
CENTRAL LUZON AGRICULTURAL SCHOOL—A TYPE.

By KILMER O. MOE.

A careful analysis of the methods in vogue in America and elsewhere reveals the fact that there are two distinct types of agricultural instruction given. One may be called general and the other vocational. General instruction in agriculture is of the sort usually given in high schools throughout the various states, and is made to parallel the general course. Recitations and laboratory work are given for a limited number of classroom periods each week. Instruction is made concrete to some extent by exercises in gardening and by various laboratory tests. The objects sought may be stated as follows: (1) to give greater appreciation of agriculture as one of the fields of human endeavor; (2) to give insight into the possible application of various sciences to this industry; (3) to develop ideals of country life; (4) to furnish concrete and attractive studies for pupils.

It is mistakenly supposed by a great majority that a course of this kind actually results in vocational efficiency. Experience has shown that this is not the case, except in very rare instances. Such a course is primarily a cultural one. It gives breadth of view. The laboratory exercises and other experiments make it essentially illustrative and, therefore, attractive. It need not necessarily be taught by one having practical experience in agriculture.

Vocational instruction in agriculture is essentially different as regards both aim and method. It affords training which aims at mastery of the practice of farming. It deals with actual conditions and situations. The pupil must give the major portion of his time to concentrated work. Not only must he have practical work occupying at least half of his time, but this work must be subject to commercial conditions; that is, he must produce a definite output and be able to appreciate the result of his own efforts in terms of profit or loss. He must focus his attention on the kind of agriculture which is profitable in his neighborhood. Such related subjects as science, mathematics, accounting, and economics must be subordinated to the practical work which he is doing. Only a person who is, to a reasonable degree, master of agricultural practice can teach agriculture for a vocational purpose.

The vocational agricultural school is in effect what the public demands. This must take the place of the hit-and-miss appren-

ticeship in farming. It must develop in students the ability to forecast the results of their efforts and to plan their work with many possible conditions in view. Only such training will insure satisfactory results.

The Bureau of Education aims to give instruction of such a character as to provide vocational training along agricultural lines. To this end, the courses outlined give a maximum amount of practical training and a minimum of abstract theory. To carry out this idea, conditions and facilities of a special character are required. For this reason, special schools have been established at which special vocational training in agriculture may be given. These are of three kinds each serving its own purpose.



Students digging a lateral to irrigate a new field.

Agricultural schools are on large tracts of land, offer dormitory facilities to students and provide training in farm practice on a large scale. Farm schools are smaller and are conducted as day schools, smaller areas being cultivated as class work. Settlement farm schools are special agricultural schools for backward peoples designed to form a nucleus around which a settlement may be formed to counteract the roving habits of these tribes. In this article, a study of the methods used in agricultural schools is made, using as a type the Central Luzon Agricultural School.

SPECIAL COURSES OF INSTRUCTION.

Every student in this school is enrolled in an intermediate grade of the course in farming, or in a special course which aims to fit him for special service. A student does classroom work for half a day and performs his outside tasks the other

half. In order that this may be realized without difficulty, all grades are divided into two sections, one of which recites from 7.30 to 11 a. m. and the other from 2 to 5.30 p. m.

The classroom work is so closely associated with farm or shop work as to be almost inseparable. The object in view is to give the largest amount of instruction having a practical bearing on the life and work of the Filipino farmer. The extraordinary amount of practical training given outside of the classroom necessarily means a curtailment of academic subjects. Many schools throughout the Philippines give courses of instruction which include a wider range of subjects. None, however, afford better opportunities for students to share in the duties and re-



Students grading a road. The rice harrow, or "suyod," is excellent for this purpose.

sponsibilities of actual life and to receive training for work which is common to every community.

The first three years cover the course in farming for intermediate grades as prescribed for farm schools by the Director of Education. Beyond the intermediate grades, special courses are given aiming to prepare for definite service. These courses at present include training for farm assistants, for agricultural and garden teachers and for steam engineers, special emphasis being placed on the physical problems connected with each vocation.

The demand for men trained to do things, even though this training is elementary, is so great that a school of this kind is not justified in merely preparing pupils to continue their studies in higher institutions. The special courses must of necessity be elementary as regards the scientific knowledge which has

a bearing on the subject under consideration. This is because of the practical nature of the instruction, the aim being to turn out a human product which will be able to get results under conditions as they are found throughout the Philippines. As time goes on, these courses will be increased in number and amplified, but always with the end in view of preparing for definite service.

COURSE IN FARM MECHANICS, INCLUDING STEAM ENGINEERING.

1. Blacksmithing, including forge and bench work.
2. Elements of steam engineering.



Schoolboy milking. The products of the dairy are consumed in the students' mess.

3. Farm and shop arithmetic, including farm accounts.
4. Mechanical drawing.
5. English.

Blacksmithing (one period daily).—This subject is given with a view to providing the student with a practical knowledge of the common processes of working iron and steel and the application of these processes to farm repair work.

1. Exercises to teach the care of the forge, control of the fire, and the care and uses of tools.
2. Economy in the use of supplies such as coal, iron, steel, oil, and borax.
3. Bench and forge practice. Exercises in the use of drills and drill bits, stock and dies, taps, punches, screw drivers, files, and in the use of the rule and square.

4. Application of the principles of drawing out, forming, punching, welding, tempering, filing, threading bolts and nuts, and sharpening edged tools; making articles of common use such as bolts, hooks, chain links, cold chisels, punches, edged tools, etc. A sufficient number of these articles should actually be made by the student to insure his ability to apply the various processes.

5. Lessons on shop management, laying off work, repairing farm implements, and making estimates and bills of materials.

Elements of steam engineering (one period daily).—This subject is given in order that students may receive practical instruction and training in operating ordinary and traction engines, more emphasis being given to actual practice with machinery than to a theoretical study of the subject. A recitation



A class preparing a seed bed for rice.

period of forty minutes a day should be allowed this class, using as a handbook for teachers *Elements of Steam Engineering*, Spangler, or some similar text. Actual experience in handling machinery is given to each pupil during the four hours which he is obliged to work for his subsistence.

1. Study and care of tools; cleaning and oiling machinery.
2. Study of all parts of the boiler and engine.
3. An elementary study of steam with special reference to the manner in which it is harnessed to work.
4. A practical use of the stationary engine in running the rice mill, the planer, the electric generator, swinging cut-off saw, emery wheel, and table saws.
5. A practical use of the traction engine in operating the plow, the centrifugal pump and the rice thresher.
6. Minor repairs such as belt lacing; cutting and threading pipe for steam and water; repacking.

7. A thorough study of cleaning and care of stationary and traction engines.

Farm and shop arithmetic and farm accounts (one period daily).—This is a thorough review of the supplementary farm and shop problems of Grade VII together with others of a like nature which come up in connection with the various activities of the school. It also includes a great deal of accounting and record work which is designed to give practical training in all sorts of farm accounts.

Mechanical drawing (one period daily).—Exercises as prescribed in Bulletin No. 32, together with supplementary exercises having a bearing on the work of the student. Training in the ability to make working drawings and to read and follow plans. Preparing bills of materials from plans.

ENGLISH (ONE PERIOD DAILY).

1. A course in reading, using material from bulletins of the Bureau of Agriculture and bulletins issued by the U. S. Department of Agriculture which have a bearing on agricultural problems in the Philippines, together with Bureau of Education publications having a bearing on the subject.

2. Grammar and composition giving special attention to the idiomatic use of English.

3. Weekly essays and compositions on topics of local interest.

4. Strict compliance with the rule enforcing the use of English outside of the classroom.

COURSE FOR AGRICULTURAL INSTRUCTORS.

1. Farm management including care of animals.

2. School-ground improvement and home decoration.

3. A teacher's course in gardening and nursery work.

4. Farm and shop arithmetic including farm accounts.

5. English.

Farm management including care of animals (one period daily).—Farm management as a study taking in the following topics:

Organization and equipment of the farm; types of farming, systems of farm labor, methods of planting and harvesting; care and upkeep of equipment; purchasing supplies and marketing products; storage of farm products and supplies; farm administration; irrigation and drainage.

All of the above to be studied in connection with farm activities at the school and in the locality.

Care of animals.—This includes such topics as shelter; feeds and feeding; care; improvement of breed; and live-stock management.

The principles of animal husbandry are studied and then applied in actual practice using the live stock on the farm. These include work and dairy cattle, carabaos, hogs, and poultry.

School-ground improvement and home decoration (two double periods a week).—This is a practical course in improving school and home grounds. Instruction is given in lawn making, road building, gutter construction, fencing, and in the planting of trees, shrubs, hedges, hardy climbers, bedding plants, carpet plants, and flowering annuals. Special attention is directed toward the proper use and maintenance of each feature.

The continuous permanent improvement which the school grounds are undergoing gives the student an excellent opportunity for practical work in nearly all phases of landscape gardening.

Textbooks: Baily, "Garden Making," and Bulletin No. 37, Bureau of Education.

A teacher's course in gardening and nursery work (three double periods a week).—This course is given to provide practical training in the courses for school and home gardening in the primary and intermediate schools from the standpoint of the teacher.

The provisions of Bulletin No. 31 will be carried out in model school and home gardens prepared by the students. A large nursery and garden maintained by the institution is at all times available.

Farm and shop arithmetic.—Same as that given in previous course.

English.—Same as that given in previous course.

Practice teaching throughout the year under competent supervision.

COURSE IN FARM MANAGEMENT.

1. Farm management including care of animals.
2. Farm mechanics and construction.
3. Mechanical drawing.
4. Farm and shop arithmetic including farm accounts.
5. English.

Farm management including care of animals (one period daily).—Same as that given in previous course.

Farm mechanics and construction (one period daily).—Farm mechanics includes names, uses and care of tools and parts of

machinery, blacksmithing and carpentry, forge and bench work, repair of farm implements, estimates and bills of materials.

Construction includes all phases of farm construction, such as buildings, sheds, roads, fences, bridges and culverts, dams and ditches, mixing and reënforcing concrete. This class should have a period of forty minutes per day, using data taken from the activities on the farm.

Mechanical drawing (one period daily).—Same as that given in previous course.

Farm and shop arithmetic including farm accounts (one period daily).—Same as that given in previous course.

English (one period daily).—Same as that given in previous course.

A SPECIAL CLASS FOR PENSIONADO TEACHERS.

The practice in former years was to assign agricultural students who were pensioned from provinces, to the College of Agriculture at Los Baños, where they received regular college work or a course of instruction leading directly to a college course. The dean of the College of Agriculture pointed out to the Director of Education the fallacy of this practice. As these students seldom attended more than a single year the amount of practical benefit derived from a college course was limited. It was therefore decided to send these pensionado students to Muñoz where they might be given special training in the work which they will have to perform when they enter the regular service as agricultural instructors.

The training which is given these students is based entirely upon the program outlined by the Bureau of Education for agricultural extension work and gardening. They are given practice in class supervision, supervision of home gardens, propagation of plants, tree planting and nursery work. They conduct under the supervision of regular instructors at the agricultural school all the agricultural contests and campaigns prescribed by the Bureau of Education. It is expected in this way to turn out a corps of young men who are qualified to direct the agricultural instruction in the various provinces along lines prescribed by the General Office. In this manner, agricultural campaigns may be made more uniform and effective.

To make the instruction more in keeping with the problems which will confront these students when they become regularly employed teachers, arrangements have been made with the nearby towns of Muñoz and San José to supervise the work of gardening and school-ground improvement in the central schools

and barrios. In this manner the towns gain in securing better work in the schools and the students gain in having the opportunity to put into immediate practice the instruction given in the classroom. Toward the close of the year an agricultural fair will be held where all the various schools may be represented and where the results of contests given throughout the year may be judged and suitable prizes distributed. Such an undertaking will prove most valuable training if the management is left largely in the hands of the students themselves.

SPECIAL FEATURES.

An agricultural school is in reality a student town. The students elect their own president and council and conduct their affairs very much in the same manner as is done in the ordinary community. A student judge tries all cases in his court, and student policemen make arrests and keep order in the community. The sanitary inspector looks after the health of the community, and a student hospital corps treats wounds and cares for the sick.

The office of president is no sinecure. He is an executive in fact as well as in name. He presides over the student council, makes assignments of students, and looks after the welfare of the entire community. The student council is made up of representatives of students, each province having eight or more members.

Separate dormitories have been constructed for the various provinces and the local affairs of a single province are looked after by the provincial representative. The superintendent of the school reserves the right to veto acts of the council and appointments when in the interests of the service such action becomes necessary.

The bulk of the rice crop is grown by student farmers who work in pairs and cultivate separate tracts averaging in area about 2 hectares. Two students sign together for animals, implements, and advances, as is done by tenants, and their accounts are liquidated at the time of harvest. The necessity of working in pairs comes from the fact that one of them must attend school while the other one works in his field. All other students are rated as general workers and are assigned new duties every week.

To facilitate the great amount of business transacted throughout the year, an exchange has been established where the students may buy and sell, and where credit may be extended to those in good standing. A bank handles all the accounts of the student

and offers him the facilities for depositing his money or his earnings. Here his obligations are checked against his credits and the balances entered weekly. If this is properly kept, a student's accounts are always up to date and he automatically receives credit for all his work.

The students' mess is operated by the students themselves at which they pay 8 centavos per meal or 24 centavos per day. Board by the week is ₱1.44, which gives Sundays free of charge there being no work on that day. As students receive 6 centavos per hour for their services they must work not less than four hours a day.

The work that is accomplished by students is as varied as that of any other community. They raise their own rice and mill it at the institution mill. They prepare and serve the meals, construct their own dormitories and other buildings, build roads, culverts and bridges, in fact, do everything which can be accomplished by any other force. The class work as well as the outside work is eminently practical in every respect and affords the training necessary for the service which these students will perform when they leave school.

A NOVEL USE OF OKRA.

Okra, as found in the barrios of Talontalon and Mercedes, Zamboanga, is the Philippine rival of Postum. Here the use of the plant as a vegetable is scarcely known, but it is cultivated rather extensively to provide a substitute drink for coffee.

The seeds of the ripened vegetable are dried and roasted in a covered clay pot to prevent the popping or bursting of the kernels. When a rich brown color has been secured they are ground fine. The odor is strongly suggestive of coffee.

The drink is prepared exactly like coffee, except that the amount of powder used is usually doubled. Sometimes a little ground coffee is mixed with the okra to strengthen its flavor.

The natives of the above-mentioned barrios attribute the introduction of this novel use of okra to an American.—(E. H. H.)



Gardening as a means of increasing the food supply of France has recently received a new impetus, as a result of a circular issued by the minister of agriculture calling attention to the possibilities along these lines as demonstrated by the gardens grown by the soldiers at the front. The movement is becoming popular among all classes.