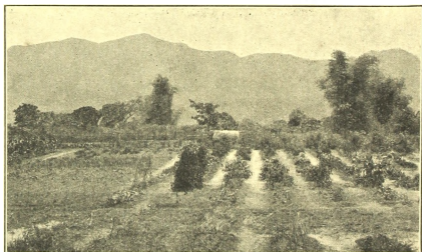
The Bureau of Education displayed the first vegetable exhibit ever shown in Manila, and maintained creditable vegetable and farm product exhibits at all Philippine Expositions. The display



This is how two boys in Misamis contributed to the success of garden day.

at the Panama-Pacific International Exposition awakened much interest. One medal of honor, seven gold medals, and two silver medals were brought to the Philippines by this feature, which occupied a small part of the display space used by the Bureau.

The 77 school farms, the 2,324 school gardens, the 48,432 home gardens, and the 20,000 animal and farm crop projects are, and



One of the best school gardens in the Philippines—the provincial school garden, Bayombong, Nueva Vizcaya.

will continue to be, a great influence for good upon the moral, social, and physical condition of the people. Instruction was given to 67,815 boys and 2,552 girls who had actual field practice in vegetable growing. These school children placed under cultivation 1,300 hectares, the larger part of which would otherwise have remained uncultivated. This land lies in some 70,000 small parcels scattered throughout the Philippines. These figures have a greater significance when it is understood that a teacher pays a weekly visit to each of these home projects, and discusses the garden work and general agricultural facts, with the boy and the family.

The following compilation from data for the past few years indicates the steady growth of the various features:

	1913-14	1914-15	1915-16
School gardens.....	3,236	3,290	3,545
Home gardens.....	41,642	45,689	48,432
Agricultural schools.....	4	4	6
Farm schools.....	8	8	10
Settlement farm schools.....	45	47	61
Garden days.....	390	1,423	2,324

CULTIVATED AREA.

	Hectares.	Hectares.	Hectares.
Agricultural schools.....	131	226	258
Farm schools.....	21	53	55
Settlement farm schools.....	68	112	189
School gardens.....	631	541	926

ENROLLMENT.

	1913-14		1914-15		1915-16	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Agricultural schools.....	267	30	388	46	558	55
Farm schools.....	450	183	927	217	1,117	365
Settlement farm schools.....	1,717	856	1,610	838	3,302	1,141
Gardening.....	57,234	1,835	52,164	1,867	64,117	2,090
Home projects.....	43,661	50	43,769	100	53,932	148

In every phase of the work the schools aim to be practical to the highest degree, and to make the boys and girls efficient in their vocations.