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The Philippine Craftsman

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That society stands highest in the scale, where the division of labor is greatest, where specialization is most definite, and where the distribution of functions according to efficiency is most thoroughly carried out.

Emile Faguet.

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The Philippine Craftsman

VOL. V MANILA, SEPTEMBER, 1916 No. 3

PHILIPPINE SCHOOL OF ARTS AND TRADES.

By JAMES F. SCOULLER, Superintendent, City Schools, Manila.

With the opening of school in June the shops of the Philippine School of Arts and Trades were transferred to the splendid new building on San Marcelino Street, Manila. In the early days of American occupation when the enrollment did not exceed ninety pupils and this number was maintained with difficulty, one of the first superintendents of the school planned a building which he believed would provide for all future needs. The proposed building provided for a floor space approximately equal to that of one of the eight shops in the present plant.

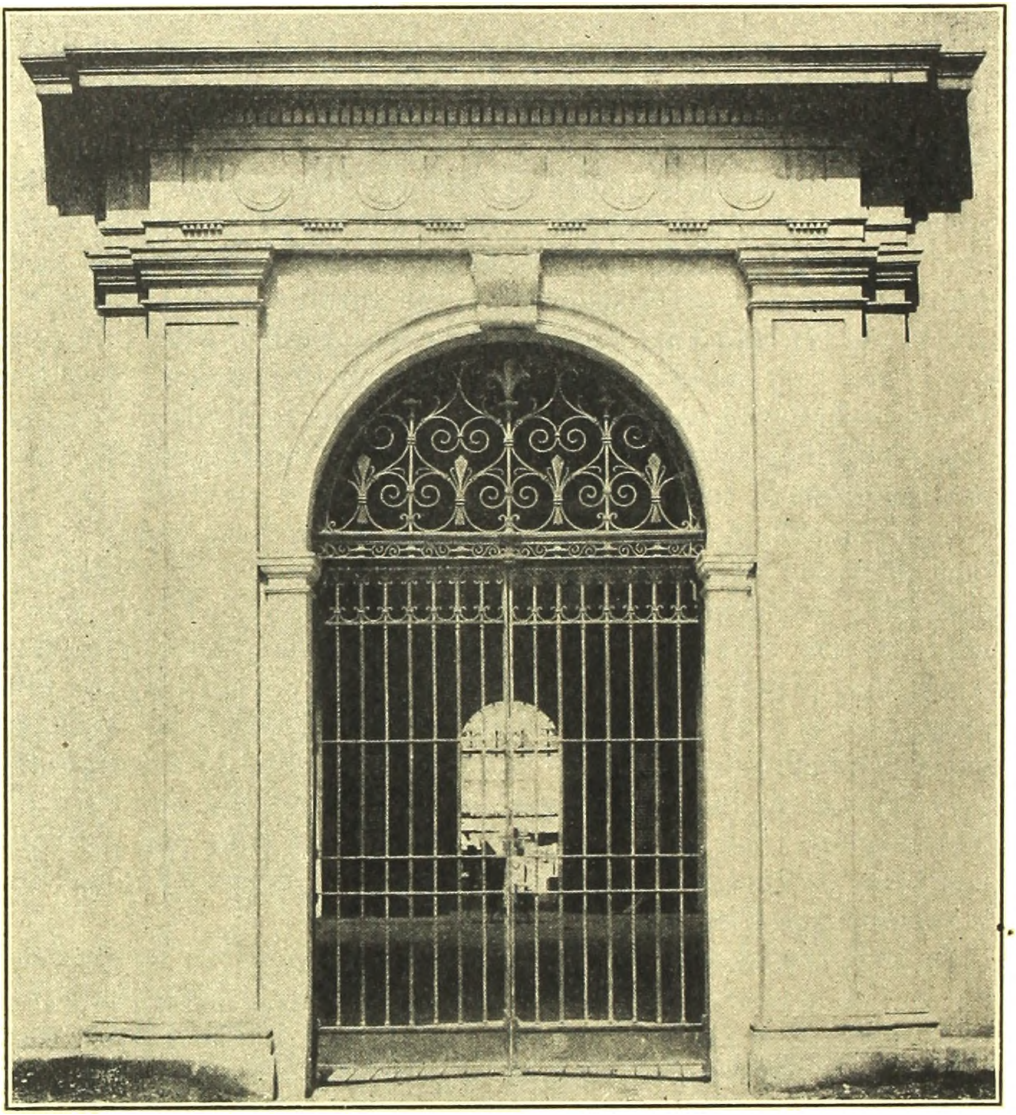
The remarkable growth of the school has been made in the face of many discouraging conditions. In the very beginning difficulty was experienced in getting students. There was a very general disinclination on the part of schoolboys to do hard work, and practically all of the first pupils enrolled in the telegraphy class. Gradually, however, by precept and by example, but especially by making the work practical and interesting, the aversion to manual labor was overcome and the classes were increased to their full capacity. Since that time the difficulty has been in finding room for all the students who applied and numbers have been turned away each year.

In 1907 the school was moved from the exposition buildings to its recent quarters on Calle Arroceros. While these buildings provided more room they were in poor condition and were condemned before they had been occupied a year. Each year efforts were made in vain to obtain appropriations for modern buildings but it was the latter part of 1913 before enough money was set aside to erect the present shop building.

Due to the present financial conditions, it has not been possible to complete the entire group of buildings, and the academic and drafting departments still occupy the old buildings on Arroceros, a condition of affairs far from satisfactory. The shop building provides adequate space for 1,000 pupils, but as the academic

and drawing rooms cannot accommodate the entire number only 850 pupils were admitted at the beginning of the school year.

The accompanying photographs give an excellent idea of the size and form of the new shop building. It is constructed of concrete in the form of a hollow rectangle, 110 meters long and 30 meters wide. The inner court furnishes light and ventilation

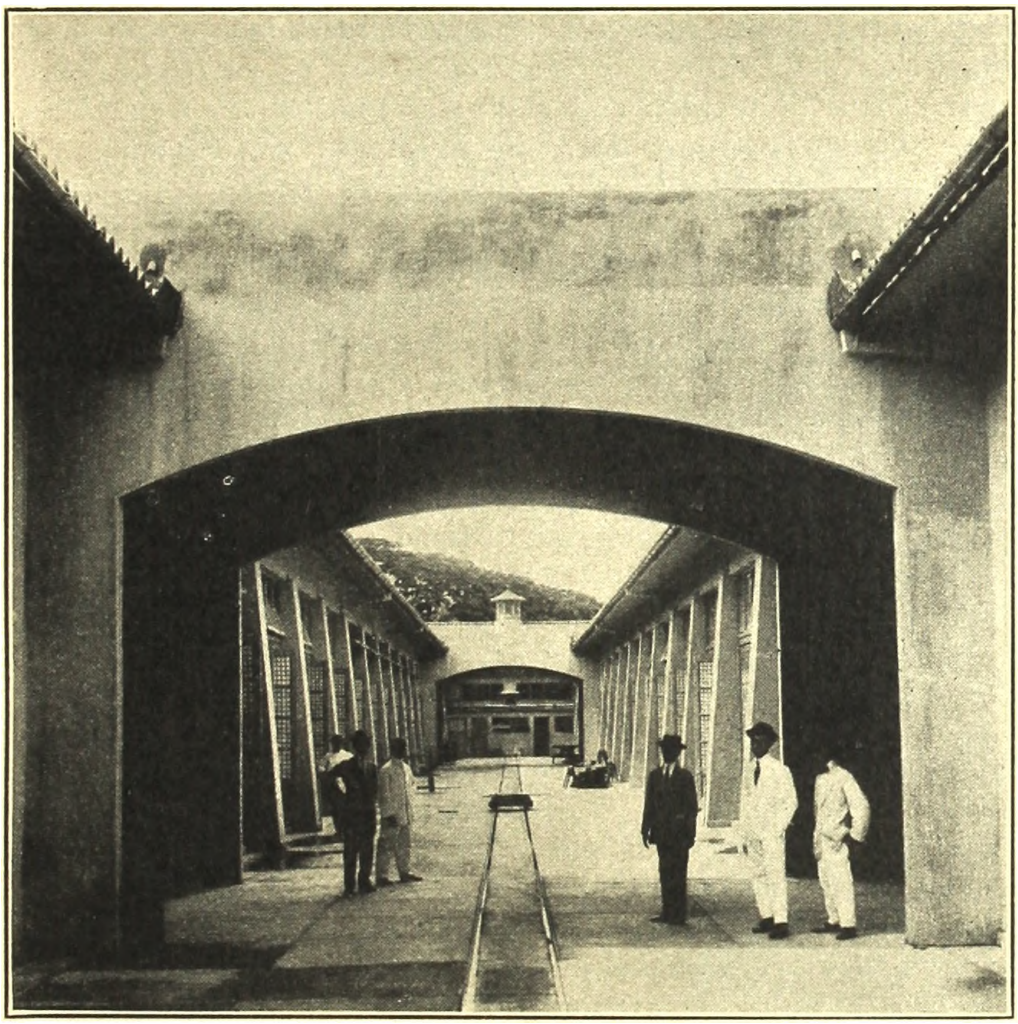


Main entrance, Philippine School of Arts and Trades.

as well as a satisfactory place for an overflow in case the shops are crowded with work. A narrow gauge track extending the entire length of the court and out to the dry kiln and lumber shed makes the rapid transfer of materials a simple matter. The windows are of steel sash with unbreakable wire glass. All machines are run by motors, the current for which will be furnished from the power house of the school. This power house

will contain two engines and a generator; a 65-horsepower Snow crude oil engine, and an 80-horsepower Ideal steam engine. These engines will be used for instruction purposes also.

With the use of the new building the shops are for the first time not crowded and as the equipment furnished is the best obtainable the different courses will be made more practical and development along new lines will be possible. A descrip-



Interior hall, Philippine School of Arts and Trades.

tion of the courses given and the plans made for the year's work should not be out of place.

CABINETMAKING.

The course in cabinetmaking or woodworking is one of the oldest courses in the school and the shops for this work are at present better equipped than any of the others. The course extends over four years and the graduate leaves with a thorough

knowledge of carpentry. The first year is spent in the wood-bench shop, and the exercises prescribed in Cheney's text on woodworking are closely followed. This course has been so planned that sufficient time is allowed for all exercises and special stress is laid on accuracy. Not only do students learn the foundations of woodworking thoroughly but they also learn to care for their tools. Under the guidance of the instructor each student sharpens his own tools and learns to file saws. It is not intended that commercial work shall be undertaken in the wood-bench shop, but when a student completes the year's exercises he is permitted to plan and make for himself simple articles. These articles are given him at the exact cost of materials.

From the wood-bench shop the student goes to the wood-machine shop where he spends the last three years of his course. This shop is splendidly equipped with the very best of machinery. In the six months devoted to wood turning, a knowledge of the lathe as well as of the exercises is required. Then the student begins to apply to practical projects the points he learned in his beginning year. Both wholesale and retail orders are accepted and executed. As proficiency is acquired, students are given training in contracting; emphasis is placed on correct estimates of material and time to be employed. Three months spent in the finishing shop give the student experience in oil, wax, varnish, and rubbed finishes. Shop methods are taught by the actual use of requisition and order forms, and time slips give an exact accounting of time consumed.

In past years the woodworking shop has been somewhat handicapped through the nature of the commercial work received. Rush orders, which proved disastrous to plans for instruction, were hurriedly executed, and while the work turned out was always of the best the students who needed more practice because they were slower or less accurate, were put to work on projects where no special skill was required. Then again, wholesale orders were received, as for example the 1,600 standard school desks made in five weeks for the schools of Manila. After the first hundred desks were finished, the work was monotonous, uninteresting, and destructive rather than instructive for school purposes.

As the work of this shop now has a standard commercial value and is readily salable where articles of first quality of material and workmanship are desired, in the future the objective will be a variety of articles made up for the public salesroom rather than for rush and wholesale orders. When this plan is carried out each article of furniture made will partake of the

Interior of the machine shop, Philippine School of Arts and Trades.

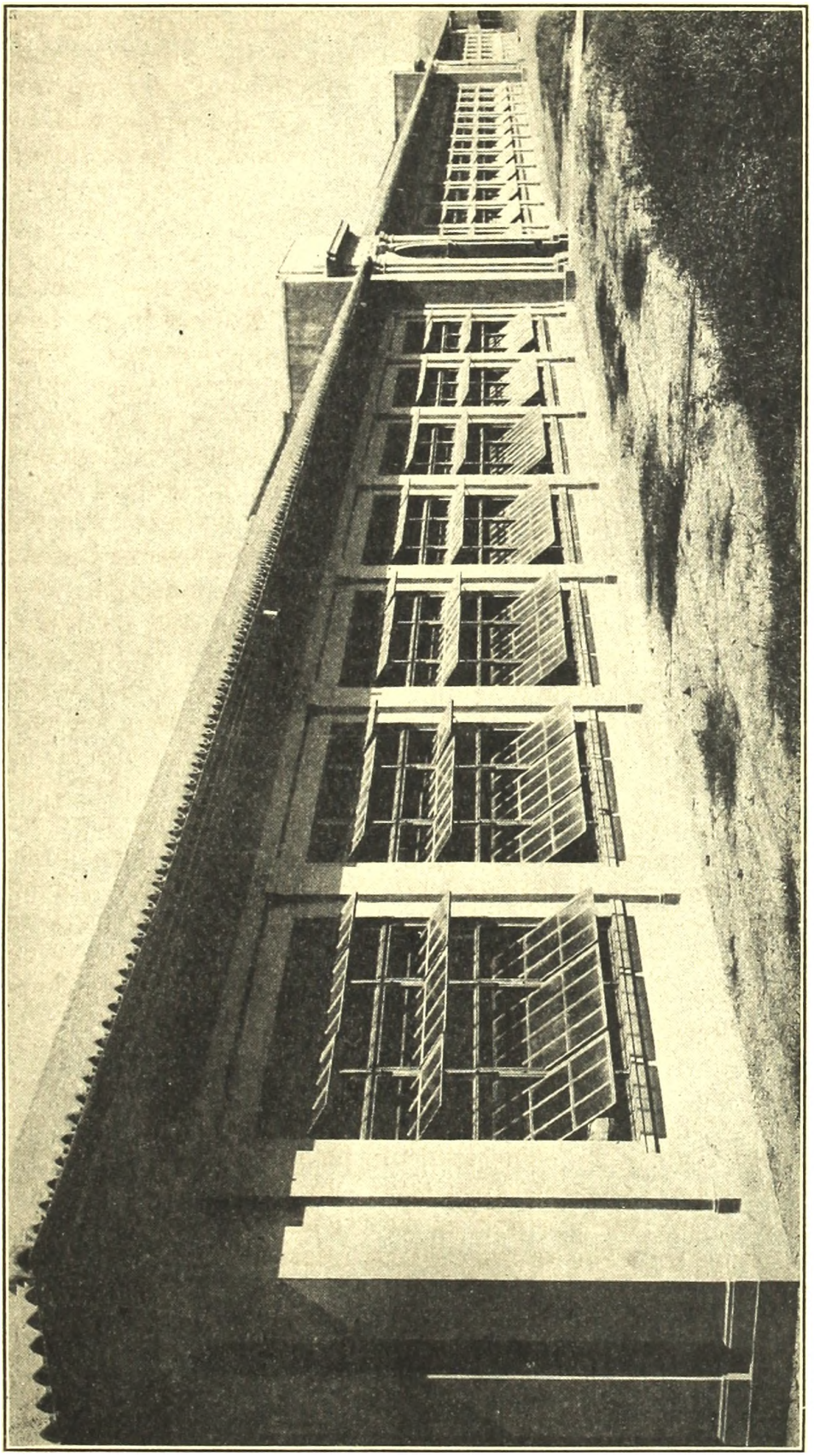
nature of a problem to be worked out by each student or group of students. The object will be to make the student think rather than to follow mechanically the directions of an instructor. In the solution of shop problems interest and pride will be aroused. Where proper suggestive supervision is given along these lines there can be but one result.

BUILDING COURSE.

The building course which is a comparatively new line of work for the school, has worked out splendidly and in the new quarters it will be given greater emphasis than heretofore. Four years of work are required; one year in the wood-bench shop, one year in the wood-machine shop, one year in the building shop working on models, and one year in actual construction work. This department has been hindered heretofore by a lack of outside work. A number of buildings were constructed by the students at the old school, and for several years Bureau of Education buildings were constructed in connection with the Carnival; but the work has been uncertain and irregular, and the greater part of the time has been spent on the construction of model school buildings on a small scale. Such work, while useful, does not give the training necessary for a successful builder, and it is hoped that during the present year by coöperation with the Department of Engineering and Public Works of the City of Manila several excellent projects in actual building work will be carried on by the students in this course. This may mean that the academic side of the course during the fourth year will be neglected, but it is thought better to slight or even drop academic subjects during this year if by so doing the course is made more practical and the students are correspondingly benefited.

BLACKSMITHING.

The new blacksmith shop has been provided with the best equipment obtainable. The students have constructed 12 steel down-draft forges of the latest type. In addition to the steam hammer, a gas furnace and an acetylene welding outfit have been purchased. The course is four years in length although students who complete three years at the school are given credit if they are employed in outside shop work for the fourth year. In addition to the regular course the students in machine shop practice take one year in this shop. The exercises used by the beginner are the most practical that can be devised. Old horseshoes are used for material and from them a number of useful



The new main building of the Philippine School of Arts and Trades.

articles, each demonstrating some phase of practical blacksmithing, are made. Commercial work forms a large part of the course.

MACHINE SHOP PRACTICE.

Practically every one of the graduates of the machine shop is now employed at an excellent wage. In this respect the course has been the most successful in the school. In the new building additional space has been provided and several new machines ordered with a view to giving instruction to a much larger number of pupils. The course covers four years as follows: One year in chipping and filing, one year in blacksmithing, and two years at the machines. The work turned out is varied in character and offers practical training. Commercial orders form a large part of the product of the shop. Each year the fourth-year class constructs a machine, and the workmanship has been so uniformly good that these machines now form a part of the shop equipment.

AUTOMOBILE DRIVING AND REPAIR.

The school owns two automobiles for instruction purposes. Each year about forty pupils obtain licenses. The length of the driving course is dependent on the ability of the pupil, but no pupil is allowed to stay in the department longer than one school year. The repair department formerly was a very busy one but local conditions have made it advisable to reduce the amount of work done and at the present time only repairs for Bureau of Education machines are accepted. The vulcanizing department has been very successful and does a large amount of commercial and Government work.

DRAFTING COURSE.

This four-year secondary course is being given at the old school where conditions are not entirely satisfactory. The outlined course is being followed very closely and commendable results are being secured. With the completion of the academic building where proper lighting conditions can be had, this course will prove very popular and successful.

NORMAL COURSE.

The four-year course for teachers of woodworking has not received the attention it deserves, due to the fact that it has been difficult to provide classes for instruction by students. As the school has now been placed under the superintendent of city

schools, it will be possible to coöperate more closely with the city schools' shops and to afford opportunities to the students of this course to do actual teaching.

PREPARATORY ENGINEERING.

A very few secondary students who desire to enter the University with advanced standing are taking the four-year course in engineering. The students are given some time in all the shops, and in addition take one semester in foundry work at the Bureau of Customs.

The main objects of the training given at the Philippine School of Arts and Trades are practicability, thoroughness, and adaptability to the needs of the country. Along these lines various courses have been offered and later dropped as impractical or unsuited to the particular needs of an oriental community. The ceramics course was well planned and thoroughly carried out but it was eliminated because it did not reach the field for which it was intended. Courses in carving and wheelwrighting met the same fate. Traditional courses have not been and will not be given the respect usually accorded to age. The courses must meet the standards fixed for them here or be set aside. Along this line it is becoming more and more evident that too much stress has been laid upon cabinetmaking and that this course receives much more attention proportionately than it should. As building and ironworking have proved more adaptable to the particular needs of the community, these courses will be developed from now on, and cabinetmaking will be given less attention. No apology is offered for the mistakes that have been made. They have been mistakes necessary to the proper accomplishment of the ends, to provide the most practical and best adapted vocational courses for the people of the Philippines.

The new plant affords a new opportunity to develop. Already courses for a night school are being planned. Plumbing and electrical wiring will receive attention in the night classes while it is very probable that courses in the different branches of ironworking will take a prominent place. With a school running to full capacity day and night the large investment in the plant will be fully justified by the results.

An educator from the Federated Malay States who recently visited the Islands remarked that his study of the trade schools in Java had convinced him of the value of trade courses for the training of hand and mind, but as the work was done with miniature models he doubted its practical value. His visit to

the Philippine School of Arts and Trades, he said, convinced him that this school went further than training the hand and mind in that it gave to its graduates practical training in a real vocation. As a result of his inspection he will recommend for the Federated Malay States a system of trade schools following the Philippine School of Arts and Trades as a model. The compliment is a high one.

SPECIALIZATION IN INDUSTRIAL WORK.

After a pupil has mastered the industrial courses of purely educational value and has taken up work in the commercial courses, specialization cannot be carried too far provided the specialization is along practical lines. At least there is little or no evidence indicating that too much stress has been given to specialization in industrial work. On the contrary in most divisions specialization has not received the attention it deserves. Few will deny that continued and concentrated efforts along a certain line will produce greater results than a division of energy among many different lines. This has been proved by more than one school in the Islands as being particularly true in industrial work. The schools that have specialized in one or two courses have been able to produce a larger output of industrial articles with a corresponding improvement in quality than have those schools that have endeavored to give a larger number of courses. Limiting the kind of articles in a course to one has also proved advantageous. Specialization will not only increase the output of industrial articles in the schools but it will bring the schools a step nearer to their goal—the establishment of an industry among the people of the islands. The training which fits a pupil to do one thing well is of more consequence than that which teaches him to dabble in many different things but fits him for none.

Specialization is still in its infancy and needs encouragement. Over-specialization, is an unknown term. (B. F. B.)

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.

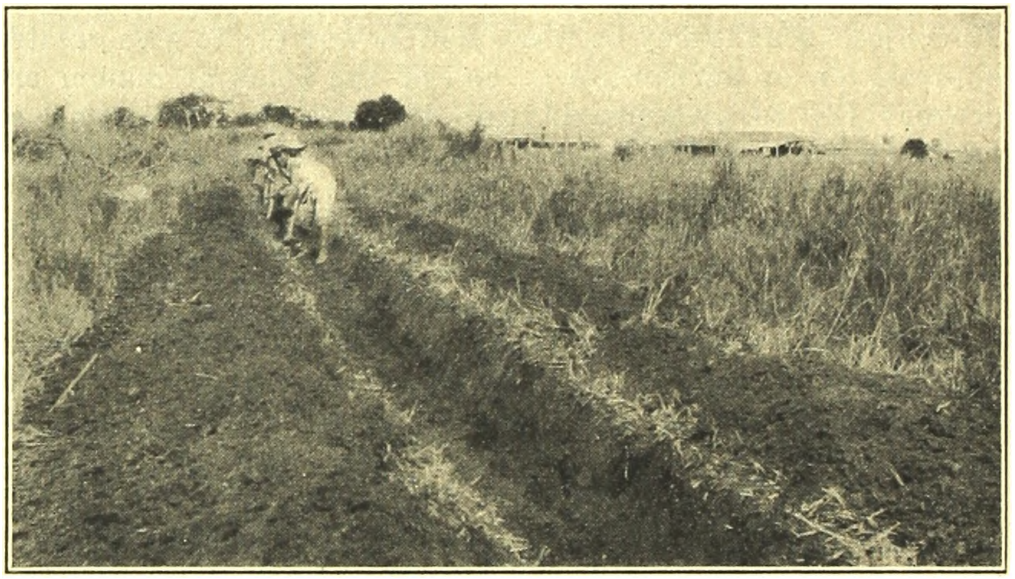
It is mistakenly supposed by a great majority that a course of this kind actually results in vocational efficiency. Experience has shown that this is not the case, except in very rare instances. Such a course is primarily a cultural one. It gives breadth of view. The laboratory exercises and other experiments 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.

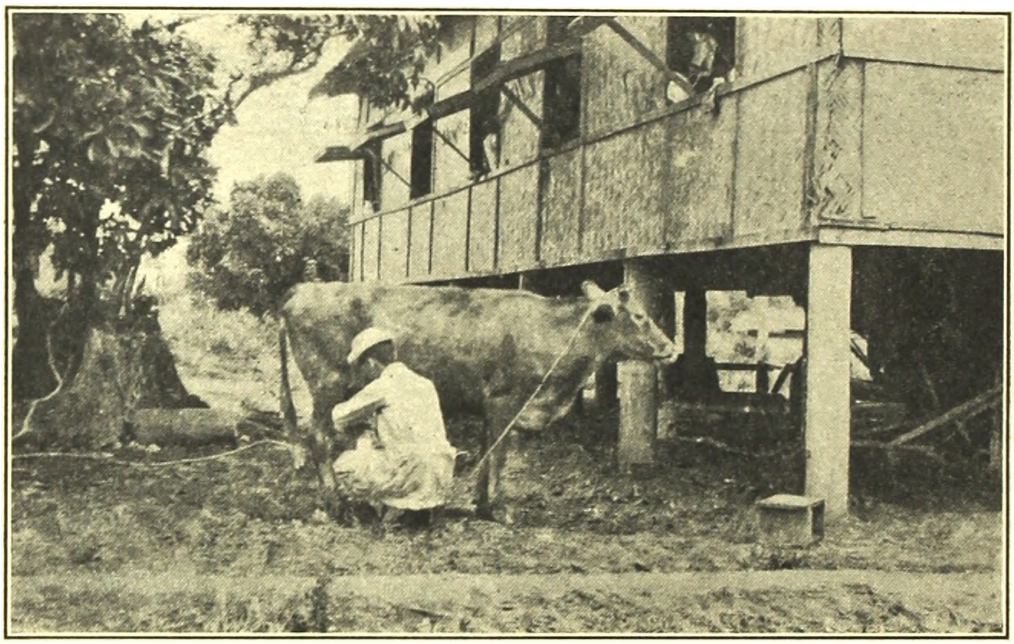
The first three years cover the course in farming for intermediate grades as prescribed for farm schools by the Director of Education. Beyond the intermediate grades, special courses are given aiming to prepare for definite service. These courses at present include training for farm assistants, for agricultural 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.

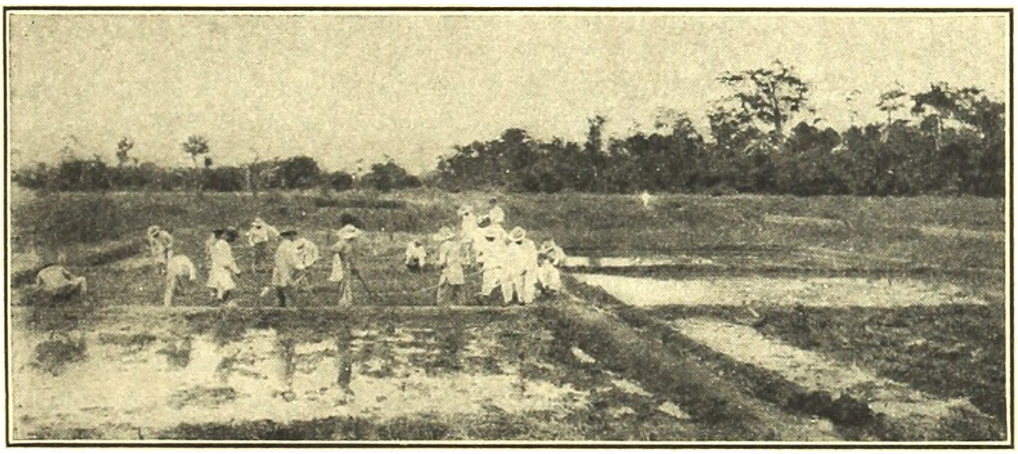
2. Economy in the use of supplies such as coal, iron, steel, oil, and borax.

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 realty 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.)

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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.

PHILIPPINE NORMAL SCHOOL.

By H. A. Bordner, Superintendent, Philippine Normal School.

The Philippine Normal School is maintained as a professional institution for the training of teachers to carry on the work of public education in these Islands. The central thought in the school is to inspire young people to enter the teaching profession with clear notions and accurate ideas of the various and numerous problems that confront the public school teacher.

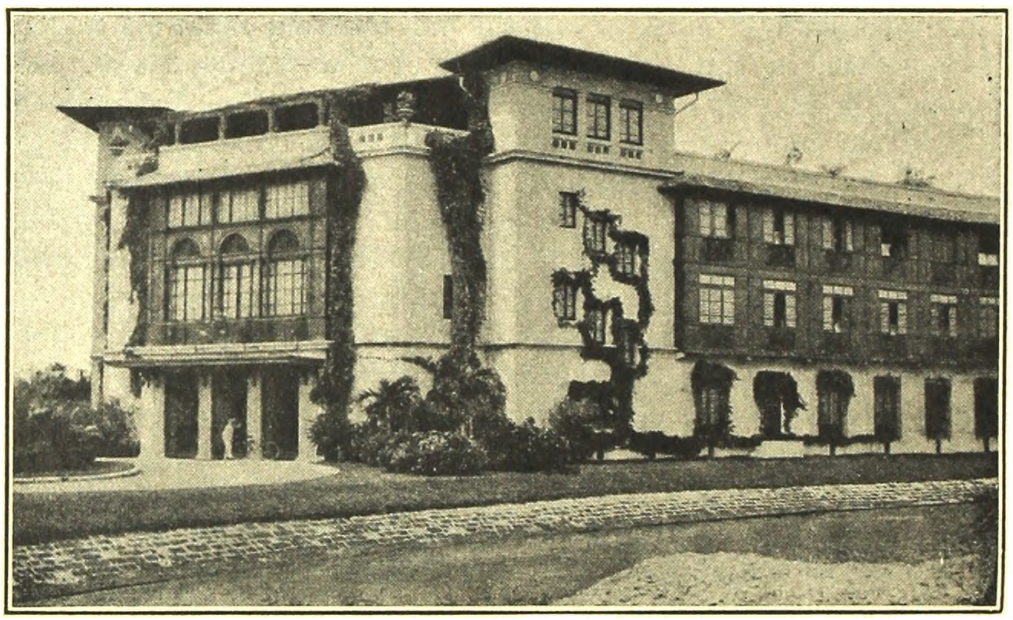
It is no longer considered true that any person may become a teacher nor is it deemed adequate that a teacher be proficient in subject matter only. Professional training must be added. Hence, even in the academic work of the school, the professional side is emphasized. Incidental instruction in methods is given in connection with the presentation of subject matter. Courses in pyschology are offered to throw light on the laws of mental growth, so that these may not be violated in the teaching of boys and girls. Courses in the history of education make the prospective teachers acquainted with the origin of educational ideals of the present day, afford them an introduction to the educators and teachers in times past, and give them a knowledge of former methods and systems of education. Courses in school management are designed to help teachers in organizing and conducting schools upon sound pedagogical principles. Actual teaching in the training department under the guidance and criticism of special critic teachers gives the public schools a body of trained young men and women for entrance into the teaching profession. Every department in the school lends its assistance to the department of education in inspiring the students with the loftiest ideals of what the true teacher should be, and what sort of service should be rendered by successful teachers.

Side by side with the professional training there is carried on training in academic subjects. The newly prescribed courses of study make it possible for students to review the subjects of reading, grammar, arithmetic, geography, history, government, and physiology, laying special emphasis on the latest and the most approved methods of teaching these subjects. Academic training is also offered in the usual secondary subjects.

The first aim of the school is to inspire the students with the professional spirit. It is of vital importance that the teacher

should have a just appreciation of his work and that he should be imbued with the spirit of service. The student must consider his own spirit, purpose, manner and conduct, the acquisition of knowledge, and all school exercises from the point of view of the teacher. Through the professional study of the subjects of the public school curriculum, the students are taught how to present each subject in the teaching process. The school is made professional, not by the exclusion of these subjects from its curriculum, but by the study of them from the standpoint of their pedagogical value.

After the study of the various subjects in the curriculum, from an educational point of view, the students enter upon a

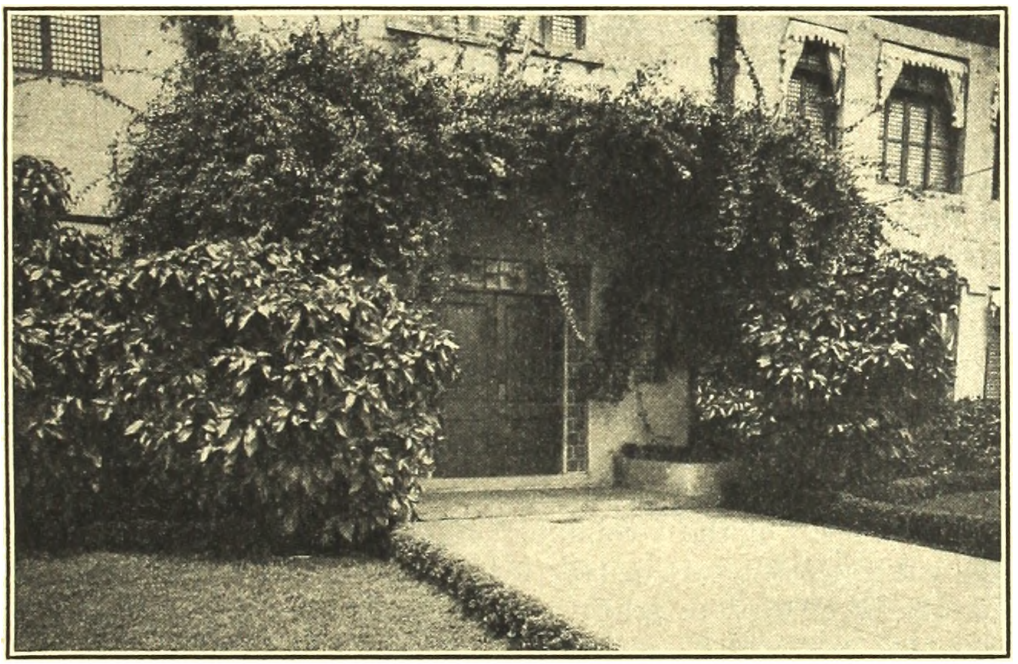


Normal Hall accommodates 256 of the young women students.

study of the development of the human mind and body to find the broader educational principles which underlie all true teaching. Methods of teaching are determined by these principles, and it is the aim to train young men and young women in such a manner that they may be able to conduct rightly the education of pupils in the public schools.

The school is housed in two three-story reenforced concrete buildings located on Taft Avenue, one of the principal thoroughfares in the city of Manila. One of these is the normal school building proper and the other Normal Hall, which is generally conceded to be one of the most beautiful buildings in Manila, from an architectural standpoint. The recitation rooms are well lighted, large, and airy. The laboratories contain the necessary equipment required for elementary work in biology and physics.

The domestic-science kitchen is abundantly provided with the necessary equipment to offer primary and advanced courses in cooking and housekeeping. The laboratories for sewing, embroidery, lace, hat making, basketry, and bamboo and rattan furniture all contain satisfactory equipment to permit the students to make themselves proficient along industrial lines. In the library there are available for students some of the best monthly magazines and the daily newspapers. Special effort is made to supply the best professional magazines of the United States. The number of books found in the library is not large but there are on hand a good supply of reference books, diction-



Front entrance to the Philippine Normal School. In the case of few public buildings has tropical foliage been used to better advantage.

aries, and encyclopedias. During the present school year a great many books of fiction have been added which makes the library a very busy part of the institution.

Recently there were approved four new courses of study which are to be substituted for the two old courses of study formerly offered in the school.

The newly prescribed course for domestic science requires four years for completion while the minimum entrance requirements for this course have been raised to the completion of the first year of the secondary course. All work in this course is made as practical as possible. Principles are taught through normal activities rather than abstractly. All formal training leads to exercises in which students actually go into the kitchen

or the laboratory to demonstrate with their hands the principles they learned from the teacher or the book. This new four-year course in domestic science offers instruction in English, sewing, cooking, drawing, textiles, infant and invalid feeding, biology, dietetics, embroidery, lace making, physiology, hygiene, sanitation, housekeeping, education, methods, and practice teaching. Successful completion of this course entitles the student to a diploma.

The entrance requirements for the four-year industrial course are the same as those for the new four-year domestic-science course. It is the aim of this course to train and develop teachers for the many industrial courses offered in the primary and intermediate schools. Men students receive training in gardening, hand weaving, basketry, hat making, coir mats, slipper making, and bamboo and rattan furniture. Women students specialize in sewing, embroidery, lace making, hand weaving and crochet. In addition to this industrial training the students in this course study English, biology, education, drawing, music, methods, and practice teaching, training which will fit graduates for both academic and industrial work but with special emphasis on industrial lines.

The third one of the four-year courses has for its aim the training of teachers for purely academic instruction. This course gives opportunity to review the subjects taught in the primary and intermediate grades, permits students to complete practically all of the secondary subjects and in addition to this work the course offers instruction in such subjects as psychology, history of education, school management and methods. It also provides for the observation of teaching and two years of actual teaching in the training department under the guidance of skilled critic teachers.

These three courses of study will provide teachers who possess the usual training obtainable in normal schools and in addition these courses will also furnish specially trained teachers for domestic science, industrial work, and academic subjects. Students who complete successfully all of the work of any one of the three courses mentioned above will be awarded a diploma which makes them eligible for appointment as Insular teachers.

In addition to the three courses already mentioned there is offered a two-year course in physical education. It is the aim of this course to train young men and young women to take charge of the games and athletics which form an integral part of all regular work in the public schools and to train leaders to

conduct successfully work in connection with the playground movement. The successful completion of the subjects of this course entitles the student to a certificate but does not make the graduate eligible for appointment as Insular teacher.

Any account of the activities of this school would be incomplete unless it contained mention of the training department in which the teachers get actual experience in teaching under the direction of competent critics. The function of the training department is to afford a place and opportunity for preparing students in the technic of a teacher's duties through practical experience in operating a school. This applies to the management of the schoolroom, the supervision of the play activities as well as to the recitation and the methods employed. This experience is necessary, not only to give students confidence and to develop latent powers, but also to uncover faults which are natural or which were acquired through imitating some former teacher. When students begin to teach they will do not as they are told but as they were done by in the earlier days of their pupilage; it is one of the functions of the training department to eradicate these faults. The training school is the melting pot for all abstract ideas formed and developed in the classes of school management and methods. The department is manned by specially trained teachers fitted to pluck from the experimentation that which is good and worth while. It is the laboratory of the Normal School. Here new ideas originate and old ones are tested; and new theories are subjected to the severest examination before they are stamped with the mark of approval. This laboratory is kept at full capacity so that all graduates of the Normal School have from eight to ten months of actual classroom experience before they seek appointment as teachers.

It is desired to make the work of this school so flexible and so practical that experienced teachers will find it profitable to ask for a year's leave to be spent in the classrooms, shops, laboratories, and kitchen of the Philippine Normal School. The coöperation of division superintendents and school officials everywhere is earnestly desired. Superintendents would find it to their interest to encourage young men and young women to seek training in the Normal School because the most reasonable hope to equip the schools with the kind of teachers essential to high efficiency is to appoint as teachers such young men and young women as have had thorough professional training in the Philippine Normal School.

SCHOOL OF FINE ARTS.

By Jose Ma. Asuncion, Secretary, School of Fine Arts, University of the Philippines.

The School of Fine Arts, established by Act No. 1870 as a branch of the University of the Philippines, has put into practice the original plan of teaching the plastic and graphic fine arts, and their branches, in accordance with the plans that have given satisfactory results in Europe. From the beginning all of the professors of the School of Fine Arts, the majority of whom were educated in Europe, have been teaching painting, sculpturing, and engraving by methods learned at such centers of the world of art as Rome, Paris, Madrid, and London. In addition to the preparatory or elementary class in drawing, which embraces decoration, landscape, and the painting of animals, flowers, plants, and the human figure, there are the higher classes as follows: Drawing of ancient and modern statuary; nature drawing from live models; higher landscape and carbon drawings, embracing excursions and studies in the field; coloring and pictorial composition from living models; decorative painting, lower and higher; ancient and modern statuary modelling and casting; modelling and casting from nature, live models and sculptural composition; engraving, incised or in relief, medals and coins, etchings, etc., elementary and higher; management of the reducing machine; pictorial anatomy; artist's anthropology, and science of expression; applied perspective in fine arts; general history of art; and ancient and modern dress.

The teaching of these subjects is adapted to the modern exigencies of art, the methods of which are principally practical, and in addition, exegetic practice, synthetic, analytic, and suggestive. Practical lessons predominate the theoretical in all classes, going from the known to the unknown, from the easy to the difficult, always emphasizing the virtue of constant work and effort, the basis of all professional success. The students are permitted to apply their artistic power in the different branches of study in the school, so that they may discover their vocation, their specialty and power, and at once develop their highest qualities along the certain line in which they can most easily succeed. In this way the students become familiarized with the different branches that are taught and they are given general artistic culture in graphic and plastic art. Thus the school follows the most modern methods of artistic teaching

which consist in respecting the tendencies and inclinations of each student.

Each specialty of the school is worked in its own technic and is entirely different from other branches of general education; a minute description of this difference cannot be included in this article. A two-hour class is given in practical work and a one-hour class to the application of theory. In the preparatory classes the students are given the greatest facilities to learn elementary drawing at almost any hour of the day, classes being held from 8 to 12 in the morning, from 2 to 6 in the afternoon, and from 6 to 8 in the evening.

The education of the feelings is a thing as important in artistic, as in scientific education. M. Laviesse used to say: "Give our students brief notions, simple reflexions, emotions." "Our

Medallions in bas-relief done in the engraving class at the School of Fine Arts. The one in the center is by G. Tolentino, the other two by Juan Zamora.

purpose," says Thomas, "above all, is to bring emotion to our students, to fit them to admire works of beauty."

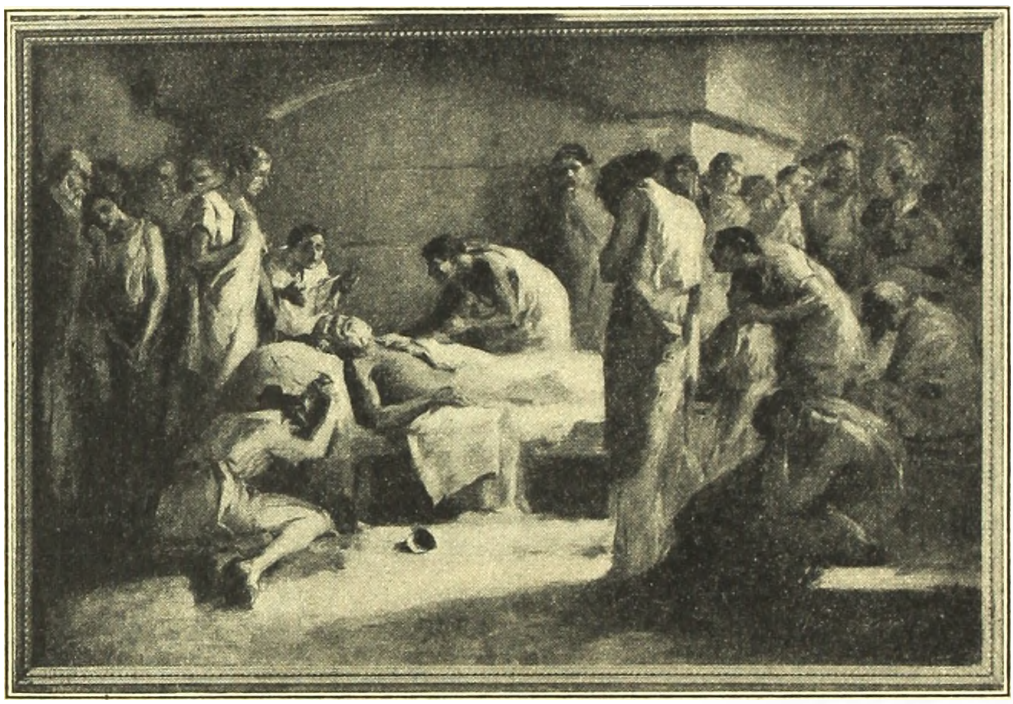
The students are taught high ideals of life such as the training of the will, the practice of moral virtues, the fulfillment of one's duty, self-restraint and self-mastery over the lower passions, self-sacrifice for the social good, and patriotism.

During the seven years that the School of Fine Arts has been in existence great improvements have been accomplished in the matter of equipment. At the beginning there were a limited number of printed models and some statues and busts from the old Spanish school of fine arts. Little by little this equipment has been improved by new acquisitions as follows: Life size statues, bas-reliefs, busts, friezes, animals, landscapes, and decorative motifs, allegories, and emblems. In 1910 the class in decorative painting was established as an enlargement of the pictorial branch; in 1914 the reducing machine was purchased for incised and raised engraving, which makes it pos-

sible for reduction or reproduction to be done perfectly. This machine is the only one of its kind in the Far East.

All of this equipment has contributed from year to year to the varied development of graphic and plastic art, the results of which have been evident in the annual expositions given at the end of each course.

Many of the graduate students after meeting the requirements necessary to obtain a diploma continue their studies in order to improve themselves in artistic knowledge, either in their own



The death of Socrates, a reproduction by Fernando C. Amorsolo of the class in coloring and composition at the School of Fine Arts.

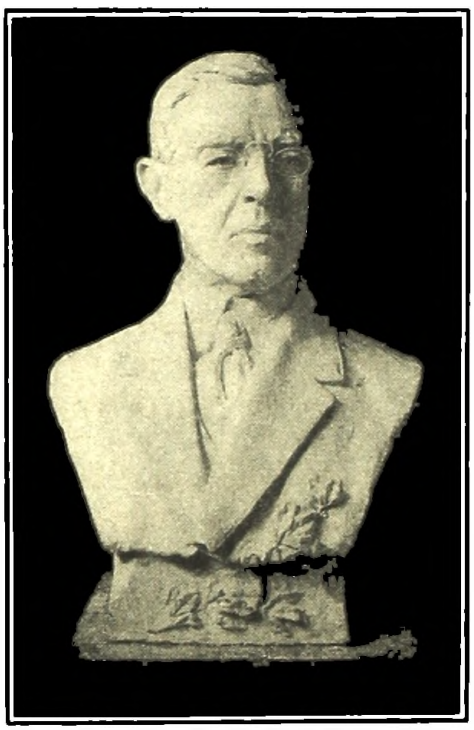
specialty or in other related branches; some of them find employment in the Bureaus of the Government as draftsmen, sculptors, painters, and engravers, contributing in this manner to the greater efficiency of the public service; some have been taken in as assistants by the School of Fine Arts. With all of these their principal ambition is to be appointed to go as students to Europe and America to continue their studies. During the Spanish régime, some students were pensioned during their time of study. Among these were Luna, Hidalgo, and Figueroa.

In order that the institution may justify its existence and intrench itself for the future it should utilize the technical knowledge of its students in the organization of a museum, just as is done in many other capitals of the world. The acqui-

A Baguio landscape. An oil painting done in class by Agapita Moreno, at the School of Fine Arts.

sition of works of art, ancient and modern, for the museum, to be kept where they may be studied, will be of benefit to the Filipino people.

Artists must also study the problems relating to the progress of art in the Philippines. It will be sufficient to cite a few things that need attention: Art legislation; competitions; national and regional expositions; tariffs and duties on works of art; copy-rights; markets and centers of art; technical processes, ancient and modern; relation between science and art; technical chemistry of colors; photography and processes of reproduction of different sorts; material and instruments for the conservation and restoration of works of art; city esthetics; construction of new buildings; conservation of monuments and



Bust of the President. Done in the sculpture class by Severino Fabie.

natural scenery; art industries in other countries; utility of practical teaching of drawing and plastic arts in the several grades of the primary, secondary schools and in the University; study of the existing styles of art; private collection and galleries; operation of museums; diffusion of general art culture; study of history of art and art industries; foundation of art industries and preparatory schools of drawing and modelling; museums of art reproductions of an archaeological interest, pedagogical museums, university extension, art school colonies, art excursions and explorations for the purpose of saving such objects from destruction through ignorance of the persons

having them; art societies; fraternity and solidarity in social life of artists; an illustrated press devoted to the fine arts.

Some of these problems are now the subject of much thought on the part of artists in all parts of the world and they must be given attention if the artistic life of the people is to be properly developed.

THE SLIP STITCH.

The demands of the buying public are so variable that what it calls for today may be rejected tomorrow. This is more noticeable in regard to styles. It is almost equally true in the matter of stitches. It was not so long ago that everyone was in favor of the buttonhole stitch, and not much before that, generally speaking, no one in the Philippines had ever heard of the slip stitch and knew much less of the difference between slip and buttonhole stitch.

The buttonhole stitch should be used on all coarse materials such as bed linens, table linens, towels. The extra twist given the thread when making the buttonhole stitch gives better results on coarser work, and the thread is not so apt to pull away from the material, as when the slip stitch is used on heavier materials.

Now it seems, however, that the slip stitch is preferred to the buttonhole stitch for use on all fine materials such as batiste, sheer linens, and piña. It is claimed that for commercial work the slip stitch not only looks better but is more profitable, taking only half the time to make that is required for the buttonhole stitch. It is prescribed for the margin of mosaic work, Italian cutwork, and filet drawnwork. Lace is always set in with the slip stitch. With Italian cutwork the slip stitch is always used whether the work is on coarse or fine material. For nightgowns, negligees, and corset covers, the slip stitch gives a smoother and better edge and when done carefully will outwear the garment.

The fine delicate work on piña calls for the slip stitch. Old pieces of beautifully embroidered piña testify to the slip stitch having lasted as long as the material. (F. M.)

SCHOOL OF HOUSEHOLD INDUSTRIES.

By Norah M. Wise, Superintendent.

The School of Household Industries was established in June, 1912, for the purpose of giving such training to certain women of each province as would fit them to return to their homes upon graduation and start industrial centers. These graduates would open schools and give instruction in commercial lace and embroidery to such women of their respective towns as they were able to interest in this line of work.

The school was first located at 266 Cabildo, Intramuros, but when these quarters proved inadequate, the school was removed to the more commodious building at 2973 Herran, Santa Ana, where it is now situated.

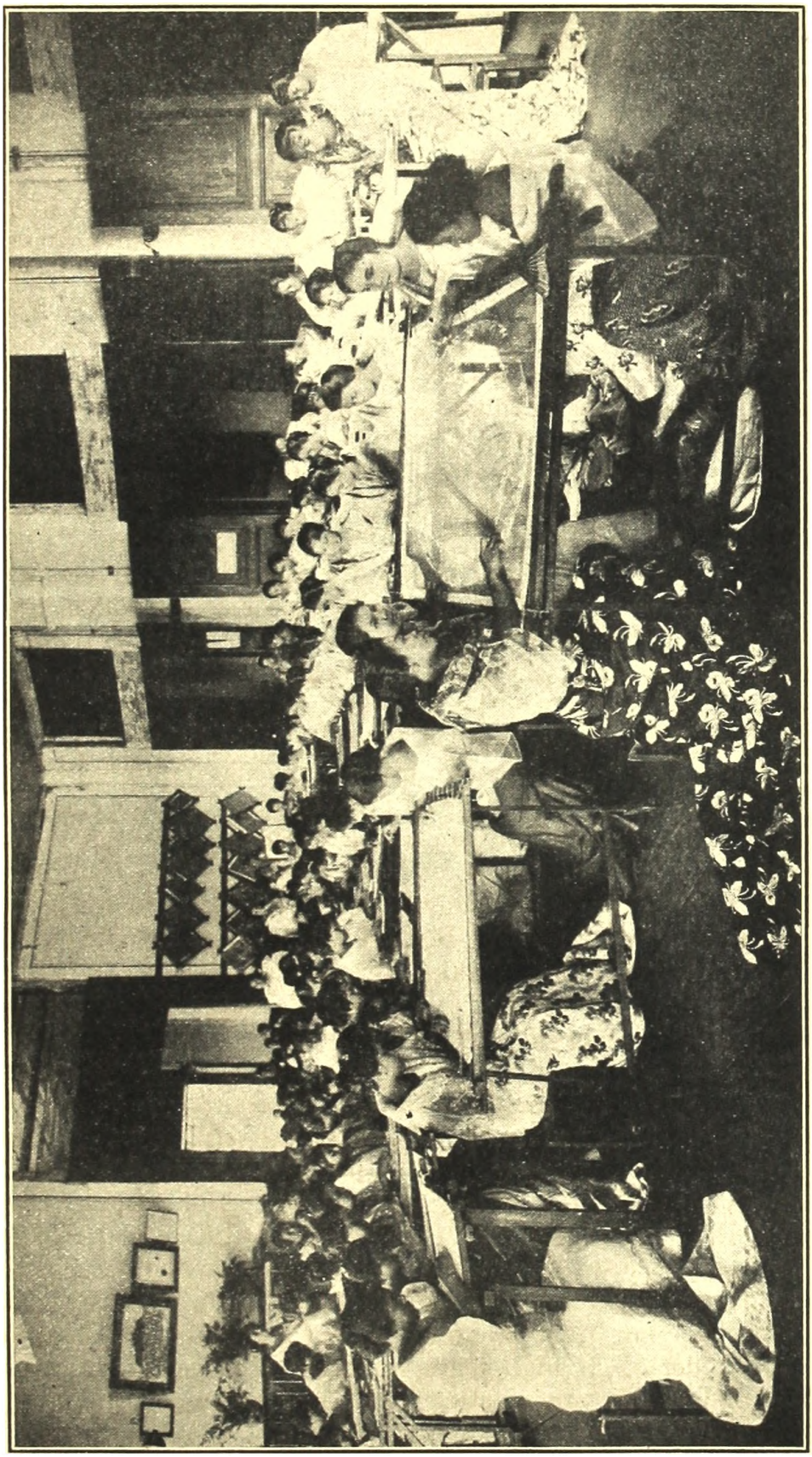
The large dormitory and halls, the beautiful grounds, and the ever cool and refreshing breeze from the Pasig which flows at the rear of the premises all contribute their share to the contentment of the girls who attend the school.

The course at first consisted of six months' training in lace and embroidery. In September, 1914, the course was lengthened to eight months in order to give additional training. This arrangement was followed until February of the present year when the length of the course was again reduced to six months.

In April of this year the increased demand for Philippine embroideries made it seem advisable to institute a new system of selection of pensionadas. Instead of selecting only one or two girls from a locality and thus covering the Islands, a larger number were chosen from a district in order to provide for larger working centers. One or two from each group thus selected were chosen to act as leaders and to take the business training prescribed. English was no longer a requirement.

Although high-grade work was, of course, still insisted upon, work that was of commercial value now began to take the place of that which was done merely for the sake of its artistic value. This work found ready buyers in the representatives of American firms who were looking for material with which to supply the demand created by the cessation of shipments from Europe.

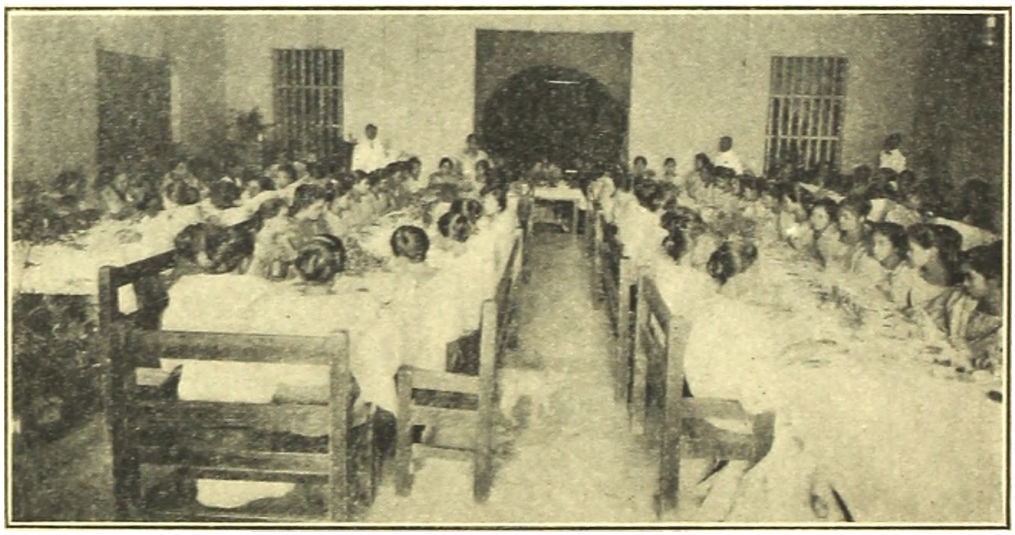
At the present time the work as outlined gives training in the embroidering of high-grade lingerie, table linens, handkerchiefs, and certain other articles. Lace is no longer taught.



The embroidery room of the School of Household Industries, 1916.

The pupils are taught economy of time and energy and, by means of the assignment of pieces of work to be accomplished within a specified time, they are impressed with the market value of the finished product. Upon the completion of the course, the pupils are given an oral examination and are graded according to their knowledge and dexterity.

Classes in business procedure are held. The girls are taught to keep accurately the records of all orders for work from firms or individuals and to keep expense accounts and worker's record forms. Training in letter writing and business terms is emphasized. The advantages of business integrity, and the loss which the lack of it will bring to workers are taught. An



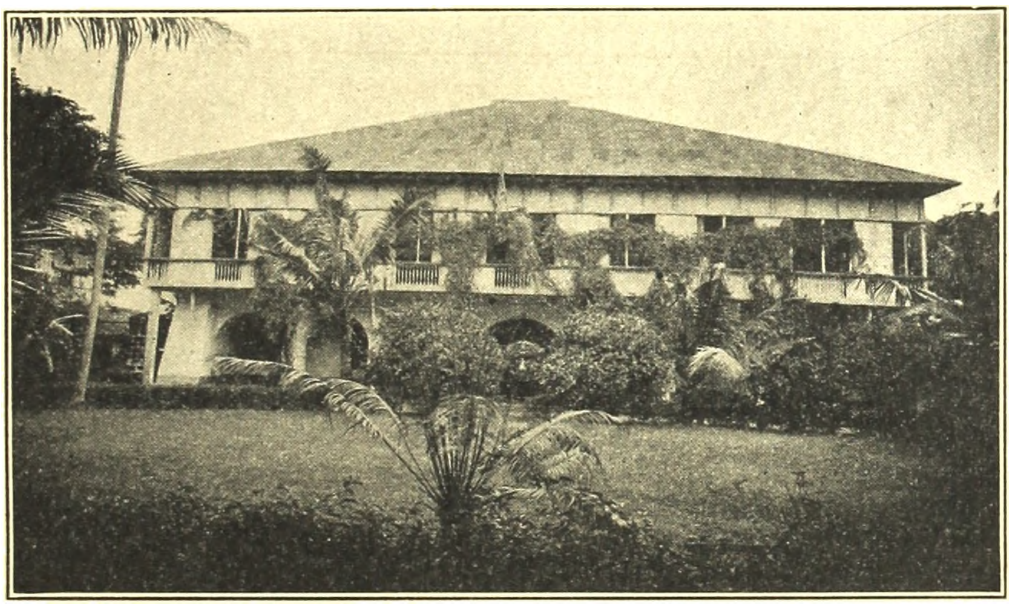
Girls at lunch, School of Household Industries.

effort is made to give the girls an idea of the many profits which are made on a single article in being handled by middlemen. This has been hard for them to understand, but it is hoped that actual business will give them a clearer insight into the facts. They are shown what may be saved by buying materials at wholesale.

Formerly there existed among the pensionadas an idea that all that was required in order to obtain a certificate of graduation was to stay for the time set by the Bureau. When the diplomas were given to all alike, there was no incentive for the good workers to become better, or for the inferior ones to strive to improve. This condition was corrected by the dismissal from the school of those who did not meet the requirements. When the pupils knew that they must work to be awarded a good mark, and that indifference meant dismissal from

the school without the coveted diploma, they put forth much greater efforts. At the present time no certificate of graduation is given until a year after completing the course. On leaving the school the young woman is given a letter to the division superintendent stating that, if after one year she has, in his opinion, met the spirit of her contract with the government to do commercial work, a certificate will be granted her. As all graduates are placed in household centers under the direction of the division office, it is possible to observe this work closely.

A few weeks ago a class of graduates was taken to visit a large commercial firm. They were greatly interested in the



The commodious building in which the School of Household Industries is located. Santa Ana, a suburb of Manila.

atmosphere of business, something with which they were not at all familiar. In the quiet order of their own schoolroom they had been taught precision and care, but in the business workrooms they found that they must acquire speed also to compete with the commercial world. This firm gave the school quite a large order, and in the effort to complete it within the time set, the girls learned a new lesson in business. This experience will have a tendency to correct the habit of procrastination and will bring about a new order of things for those who are really worthy of the assistance of the government.

The school now aims to teach the young women the interpretation of commercial designs in embroidery and the production of as high a grade of work as the markets of the United States will take. The lessons in efficiency and speed are receiving

great attention in order that the girls may later compete successfully with European workers.

As a much greater demand exists for commercial work than for the highest class of artistic work which only the rich can afford, this training will enable these women to enter the great markets of the world and to become firmly established before the European workers will have renewed their working centers after the war is over.

Formerly the pensionadas were chosen from the better educated families but it has been deemed advisable in the light of later experience to select workers from the more humble homes where each member of the family is depended upon to do his part. It is believed that such a plan assures pensionadas that will be more appreciative of the education given them by the Government, and will put to more practical use the knowledge gained in the school.

The industrial propaganda of the Bureau of Education is reaching the non-Christian people in Mountain Province. They have natural skill as carvers and basket weavers. They have long made curious bowls, spoons, plates, and images of people and animals in wood. Under the influence of the schools, they are beginning to fabricate more attractive and more durable baskets. These are sold at the local shops and at the government exchange stores. (M. N.)

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If the average Filipino schoolboy is once told to do a thing, he usually executes the instructions fairly well; but let him be told the same thing three times in different words, and he fails. Repetition has its value in teaching, but a point once explained, slowly and plainly, according to a plan previously prepared, is better understood than one demonstrated in half a dozen ways, while the matter unfolds itself in the teacher's mind. (R. R. P.)

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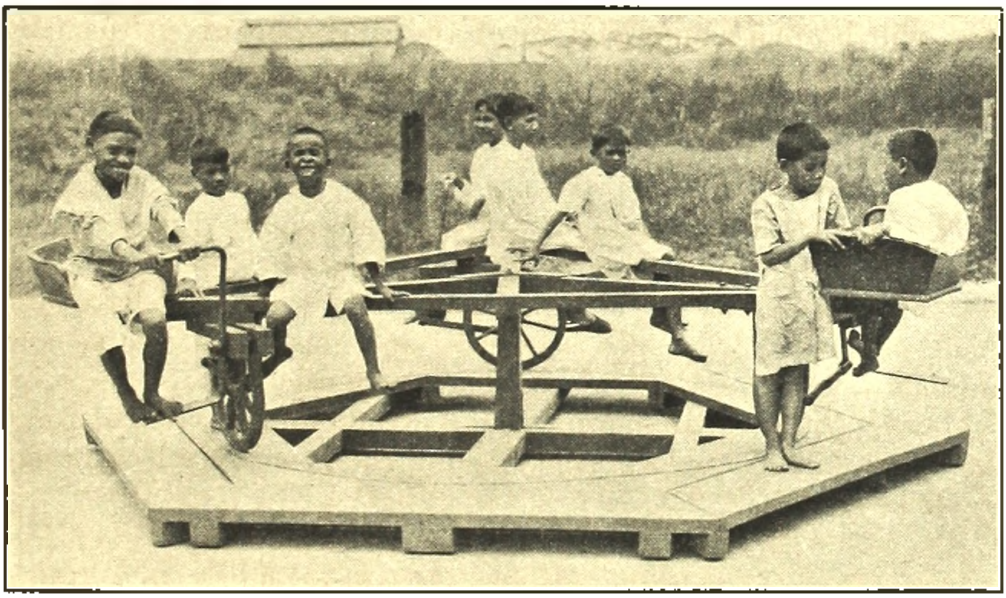
Ordinarily few Filipino girls care to admit that they do their own housework because they have no servants. But if the teacher or some popular girl takes an active interest in sweeping, cooking or dusting in her own home, the doing of one's own housework soon becomes popular. Girls who before felt that there was a stigma attached to such work, are glad to do it when correct examples are set. (G. W. S.)

SCHOOL FOR THE DEAF AND THE BLIND.

By Miss Delight Rice, Principal.

When the School for the Deaf and the Blind in Manila was first opened in 1907, it was next to impossible to get pupils. The teacher was sent to the provinces to explain the possibilities opened to the deaf. She met with doubt on every side. In the end she succeeded in securing 13 pupils but it was at the expense of much physical and nervous energy. It was no uncommon experience to spend seven hours in a home appealing to the parents



The physical welfare of the pupils is not neglected.

and relatives to allow the afflicted child a chance to become a self-respecting citizen. But conditions have changed materially. There is no longer any need of sending out to the highways and byways, for the parents bring their children in such numbers that the building is overcrowded. Today 61 pupils are enrolled, 24 of whom are under the age of 8 years. These little ones will show the results of an education more than any who have yet left the school.

The deaf children are taught all the common branches of study such as reading and arithmetic through writing, and finger spelling. There is a class, too, that receives some instruction in speech and the reading of lips but the few teachers employed are so overcrowded that no systematic effort can be made. The

aim of the school is to send out efficient workers who will be independent and happy.

The first step with the deaf is to teach them language. The layman does not realize that normal children acquire language because they are talked to from birth. They hear language and unconsciously absorb it. How different with the deaf baby! As soon as its family finds it cannot hear, direct speech is stopped and the child loses its opportunities. Deaf children have the same ideas as normal children have but not the same means of expression.

An effort is made to coordinate everything in the child's daily life. With this in view, the teacher must be with the children

The blind children make very creditable baskets and rugs.

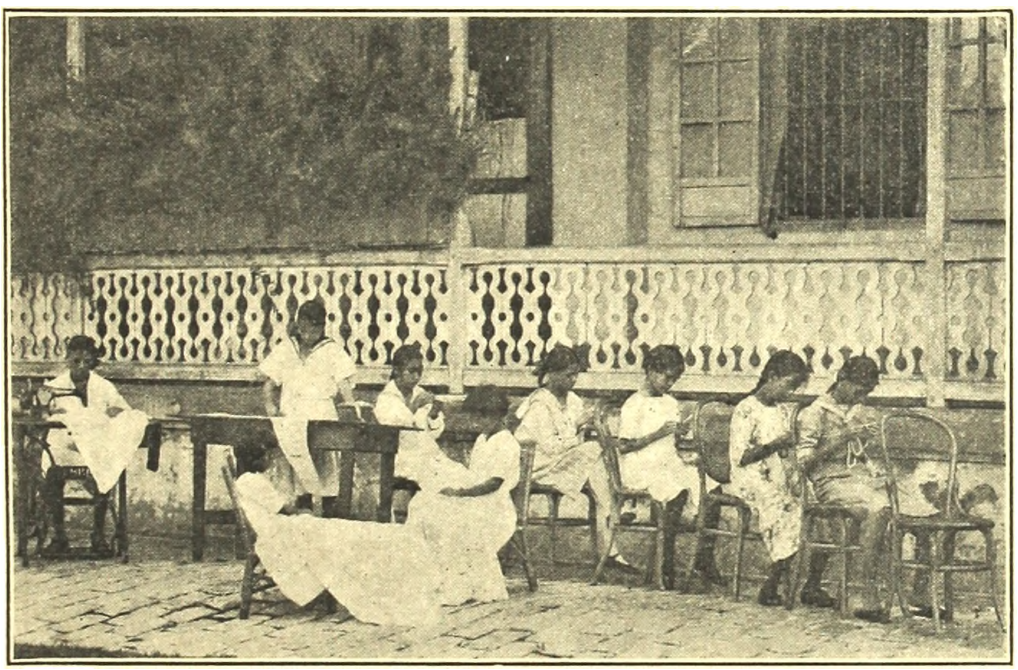
not only in the schoolroom but in the workshop, on the playground, and in the study room. She tries to understand each new experience of the child and to use it in all possible lessons.

Realizing that there is need of planning the future for each individual some means of livelihood is taught each one. The deaf boys are taught gardening, carpentry, and poultry raising, in addition to their regularly assigned household duties. The school has to its credit among it graduates self-supporting sewing women, tailors, shoemakers, printers, cooks, and bakers. The girls have practical training in the care of the home, sewing, lace making, and crocheting. Each of the older girls is responsible for the cleanliness of a younger child, and sees that his clothes

are in good order and that he is prompt. What has been said of the girls applies equally to both the deaf and the blind. No one is excused from the daily routine of work because of affliction. Each one is helped to help himself.

The classes for the blind follow the general course of instruction as issued by the Bureau of Education. Three boys graduated in March, 1916, having completed seven years' work in five years. Two of these are now studying at the Manila High School and the third is seeking employment as a telephone switchboard operator.

These blind students use the Braille system of writing, the



Among other lines of work the girls are taught to do plain sewing and filet lace.

characters of which are formed by a combination of raised points. The writing is done with a sharp pointed stylus, from right to left; the paper being reversed and read from left to right. Classes in typewriting, basketry, and sloyd are also included in the course.

For recreation the children have a merry-go-round which is run by foot and hand power, thus affording a splendid exercise. There is also a running track made especially for the blind by stretching wires along the whole length to which are attached sliding handles. These guide the children in their races. A number of friends have volunteered their services as readers and pianists. As they come in after school hours, many hours which might otherwise be idle are spent in gaining a knowledge of current events and good books. Another means of instruction

and pleasure are the biweekly literary meetings. The deaf and the blind each having their own organization. Each organization arranges its program of debates, declamations, dramas, and songs; and one does about as well as the other.

When the pupils first enter the school they are inactive because of ignorance rather than from choice. The teachers strive to direct the energies through such channels that each may go back to his home, an asset and not a burden to the state. In comparison with the schools of the Occident, this school is not accomplishing much but a beginning has been made, and the lot of those who have left the school is vastly happier than that which any of the blind have experienced in these Islands in the past.

QUALIFICATIONS OF VOCATIONAL TEACHERS.

The chief qualifications requisite for success in the teacher of vocational subjects are: (1) Character, personality; (2) mastery of the processes—the technic of the occupation for which the student is to be prepared; and (3) teaching ability which includes some understanding of the laws of intellectual development and the learning and teaching processes, combined with skill in the actual imparting of knowledge and in the direction and guidance of the development of the individual. The serious difficulties involved in securing these three desirable qualifications in the same individual are apparent as soon as the analysis is made.

(1) Apparently the only way open to the individual to acquire the first—character, personality—is to be born with a reasonable endowment, as original equipment, and then to develop and perfect it by years of patient and strenuous self-discipline. An excellent way to demonstrate ability to lead, direct, and control others as the teacher must do, is successfully to control one's self and make the most of one's own opportunities.

(2) It seems to be generally agreed that the only practicable way to obtain the second qualification—the necessary knowledge of the vocation—is to serve for a time as an actual wage earner in it.

(3) The third of the essential elements—teaching ability—can be acquired effectively in only two ways: (*a*) By years of actual teaching experience under competent and sympathetic supervision, or (*b*) by specific training. In either case the difficulties in the way of securing this equipment in combination with practical experience in some other skilled occupation are extremely discouraging. (Selected.)

PHILIPPINE NAUTICAL SCHOOL.

By CARL RYDELL, Instructor.

In response to a long-felt need for trained nautical men in the Philippines the Philippine Nautical School was established in the year 1913 as a part of the Philippine School of Arts and Trades. The school occupies the old trade-school building on Arroceros. Some eight years earlier there had been such a school but it was discontinued on account of a lack of boats upon which the students could get the necessary practical experience.

Considering its equipment and the limited advantages open to the students the school has done good work, but the facilities are not such as to meet the needs of the Philippines. No beginning class was admitted this year because of the small number of boats on which the students can get training. The course provides for two years in school and eighteen months of actual service on the water. At the end of this time, if the student can pass an officer's examination he is given an officer's license.

It is too early yet to judge of the results of the training given those students who have been taking the course. It is well to note, however, that of the twenty who took the preliminary examination at the end of the school year 1913–14, all but one passed. So far as the theoretical part of the training goes, these students seem to have done well. As some of them had already had some experience they were given credit on the required eighteen months of experience. These graduates have already obtained their officer's licenses. A roster of the class shows that they are practically all employed on interisland boats at good salaries. Others who graduated later have been promised licenses as soon as they can pass the required examination.

There is no doubt about the great need of well-trained mariners in the Philippines. Practically all of the trade of the Islands has to be carried on by water and the Islands should not have to depend upon foreign vessels to carry all of the commerce.

Just as the need of men is great, so is there a need for these men to be well trained. Other countries are preparing men who expect to follow a seafaring life and if the Philippine

Government does not give an opportunity to those who wish to prepare themselves to do this work the Islands will not be able to compete successfully with these other countries.

The life that opens to a man who is well trained for an officer's place on a ship is an interesting one. The ship's master ranks well with the business man or with the professional man and his experiences are generally more varied. He has an opportunity to travel and to observe the manners, customs, and business methods in many parts of the world.

A man to be successful as ship's master must be an intelligent man to begin with. There are many things that he has to learn very thoroughly in a limited space of time while in training, and once he has been put in command of a vessel he has a great deal of responsibility. In the course of a year he has under his charge millions of pesos worth of cargo and thousands of lives. He has to meet people of all classes and under all kinds of circumstances. Often he has to be very diplomatic in order not to lose big sums of money for his employers.

With this need before the people of the Philippines and with the natural disposition of so many young men drawing them toward a seafaring life it seems imperative that more adequate facilities be provided for the Philippine Nautical School so that its usefulness may be increased.

FARMING IS THE BEST.

William Jennings Bryan gives eight good reasons why young men should chose farming in preference to the other occupations and professions. Here they are: "(1) Farming is the most independent way of living; (2) less capital is required to start farming than to enter any other independent business; (3) all members of the family can participate in some way in the work of the farm; (4) farm life is healthful; (5) farming develops useful habits of industry and application; (6) the farm provides the most wholesome environment for growing children; (7) farm life teaches the true philosophy that labor is honorable and worthy of reward; (8) the farmer is the most independent factor in our political life."—Journal of Education.

PHILIPPINE SCHOOL OF COMMERCE.

By CHARLES H. STORMS, Principal.

No longer is it true that the demand for stenographers exceeds the supply. At best, this statement is only a half truth. It may better be said that the demand for good stenographers, good bookkeepers, and men with the fundamentals of an all round business education greatly exceeds the supply, and that too, at a time when the opportunities for such workers are far greater than they have ever been before. The period of fairly good office assistants is rapidly passing in the Philippines, and a common belief that a stenographer does not have to study very hard to master his craft or work very hard to obtain his salary must pass with it if the friends and advisers of young Filipinos are faithful to their friendship.

Selecting at random fifty papers handed in by seventh-grade applicants for admission to the Philippine School of Commerce in June, the following may be given as a summary of the answers to the question, "Why do you wish to study stenography?"

Ten—It offers good opportunities for advancement in business and professional life.

Fifteen—It offers a short preparatory course for work.

Twenty—It offers an easily obtained position at a good salary.

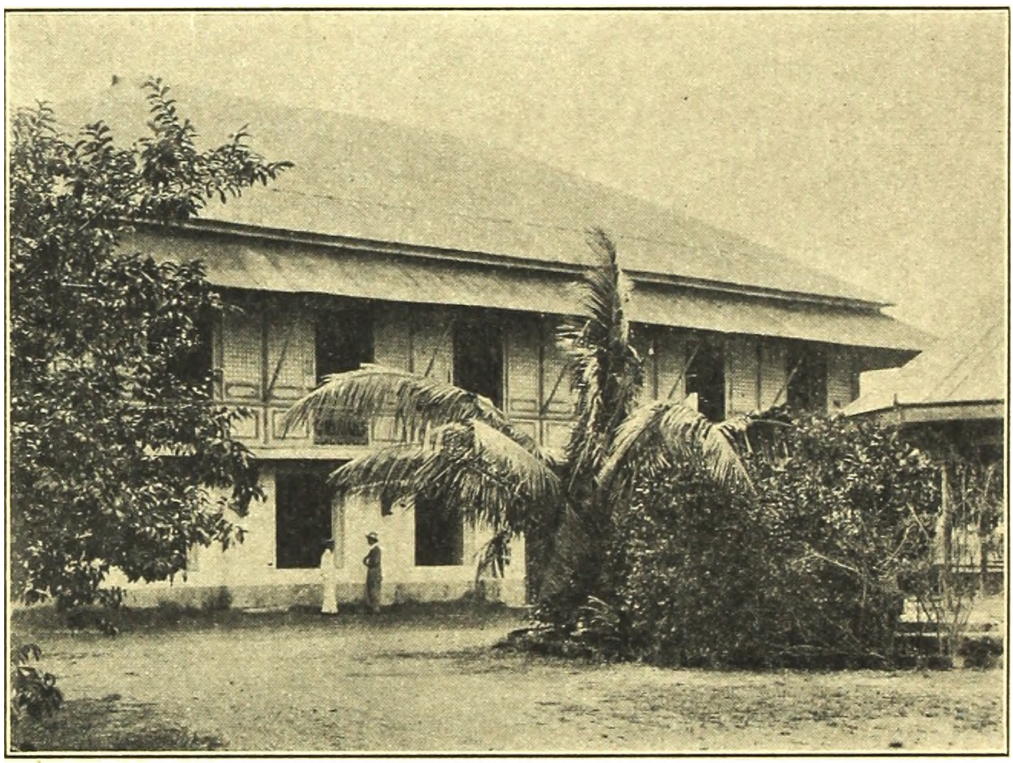
Five—Not classified.

It will be noted that 10 have ambitions to become stenographers as a stepping-stone to something better; 15 regard a stenographer's position as an ultimate goal; 20 would accept any work which is not too hard.

By their answers, these students have divided themselves into two classes usually represented in the School of Commerce. Those in the first class have a definite goal in sight and have worked out, with the assistance of friends and teachers, a well-defined program leading toward that goal. As graduates, they have usually brought credit to the institution, many of them a few years after graduation occupying positions paying from ₱80 to ₱250 a month. That these men continue to advance from year to year is evidenced by the fact that many Filipinos who began life as clerks, a few years ago, are now ranking high in governmental and commercial spheres.

Those comprising the second class are simply hunting an

education as an easy means of obtaining a livelihood. Students of this class compose the majority of the repeaters and of the ultimate failures in the school. As seventh-grade graduates, they are not mature enough to devote themselves to specialized studies. The time they spend in school causes an economic loss, both to the Government which supports the institution and to the students themselves who are wasting money and valuable time which could better be spent in some other place. The majority of them should spend from one to four years in a regular secondary school and a few should never attempt the higher specialized



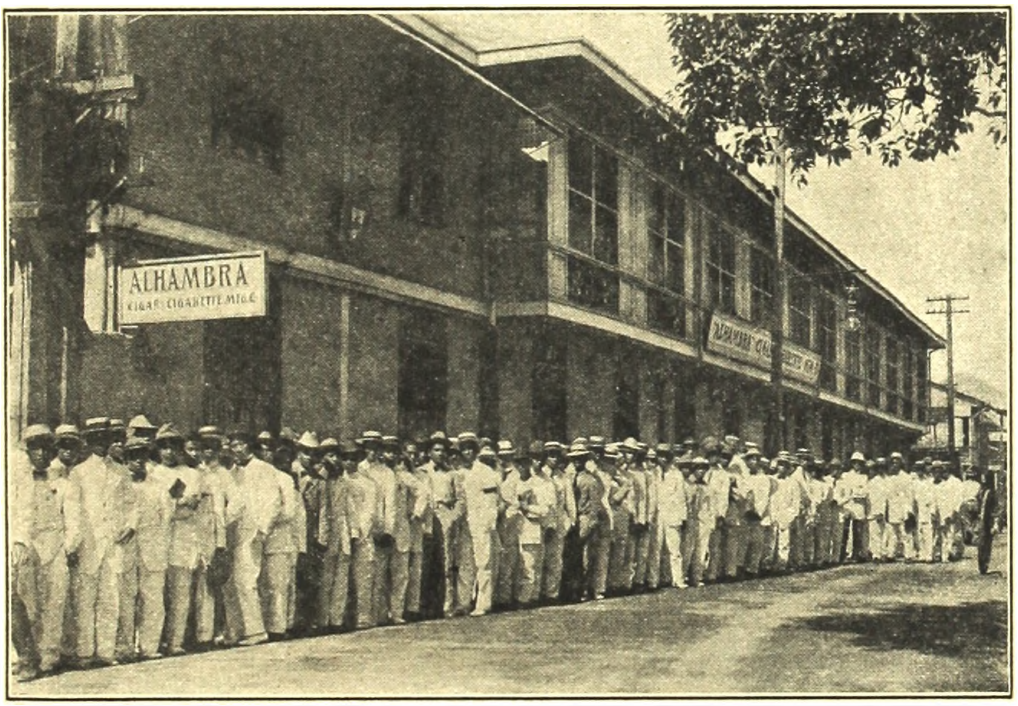
The main building of the Philippine School of Commerce.

work at all. To give instruction in a commercial school economically and effectively, it is necessary that parents, friends, and teachers of students in the lower grades cooperate with faculty of the School of Commerce in selecting for admission only students who may readily profit by the courses offered.

This school was not planned to teach stenography and bookkeeping alone, but general commercial branches as well. The rapidly increasing commercial activity in the Islands indicates that the time is ripe to seek for more students who want to be stenographers and bookkeepers in order to prepare themselves for more responsible positions later in life.

Few people will question the existence of latent business

instincts in the inhabitants of these Islands or fail to observe the keen delight taken by the average Filipino in making a trade. These facts, however, seem inconsistent with the often repeated statements that 99 per cent of the production of the Islands is by Filipino labor and that 90 per cent of the commerce, both foreign and domestic, is controlled by foreigners. However true these statements may have been in the past, there are many indications of a changing commercial status of the Filipino people. Many specific examples could be cited. The expanding business of a certain tienda in Manila has for some months been

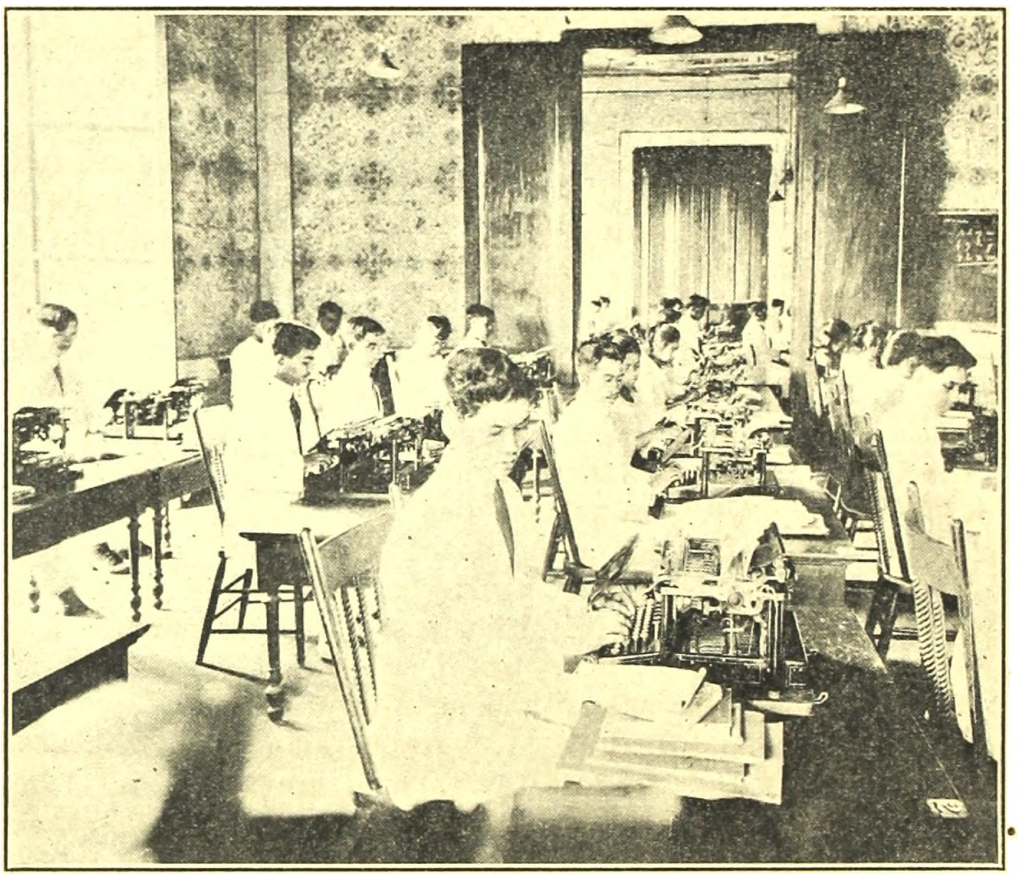


One of the frequent and instructive excursions taken by the students at the Philippine School of Commerce, for the purpose of studying business methods.

a matter of interest to observing neighbors. At first the stock consisted of the usual cheap candies, bottled goods, cigarettes, and a box of Londres. At the present time, however, a telephone and a fairly complete stock of groceries may be seen in the store; the proprietor converses with his customers in any of three languages; he is prompt, painstaking, obliging, and energetic. In all fairness, it must be said that he has been detected selling some things at about 25 per cent of their market value while other wares have been priced in excess of current rates because he was not familiar enough with them to know just what they cost. His ultimate success or failure seems to depend, in a large measure, on his ability to keep in close touch with the wholesale markets and to install a suitable

system of bookkeeping. At present he is at the mercy of anyone to whom he may apply for necessary information.

The Philippine School of Commerce is available for students of the type represented by this young man. The principles of salesmanship, the importance of accuracy even in petty details; the development of ideals; the explanation of methods, and the rules of conduct which should govern the alert business man are important matters to young men of this class and are well worthy of their careful study.



A class in typewriting at the Philippine School of Commerce.

Classes in this institution are organized on the following basis: two years for the study of stenography or bookkeeping, or one year in stenography for those with advanced standing in English, and three years for covering one or both of the two courses first mentioned with additional allied subjects. Instruction is given in both the English and the Spanish languages, in commercial law and business methods, and special attention is devoted to a study of the requisites of a good business letter. Opportunities are offered from time to time to visit the leading commercial and manufacturing establishments of the city, thus

permitting the students to gain first-hand information of methods used by successful business men. A new departure this year has been the organization of a commercial club for the purpose of studying the interesting situation manifested in the business world at the present time. This club holds monthly meetings and takes the place of the usual literary society.

Practically 100 per cent of the students in the night classes and over 25 per cent of those attending the day sessions are financially independent in that they are working their way through school. These young men are making sacrifices to obtain an education and the school management tries to coöperate with them wherever possible. Some of the most promising students belong to this class.

It is hardly fair to omit mention of the young women graduates, who are numbered among the most successful workers sent out by the school. While it is true that some young women appear unable to master stenography, those who are adapted to the work seem to develop a greater degree of accuracy and skill than do the average young men. Without doubt, the best interests of the business world would be served if more young women were to engage in this occupation.

Since June, 1916, over three hundred applicants for admission to the school have been turned away, largely because of lack of room. Since the beginning of the school year, applications for stenographers have come from the East Indies, from near by provinces, and from several business and Government offices in Manila. Not all of these have been filled. These positions offer a fair entrance salary and definite promises of advancement. The demand for good stenographers and men with good business ability is large and the salaries are satisfactory, but the qualifications of applicants must measure up to a higher standard than ever before.

SOME RESULTS FROM HAVING SPECIALIZED IN EMBROIDERY.

By LEROY MARTIN, Division Industrial Supervisor, Union.

Twelve of the fourteen municipalities of La Union do embroidery and two make lace. The course of study is followed carefully, but this year only two double periods each week are given to embroidery in the fourth and intermediate grades, instead of three double periods heretofore required.

There are seven teachers who are considered very good in embroidery work, including the division supervisor of girls' work, but not including the representative of the General Office in charge of the household industry class in San Fernando. The division supervisor of girls' work gives more time to primary industrial work than to embroidery. Two of the embroidery teachers have attended the Vacation Assembly in Manila. Five of the municipalities have teachers who are rated as "fair" in charge of the embroidery.

There are no records available to show the number of articles fabricated, the designs used, or the number of girls engaged in the work. Fairly reliable generalizations, however, can be made.

The total value of the output for 1915–16 as reported by the division industrial supervisor was ₱1,844.79, of which about ₱550 is yet on hand.

The money was distributed on the basis of 50 per cent of the value of the work to the pupil and 50 per cent to the pupils' fund. Much of the material of the finished work on hand was purchased from the pupils' fund. When a reduction is made in the selling price of an article the worker suffers the entire reduction. In many cases she receives nothing for her work.

Specialization affects the quality of the work indirectly. When the time for fabrication is not sufficient the workers will be hurried and the quality of the product is lowered. If, however, the pupil is taught that good work brings a better price than poor work, the standard is raised. Under proper supervision specialization in embroidery will raise the standard of workmanship.

As a direct result of raising the standard of workmanship the pupil will make more money. Under the system of 1916–17, when the General Office sends out the stamped materials and fixes the price, the remuneration of the pupils is controlled by

the General Office. When the work is accepted at a price that is too low the pupil's profit is reduced.

The total product is increased, but this increase is not due to specialization. It is due to the fact that the workers receive pay for the work done. This is not true in plain sewing. In plain sewing the worker not only receives no pay but must buy her materials. In embroidery the materials are furnished and the pupil is paid for her work. The remuneration and not specialization is responsible for the increase in production.

It is true that the pupils will make more money as a result of specialization. One reason is that the teacher can give more careful supervision and instruction when her attention is centered upon one line of work. The pupil also gains proficiency by working at the same design week after week. It is believed that specialization should be carried yet further where it is possible to do so. Where it is possible each school should be limited to one particular design for at least one school year.

This plan will be tried out in the local industrial center and an accurate time record will be kept of each article made by each girl. When the order is completed the records will be studied and it will be ascertained whether the speed of the worker increases as she works on the same design.

There are some unfavorable results to be guarded against in specialization. The first one is that the teachers will place too much stress upon the one line. Every municipality in Union has requested that pupils be excused from plain sewing in order to work on embroidery. The art of plain sewing is much more important to the Filipino girl than skill in embroidery. It occupies a much more important place in the home life of the girl than does embroidery.

This unconscious stressing of the subject tends to detract from the academic subjects also. Unless the teacher is careful the pupil will give more time to embroidery than she should.

Another evil is that of working at home at night. Very few Filipino homes have adequate lighting arrangements for the children to do embroidery work. The poor light is very apt to strain the eyes and work a permanent injury. The work should be limited to the industrial period in the school and should be done only under the supervision of the teacher.

The prospects for embroidery for 1916–17 are better because of the Bureau's having laid stress on specialization. The effect is more indirect than direct. The improved prospects are due directly to the orders which have been received from the General Office.

The orders accepted to date total ₱1,140 as against the grand total of ₱1,844 for the full year of 1915–16. Orders to the value of over ₱400 have already been completed. From now on, this province should turn out approximately ₱350 worth of embroidery a month.

Since the organization of the first schools on Negros, difficulty has been experienced in settling upon a system of school organization which would meet with the hearty support of the hacenderos and still come up to the standards of the Bureau of Education.

It was urged that the children of the laborers on the haciendas could not attend school, as they must eat with their parents and the meal hours came in conflict with the school hours.

The following tentative plan is being tried out and marks the first step in a plan to do away with this objection:

Instead of making any attempt to get the children into the regular school, special schools, which shall deviate somewhat from the regular course, are to be established. Each hacendero supplies a room in which instruction may be given, free of cost to the municipality, while teachers are sent out to the haciendas at municipal expense. Each teacher has three separate classes daily, one from 6 to 8.30 a. m., one from 11 a. m. to 1.30 p. m., and from 2 to 5 p. m. That is, he teaches one class before breakfast in the morning, which enables the children to go to breakfast with their parents. The middle-of-day class enables those who have been working during the forenoon to secure two hours and a half instruction. The afternoon class usually consists of those who do not have work in the afternoon. This plan permits the children to secure two and a half hours of academic teaching, yet permits the hacenderos the benefit of their services practically all day.

So far, in pursuance of this plan, nine of these schools have been established under three teachers with a total enrollment of 445 pupils and an average daily attendance of 390. When the fact that these pupils would be receiving absolutely no instruction without the organization of these particular schools is considered, the plan is fully justified, even though the entire course of study cannot be carried out. One hacendero has already constructed, at his own expense, a building for a school, and others will do likewise at an early date. At the present, most of the schools are being held in the sugar mills.

HOW SPECIALIZATION MAY BE CARRIED TOO FAR.

By Gilbert S. Perez.

A story is told of the origin of a great shoe factory which illustrates so well the value of specialization as an aid to efficiency in industrial work that it is quoted:

"Long years ago, in a little New England village, there lived a young and ambitious shoemaker. He was considered one of the best craftsmen in the township. He tanned his cowhides, fashioned his lasts, cut the soles and uppers himself, and finally sewed or nailed them together. As far as workmanship was concerned, the shoes were the best that could be made but he was not satisfied with the number of shoes that he could make in a month. He discovered, however, that if some one else could tan the hides for him he could make more shoes; so a tanner's shop was built across the way. Still the number of shoes made was very small, so he hired another man to sew the upper parts of the shoes together. By buying his lasts from the village carpenter and turner, he found that he could not only make more shoes than ever before, but he could also sell them at a much lower price. Business prospered and the shoemaker was turning out a dozen shoes in the time in which he formerly made one. He was soon on the road to wealth and independence. Shortly afterwards the tanner erected a large stone vat which was capable of tanning hundreds of hides a day; the man who sewed the uppers found that by using machinery he could double the capacity of his shop; and the village carpenter and turner discovered that by installing an electric planer and lathe he could turn out a larger number of lasts in a day than the shoemaker could use in a year. The old shoemaker refused to break away from his old hand methods and as his old methods were too slow to suit the other men concerned, an expert machinist set up a machine that would sew the uppers and the soles together. This was the beginning of a great shoe factory that is now known all over the world. And what of the old shoemaker? He stuck to his hand methods and refused to specialize. He is still living and a visitor to the city which has grown up from that village, would find in an obscure alley an aged stoop-shouldered man bending over his bench sewing old soles to still much older uppers. As

he waxes his threads he dreams of the time when he was considered one of the best shoemakers in New England. The rusty weatherworn sign, 'Boots and Shoes Made to Order and Repaired,' is the last vestige of his former wealth and prosperity. The shoemaker, as a craftsman, has gone forever, left behind by an age of specialization and efficiency."

Is this story a proof that efficiency is the natural sequence of specialization? Does it emphasize the fact that with specialization comes an increase in income and a decrease in the price

Specialization of course but not of design. After finishing these three types of baskets pupils may make any basket in the course. Central School, Tagbilaran, Bohol.

of commodities? The great Krupp gun works in Essen, and the famous Ford automobile factory in Detroit are but a few of the wonderful examples of the multiplication of efficiency by means of intensive specialization. A visit to these factories would disclose the fact that each man is a specialist, each has his own work to perform, his own place in the cogwheels that are grinding out cannons and automobiles by the thousands.

Considering the purely commercial side, it is only by specialization that education can attain a high degree of economic efficiency. The old Jack-of-all-trades education that does not

prepare a boy for any special work after graduation is giving way to specialized courses which fit boys and girls for certain positions in life.

In this material age, however, when efficiency is given so much prominence in periodicals, magazines, and discussions, there is danger of going too far. While putting emphasis upon specialization care should be taken not to over-specialize. If schools are to be considered as mere factories for the production of articles, then specialization cannot be over-emphasized, but it should not be forgotten that the prime object or purpose of a school is to turn out men and women who are able to do and who will do, men who can think of what to do even if there is no one there to suggest. In industrial work it is natural to expect specialization. If a boy intends to be a carpenter, one would not expect him to spend a great part of his time stone-cutting. On the other hand, the fact that he specializes in woodwork is no reason why he should spend all of his time making a special size of a special kind of school desk, even if this does increase the money producing efficiency of the school 25 per cent. The purpose of the course is to award him a diploma as graduate woodworker and not as a graduate maker of standard desks No. 4*a*.

There is no need for over-specialization. It is reasonable to say that schools should specialize either in lace making or embroidery, but it is going too far to say that they should specialize in one kind of stitch. From a commercial point of view only, more would be accomplished by having one group of girls do embroidery and another calado, so that each group might become expert in its special work. In this way more and better articles would be made but by following this procedure the real training of the girls might be overlooked. Would that division of the work graduate a class of embroiderers or would it graduate a class of experts in calado and satin stitch? A girl finishing a three-years' course in household arts should be able to do any kind of embroidery, it does not matter what changes may come in style and stitches.

A reduction in the number of courses would be a step in the direction of specialization. The large variety in basketry courses is due rather to a difference in materials than to any great difference in technic. This is especially true in the case of baskets made of coiled fibers, coiled stems, and coiled strips. Stem basketry, polangui basketry, and bamboo basketry are practically the same, because a boy who can make one can just as easily make the other without further instruction.

In fact, the similarity between the courses is so great that one has to look at the label to determine to what group a basket belongs. It would be an aid to specialization to divide the basketry into the three general groups, rib basketry, coil basketry, and platted basketry, which cover all forms made in the schools. A pupil could then specialize in one of these courses and learn it so well that he could reproduce any form of basket placed before him, it matters not how often the styles change or the demand for one kind of basket diminishes. By consulting Technical Bulletin No. 26, s. 1916, it will be seen that there are enough baskets in each course to make a representative variety of baskets without over-specialization. It is not the policy of the Bureau, as some believe, to have a pupil spend all of his time on one kind of basket or on one kind of lace pattern. The very fact that the embroidery and lace samplers must be completed before a pupil is given work on a salable article shows the true purpose of the Bureau in its efforts toward specialization. The industrial work is a course just the same as arithmetic and grammar, and should be so considered. There are a number of teachers who specialize in arithmetic or in grammar, but no one ever heard of a teacher devoting all his time to fractions or of one who specialized in intransitive verbs.

In boys' industrial work, there should be specialization in courses but not specialization in subdivisions of these courses. In woodworking the work should be comprehensive enough to enable the boy to get such a broad training that he could undertake any ordinary woodwork job he could get. In gardening the schools should specialize in field crops, animal husbandry or market gardening only after having acquired such a general and broad foundation as would enable him to take these up successfully and to understand the coördination of these three most important branches of agriculture. In basketry the courses should be followed as outlined in technical bulletins, specialization coming only after complete mastery of the technique of the work.

In Tagbilaran the course method was successfully followed. The course consisted in the making of three kinds of bamboo baskets. The shapes of these baskets were typical and were chosen with the idea of familiarizing the pupil with different forms of this kind of basketry. All materials for these baskets were prepared, inspected and graded before the work on the baskets was begun. This tended to make all baskets uniform in size and in shape. After successfully completing one of each of these baskets the pupil specialized on the shape that appealed

to him the most. This was specialization without losing sight of the pedagogical side of the work.

In girls' work the aim should be to train the girls to be expert lace makers or embroiderers. They should be so thoroughly trained that their three years' work would fit them, not only to earn pin money but to pay a great portion of their own expenses. No one ever thinks of changing the purpose of the plain sewing course by specializing in camisas. The course is so planned that the girl can make any garment that is needed by the family. The courses in needlework are so planned that the girl can fill any order that comes in. Over-specialization or the making of only one design during the school year will destroy the purpose and the efficiency of the course. Sane specialization increases a teacher's efficiency, lessens the cost of material and equipment, increases the output, facilitates marketing, and doubles and trebles the sales, without interfering with the purely educational side of the work.

"Let us examine any well-managed and successful business firm or factory. Every employee does the work he knows and does best, the skilled workman, the accountant, the manager, and the secretary, each in his place. No one would dream of making the accountant change places with a commercial traveler or a mechanic."

* * * * * * *

"In a well-constituted society, each organ has its definite function, that is to say, administration is carried on by those who have learned how to administer, legislation and the amendment of laws by those who have learned how to legislate, justice by those who have studied jurisprudence; and the functions of a country postman are not given to a paralytic. Society should model itself on nature, whose plan is specialization. 'For,' as Aristotle says, 'she is not niggardly, like the Delphian smiths whose knives have to serve for many purposes, she makes each thing for a single purpose and the best instrument is that which serves one and not many uses.' Elsewhere he says, 'At Carthage it is thought an honor to hold many offices, but a man only does one thing well. The legislator should see to this, and prevent the same man from being set to make shoes and play the flute.'" (Emile Faguet, "The Cult of Incompetence.")

SOME RESULTS OF SPECIALIZATION.

By SYDNEY O. DYE, Division Industrial Supervisor, Leyte.

The commercial world has come to recognize the fact that specialization along all lines increases the quantity and improves the quality of any given item produced by the manufacturing system. This was recognized only after centuries of wasteful production—waste in labor, waste in time, waste in ruined materials, waste in producing an inferior product, waste through general inefficiency. Through careful study of the situation, producers in general came to understand that an individual can learn to do a few things speedily and well while he is learning to do many things indifferently well. As manufacturers are interested in a large output of high-grade articles, this knowledge has led more and more to specialization in the industrial world, until at the present time there is the system of piecework in most of the large producing concerns.

The industrial department of the Bureau of Education, producing certain lines of handcraft, has adopted a policy of semispecialization. It would not be desirable to attempt specialization to the same extent as large commercial houses, but only to that extent that will enable a pupil to produce a completed article of some particular type. The effects of this specialization are evident on the pupil, the parent, the teacher, and in the quality, the quantity, and the commercial value of the output.

On the pupil there has been an immediate and marked effect. Since pupils are no longer permitted to change their courses of study, once they have begun, but are required to continue along the same lines throughout their course, they become skilled in a particular line of work, acquire speed, and produce good, salable articles. Any one of these factors is desirable but the three combined are necessary to produce lasting results. Both skill and speed come through careful repetition and, when acquired, enable the worker to produce articles of commercial value. This has led to an increase in the amount of work accomplished at home.

Since parents have come to realize that their children are doing something of real value in the schools, their attitude toward the industrial work has undergone a change. Most parents are more or less indifferent to the things their children are doing

in school so long as the children do not object. In the Philippines the parents looked upon the industrial work in much the same manner as parents in the United States look upon the busy work of the lower grades. They did not consider it as a matter of real importance. Now, however, with the output showing a commercial value, the parents are becoming interested and by encouraging the children to greater effort, more and more work is being done after the industrial periods are over. This condition is a real stimulus to home industries.

Wherever a plan of specialization is to be followed out, a competent instructor is necessary and most careful attention to details is essential. Care should be taken to obtain only such teachers for the work as are proficient in their particular line. The teacher should have a definite plan for the work and have an outline with the details most carefully worked out. His being a specialist in his particular line of work will enable him to proceed in an intelligent, capable manner, confident of progress and ready to meet such conditions as may arise. The pupils must be started right and kept right until they have mastered the work.

Where a pupil continues the same course from year to year the cost of industrial instruction is greatly reduced. Each pupil needs equipment for a single line of work, spends time in learning a single line of work, and becomes a producer during the period that would otherwise be spent in learning a second industry. By continuing the same course, the pupil becomes sufficiently skillful to perform the required work with little effort. When this condition has been reached the pupil has become a producing unit of commercial importance.

In order to make the industries of the Philippines of commercial value specialization and systematization are necessary. Without both it would be impossible to know where to look for particular types of work when wanted. With the work systematized, knowledge is at hand as to the quality of the product from any locality, the amount that may be expected, and the length of time required for its production. These conditions simplify the marketing, make the placing of orders without delay possible, and at the same time give assurance that contracts can be carried out without hardship to any one concerned.

With the introduction of specialization it is necessary to give more attention to technical details. Since it is the purpose of the courses to turn out workers capable of producing articles that will command a sufficient price to justify the time and labor

expended, those in charge should have a thorough and sure knowledge of the work they are doing. In addition to planning carefully the work, they must know what supplies are necessary and see that they are on hand when needed. If these supplies are obtained through proper organization, the community is relieved of the necessity of keeping extra supplies for which there is no immediate need.

Specialization has placed the industrial work of the Philippine schools on a solid basis. By assuring a standard product under marketable conditions and by demonstrating to the people that there is a true value in the work for them, a great incentive has been given to home industries. It will always be necessary to maintain a strong organization to carry on the work but with a productive field to draw from, the organization will establish itself as a commercial institution.

COOKING IN CONNECTION WITH GARDENING.

Cooking in connection with gardening classes would do much toward the use of a greater variety of vegetables in Filipino homes.

Many of the people do not know how to prepare native vegetables in any other form than that which they call "gulay." They are especially ignorant concerning the preparation of vegetables that have been introduced from foreign countries. They dislike the peculiar taste of endives, beets, turnips, and carrots simply because they have never tasted these vegetables properly cooked.

If the garden boys were taught how to prepare new vegetables, it would help the domestic-science girls who are trying to introduce their use into the homes. The boys should have frequent opportunities to taste well-cooked, well-seasoned vegetable dishes. If they can be taught to like these, their use in the homes will be promoted.

The vegetables might be prepared in the domestic-science kitchen or in the garden house, which ought to be large enough to accommodate the cooking class. The cooking should be done during the regular cooking periods at a time when the garden is at its best. (A. R.)

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A potato-club boy of Utah is reported to have raised 720 bushels of potatoes on a single acre of raw land, and to have sold them at an average price of $1 a bushel. Another boy obtained 600 bushels of tomatoes from 1 acre, while a third secured 85 bushels of shelled corn per acre.

RAINY DAY LESSONS FOR GARDEN CLASSES.

By North H. Foreman, Inspector of School Gardens and Sites.

The means whereby a class of boys may be profitably employed at such times as weather or soil conditions will not permit work in the garden are not always at hand when the teacher needs them. Capable teachers of gardening will be prepared, but there are many who must teach the subject who are not adapted to the work either by aptitude or by training. While some of the large number of plans in operation indicate a desire to accomplish practical results, others seem to avoid entirely the questions of proper education and of efficiency.

Among the commendable plans are those which provide for definitely worked out class lessons on garden facts and the use of vegetables as suggested in the garden bulletin. Others plan work just as commendable in the form of boys making the articles needed in their garden work. Such articles as rakes, market baskets, work hats for themselves, and watering pots are made. Both of these groups are found to be actively engaged in a study of common plants in an endeavor to secure those which can be profitably grown in the off season. It is regretted that there are still to be found teachers who abandon the garden at certain seasons and even go so far as to assign the boys to other work under the plea of keeping them busy. As a result the boys are trained in no real work. This practice is condemned because it avoids the questions at issue. It is wrong to assign an industrial subject with no other object than to keep a boy busy. The time element in education is of too much importance.

For the purpose of aiding teachers, the following study outline is taken from Volume I, No. 9, Agricultural Monthly, published by the U. S. Bureau of Agriculture. Certain minor changes have been made, and Section X, pertaining to the use of products which is an important factor in Philippine garden work has been added. It is believed that the study on rainy days, and the application during the year, of these topics will aid greatly in the solution of the problems of supervision of home projects.

STUDY OUTLINE FOR HOME GARDEN PROJECT.

I. Shall I take care of a vegetable garden at home as my project?
   1. Can I make arrangements to take hold of the garden on my own account?
   2. Is there a plot of land at home suitable for garden purposes?
   3. Have I sufficient interest in gardening to make a success of such a project?

II. What shall be my aim in growing vegetables?
    1. Will I be able to supply our home kitchen with all the vegetables needed?
    2. Have I sufficient land and time to grow a surplus to sell?
    3. Is there a market for the sale of my surplus at a profit?
III. Can I plan my garden so as to secure the best results?
    1. How large shall the garden be for my purpose?
    2. Shall I cultivate mostly with a bullock or by hand?
    3. What should be the shape of the plot for the most economical tillage when bullocks are used?
    4. What location will be the most convenient and satisfactory from other points of view?
    5. Can the soil be made suitable for a garden?
    6. Is there good drainage and protection from wind?
    7. Will I need a fence to protect my garden?
    8. What factors will determine the space devoted to each crop?
    9. What factors will determine the position of each crop in the garden?
    10. Have I a map drawn accurately to scale to aid me in my planting?
    11. Have I provided for a proper rotation of crops?
IV. Can I secure the seed that will give the best results?
    1. Am I familiar with all common garden seeds?
    2. Do I know which varieties are best suited to my needs?
    3. What use may I make of a good seed catalogue?
    4. Shall I buy seeds in packages or in bulk?
    5. Why shall I buy the best seeds obtainable?
    6. How long do various garden seeds retain their fertility?
    7. Which seeds will I need to test?
    8. Can I make a reliable germination test?
    9. How early must I secure my seeds?
    10. Shall I plan to save any of my own seeds for planting next year?
    11. Do I understand any of the methods used in producing good garden seed?
    12. What crops will I start by other methods than the planting of seed?
    13. Will it pay me to buy plants I may need, or raise them myself?
    14. Have I determined accurately how much seed of each kind I shall need?
V. Can I secure such strong, healthy plants as may be required for my garden?
    1. Which crops require a long season to mature?
    2. Do I wish to secure early vegetables?
    3. If I decide to propagate my plants, may I not sell the surplus at a profit?
    4. Can I make and manage hotbeds for the production of plants?
    5. What use shall I make of seed beds in producing plants?
    6. Have I planned a compost heap and arranged for sand to make soil necessary for beds and seed boxes?
    7. Can I use petroleum boxes, flower pots, and other devices to advantage in producing plants?
    8. What plants are benefited by transplanting?

9. How does transplanting benefit the plant?
10. When shall I plant various seeds in the propagating beds?
11. What is the meaning and value of "hardening off?"

VI. Can I prepare my land properly for planting?
1. What implements and tools will I need?
2. Have I made a study of garden equipment?
3. Does the soil need fertilizing?
4. How shall I increase its fertility?
5. In what condition should barnyard manure be for garden use?
6. When and how shall I apply it?
7. What use may I make of green manures?
8. Does my garden need a cover crop during the vacation?
9. Does my soil need lime?
10. How can I determine the need of lime?
11. To what extent shall I use commercial fertilizer?
12. Can I determine what fertilizers to use and mix and apply them properly?
13. What relation is there between time of plowing and kind of soil?
14. At what time will it be best to plow my land?
15. When and how shall I smooth and pulverize the soil for planting?

VII. Do I understand how to plant my garden?
1. At what time should the various seeds and plants be planted?
2. With what vegetables shall I plan for a succession of crops?
3. Will it pay to grow any two crops together?
4. Which seeds shall I plant in beds? In hills? In drills?
5. What shall be the rate of seeding for each crop?
6. Which seeds will be benefited by soaking?
7. Can I use a hand drill upon my land?
8. Will it pay me to buy a drill?
9. How shall I secure best results in transplanting from the seed beds?
10. What protection may transplanted plants need at first?
11. Will any of the plants or seeds need special preparation of the seed bed?
12. Will the same preparation of the bed serve for onion or lettuce seed as for large seeds?
13. Am I to plant vegetables which will need special preparation?

VIII. Can I give my garden proper care?
1. For what reasons, other than the control of weeds, must I cultivate?
2. What methods of tillage will be most efficient and economical?
3. Can I handle a bullock and cultivator skillfully in my garden?
4. Can I use a wheel hoe and hand tools in an expert manner?
5. Is irrigation essential? Can I apply it with profit?
6. Do I understand the culture needed by each of the crops I am growing?
7. Can I practice the thinning, staking, training, and other special operations essential with some crops?

IX. Do I understand the control of pests?
1. Have I made proper provision for keeping chickens, pigs, and other farm animals out of the garden?

2. Do I know the pernicious weeds of the district which I must guard against in a particular way?
3. What kind of treatment should I use for insects like plant lice which have sucking mouth parts?
4. What kind of treatment should I use for insects like the beetle, which have biting mouth parts?
5. Are there any plant diseases which I must guard against?
6. Do I understand how to mix and apply materials for insect pests and plant diseases?
7. What methods will be necessary for the control of pests of some vegetable crops?
8. Do I know the methods of control of the most common garden pests of my district?
9. Will it pay me to buy a spray outfit?
10. What kind of spray outfit will be best suited to my needs?

X. Do I know how to use my garden products?
1. Do I know how to use each vegetable raised?
2. Do I understand more than one cooking recipe for each vegetable?
3. Do I know what part of each plant is useful as a food?
4. Do I know when each vegetable is ready to be used as food?
5. Have I arranged to save seeds from the best plants?
6. Do I know which vegetables are the most profitable?
7. Do I know which vegetables are the best for use in my home?

XI. Can I harvest and market my surplus crop in a satisfactory manner?
1. To whom will I sell my vegetables?
2. Do I understand the particular demands of the market which will buy my produce?
3. May I not learn something from market gardeners as to packages and packing, methods of keeping vegetables fresh, and methods of selling?
4. Will it not be possible for me to begin to build up a retail trade with near-by consumers?
5. Is it possible to coöperate with other students growing vegetables in establishing a school market?

In using the above outline the teacher should see that each boy answers the questions correctly as applied to his own work. This will aid in making the boy's project a profitable one when judged upon a cash basis. School credit is not sufficient encouragement.

BETTER PROVISION FOR DOMESTIC-SCIENCE WORK IN TAYABAS.

By PAUL J. MORGAN, Supervising Teacher, Atimonan, and LLOYD POLLARD, Supervising Teacher, Lucena.

The ideal domestic-science building is a suitably constructed house which shall typify, as to distribution of apartments and materials used, the better class of Filipino homes, and which shall at the same time permit the demonstration under the most favorable conditions, of every phase of the subject of housekeeping and household arts.

The type of building erected during February, March, and April, 1916, in connection with the intermediate school plant at Atimonan, approximates the standard above mentioned; that in Lucena, while of more expensive design, has been modified to meet the necessities of a combined domestic-science and shop building; hence while the interior facilities will be very satisfactory for domestic-science work, the resemblance to home conditions will be less evident than in the first case. The class of building to be erected in these places was also determined in a measure by the school funds available—ample in Lucena and limited in Atimonan—and by the further fact that sufficiently trained school labor was available in the latter municipality.

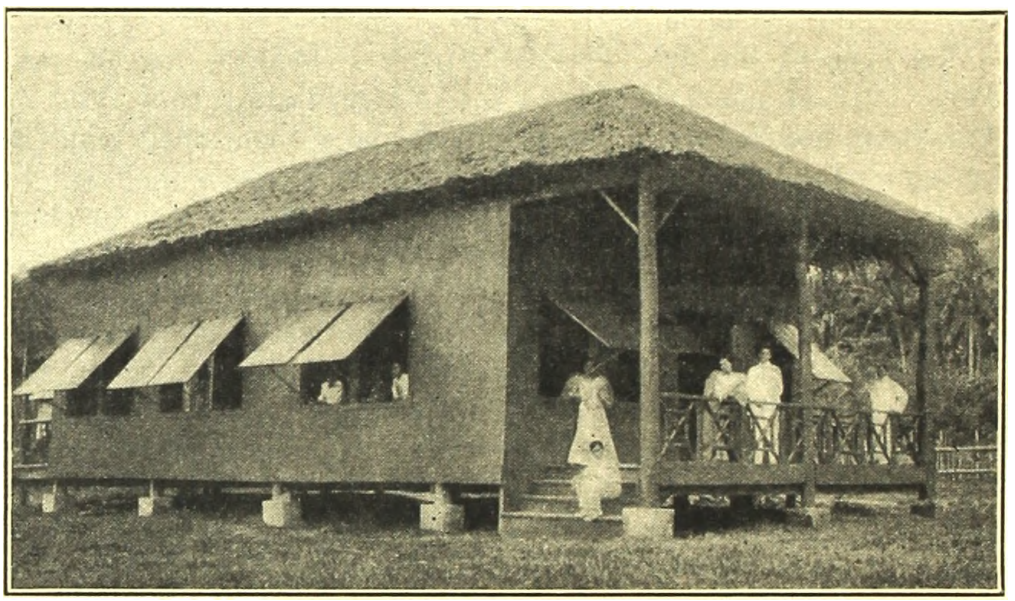
THE DOMESTIC-SCIENCE BUILDING, ATIMONAN.

While the domestic-science work in the Atimonan Intermediate School has steadily improved for a number of years, this subject has been conducted in houses which were rented and which were otherwise unsuited for the purpose. Two years ago the work was conducted in a building far from the intermediate school building; during the past year, although the house was near, it proved unsatisfactory because of a poor roof and poor division of rooms. These unfavorable conditions led to the building of a domestic-science house on the school grounds in Atimonan. A plan was therefore made for a building 24 by 48 feet, which should have wooden posts set in concrete. A nipa roof was used because there was not sufficient money to purchase iron roofing. The framing for the roof, however, was constructed so that the roofing could be changed later.

The building in Atimonan is intended to be a model Filipino

house and is divided into a parlor (sala), a dining room, kitchen, bedroom, bathroom and water-closet. As the trade course is given in the Atimonan Intermediate School, there were sufficient tools on hand and there was a competent teacher to oversee the work. The materials for the building were ordered and received on time, so that actual construction work began on February 25, 1916. After the building was once started, the pupils took great interest in it, and the work progressed so rapidly that the building was finished on March 31, 1916, with the exception of hanging the doors, and some slight inside work.

The posts are of yacal, the roof of nipa, two sidewalls of tanguili, and the other two of sawali; the floor is tanguili laid on



Domestic-science building, Atimonan. This building was erected in a little more than two months, at a cost of about P600, by pupil labor under the direction of the principal of the school shop.

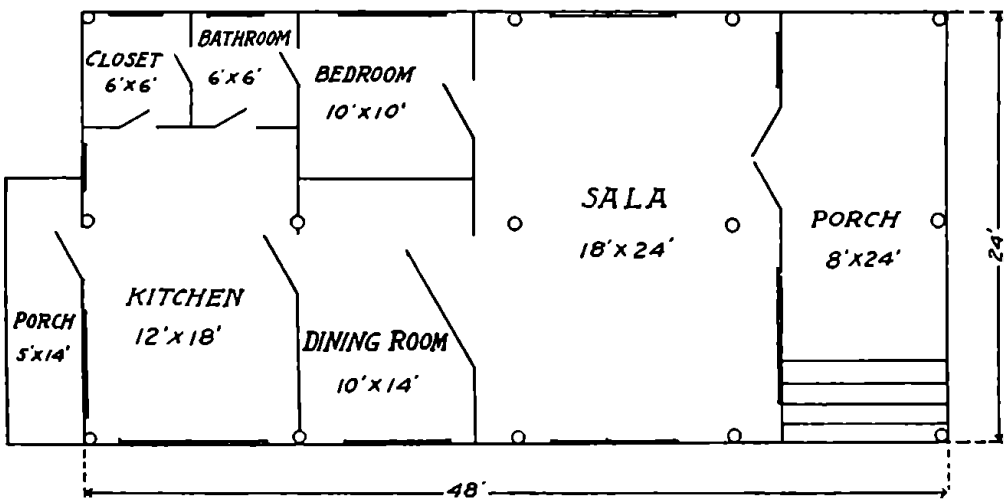
lauan sleepers 2 by 8 inches by 16 feet. The partitions and ceiling are of sawali, while the framing material is made of lauan planks 2 by 8 inches by 12 feet, and the rafters are of lauan 2 by 4 inches by 8 feet.

The total cost of the building, including the paint and doors, was approximately ₱800, but nothing was paid for labor.

The pupils became so interested in the work that they often devoted overtime to it; at times the teachers were even obliged to take the tools away from the pupils to prevent too strenuous effort on their part. The erection of the building is considered a success from the standpoint of economy and of durability. Furthermore, this work in actual construction has not only been a great incentive to the pupils but it has also given them a

practical insight into building construction which they would have gained in no other way.

The work, in fact, has proved so successful that it is intended during the school year 1916–17 to construct a building 24 by 96 feet for the use of the primary classes. It is also intended to do most of the work with pupil labor. As there is no machinery in the Atimonan school shop, the work will progress somewhat more slowly than it would otherwise, but it is believed that even without machinery it is much cheaper and more satisfactory to erect the necessary school buildings with pupil labor than to use outside labor, provided there are sufficient tools available and a competent teacher to take charge of the work.



Floor plan of the domestic-science building, Atimonan, Tayabas.

DOMESTIC-SCIENCE AND SHOP BUILDING, LUCENA.

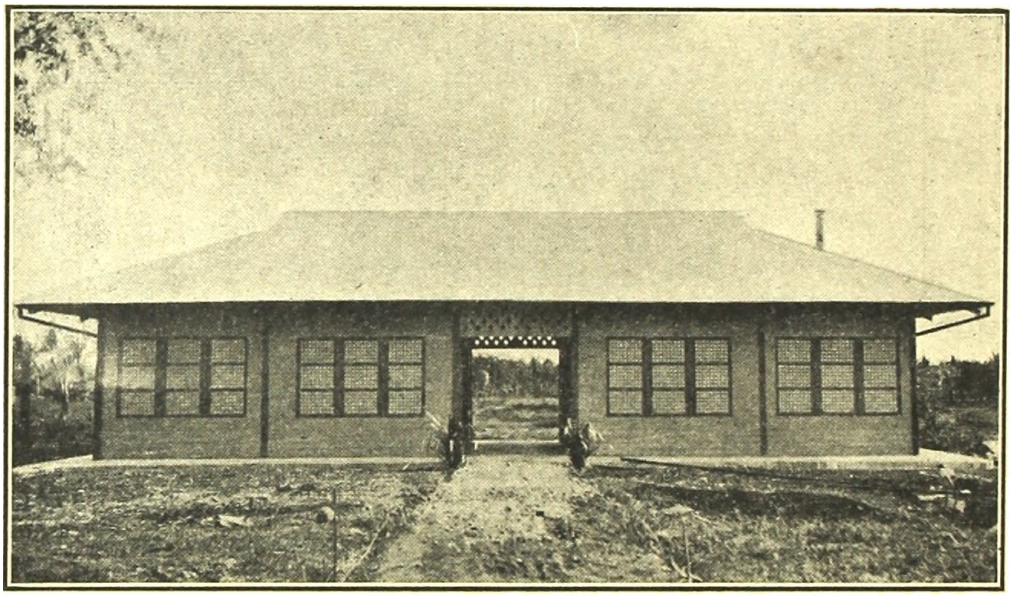
The Lucena Central School has a yearly enrollment of 688 pupils in Grades I to IV, inclusive, with a yearly enrollment of 75 boys and 52 girls in the fourth grade. Heretofore it has been necessary to use one of the classrooms for the domestic-science work and another for the shop. It was apparent at the opening of the past school year that arrangements should be made for the construction of a domestic-science and shop building in order to provide for the increased attendance. Due to the shape of the school grounds, the only logical location for it would be at the rear of the central school, far enough back to provide sufficient space for the enlargement of the school building and yet not so far back as to encroach on the athletic field. This made it necessary to locate the building over a deep ravine which consequently had to be tiled and filled in. The pupils carried

in over 400 cubic meters of earth, laid the tiles and filled in the ravine.

The next difficulty that presented itself was the plan for the building. The shop should not be too near the domestic-science department and there was need of a passageway through the building to the athletic field. The railway stations in this country suggested the possible solution of the problem.

Work was begun on the building on November 20, 1915, and it was finished on March 31, 1916, under the supervision of the Bureau of Public Works.

The building is 60 feet long by 30 feet wide with an 8-foot pas-

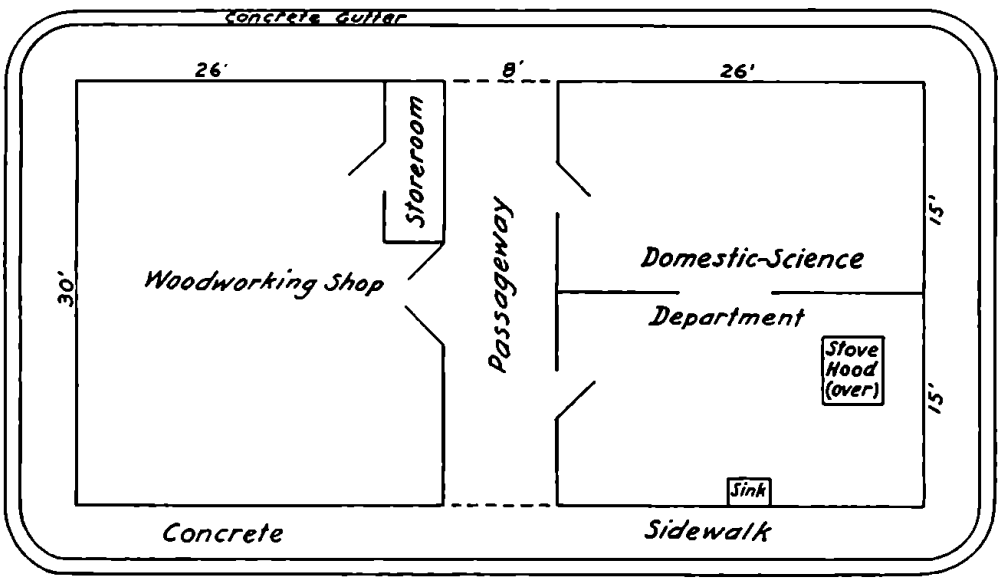


Domestic-science and shop building, Lucena. Annex to standard No. 10 school building, located on site containing more than 2 hectares.

sageway through the center, the domestic-science department being divided into two rooms by a partition running lengthwise of the building and connected by a double door. There is a concrete sidewalk 4 feet 2 inches wide, running completely around the building, with a concrete gutter 10 inches wide to carry off the surface water. The frame work is made entirely of first-group lumber, while the siding, ceiling and partitions are made of good second-group lumber. The floor is made of concrete and the roof of corrugated galvanized iron of the best quality. The domestic-science department and the passageway are ceiled, while the shop is not, in order to provide for the storing of lumber overhead. In the front room of the domestic-science department a reenforced concrete table for native stoves and a washbasin

were constructed. The roof is provided with gutters connected with pipes leading to the concrete gutter around the walk. These are connected with pipes leading to the tiles in the ravine. The shop has a floor area of 780 square feet, while each room of the domestic-science department has a floor space of 390 square feet. The building is painted inside and out with a good quality of oil paint.

The building is especially well lighted, there being 20 windows



Floor plan of the domestic-science building, Lucena, Tayabas.

in the shop and 10 in each of the rooms of the domestic-science department.

The municipality of Lucena appropriated ₱4,300 for the construction of the building, ₱2,500 during 1915 and the balance during 1916. The roofing iron cost ₱469.91, the cement ₱354.92 and the windows ₱365.43. The total cost of materials was ₱2,730.95, while the total cost of the building was ₱4,296.39. If the value of the work done by the pupils in filling in and tiling the ravine is considered, the cost amounted to some ₱600 more.

Since June of this year, the Bureau of Education has placed orders with the public schools for nearly 200,000 yards of bobbin lace including cluny, torchon, and valenciennes.

EDITORIAL.

THE MEANING OF SPECIALIZATION.

Someone has defined an educated man as one who knows something about everything and everything about something. An application of this definition to the industrial work of the schools would indicate that the best-trained students are those who know how to do a number of things but who can do exceptionally well certain things for which they are best adapted by personal inclination, local conditions, abundance of material, and the likelihood of their being able to follow the work in the future. When the energies of a group of individuals, so trained, are being directed along definite lines for the production of certain objects there exists a good illustration of what is meant by the term specialization.

Today in every phase of human enterprise, and more especially in the industrial world, there is a growing tendency to specialize, and men who are experts along any line are in demand. The great manufacturing concerns have learned that a man who can do one thing well is worth more to them than a number of men who can do many things poorly. These concerns are specializing because specialization leads to efficiency and to increased production at a minimum cost.

If the industrial work of the schools is to be a success, specialization is just as necessary there as in the work of any great manufacturing concern; but while the purpose of specialization in school industrial work is also a maximum production at a minimum cost, there are the additional considerations of the welfare of the producer, who in this instance is the child, and of the economic welfare of the Islands which is a consideration of no mean importance. In fact, the welfare of the child and the economic welfare of the country must give precedence to any temporary consideration of production or of cost, moreover, when the child is taught to produce a large number of articles with the least expenditure of effort he is benefited in that his producing capacity and his economic value to the country have been increased.

This increase in producing capacity must not be purchased, however, at the cost of his mental development along general lines.

SOME EFFECTS OF BEAUTIFYING SCHOOL GROUNDS.

A teacher can devote his spare time to no more profitable enterprise than that of cultivating the aesthetic tastes of his pupils by the creation of a proper atmosphere of beauty and cleanliness about the school building and grounds.

Often, when a teacher has been assigned to a remote barrio and arrives at his station to find an uninviting prospect of grounds which appear to be a dumping place for the rubbish of the community, when the stones and weeds seem striving to conceal a house sadly in need of repair, it is little wonder if the teacher has a feeling of homesickness and discouragement, or if he pictures to himself the attractions of his home and longs to be there. Once a teacher finds himself in such a situation he can either sit down and drag out his year, making the time a burden to himself and his pupils, or he can go to work and make the place attractive. If he does the latter the effect upon his own mind and upon the minds of the children will likely prove a revelation to him.

In the first place, the teacher and pupils working together to beautify the school grounds will find in their efforts a common interest that leads to a better understanding of each other and tends to make the school work seem easier. Moreover, when the school grounds are made really attractive by means of green lawns, cool shade trees, and perfect order, the children will begin to associate education and advancement with cleanliness and beauty. Then the next step will naturally follow. They will learn to apply these ideas to their homes. When a teacher succeeds in impressing upon children the idea that the school and grounds should be beautiful because it is their school, it should not be hard to bring them to feel that their homes should be neat and clean simply because the homes are theirs.

General J. Franklin Bell in a talk to teachers at the 1913 Vacation Assembly said that he had made a lawn or a garden in every post where he had been stationed during his long years of service in the army. Although he knew that he would be stationed in a place for only a few months or a couple of years at the most, he tried to give as much attention to improving the surroundings of the post as he would if he were living in a permanent home.

How many teachers will undertake to make their school buildings and grounds attractive? Those who do will be well recompensed by the healthful influence upon their own minds, by the added attractiveness of their schools and their work, and by the effect upon the minds and homes of their pupils.

WEARING COLLARS AND TIES WHILE AT WORK.

A recent circular letter from the General Office calls attention to the fact that too large a proportion of students enrolled in a few trade schools, school shops, and farm schools wear ties and stiff collars while at work, and points out how nearly such a matter borders on the ridiculous. It further states that while it is not believed necessary to issue any orders forbidding the wearing of such apparel during hours of manual labor, such habits should be discouraged. The circular closes with the request that all inspecting and supervisory officials of this Bureau make note of any cases of this kind which they may happen to see, and mention them in their reports.

If the relatively few students to whom the foregoing applies could but "see themselves as others see them" it would not be necessary to bring up a matter of this nature.

INDUSTRIAL WORK IN THE NEW NORMAL COURSE OF STUDY FOR PROVINCIAL HIGH SCHOOLS.

At the beginning of the present school year, a four-year normal course for intermediate graduates was established in six of the provincial high schools of the Philippine Islands. The purpose of establishing such a course was to secure more trained teachers with suitable training and especially those capable of filling more responsible positions. The graduates of this course ought to make good principals of central schools and it is hoped that many of them will fill such positions.

In addition to work along academic and professional lines, industrial work is a prescribed subject for a double period each day in the first year of this new course. The aim of the course is first of all to help students to comprehend the industrial policy of the Bureau of Education and the ends it seeks to accomplish. This is a matter which, it is believed, is not sufficiently understood even by many of those who are engaged in some form of industrial instruction. Furthermore, a good idea of the content of the course of study in industrial work for both the primary and intermediate grades will be given the students. They will also be instructed in the administration of this course, including a knowledge of the accounting regulations and the forms used in making reports. The actual work done by these students will in every case depend upon the needs of the division. This matter, as well as the general organization and conduct of the course, will be under the immediate direction of the industrial supervisor for the division.

INDUSTRIAL NOTES.

THE INSTITUTE AT MAGALLANES, SIBUYAN.

The subprovincial institute was held in Magallanes from June 12 to July 7, inclusive, in a camp under a grove of agoho trees, growing on a peninsula between the Magallanes river and the sea. The camp site, placed on a soil of sandy loam constantly carpeted afresh with agoho needles, proved very healthful and was singularly free from mosquitos and other insect pests, while the constant fanning of the breezes from the sea or from Geting-Geting rising to a height of 6,000 feet directly behind the camp made the sojourn under the groves peculiarily pleasureable.

Cholera appeared all around the place after camp had been established but ten days and this necessitated a close concentration on the premises. A wire fence was thrown across the peninsula and teachers mounted guard by night to keep out intruders, while details of the men teachers ran the ferry and did the work of sanitation because it was impossible to control absolutely the movements of hired servants. The girls for their part supervised the boiling of drinking water and the work of the servants of the mess contractor to see that disease could not attack from that quarter. The mess, girls' dormitory, and social hall were in a large house of masonry, built by a Spanish development company during the old régime. As it stands across the river from the main town with only servants' quarters near it, its isolation was an easy matter. All the details for guard, ferrymen, sanitary inspectors, and mess supervisors were so made that no time was lost from class work and the only courses to suffer as a result of quarantine were gardening and housekeeping. The laboratories for these were outside the lines.

The great benefits accruing from life in camp were: First, application to work. With nothing to distract the teacher his whole mind was on his task. Second, a sense of the value and the necessity of coöperation. The teachers came into camp 84 individuals; they left a solid body. It took the individuals a day and a half to get into camp and a week to find themselves at home. At the close of the institute, the body broke camp and were on the steamer, bag and baggage, fifty minutes after dropping anchor, 300 yards from shore. Third, a sense of security in the presence of epidemics. The first ravages of cholera threw all into a panic, but when they saw that watchfulness and care were saving them while the outsiders were dying, they began to believe in themselves and in the efficacy of cleanliness and in the virtue of boiled water, all of which will bear fruit a hundred fold in years to come. Fourth, the individuals entered camp starched with formality and painfully conscious sex of sex. On the last night a casual wanderer would have been pardoned had he come upon a jolly band of boys and girls dancing about the camp fire and mistaken the assembly for an American college picnic. Fifth, the storing of health and energy against future demands. Pale, emaciated teachers or fat, puffy teachers who entered camp with the hue of hothouse plants are now browner, ruddier, healthier than

they have ever been before. Men, who had never walked faster than the time of a dead march, ran on their municipal relay teams, and women, who had forgotten the delight of nimble feet, stopped up holes in indoor teams like real ball players.

After quarantine lines were drawn, classes were held under the trees and favored by exceptionally fine weather, this arrangement was ideal. Class would remove sufficiently far from class so that there was nothing to disturb the orderly conduct of each. This arrangement in methods classes compensated in a measure for the forced exclusion of real pupils whose places were necessarily filled with unoccupied teachers.

Socially, dances, literary entertainments, sleight-of-hand performances, hypnotic exhibitions, and camp-fire frolics filled the evenings and a surprising amount of talent disclosed itself.

Class work was continued on July 4 until 4 p. m., so as to be ready to catch the steamer arriving on the 7th, and after 4 p. m., a literary program was given, followed in the evening by a dance in the social hall. The field days for both women and men were days of unalloyed sport. All events were run with due regard to rules, so that the days were instructive as well as pleasureable. (J. C. E.)

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THE DAVAO INDUSTRIAL SCHOOL.

The need of a school in which boys may be given at least an elementary training in blacksmithing, woodworking, and kindred trades has long been felt in the province of Davao. As the discontinuance of the Lais agricultural school project presented an opportunity for using the equipment and organization of that school to meet this need, in August, 1914, the teachers, thirty boys, and all equipment were brought to Davao.

The provincial secretary-treasurer assigned the old scout quarters to the school for use as a dormitory, classroom, and shop. The work of repairing the old building and arranging things to suit the needs of the school was immediately begun. Gardens 1 hectare in extent were planted to cowpeas, sweet potatoes, mongos and beans. Academic classes were held in the afternoon, the entire morning being devoted to repairs and gardening.

When the repairs had been completed and the garden work was well advanced, shopwork was begun. New pupils were enrolled from different parts of the province until the number of boys was fifty. Many applicants for admission had to be turned away because of lack of room and equipment.

Through an arrangement with the provincial secretary-treasurer a number of expert carpenters and cabinetmakers were secured for work in the shop. On each job, from two to five boys were assigned as helpers to the carpenters in charge. At first the boys were allowed to do only such work as sandpapering, and sawing and planing boards; but as they became more expert, they were advanced. A number of valuable articles have been completed under this system during the short time the school has been in Davao, among which are three large office desks, two 20-foot dories, and a kitchen cabinet.

Blacksmithing and repairs to machinery are done under the immediate supervision of the principal of the school. Ten boys have been turning out a large number of bolos, rubber-tapping knives, and hemp-stripping knives. These boys help the principal repair motors, dynamos, and pumps. One very difficult piece of work was accomplished, the straightening of the twisted crank shaft in the constabulary launch.

From twelve to fifteen boys were

assigned to gardening. Their vegetables were the wonder of the town, and the average cost per boy for food and clothing has been materially reduced.

Two boys were apprenticed to the tailor who makes the clothing for the school and they will be able to do all of the school's tailoring.

An expert rattan furniture maker was employed and all boys not in shopwork devote a part of each day to making furniture for the dormitory. It is hoped that within a short time the school will be in a position to accept orders for chairs, for which there is a great demand in the province.

The enrollment includes representatives from five pagan tribes. Practically all are in the first or second academic grades. Every pupil enrolled must live in the dormitory, his food and clothing being furnished by the school. There is no regular vacation; but from time to time, at the discretion of the principal, each boy is allowed to spend a few days with his parents. Seldom does a boy fail to return to school at the appointed time.

Each boy is examined regularly at the hospital and given treatment if necessary. It has been found that 33½ per cent of the Mandayans and Mansacas, and 10 per cent of all others are infected with elephantiasis; 50 per cent have an enlarged spleen; and nearly all are infected with malaria. Hospital treatment under the direction of a physician is provided for all such cases. Many have skin diseases when they first come to the school, but these diseases soon disappear.

With adequate equipment and enlarged dormitory accommodations, the Davao Industrial School will soon begin to meet the local demand for trained blacksmiths, machinists, carpenters, boat-builders, and furniture makers. While these boys are receiving their training, they will be putting on the market a large number of articles for which there is an almost unlimited demand. (H. C. S.)

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PIG-CLUB RESULTS IN THE UNITED STATES.

The following account is taken from the weekly news letter of the United States Department of Agriculture:

"The pig-club work has been carried on by the Bureau of Animal Industry of this department during the past year in coöperation with the State Agricultural Colleges of Alabama, Arkansas, California, Georgia, Indiana, Kentucky, Louisiana, Massachusetts, Nebraska, North Carolina, Oklahoma, Oregon, and Texas. Pig clubs were organized among the farm children and proved a means of arousing further interest in live stock, and at the same time furnished profitable and instructive work to the members.

"The economic objects of the pig clubs are: To teach the members how to raise better swine cheaply; to give the members a means of earning profits; and to afford the members a practical insight into the business side of farming. Indirectly, the improvement of the swine of the country and the general introduction of better and cheaper swine-raising methods are purposed.

"Each pig-club member is required to keep a record of his pig-feeding work and report this at the end of the State contest. Many unusually successful records have been made. These are not typical of the work, but rather represent its possibilities. A summary and the averages of the work of many members give a better indication of the value of the pig-club work.

"In the 13 States named, 11,632 members were enrolled last year in the pig clubs. Not all were active members, but most of these raised

pigs. While a great many reported more or less completely on their work, 1,608 members from 11 States, with a membership of 11,032, reported completely on weights, values, gains in weight, costs of gains, and profits. No figures are available from California and Oregon, except as to the number of members.

"The figures following are compiled from the complete reports. Seventeen hundred eighty-three pigs were reported, or an average of 1.1 pigs per member. The majority of members took weaning pigs to feed in the spring and reported their results in the fall. The average weight per pig at the beginning of the feeding period was 39.2 pounds. At the end of the feeding period, which averaged 166½ days, the pigs weighed 194½ pounds. This was an average daily gain in weight of 0.93 pound, at a cost of $0.044 per pound. This low cost of gain can be attributed, it is believed, to the better feeding methods practiced and the wide use of forage crops by the members.

"The original value of the pigs averaged $5.24. The average final value was $21.43, a gain in value of $16.19. This gain in value cost $6.91, giving an average net profit per pig of $9.37 and an average net profit per member of $10.29.

"These figures are a strong indication that improved swine, raised in the right way, are profitable even when pork values are as low as they were in 1915. The vast majority of members had carefully selected high-grade and pure-bred hogs, and to this improved blood, as well as the better feeding methods, can be attributed the large difference in favor of the average final value of pig-club hogs in the fall, $21.43, as compared with the estimated average value of all hogs on farms in the United States on January 1, 1916, $8.40. The pig-club members have shown their ability as a body to raise pigs successfully. They have raised good pigs, cheap pigs, and profitable pigs.

"Many are keeping their gilt pigs for breeding purposes. Some already have found it profitable to breed as well as to feed pigs. Fifty-six members reporting on their sows and litters reported an average profit of $47.32. With the membership for this year doubled and most of the old members again on the rolls the pig work should prove of even greater economic value in the future."

It remains to be seen how the results obtained from our hog raising contests which are this year a feature of the home work in agriculture for which pupils of the public schools receive school credit, will compare with these.

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MONGO SPROUTS.

Excellent results have been obtained by growing mongo sprouts in a banana leaf.

In the average Filipino home there is no convenient place, unless it be the floor, to keep two dishes filled with water and with towels stretched between them. The animals disturb them, and the water and mongos are spread over the house. The mongos grow slowly and often smell bad before the sprouts are long enough to use.

In using the banana leaf, the mongos are soaked over night. In the morning they are wrapped closely in a banana leaf. The leaf wrapping may be four or five inches thick, but it must have no cracks and must be wrapped around the mongos so the moist air within cannot escape. The mongos are kept moist and warm in this way and will be ready to plant in 48 hours. The banana leaf must be removed before the mongo is planted.

This is much quicker than the towel method and better results are obtained, as the mongos are better

sprouted and sweeter smelling than when prepared by the slower and less convenient method. (E. B. B.)

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GARDEN CALENDAR—ALBAY.

The following vegetable planting calendar was issued in July as a division circular by Mr. Thos. H. Cassidy, division superintendent of schools, Albay. The data was worked out during the 1915-16 normal institute and was recently revised. It is believed that it should prove of help by way of suggestion to garden teachers in other divisions. Certain it is that such a table should be worked out for every district as prescribed in Bulletin 31:

	Days to mature.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.
Leaf crops:												
Cabbage	150				A	C				X		
Endive	80			A	C		X	A	C		X	
Lettuce	65		A	C		X	A			X		
Mustard	90			B			X B			X		
Pechay	90		A	C		X	A			X		
Parsely	(?)	A	C				A	C				
Onions	40	B			X	B			X			
Garlic	(?)		J									
Fruit crops:												
Ampalaya	80	B	F		X	B	F		X			
Bean (Antac)	70	B			X	B			X			
Bean (Batao)	70		B			X	B			X		
Bean (Patani)	70			B			X	B			X G	
Bean (Lima)	70				B			X	B			X
Cadios	240	B							X			
Condol	100	D			X		D				X	
Corn	110		B			X	B			X	G	
Cowpeas	70										G	
Cucumber	90											
Eggplant	150	A	C			X	A				X	
Mongo	70								D		X	
Melon (water)	110		A	C				X				
Papaya	240		D		C							
Peanut	65	B			X	B			X	G		
Pepper	145		A	C			X A	C			X	
Peas	85					D						
Patola	100	A	C		X			A	C		X	
Squash	90	A	C				A	C				
Tomato	150						A	C			X	
Okra	65	D			X D			X	D		X	
Melon (musk)	130											
Winged Pea		D	F				D	F				
Upo and baran-tiog	100	A	C			A	C				X	
Root crops (under-ground crops):												
Beets	130	B				X	B				X	
Cassava	300	K		K						X		
Gabi	240			K							X	
Ginger	120	J										
Sweet potato	120		I					X	I		G	
Sincamas	120	C				X	C				X	
Turnip	95		B			X	B				X	
Tugue	300	H	F				H	F			X	
Ubi	300	H	F				H	F			X	
Radish	40		D		X	D		X	D		X	
Carrot	115		A	C		X	A	C			X	
Arrow root		J					J					

Explanation of above signs:
A—Plant in seed boxes.
B—Plant in open ground without transplanting.
C—Transplant to the garden.
D—Plant only large seeds in plots.
E—Securely fasten to sticks.
F—Set stakes or make trellis so that they may have proper support.
G—Plant all over the garden as cover crops during vacation.
H—Plant section of the root.
I—Plant sprouts or sections of vines.
J—Plant by suckers.
K—Plant cuttings (slanting).
X—Probable month of harvest.

NOTE.—Vegetables that have only one sign at the beginning of the year can be planted at any time.

MANILA SCHOOLS.

The industrial force of the department of city schools, Manila, for the school year of 1916 is as follows:

Mrs. Engracia Yamzon, industrial supervisor for girls.

Miss Lucia Escalderon, assistant industrial supervisor for girls.

Mr. Vicente R. Concepcion, industrial supervisor for boys.

At the beginning of the present school year Miss Lucia Escalderon was transferred from the school division of Cebu to the city schools of Manila, as assistant industrial supervisor for girls.

During the month of June, 1916, Mr. Nicanor Oca, shop teacher at the Sampaloc primary school, was transferred to the division of Sorsogon as acting principal of the provincial trade school of the Province of Sorsogon.

Since the beginning of the present school year, orders for industrial articles to the value of ₱700 have been received from the Bureau of Education. These orders include 1,400 yards bobbin lace, 11 luncheon sets, 12 dozen handkerchiefs, 18 kimonos, and a number of other articles.

Considerable difficulty is being experienced in securing certain industrial materials owing in part to their advance in cost.

The following primary schools have shops and gardens as indicated below:

Shops.—Ermita, Herran, Meisic, Pandacan, Sampaloc, San Nicolas, Santa Cruz, Santa Clara, Gagalangin, Intramuros, Paco, Quiapo, San Andres, Santa Ana, Santa Mesa.

Gardens.—Herran, San Nicolas, Santa Clara, Gagalangin, San Andres, San Lazaro, Tondo, Guipit, San Sebastian. (J. F. S.)

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ALBAY.

The summer session of the Guinobatan Farm School proved to be very successful. In addition to the regular pupils of the school who remained for work, six municipal teachers enrolled in the vacation classes. They are now teaching gardening in their home schools. The farm school now has an enrollment of 126 boys. The outlook for the crops is very promising. The vacation session has made it possible to have the crops planted much earlier than in previous years.

Mr. Edilberto Bien, traveling industrial teacher from the General Office, has been assigned to this division to assist the basketry teachers. His first assignment was to the Ligao district.

During the months of June and July the division sales department disposed of ₱363.70 worth of baskets and needlework articles.

The normal course of the provincial high school is now completely organized and promises to become the most popular department of the school. A very comprehensive course of industrial instruction has been adopted for the purpose of securing a number of adequately trained principals for central schools.

Throughout the province marked progress is being made in removing the effects of the severe baguios of last October. Considering the extent of the damage wrought, the recovery has been very rapid. A few months more will find the majority of the people better housed than they were before the storms. Nearly all the damaged school buildings have been fully restored.

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BATAAN.

School industrial work in the division of Bataan has grown important enough to have extended its influence to the homes. At present there are very few homes in the division in which there cannot be found one or more industrial articles produced in the public schools; and

these articles are being used, not simply collected as curios.

About the year 1905, when industrial work was given without any models, pupils were accustomed to fabricate unserviceable toys and playthings; but the schools in the division at present are rendering very efficient industrial service in teaching the pupils how to use their hands skillfully in making useful articles.

Moreover the industrial work in the schools has taught the people the value of such plants as pomago, amlong, nito, bamban, kilog and others. These plants were formerly often destroyed but now that they are being used in the schools, people go to the mountains to seek them in order that they may sell them to the schools. More effort is now made to protect these plants and some people are even contemplating cultivating them in order to supply the demands of the schools. (M. B.)

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CAPIZ.

The percentage of attendance at the recent institute was 99.

Plain sewing was given for the first time in the second, third, and fourth grades. Several male teachers took second-grade sewing.

Some new devices were used in polangui basketry classes which facilitated the work very much.

Mr. D. A. Monroe, a newly arrived teacher from the United States, has been assigned as principal of the trade department of the Capiz Provincial School. Mr. Monroe is well trained for this work and from indications a successful year's work is anticipated.

Miss Valentina Impreso, formerly an assistant in domestic science in the Capiz Provincial School transferred to Oriental Negros during the normal institute. Her place is filled by Miss Nicolasa Cervero, formerly of Oriental Negros.

This division has orders for desk baskets, wastebaskets, and embroidery to the amount of over ₱1,100.

At the recent institute Mr. Villarruz, assistant industrial supervisor, had charge of basketry and gardening. Mr. Smith, the industrial supervisor, had charge of the embroidery and all housekeeping classes and was principal of the normal. Mr. Ten Hagen supervised the plain sewing and hand weaving. (H. W. B.)

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ILOILO.

Friends of Joseph H. Loughran, former industrial supervisor for Iloilo, have received letters from him describing his work in the industrial-development department of the John Wanamaker stores of Philadelphia where he is now employed.

The provincial officials have promised the division superintendent of schools an appropriation of ₱5,000 and a display and storeroom in the provincial building for the new provincial industrial department.

Miss Perpetua Vasquez is now in the southern end of the province inspecting school embroidery work. She will interview the graduates of the School of Household Industries in that section before her return to establish, if possible, household working centers for the provincial industrial department orders.

A new shop building has just been completed and ₱500 worth of carpentry tools purchased for the Iloilo Intermediate School. The teachers and pupils are now hard at work making the benches and within a short time this school will have another line of activity in good order. Extensive repairs and improvements have been made to the domestic-science house as well. (C. E. W.)

LETTER BOX.

[From time to time there are received questions of general interest which require relatively short answers. Whenever the questions are of wide enough application to warrant it, the answers will be published under this heading.]

1. When should the embroidery frame be used?

Answer.—The embroidery frame should be used for all work in embroidery, but care should always be taken that the material is neither torn nor pulled when the work is finished.

2. When should the hoop be used?

Answer.—The use of the hoop should be discouraged.

3. When should neither the frame nor the hoop be used?

Answer.—Neither should be used in doing the slip and button-hole stitches. Cutwork requires little use of either device.

4. Has any process of preserving the natural gray of the common sea-shore pandan been discovered?

Answer.—So far as is known such a process has not yet been discovered, nor is it likely to be before a process for preserving the chlorophyl of other leaves and flowers shall be found.

5. Can you name a brand of embroidery scissors that are both good and cheap and that can be bought on the Manila market at the present time?

Answer.—At the present time there seems to be a shortage of embroidery scissors that are both good and cheap.

6. Is it advisable to excuse students from plain sewing and cooking so that they may work on commercial orders for embroidery?

Answer.—No; pupils should be excused from no regular recitation designated by the program for the purpose of spending extra time on some other subject.

7. Should basketry and embroidery be graded monthly or should the grade be given on the finished articles? If monthly what division has developed an accurate system of grading?

Answer.—Grades may be given monthly or they may be given on the finished article. In the latter case, the length of time spent on the article should be taken into consideration. In case of giving monthly grades, it is necessary first to determine the length of time that it should take the average pupil, working faithfully, to complete the article, then the grade will depend upon the quality of the workmanship and on whether the amount of work completed within the month is up to the predetermined standard.

8. In working scallops from right to left, and throwing the thread around the needle from right to left, should the needle be pushed up or down at the outer edge of the scallop?

Answer.—When working the buttonhole or slip stitch with a frame the needle should be pushed down at the outer edge. When making the buttonhole stitch without the frame the needle should be pushed down at the outer edge, but up at the outer edge when making the slip stitch.