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SOME PROBLEMS IN INDUSTRIAL SUPERVISION AND THEIR SOLUTION.

By LUTHER PARKER.

One of the most instructive charts exhibited by the Bureau of Education at the Panama-Pacific International Exposition was the one showing the system of centralized supervision of the work of the Philippine Government especially in its relation to the public schools.

Less than half a dozen states exhibiting at the Exposition could show a similar system of centralized control though most educators of note who examined the Philippine system, and its results as exhibited, were in favor of a similar system for the control of education in the United States.

Certain people, however, could see nothing of value in it since it would take the schools out of local politics and weaken the politician's hold on the teachers at present, in many places, too much dependent on the local political boss.

Many of the States have educational departments with little real power to control the work of the schools. Even the United States Bureau of Education, in general, can act only in an advisory capacity.

Only inasmuch as the present system can be perpetuated will the teaching profession of the Philippines be kept clean and teachers be enabled to give all their time to the work of education and not be forced to enter local politics in order to retain their positions.

The first plan of supervision evolved here has been followed rather closely since the beginning. The chief authority is vested in the Director of Education and two Assistant Directors with station in Manila. The representative of the Director in each school division is called a division superintendent and his station is usually in the capital of a province. He usually has a helper or helpers such as a supervisor of industrial work, or academic work, or both, who act in advisory capacity to the supervising teachers. The supervising teacher answers to the division su-

perintendent and has direct charge of the schools in his district. The principal of each school is responsible to the supervising teacher for the work of the school and has charge of the classroom teachers.

In this centralized form of supervision lies the strength of the system and although it may not be the kind of democracy that is so passionately desired in some of the States of the Union yet it has the superior advantage of removing the schools from pernicious influences and making it possible for amazing results to be accomplished, especially as regards efficiency in industrial instruction.

The objection has been raised that the system in the Philippines is too paternalistic and lacks in democracy, but it is significant that in the United States, the home of the most ardent advocates of democracy, a number of cities are turning from government by elected representatives of the people to a hired manager who is a specialist in city government.

While the general principle of democracy is still adhered to and firmly believed in, yet it is being more and more recognized that the capacity of the average elected official is not equal to that of the hired specialist who is paid to govern the city in the interest of all the people and must obtain good results or be replaced by a more competent man.

This is not an abandonment of the principle of democratic government but a development of it along lines dictated by common sense.

Democracy is abandoned only when a hereditary ruler is substituted for one who is selected by the people either by being elected or employed.

In the system under discussion the officials in charge of education in the Philippine public schools are employed and must, therefore, show results or be replaced. This is in line with the latest and most efficient methods of democracy, as is evidenced by the cities above mentioned, that hire their managers instead of electing them. By an examination of the methods in vogue in the United States it is found that the Philippines do not suffer in comparison, but, on the contrary, stand high when placed in competition with the best systems yet evolved in democratic America. That this statement is not bombastic is proved by the record of the standing accorded the educational system there exhibited.

Much of the success secured was directly due to the system of supervision that has been gradually worked out as to details during the past decade or more.

Direct responsibility of each individual in the system to some one higher in authority, with a broader horizon and more competent to direct, has placed behind the teacher of the most remote barrio the strength of the whole organization, and has made available the combined experience and intelligence of a highly trained personnel. That such a far-reaching system would produce good results goes without saying.

Let a good process for preparing industrial materials be worked out in an isolated barrio of Samar this month, by means of the system of distribution of ideas through supervisory channels, this same idea may be given publicity in every community of the Philippines next month and the earning power of the people be thereby greatly increased.

Should a successful method of preserving corn seed be discovered in Mindanao this season, next year it will be handed on from one to another of the supervising corps of the Bureau of Education until it is in practice in every barrio where corn is raised, and the result is the saving of food in a myriad of homes.

Contrast with the efficiency of this system of supervision that of almost any state of the United States, where each new idea must be presented to and adopted by the elected school authorities of a thousand unrelated local systems, and the superiority of the Philippine methods of centralized supervision of school activities will be at once apparent.

The Philippines are fortunate in having been chosen as a field for experimentation in popular education and especially fortunate to have been placed on the high road to economic independence by a workable system of supervision of the industrial activities of the public schools.

The growth of industrial work in the public schools of the Philippines was slow and sporadic at first and responded to the necessities of supplying the schools with furniture, the children with clothes, and the people with much-needed food in the period just succeeding the war with Spain which had impoverished the country.

The striking results secured in various municipalities, where teachers with sympathy and initiative were stationed, drew the attention of the early officials of the Government and it was decided to encourage the extension of such work in the schools as would make the schoolhouses and yards more useful and attractive and the pupils more presentable.

The supervised industrial work of the schools had grown so much of its own accord that before 1908 certain supervising

teachers were holding industrial exhibits for their districts. These exhibits were the prototypes of the Insular exposition of later years.

One of the greatest problems of supervision in the beginning was that of transportation. Before the era of good roads and motorcycles the industrial supervisor spent a large part of his time in traveling. Perfection of transportation has at present reduced this wasted time to a minimum in many provinces though there are even yet many places where supervision is hampered by bad roads.

Of late years one of the chief problems of supervision lies in the extension of commercial work to the homes of the pupils. The avowed policy of the Bureau of Education has always been the preparation of pupils, while in school, to take their places as earners after finishing their studies. The policy is now bearing fruit in the most progressive provinces, and a large number of people, who have been taught to do something with their hands, are now anxious to put their skill to a practical test and begin earning money. The problem of supervision involved in properly meeting this demand is of no small proportions, but with the establishment of household industry centers under the direct supervision of the employees of the Bureau of Education there should be no insurmountable difficulties encountered.

The home workers can be supplied with orders and materials by means of the present organization that does the same thing for the schools. A probable extension of the work will lie in the detail of an experienced industrial teacher in each town to handle the work of the home centers, in part, or exclusively.

The salary of such employees could well be borne by the home centers as soon as production has reached commercial proportions. Under coöperative marketing associations these industrial teachers would find a good field with attractive positions.

One of the most difficult problems at present lies in reaching a sufficient number of workers to make it worth while to start home industry centers. Comparatively few of those who have been well trained in embroidery work or in lace making during the last few years have left school. Most of them are still in school, and since the high schools have, as yet, no industrial courses to follow up those of the intermediate courses those who go on to the high schools drop out of the ranks of the producers and, to a certain extent, lose the skill acquired through the years of training in the grades preceding the secondary course.

The solution of this difficulty seems to lie in the continuation of the industrial work in the high schools. Such a policy would round out the system of industrial education. In the United States, as a matter of fact, most of the industrial training is given in high schools though of late years there is a tendency to introduce the work in the grades.

One of the live problems in supervision, in the present phase of industrial education, is to see that the courses laid down for the various grades are carried out impartially. There is always a tendency on the part of specialists to sacrifice all other considerations to their specialty, and it is necessary for some one to stand guard to see that one line of work is not carried out to the exclusion of other lines which are just as important in the training of the pupils for full citizenship.

While industrial training for the sake of ultimate efficiency is undoubtedly sound in principle yet commercialism, allowed to dominate the course of study, would be content with little less than all the time of the pupil and would hold of slight account anything but manual dexterity. No educational system could long exist that failed to take this fact into consideration and to guard against it.

As to the teachers, the chief problem lies in raising the standard of efficiency. One way that this might be done is by establishing the normal course in all provincial high schools, with the inclusion of methods in industrial work.

The problem of supervising equipment is being made easier through division of labor as equipment comes under the eyes of a number of supervising officials during the school year.

The chief difficulty, as regards equipment, lies, not in its supervision, but in its acquisition, especially in the subscription intermediate schools where even sufficient funds for the salaries of the teachers are difficult to secure.

The solution suggested for this difficulty is to make it possible for each intermediate school to do enough industrial work to pay for all needed material and equipment from the profits that go to the pupils' fund.

The problem presented by industrial material is not a small one. As a rule, many industrial materials are most abundant where there are few hands to use them and least abundant in the well populated districts. This is especially true of several minor fibers such as nito, kilog, buri, tikug, and some others. Of these, however, the buri palm could be cultivated and thus insure an abundant supply.

Logically it would appear that the great source of industrial materials must be from plants such as bamboo, abaca, and palms that can be cultivated in commercial quantities.

The problem of designs depends upon the solution of the problem of supplying materials, and only those designs will be ultimately successful that are of the greatest utility and that are of materials that can be supplied to workers cheaply and in quantities.

Utility baskets, hats, and door mats would appear to be designs for handwork that may be profitably perpetuated.

Needlework, of course, is an entirely different field with problems peculiar to the art.

The greatest problem in workmanship is that of securing uniformity. This is being successfully done by means of the dissemination of patterns and blue prints from the General Office, and by the use of standard models in the classroom under the direction of the teachers who made the models. The training secured by teachers in the division normal institutes is doing much to secure good workmanship all down the line.

With regard to the production of industrial work there is little danger at present of overproduction either in the schools or home centers. In fact the war has given the Philippines the greatest opportunity they have ever had, or probably ever will have again, to capture the markets of the United States in certain lines of handwork that have hitherto been followed in Europe. It is to be regretted that full advantage cannot be taken of this golden opportunity, due to lack of funds to secure materials and lack of trained workers in large numbers. A good start, however, has been made and with the Government encouraging the people to establish working centers, and with the people in turn profiting by the sale of their handwork as never before, it is believed that the future of industrial work is bright indeed.

The supervised study or hour plan has been tried for the first time in Porto Rico in several of the schools of San Juan and Ponce during the past year. Under this plan there are no separate study and recitation periods. All of the time of the teacher is spent with the pupils individually, so that all work is prepared under immediate supervision. This enables the teacher to give more personal and individual attention to consider the peculiar needs of each pupil.

EVOLUTION OF INDUSTRIAL SUPERVISION.

By HERBERT D. FISHER, General Industrial Supervisor.

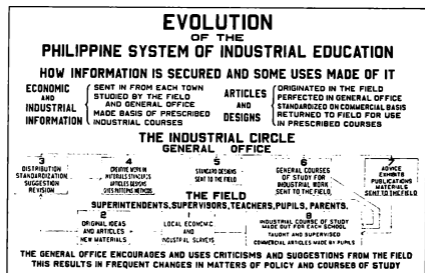
Since the earliest days of the American occupation it has been felt that any system of education which might be introduced in the Philippines would be incomplete and inconsistent with the needs of the people unless a certain amount of industrial instruction could be included. Although no definite instruction could be given those pioneer teachers, who were necessarily placed in direct charge of all classroom work, a great majority of them, acting upon their own initiative, introduced forms of industrial work, each according to his own ideas but generally with the aim of bettering the conditions in the home life of the people. The work generally consisted of some form of agriculture and of domestic science along with sanitation as applied to personal cleanliness and to the care of habitations. For convenience this may be called the first stage.

The second stage began in 1904 when the public clamor for education became so strong that the American teachers could no longer meet the demands for classroom work, but were obliged to turn over the actual instruction to Filipino teachers who worked under their supervision. This was the immediate cause of the establishment of supervising districts. There is no doubt that the change at this time was a little premature, but the advantages it offered for extending industrial instruction over a great field seemed to offset the sacrifice of the academic work. The phenomenal growth of educational work which followed is believed to be unequaled anywhere.

There now arose another phase of industrial instruction. The Filipino teachers, following a natural inclination, began to introduce many forms of handicraft, all or most of which found some application in the homes of the people. This work consisted of fancy needlework, and the making of many kinds of native baskets and household furniture. Although this work was viewed with much curiosity in some quarters, many supervising teachers saw the practical side of it and gave it their support. Many of them saw a great possibility of extending this kind of instruction so that it might be a means of augmenting the income of the people and thus become an important industry. Their original ideas, however, were not changed on any account, and the work in gardening, plain sewing, cooking,

and sanitation still stood out as the most important and fundamental of all industrial instruction. This period of supervision extended over about four years.

The third stage, which marks the beginning of centralized supervision, came at a time similar to that when the American teachers could no longer fill the positions of intermediate instructors. Vocational intermediate courses were now established, based upon the several principles already outlined and introduced in the primary schools. The industrial program now became so technical as to require the services of people specially qualified, and the position of division industrial super-



Showing how the General Office went about the organization of centralized supervision.

visor was created to meet the need. The supervision of industrial work was thus transferred from the district to the division office, although the supervising teacher was in no sense relieved from the responsibility of looking after the work in his district. This period extended over a space of about four years, during which time a number of industrial exhibitions were held at Manila. The General Office was thus enabled to study the work of all sections, and begin plans for a permanent and centralized organization. Handicraft work had assumed enormous proportions; at one time over a thousand varieties of articles were exhibited. These showed an admixture of both the Occidental and the Oriental types and a large number were purely original. Many of these were of very doubtful value.

The fourth stage began at the moment when the General Office was in a position to attempt to standardize the work of all classes; to require that sections and individual schools specialize on work which was more appropriate for them; to disseminate information along all lines which would insure concentrated effort and definite instruction; and to give every consideration to those in the field, upon whose initiative the whole system was based. Since that time the industrial work has been managed from the office of the Director of Education through the division offices and the supervising teachers who, in turn, depend upon classroom teachers for the proper execution of the mechanical details. In order to establish a uni-



The Filipino teachers, following a natural inclination, began to introduce many forms of handicraft.

formity of purpose and standard materials throughout the Archipelago, the General Office classified the work according to courses, each represented by appropriate outlines or designs. Each division office was required to submit before the reopening of schools each year, a report showing the towns and number of schools in which each course was to be assigned, and the design numbers for those courses which were not regularly represented by outlines or samplers. This information was subjected to general criticism, and returned. This plan has operated for about four years and may be considered to have extended up to the present time.

It seems, however, that the administration of industrial instruction is about to enter a stage, the distinguishing feature of which is the fact that the General Office considers itself in a

position to assume greater initiative and to judge of the relative merits of the different courses of instruction better than those whose knowledge of conditions must necessarily be confined to certain provinces or sections. This will carry into effect some of the following ideas.

All courses whose primary influence is intended to create better citizens, better housekeepers or husbandmen are assigned in all schools where conditions permit. This work may eventually be extended to every school and its continued assignment therein



A result of standardization and centralized supervision.

may become established. This will represent a policy of permanency and continuity of purpose.

Various courses, of a more or less special nature, are required to be given in a certain number of towns in each division. The location of these schools may be designated with a view to meeting the spirit of the intended object, and the reassignment of the work in such schools from year to year may become obligatory. This will represent a policy of concentrated effort.

Some divisions still give a great variety of courses representing handicraft industries. The most appropriate is likely to stand out as the most successful, while many of the others may be real handicaps to the more popular work. Groups of towns, whole divisions, or even groups of provinces may be required

to specialize on similar work where it has met with general success in these sections.

Many of these courses have appropriate correlative work not found in all others, and which is graduated according to the age, size, and ability of the pupils. These courses may be assigned to those sections where they are necessary.

This plan will require the preparation of a similar industrial schedule for each group so that each town included therein will take work according to the classification of its schools. The next step is the arrangement of a uniform program which will show the place each course occupies and the weight which is given it. The final step in the organization will be accomplished when the teachers of a given section become familiar with the several phases of these correlated courses.

In order to perfect this plan, which is already becoming popular in some sections, there will be required the services of supervisors connected with the General Office, who can carry the ideas directly to the field, and apply them in such a way as will meet with the approval and coöperation of the division offices.

It will be seen that this review carries the subject over a period of about sixteen years, and each of the four stages leading up to the present date are credited with equal spaces of time. If precedence has anything to do in making these periods, it may be surmised that the next four years will solve some of the greatest problems of industrial work. It may determine clearly the relative merits of the three primary objects of industrial instruction which are, respectively, purely educational, direct betterment, and commercial. The success of the last mentioned will decide the object of the former and the prosperity of the other which on no account shall ever diminish.

Industrial supervision has therefore been built up from the work of classroom teachers in isolated schools. It now remains to connect this organization on one hand with the homes of the people and on the other with the business world. When this is accomplished, the schools will have fulfilled a purpose, and may then gradually relieve themselves of a great task. It is felt that the final test is near at hand. The Bureau of Education may never find itself in a better position to help the Filipino people to decide whether or not they will soon enter the economic field and take their place in the world's markets.

INDUSTRIAL SUPERVISION.

By CAMILO OBIAS, Division Superintendent of Schools, Mindoro.

The problem of industrial supervision will be discussed in this article with a view to assist in increasing its efficiency and effectiveness.

A complete discussion of the subject should include a consideration of the qualifications, personality, training, and experience of the industrial supervisor, and also of his relations with the teachers and pupils, with the community, and with his superiors. Space forbids a full discussion of each of these headings. Suffice it to mention here, that the industrial supervisor should possess a pleasing personality, should have unlimited tact, and a capacity for growth. His training, of course, should include a fair general foundation, with a certain amount of specialization along industrial lines. He should have been, preferably, an industrial teacher himself.

The industrial supervisor in his relations with the teachers should be tactful, friendly, and coöperative. His relations with the pupils are chiefly through the teachers. As a social worker, he should be endowed with initiative and should be capable of leadership in industrial activities. To his superiors, he should be helpful, and ready to give pertinent data and information or to make suggestions for carrying out the policies of the Bureau.

COMPARISON OF INDUSTRIAL AND ACADEMIC SUPERVISION.

The problem of supervision is relatively modern in educational affairs. It is a branch of educational science which is still in the making. Consequently there are several weaknesses. The common fault is that the supervision heretofore exercised has not been real supervision; it has been inspection. As such, it has been characterized by brevity and superficiality. What industrial work as well as academic work greatly needs is that type of supervision which is intensive, professional, and constructive.

In the supervision of academic work it is generally regarded that a recitation consists of some fairly well-defined steps. The followers of Herbart for example believe that a recitation ordinarily consists of five steps: Preparation, presentation, comparison and abstraction, generalization, and application. According

to a more modern writer, a recitation may be grouped into three steps following very much the Herbartian steps. These three steps are apprehension of specific facts, rational generalization and application, and verification. Another author believes that ordinarily a recitation consists partly of testing, partly of teaching, and partly of drilling. It is, of course, out of the question here to discuss each of these points elaborately. The point at issue is that a complete supervision of a full recitation in academic work takes due regard of these steps and considers each of them by itself and in relation to every other step and to the recitation as a whole. Certainly a supervisor imbued with the professional spirit never neglects to inquire into the aim, the subject matter, and method of the recitation.

Industrial supervision may well take its lesson from academic supervision. Roughly speaking, an industrial period properly conducted by a teacher ordinarily should have its aim, should have a certain amount of subject matter, and should have its own method. In an industrial period, as well as in an academic period, the hour would indeed be far from being richly spent if a conscious, worthy and well-defined aim, well-organized subject matter, and a well-thought out method or procedure were lacking. Industrial supervision, therefore, should take due account of the dominant aim of the industrial recitation, the subject matter, and the method.

It is certainly obvious to all who have observed industrial work as carried on in the schools, that an industrial recitation, like an academic recitation, may have certain steps which, while not distinctly separate, are sufficiently differentiated to be noticeable. An industrial recitation may have certain parts which come under the step of preparation, certain parts that come under the step of presentation, and certain parts that come under the step of generalization or application including assignment. The step of preparation in an industrial recitation may, for example, consist of the preparation of materials, the getting of tools ready, and getting the pupils in an attitude and condition for real work. The step of presentation may include the teaching of new industrial terminology, new processes, new weaves, new stitches, new designs, new joints, new devices, or new ideas. The step of generalization and application, roughly, may include certain theoretical conclusions gathered from given data or certain method of work which is a direct application of the new idea, device, or method taught. It is clear that the discussion of these steps could be further elaborated if space and time permitted.

After the discussion of industrial recitation compared with academic recitation, and industrial supervision compared with academic supervision, the points which stand out should be: First, that industrial supervision, like academic supervision, should be intensive, professional, and constructive; second, that the desirable unit of supervision in industrial work, as well as in academic work, should be a complete recitation period.

The necessity of adopting this unit of supervision should be obvious, for it is not clear how an industrial supervisor could properly offer constructive criticisms and professional assistance unless there has been an intensive observation of each of the parts of the industrial recitation considered by itself and considered in relation to every other step, and considered in relation to the recitation as a whole.

FURTHER SUGGESTIONS.

The preceding discussion embodies important suggestions for industrial supervision: Namely, the exercise of real supervision rather than mere inspection; the necessity of exercising that type of supervision which is intensive, professional, and constructive; and the adoption of a complete recitation as the desirable unit of supervision. Further pertinent suggestions will be given.

Visits must be planned.—Industrial supervisors should plan their visits in order to bring about an economy of the travel expenses with the maximum of results. It is preferable, with the limited amount allowed for traveling expenses, to plan visits in order that there may be economy not only in finance but in time consumed in traveling, and in effort saved in visiting classes and schools. The points to be considered should be definite in the mind of the supervisor.

Schools and teachers must be studied.—It is suggested that at the beginning of the school year, the strong industrial teachers be given the greatest assistance in order that they may be made stronger. The industrial supervisor will then have efficient teachers at the opening of the schools, with a fair guarantee of continuity of good work during the year. Another reason for suggesting that strong teachers be attended to at the beginning of the year, is because the industrial supervisor can explain to these more easily what he wishes to accomplish, and their classes can serve as models to the weaker teachers. Ordinarily an industrial supervisor cannot give personal and intensive help to individual teachers. It is, therefore, an economy in effort on his part to have a corps of strong teachers at the beginning of

the year to help the weaker teachers to insure increased efficiency.

Industrial supervision should be directed consciously toward prevention of waste.—Prevention of waste may be realized (a) by automatizing certain mechanical movements, (b) by the exercise of greater prevention and consequently less correction, (c) by having correct models, (d) by training teachers to give close supervision and effective help, and (e) by selecting right materials with correct dimensions and in the proper quantity.

It is desirable that pupils be taught to automatize certain movements early in the year, such as marching to get their materials, seating themselves, the arranging in order of tools and equipments, and the keeping and storing of material and work at the end of the recitation. This is desirable so that the time and attention of the teacher, which should properly be devoted to the industrial recitation, may not be consumed. "An ounce of prevention is worth a pound of cure," is a rule applicable not only to hygiene but also to an industrial recitation. It is easier for a teacher to exercise prevention than correction. Industrial supervision should, therefore, be on the alert to anticipate certain troubles, certain possible mistakes and, in the step of preparation in the industrial recitation, teach the correct things or processes, thus preventing the inception of practices that will have to be corrected later. Another means of preventing waste is by having correct models, hence the use of museums from which these models may be secured. Another great source of waste is the improper selection of material and the use of material far in excess of what is needed, or far short of what is needed. A great deal of waste can be avoided by the selection of material with the correct dimensions and in sufficient quantities.

It should be among the objects of industrial supervision to see that industrial equipment be standardized; that successful devices be popularized; and that the speed of the pupils working be increased through good teaching, through proper methods of work, through the development of interest and enthusiasm, and through the formation of habits of industry.

A novelist who is credited by his admirers with being something of a psychologist declares in one of his recent books that the greatest value of any human being lies in the fact that he or she has no duplicate—is different from and has potentialities unlike any other.—New York Times.

THE PLACE OF ENCOURAGEMENT IN SCHOOL INDUSTRIAL WORK.

By GILBERT S. PEREZ, Division Industrial Supervisor, Bohol.

The value of a few words of encouragement in the production of industrial efficiency is often overlooked by both teachers and supervisors. A false conception which has been allowed to grow in the minds of a number of teachers is the confusion of criticism with fault finding, and negative inspection with positive supervision. "You are not doing this right," is by far a more frequent expression than "Let me help you do this better." The former sentence offers no word of encouragement and is apt to provoke blind antagonism, while the latter is a recognition of an honest endeavor on the part of the boy to do his task and will very likely invite hearty coöperation and better understanding. It will be found that more satisfactory results will be obtained if a few words of encouragement precede the severest criticism. The teacher who spends the greater part of his time in fault finding; the principal who believes that his subordinates will look up to him only if he tries to show his superiority by a continual flow of "Don'ts;" and the supervising teacher who tries to impress his hearers by dissecting the work of his teachers and holding the frayed ends to public ridicule, will find himself in a short time on the downward road to failure and incompetence.

The joy of accomplishment, of building and of creating, is innate in the human mind and shows itself at a very early age. Accompanying this instinct is a desire to obtain the praise or appreciation of companions, friends, and parents. If teachers would recall the memories of their early school days, they would remember how their hearts beat in anticipation of the day's recitation and the thrill that followed a word of praise or encouragement from the teacher. Upon closer analysis, it is found that one of the most important reasons why a pupil endeavors to excel in industrial work is to obtain from the teacher a recognition of his efforts. While there are some who work for the sheer love of accomplishment, and others for the pecuniary benefits which they may receive from the work, it must be acknowledged that the good will and appreciation of the teacher

are prime factors in obtaining both increase in production and excellence in workmanship.

Let us consider for a moment the relation that encouragement has to both the quality and quantity of output. Juan is a good worker but is very slow; Pedro is a very fast worker but he is not so careful as Juan. To scold Juan for being slow and to reprimand Pedro for being careless would not accomplish anything, but would only tend to discourage both pupils. Instead, bringing Pedro before the class as an example of a fast worker and Juan as an example of a careful worker would impress upon the minds of the pupils the lesson that the perfect workman is the one who works both rapidly and carefully. It will then be found that while Pedro is still trying to keep up his reputation as a fast worker and Juan is striving to be even more careful in his work, both will be endeavoring to acquire the qualities which will enable them to attain a greater degree of excellence both in workmanship and in speed.

Not all are endowed with the same capabilities and inclinations. A task that is drudgery to one pupil may be the joy of another; and the teacher who can discover the latent possibilities in each of his pupils and develop them, will find in that a stepping-stone to the conquering of their faults and shortcomings.

In the relation between principal and teachers the matter of encouragement assumes a reciprocal form. The principal encourages his fellow workers with words of appreciation and in turn receives encouragement in the form of increased interest of the teachers in their work and in their continual endeavor to perform to the best of their ability the duties allotted to them. Simple service and duty however, are not enough. Service must be coupled with sympathy in order to be truly effective, and sympathy, that power to put oneself in the other's place, loses half of its value if it does not express itself in a few words of encouragement and good cheer. When supervisors allow themselves to become taskmasters and drivers instead of leaders and guides they cannot get down to the hearts of those with whom they labor. There was once a supervising teacher who prided himself on the amount of work wrung out of his teachers. "It is very easy to get them to do the work," said he, "if you only use tact;" and with that motto continually before him he drove his teachers to this or that task until they were more than ready to resign at the end of the school year. Such a supervisor deceives no one but himself. The results obtained

may make a good showing temporarily but the supervisor will soon find that he has lost what is very dear to the real leader—the coöperation and enthusiasm of his fellow teachers, the prime requisites of successful and continued work.

The attitude of the General Office and the encouragement coming from Manila has a considerable influence on the amount of work done. The emphasis placed by the General Office on activity in industrial lines resulted in a wave of enthusiasm and interest in that phase of the school work. The provincial exhibits, the annual carnival exhibits, the friendly rivalry between towns and provinces, and the substantial encouragement given to industrial teachers tended to develop such a high quality of craftsmanship that the industrial exhibit of the Bureau of Education at the San Francisco Exposition was a wonder to all visitors and received the unqualified approval of educators all over the world. It is only by continuing this interest and encouragement that a high degree of efficiency will be maintained.

For a supervising teacher to allow a teacher to work year after year without a word of encouragement is not only detrimental but positively wicked. If he cannot be encouraged, he should be asked to resign as soon as possible for no man can do justice to himself and to his work if he feels that nobody cares. This is especially so in the case of teachers. A teacher receives a small salary, but this is meager compensation in comparison with the pleasure that he experiences in his work and in the knowledge that he is doing something for the betterment of the citizens of to-morrow. Take away this encouragement and there remains very little incentive to work.

The manner in which encouragement is received by teachers and pupils should be an indication as to whether it is accomplishing its purpose. If they are spurred on to greater efforts; if they show by an increased interest in their work that they realize the meaning of the words of appreciation, it is evident that one has not been overzealous in his efforts to gain their interest and continued coöperation. Sometimes the matter of encouragement can be overdone. It should not mean the ignoring of all mistakes, of laziness, and of glaring breaches of discipline; but should be used as an aid in tempering the severest criticism. If a supervisor sees only the good things that are being done, pupils and teachers are apt to think that their work is entirely satisfactory and will lose all ambition to do better. The ideal leader is the one who encourages his followers by

appreciating their good qualities while criticizing them most severely for careless or unsatisfactory work. The best way in which to accomplish this is to realize that one must serve if he desires to be served. He must serve sympathetically, serve generously, and serve with the best knowledge that is in him. He cannot expect to receive without being willing to give, to give not only his experience and skill but also his service and sympathy. Then he will truly understand the meaning of the Great Teacher: "Give and it shall be given unto you."

Typical of the interest taken in the industrial work of the Philippine schools by American educators, is a letter recently received by the Director of Education, from President H. J. Waters of the Kansas State Agricultural College. Doctor Waters is attempting to induce the Federal authorities to organize in the Indian schools industrial classes in a manner similar to those of the Philippines.

Among other things he asks concerning the following:

Commercialization of designs before their introduction into the schools.

Cost of various kinds of Philippine industrial materials in quantity, delivered in the United States.

Material that could best be recommended for importation, if such a course should be decided upon.

The organization that has been established for the selling of school products.

The existence in the United States of raw materials suitable for the making of baskets.

These questions were answered in detail. The Director described the General Office sales department as it is now being organized; also the work of the industrial division of the General Office in the development of designs. He recommended abaca as the best material for importation for use by American schools on account of the fact that it is a staple Philippine crop. Many of the baskets of the American aborigines are of the coiled type, resembling the abaca baskets made here. The Director did not take up at length the matter of available basketry materials native to the States. That there is a supply of them to be found is evident to anyone who has seen the white-oak split hamper and the market baskets of Virginia and the Carolinas, the sweet-grass baskets of Maine, and the more elaborate Navajo baskets of the Southwest.

POINTS TO BE NOTED WHEN INSPECTING INDUSTRIAL CLASSES.

By G. GLENN LYMAN, Principal, Industrial Department, Philippine Normal School.

To just what matters should the industrial supervisor devote his attention when making his visits of inspection to the different industrial classes under his supervision? This is a perplexing question, alike for the experienced and the inexperienced teacher or supervisor of industrial instruction. Conditions under which the prescribed industrial courses are taught vary so greatly in the different school divisions that measures and methods of supervision which often prove excellent in one, may fail if attempted in others where the general economic and social conditions are not the same. It can thus be readily seen that no fixed and rigid system of industrial inspection, if adopted for the Islands in general, would prove either feasible or desirable. There are, however, certain essential points to be considered when inspecting the work of practically all industrial classes which, if carefully noted and consistently followed up, are bound to increase the efficiency of the instruction given and to raise the standard of the finished output.

The first, and in many respects the most vital point to be noted, is the industrial program followed by each class visited. This should conform to the course of study and other instructions, such as B. E. Forms 80 to 84, general circulars, technical bulletins, etc., from the General Office. The program should be kept posted in a conspicuous place and followed regularly from day to day, and should be so worked out that classes will not be too large or too crowded.

The success of industrial instruction, like that of any other educational activity, depends in a great measure upon the training and personality of the teachers employed. Teachers should attend the vacation assembly at Manila or the division normal institute each year to acquire new methods and to learn new lines of work. Each one should know how to secure, select, and prepare materials; understand the use of blue prints and patterns; and learn to follow the specifications and directions given on them. During the industrial periods the undivided attention of the teacher should be devoted to the class. He must make adequate preparation for each day's work and follow the directions given. He should be neat in his personal appear-

ance, interested and enthusiastic, pleasant in manner, tactful and possessed of sound judgment. If the teacher has the qualifications enumerated, his pupils will be clean, orderly, quiet, and attentive. They will work systematically and accomplish their tasks without undue loss of time or wasted effort.

Good work demands good tools and suitable quarters. The equipment should be adequate and properly cared for. The industrial supervisor cannot be too insistent upon this last point. In nearly every school, badly needed equipment purchased at considerable expense may frequently be found unused. This is, in many cases, due to a lack of proper care on the part of teachers, to abuse by pupils, or to the loss of necessary parts which might not have been lost had more attention been given to this phase of industrial supervision. All schools where embroidery, lace, crochet, sewing, hats, fine baskets, and slippers are taught require sufficient washbasins, soap, and clean water to enable the pupils to get ready for their industrial work without unnecessary loss of time. For sanitary reasons, school towels should not be used, but pupils should all provide themselves with individual towels of uniform material and size. A standard list of individual equipment for each industrial course taught should be worked out in the division office and the pupils required to provide themselves with a complete outfit. This equipment should be inspected frequently and the pupils held responsible for its condition.

The matter of securing suitable supplies and materials requires attention at every visit of the industrial supervisor. Foreign materials must in nearly all cases be ordered at his suggestion. He must know where and how such materials can be secured; their approximate prices; and, when they are received, whether the kind, quality, and size are suitable for the purpose for which they are intended. Native materials should in most cases be supplied by the pupils themselves. The industrial supervisor must be continually on the lookout for new industrial materials, new sources of supply, and new ways of using those materials already known. Whenever pupils are found without industrial materials the reason should be ascertained and measures adopted to remedy this condition.

The use of Bureau of Education blue prints and perforated patterns is the most effective means yet adopted of securing standardization of industrial products. Uniformity of size, shape, design, workmanship, and methods of construction can be secured only through their use. These will not, however, prove of great assistance unless teachers are thoroughly in-

structed as to how the blue prints are to be interpreted accurately and the perforated patterns transferred correctly. The industrial supervisor should note carefully the numbers of all blue prints and perforations to see that the designs prescribed are being used and to prevent teachers and pupils from wasting their time on obsolete designs. Blue prints should be mounted securely on cardboard or heavy paper before they are displayed in industrial classes. Those not in use should be filed in folders, while the perforations can be segregated according to classes of articles and kept in large envelopes.

In addition to the blue prints and patterns furnished by the Bureau of Education, models are needed if the best results are expected in industrial classes. The model used should be made by the teacher wherever possible. It should be kept in a place where the pupils can see it, and where they can compare their own work with it from time to time. A model must of necessity be so well made that it is worth copying. Old, dirty, broken, or undersized articles should never be used as models.

The fabrication of salable articles is one of the chief aims of industrial instruction in the schools; this is especially true in a country where the general economic conditions found in the Philippines obtain. The articles made in the different industrial classes should follow the specifications sent out from the General Office. The shape, size, color, method of construction, and the arrangement of the parts require the special attention of the industrial supervisor as he visits his classes. The materials used should be appropriate for the purpose to which the finished article is to be put. They should not be too fine nor too coarse. The workmanship should be good but the amount of time that can be spent in producing any given article must be determined largely by the price at which it can be sold on a commercial basis. The prevention of waste in the use of time and materials demands the constant attention of the industrial supervisor. The skill and speed necessary to produce articles of economic value will not be acquired by pupils until this waste is eliminated or at least reduced to a minimum.

After articles are finished, accurate records are imperative. The industrial supervisor will do well to make a point of inspecting frequently the notebooks of teachers and pupils, the records and accounts kept, and the pupils' industrial record cards. The stock of completed articles should be examined to see that the tagging has been done correctly and that the finished work is suitably wrapped and stored in places where dampness, insects, and rodents will do no damage.

The condition of school grounds and premises, including the garden and outbuildings, requires considerable attention. Principals and teachers should be impressed with the fact that a large part of the community, who see only the surroundings and the outside of the school plant, will judge of the success of the school by its general outward appearance. They should be made to feel that the condition of the schoolhouse and the classroom usually denotes the character of the teachers employed and serves as an index to their efficiency.

The industrial supervisor should remember that criticism, to be effective, must be constructive. It is not enough to tell the teacher that this or that article is not good unless he is also told why it is not and how an improvement can be made. One of the surest ways to lose the confidence of industrial teachers is to criticise unjustly or superficially. If a class is found doing good work the teachers should know it. If they feel that their efforts are appreciated and that the suggestions and criticisms given are meant to encourage, they will almost invariably be found not only willing but anxious to have their work show improvement.

A young man who intends to become a designer should be able to make a decent freehand drawing; he should not only understand what drawing to scale means—he should be able actually to apply his knowledge. He should understand what an elevation and plane are and what a section means. He should have drawn from real life and done some color work from an actual object. He should not be forced to copy what other men have seen. He should have had some manual training so that he may know what it is actually to make a thing—how much effort and thought the making of the simplest object requires. Above all, he should understand that drawing and designing are the means to an end, that a drawing or a design is but the medium with which to express a thought, that the actual executed object is the goal. He should understand that a design is a thing to be practically applied and that he has applied designs in having made a box, a stool, a table, or a piece of bent iron.—*Industrial Arts Magazine.*

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No other educational movement calling for large expenditures and involving sweeping changes in curriculum and method has received such prompt legislative recognition as has the demand for practical and trade training.—*Dr. Edward C. Elliot.*

THE PLEASANT SIDE OF INDUSTRIAL SUPERVISION.

By JACOB A. BERRINS, Division Industrial Supervisor, Pampanga.

In giving an idea as to the interest and pleasure to be derived in performing the duties of an industrial supervisor, it is not meant to convey the impression that such employment is without its difficulties and vexations. In the main, however, it is interesting and pleasant work, though one of considerable responsibility.

The industrial supervisor is responsible to a great extent for



[Photo by Hugo H. Miller.]

There is no greater source of satisfaction to the industrial supervisor than to find a class earnest and interested.

the quantity and quality of the industrial work accomplished in his division, and he figures largely in the selection of designs and courses to be followed in commercial work as outlined on Forms 80 to 84. This outlining of the industrial activities is not done without consulting supervising teachers who are in immediate charge, yet so much of it is left to his discretion in making such recommendations that he must prepare for his work carefully. It is quite necessary, if he would enjoy his work, to have the cooperation of those in the field. The submitting of his recommendations to the division superintendent

of schools and getting the approval of the General Office are also matters of careful consideration. These are mentioned as steps to be taken with care, if one is to enjoy supervising industrial work. If the work has been carefully outlined and if a clear understanding has been arrived at with both the field and the General Office before the opening of school, then the rest is easy.

There are many things connected with industrial supervision that appeal to one as being worthy of special mention when considering the pleasant side of such work. Foremost is travel.



An industrial supervisor always looks forward with pleasure to a visit at a school where he knows the order will be good and the pupils contented.

To one who likes the great outdoors this phase of the work is most attractive. No trip, whether to the smallest barrio or the largest town, is without its varied interest.

The pleasure to be derived from the actual inspection depends to a great extent upon the degree to which the schools have followed instructions, for nothing can please a supervisor more than to find instructions being followed in a school that he visits.

It should be repeated that industrial work to be enjoyed must be well planned. In no other work pertaining to the schools is

there the same opportunity for waste both of material and of individual effort, and the only way this waste can be prevented is by careful planning.

Then there is the satisfaction a supervisor has of inspecting the completed article, and in the realization that pupils under his supervision are able to do real constructive work. The vital interest in industrial work is, after all, the pupil and his place in the community.

This leads up to the consideration of that side of the work which relates to the supervisor's close connection with the community life of pupils, teachers, and parents. Few have a better opportunity to learn the needs and wishes of the people or to study the material side of their existence. This opens a wide field for endeavor that can but appeal to the best efforts of all concerned.

Among the activities of industrial supervision the opportunity it gives the supervisor in planning and fabricating new and varied designs suitable for production in his locality has an attraction all its own.

There are a number of matters closely related to industrial supervision that are worthy of mention when speaking of the pleasant side of the work. Foremost among them are the activities of garden day. While there was considerable work in connection with the inauguration of these days, they are fast becoming regular town fiestas and the work involved in making these occasions successful is being done by the schools assisted by the people of the towns. The cooking classes with their occasional afternoon tea, the industrial exhibits, all are interesting incidents in the day's work.

The highest compact we can make with our fellow is: let there be truth between us two for evermore.—Emerson.

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Permanent tenure of office of teachers, at adequate salaries, and a more centralized school system with clearly defined powers and duties of officials were stressed at the recent National Education Association Convention in New York City.

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The 12-hour-day child labor law recently passed in Japan to better the conditions of children engaged in industrial occupations is described by Mr. Oka, the chief of the bureau of commerce and industry, as a "giant's stride." It is estimated that the law will better the condition of more than 2,000,000 girls and juvenile workers.

THE SUPERVISION OF NEEDLEWORK.

By Miss GRACIA URQUIZA, Ormoc, Leyte.

The supervisor of needlework, spending more time with classes than does the industrial supervisor, and teaching by example, rather than by criticism, can accomplish some specific results that could be accomplished in no other way. She comes into a closer contact with the individual teachers and learns from experience the problems that have to be met in each school.

Supervision of needlework by the division industrial supervisor, who is usually a man, is sometimes more or less superficial, for while he may understand something about sewing, about embroidery, or about lace, he is seldom, if ever, able to do more than detect and point out errors and irregularities. He frequently cannot explain how the errors can be corrected. Necessarily, therefore, the greater part of the industrial supervisor's inspection of needlework takes the form of checking courses and seeing that they are followed, getting a line on the grade of work produced in the different localities, and seeing that instructions are being followed. This reduces his work to organizing and seeing that the organization is maintained.

On the other hand, the activities of a special supervisor of needlework are likely to be more constructive in nature. When she goes into a school her familiarity with the work under her direction places her in a position to enable her to do much more than point out poor work and errors. She actually takes hold of the work that is being done and corrects errors by demonstrating to the teacher how to proceed and how to get results.

In the matter of training teachers to do their work well, one cannot fail to recognize the great value of the division normal institute. It is a month of opportunity to get the teachers back into working order after a long vacation. It is there that the foundation is laid for the year's work, where the weaknesses of teachers come to the surface and are corrected, where an effort is put forth to make them efficient in the lines of work they are to carry on, by introducing the most approved methods. It is there that models are made by each teacher who is to handle industrial classes. By arousing their enthusiasm they

may be sent back to their towns eager to organize and commence their work.

But after leaving the normal a teacher may find that she is unable to remember just how to perform some particularly difficult part of the work. She has no one to set her right unless there is a special inspector of needlework, and her error may continue throughout the year, resulting in a loss to her pupils that they can ill afford.

Then too there is the tendency on the part of some teachers who have too heavy work to lose interest and to become careless. It is the duty of the special supervisor who knows all details of the work to encourage such teachers by pointing out ways in which they can make their work lighter without lessening their efficiency.

One of the most discouraging things encountered is the failure on the part of many teachers to understand the importance of accuracy in carrying on their work. This deficiency is especially noted in sewing classes. Not infrequently one may find a class of a dozen girls making as many different depths of hems in garments of the same type. Other teachers carry what they consider to be accuracy to the other extreme, requiring that all garments be duplicates of the school model and not fitted to the person who is to wear them. It often happens that teachers are utterly unable to understand that sewing is a practical course intended to benefit the girl in her daily life and not required simply to consume her time. These difficulties are being overcome but the time has not yet arrived in Leyte at least, when this work can be carried on properly without some one to give it close supervision.

Furthermore, from time to time during the school year, there are sent to the field new patterns of work for which orders have been placed. It is necessary that some competent person be placed in charge of the work and that the necessary instruction be given to the teachers who will be responsible for the execution of the orders. This work naturally falls to the supervisor of needlework.

In making her visits, however, and in all her dealings she cannot be too tactful, for municipal teachers and even supervising teachers are often inclined to resent her visits and look upon her work as an unwarranted intrusion. They seem to take her criticism as personal rather than official. They are likely not to consider it assistance performed in kindness with the good of the teacher and her school at heart.

When a supervisor of needlework enters a class she should

have her work carefully planned. This avoids delay in getting down to actual instruction and gives her an opportunity to stress some of the essential features which might otherwise be slighted. She should be thoroughly cognizant of the common errors and be especially careful to note and correct them. When exceptionally good work is found the fact should be mentioned and the teacher in charge of the class given the proper credit. The inspector should expect and exact accuracy as the first and most important factor. She should encourage rapidity wherever the worker has shown sufficient skill and care to produce satisfactory results. Skill comes only through accurate repetition, while speed may be developed with a little effort.

After the inspection is finished, notes should be left for the benefit of the instructor, stating clearly where the work is good, where and how it may be improved, and giving suggestions that will simplify it.

Visits of inspection should be made as often as once a month where conditions permit. Frequent inspections keep the teacher well in line and expectant. Her work maintains a higher standard when she feels that it may be criticised at any time. A teacher may very easily fall into habits of carelessness if she feels that she is not getting credit for what she is doing, or when difficulties arise and there is no one to assist her. When commendable work has been noted it is not so hard to maintain a high standard as when it seems there is no appreciation for it. Recognition puts new heart into the efficient. Inspection fills the heart of the inefficient with fear.

For some time after garment making was introduced into the lower grades it was a problem to obtain materials. It was thought best that materials for this work should be furnished by the pupils as the articles would then become their own property, when finished. It was difficult, however, to convince the community of the wisdom of this plan. In some cases, the classes were financed with pupils' funds, and the completed garments put up for sale. This method proved to be quite satisfactory, serving a double purpose: Primarily it supplied the needed materials; but what is of greater importance, the people learned how the community might be benefited by the sewing classes, and now supplies are forthcoming with little effort on the part of those in charge.

In some provinces the difficulty of travel is most discouraging. This point is mentioned after the others because it is something of a personal question; nevertheless it is sometimes one of the greatest hindrances to the proper carrying on of the work.

In Leyte it is necessary to use every type of transportation of common use in the Philippines, and in some cases it has been necessary to walk for long distances over bad trails. This interferes with the efficiency of the supervisor, exhausting her and making her less resourceful in meeting the demands made upon her. Likewise, time is consumed in slow travel that could be productive of results if spent in the actual performance of duties in the classroom.

Necessarily the work of the division industrial supervisor and of the needlework supervisor overlap, but as stated above, the work of the former is more closely concerned with the industrial organization, while the supervisor of needlework goes into the finer details of the work, builds up the weak places in the teacher, strengthens and encourages both her and her pupils, leads them to understand that a real interest is being taken in them, and thus brings them to a better understanding of the true value of their work.

THE DOMESTIC SCIENCE BUILDING AND GROUNDS.

The domestic science building and grounds that come up to the requirements as suggested by the following questions are likely to be considered "homelike" in the right sense of the term:

Is the yard fenced and is the lawn kept cut? Is there a gate and is it kept closed? Is the entrance to the yard and building suitable? Are the windows hung with clean white curtains? Are the cobwebs kept brushed away and the dust wiped daily from ceiling, sills, and pictures, as well as from furniture? Is there a bouquet of freshly picked flowers on the table and a few (not too many) well-selected and well-cared-for plants placed in and about the building? Is the entrance neat and orderly? Is the table in the most suitable place? Are the pictures well selected? Are they neatly framed (not expensively)? Are they hung square or are they a little bit askew? Is there a well-kept bedroom? Are the dishes put away dry and bright? Are the knives bright and dry, or rusty? Are the kitchen utensils clean?

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Recent investigation by a Congressional committee developed the fact that over 2,000,000 children less than 14 years of age are employed as unskilled laborers in the United States. Vocational education is receiving a new impetus and national legislation on this subject is pending.

GETTING RESULTS.

By LEROY MARTIN, Division Industrial Supervisor, La Union.

The first essential qualifications for getting results are to be in full accord with the ideals of the General Office, to have a comprehensive idea of what is desired to be accomplished, to foresee the definite goal to be reached, to appreciate the difficulties that have to be met, and to avoid anything that would add to them. The industrial supervisor must also have the same standard of workmanship as that of the General Office. If he does not, he may approve work that will be rejected in Manila. This will react injuriously upon the workers. He must know the time required to accomplish a given piece of work. There is a definite minimum time for good work. Any time deducted from this minimum must detract from the standard of quality. If he does not know this minimum time he will promise delivery of work too soon. In order to keep his record clear, he will hurry the workers. This will cause irritation and lower the standard of quality. It is easy to blame the worker as being lazy or incompetent when the blame rightly attaches to the supervisor. The ambitions and abilities of the workers in the several provinces do not differ greatly. The supervisor must gain the confidence and command the loyalty and the coöperation of the people if he would get results.

It is a truism that one does best what one likes best to do. Compulsion cannot produce the best work. The problem of the supervisor is to induce the workers to like to do what he wants them to do. He must first convince them that they can do it. Then he must inspire them with an ambition to do it and do it well.

Some of the most helpful means are pride, profit, and loyalty. An appeal to the pride is made by maintaining a high standard of workmanship. Let a pupil complete a poor article and it is difficult to get him to attempt another as he is ashamed and discouraged. Insist on his doing high-class work, and he takes a pride in what he produces and strives to work. Pride in the school work as a whole can be stimulated by competition. Each school should be kept informed as to what the other schools are doing.

An appeal to the desire to obtain a profit is made when an article is sold. A ready sale for all the articles fabricated is a splendid incentive for better work in any division. A super-

visor should keep this in mind in selecting his designs. A simple article well made and easily sold is to be preferred to a more elaborate article that is unsalable. To have the offices of principals stored with unsalable articles from the preceding year is not encouraging to pupils, nor is it an auspicious beginning.

Loyalty is a matter of growth and development. For this reason the supervisor is at a distinct disadvantage the first year. He may have ability and enthusiasm but there is a subconscious lack of coöperation with him on the part of the teachers and pupils because they do not know him. Each succeeding year in a division should add to his efficiency. This comes not so much from his greater knowledge of the materials and the details of his work, but rather from a more intimate acquaintance with his coworkers and the loyalty which this acquaintance inspires, provided always that this intimacy is based upon respect.

The supervisor must not think that enthusiasm alone will carry him through. A bold front will get him along for some time but it will not command loyalty. He must know the details of his work. He may not be able to fabricate a basket but he must know when it is made properly. He must be able to detect an error and to tell the worker how to correct it. His supervision must be specific. He must see above and beyond, even foresee. It is not enough that he tell his teachers what he wants done. He must know that they understand just what he wants done and how he wants it done. Then he must see that they do it.

There should be no sympathy with the supervisor who boasts that he carries a sharp knife and destroys every piece of work that is not up to standard. In saying this he admits that he has not supervised the work. If he had inspected the materials before they were used, inspected the fabrication and corrected errors as soon as they were made, then there would have been no inferior work presented. When a supervisor destroys a completed article he injures the pride of the worker, robs him of the hope of profit, and weakens his confidence in the supervisor. By this one act he decreases the profit of the student, hurts his pride, and destroys his loyalty.

In conclusion, the supervisor should know the ideals and standards of the General Office; he should know the details of his own work; he should know his own workers and make an appeal to their desire for profit, their pride, and their loyalty. Following this plan he will be sure to get results.

SUPERVISION OF AGRICULTURAL WORK.

By NORTH H. FOREMAN.

A leading educator has stated that there are few lines of agricultural effort so closely allied to the forces affecting them, that success can be obtained without adequate supervision. This supervision may not always be known as such. The nature of the work and the efforts to follow it up must vary with the task to be performed. In agricultural education this subsequent effort is plainly labeled as supervision in its broadest sense which is helpful assistance.

In agricultural work in the Philippines adequate plans, ac-



The orderly arrangement and general condition of this garden indicate adequate supervision.

ceptance of proved facts, and close supervision are considered as the three most vital factors. Under plans is included a large amount of work which is truly supervision. Among these are the preliminary surveys of conditions, the prescribing of requirements, and the correlation of matter, materials, and home life. There is likewise much in the nature of supervising work when an endeavor is made to eliminate useless repetition by recording facts as determined, and by asking others to accept these as such. The energy and the time wasted in making experiments are thereby reduced to a minimum. It is considered costly for a teacher to attempt to prove that which has

been previously demonstrated and checked. Such losses of time and energy are great in the United States where individual colleges continue to demonstrate for their own satisfaction field facts which could and should have been established for the entire United States years ago. The last factor, supervision, is considered to be the most important of the three. This term is used here to denote the teacher's coming into personal contact with the student and his problems during visits to the place where the work is being done.

Practically all of the agricultural work of the Bureau of Education is done under the immediate supervision of teachers. The requirements can be classified as classroom work, fieldwork at school, and home projects of the students. The classroom work includes text lessons, laboratory work, and special lessons. It is obvious that these will always be performed in the presence of the teacher. The ordinary fieldwork is done outside the classroom; in the school garden, in the nursery, or on the farm. Here the teacher is in constant touch with the pupils' efforts.

In addition to these are the home projects which are school work, just as are those activities on the farm. In fact, the major part of the boy's requirement may be in the form of a home project. Most frequently the home project constitutes the entire field requirement. Even in primary gardening the home work is 80 per cent of the full amount of work required. These home projects are school activities for which the pupils receive credit toward promotion. It is obvious, therefore, that the supervision must be intensive and the teacher must visit the homes. Efficiency and honesty both demand that he direct and know something of the work for which he gives school credit.

This supervision must be constant and competent. Those in charge must know that the work is carried out as outlined. It is even more essential that some one take an active interest in aiding the boy with the problems which may arise, and in giving encouragement. Most satisfactory results will be secured when the teacher who handles the class work also supervises the home work. Effective supervision means frequent visits to the homes of the students. In no other manner can a teacher hope to have successful home projects in agriculture. These visits should be made at least once a week. Practically all of the faults and failures of home projects are the result of poor supervision. A teacher who expects results worth while must put his own energy into the project.

PROBLEMS OF DOMESTIC SCIENCE TEACHERS.

By MRS. KATHERINE S. NETZORG, Teacher, Domestic Science.

A serious problem for domestic science teachers arises from the mixed composition of the fifth-grade classes. The pupils, coming from many different schools, have had different special training and unequal preparation in the subjects prescribed for the work of the fifth grade. Academic preparation is sure to be almost uniform, but a variety of courses in industrial work is permitted in the primary grades. Likewise, in the fifth grade there is the greatest diversity of age. In the two years following, the older pupils usually drop out.

Plain sewing is a subject with which all girls are somewhat familiar by the time they enter the fifth grade. In some schools they receive most thorough instruction, while in others the preparation is poor. Instead of being able to give class instruction, the fifth-grade teacher is obliged to work with the individual. This is one of the greatest obstacles in the accomplishment of rapid progress.

The work in lace and embroidery, has been greatly simplified for the teacher by the introduction of Bureau designs. But, this will be of no lasting value to the pupil unless she is properly instructed in the principles of design. It must be remembered that the girl will not always have a Bureau to guarantee the good taste of what she produces. When thrown on her own resources she will probably make the same mistakes as characterized the industrial exhibitions before the days of careful supervision. This is indicated by the very poor designs that are to be seen on handkerchiefs and camisas which pupils select for themselves.

How can the teacher best develop good taste in the pupils? Does she try to do so? Does the teacher find or take the time to explain the purpose and manner of using a luncheon set or a buffet runner? These are quite as mysterious to the pupil as the "tapis" would be to an American schoolgirl.

Another difficulty is the inability of the teacher to look at a bare design and to visualize the finished article. This often leads to the selection of wrong stitches, and to disappointment with finished articles. Results are usually better when a design is used which has been seen already fully worked out.

How can grading be done with justice to all? The teacher must deal with individuals. Some will make rapid progress while others may remain almost stationary. Quality and the amount accomplished seldom depend upon the will of the worker, so much as upon previous training and natural aptitude. It would not be fair to base judgment entirely upon the work done. Degree of application can be more accurately gauged, but a mark can not be given on this basis alone. A discussion of this subject would be of value to the field.

A problem in need of solution is the one of planning work in advance. Commercial orders can not be foreseen, so they frequently necessitate the laying aside of work already started and make a break in the normal progress of instruction. In embroidery, as in arithmetic, there is a natural sequence of processes; and just as square root can not precede addition, commercial work cannot be given to inexperienced embroiderers with gratifying results. As to speed, it is necessary to remember that fancy needlework is largely mechanical and that rapid work comes only with proficiency and thorough familiarity with stitches executed.

The enthusiasm and interest usually found in the cooking class must not be permitted to mislead the teacher as to the real object of the course. The girls like to cook, and after a few months of instruction may develop into good cooks. The aim of the domestic science course, however, is not to develop fancy cooking but to introduce better, more sanitary, and more varied methods of preparing cheap and simple dishes. By cooking dishes that are not too different from those already known, using food actually to be found in the town market, completely demonstrating that these can be prepared at the same cost as by present methods, and by sending cooked food directly from the school kitchen into the homes teachers can make the course in housekeeping exert a strong influence upon the community.

The subject of ethics is always difficult. It loses much in force because of the necessity of presenting it in class, instead of waiting until matters belonging to the subject come up in the course of events, and then impressing the lessons with graphic vigor.

In considering hygiene a field is approached where much has been accomplished and where most remains still to be done. So many reforms are attempted that the pupils are bound to receive a confused notion of their meanings and of their relative

values. Might it not be better to concentrate all efforts on one reform at a time? As the people are actually induced to clean up during clean-up week, would it not be possible for the schools to inaugurate a campaign to secure toilet rooms in every home, or to secure separate sleeping rooms for the girls in each family? By concentrating on one reform until tangible results were accomplished, more might be gained than by present methods.

THE DATE-SUGAR PALM.

The commonest palm in India is *Phoenix sylvestris*, the wild date palm, or, as it is usually called, date-sugar palm. It is wild in many provinces, forming such dense extensive forests as Rohilkhand. As a cultivated palm, it covers no less than 60,000 acres in all and provides an important industry in some parts of the country. The sugar is obtained by boiling down the juice that runs out of cuts made in the upper part of the trunk.

A thick fluid like molasses is thus produced which can be crystalized out as a coarse brown powder or refined to give a better class of product. The greatest part of the latter is exported to Europe.

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No question under discussion in education is so fraught with consequences for the future of democracy as the question of industrial education. Its right development will do more to make public education truly democratic than any other one agency now under consideration. Its wrong treatment will as surely accentuate all undemocratic tendencies in our present situation, by fostering and strengthening class divisions in school and out.—John Dewey in *Manual Training and Vocational Education*.

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In its hygiene number, the *Public Health News* published by the State of New Jersey, says under the caption *The Value of School Nurses*:

The school nurse has proved herself the most effective agency at our command for securing the removal of physical defects. Experience has shown that notification of parents by the medical inspector will secure action in approximately 20 per cent of the cases, while visits to the home by the nurse will secure action in 80 per cent or more. This is only one part of the nurse's work, but it is an important one.

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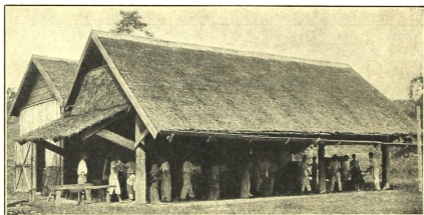
Free distribution of elementary textbooks is now provided for by 14 states of the American Union; 17 states provide for uniformity of texts either in the state or in the individual counties.

THE IRONWORKING DEPARTMENT OF THE LEYTE TRADE SCHOOL.

By FRANK E. CLAY, Principal Trade School, Tacloban, Leyte.

The ironworking department of the Leyte Trade School began the year 1915-16 with an enrollment of forty boys. Of this number, about twenty had had a year's work on exercises, while the remainder were starting ironwork for the first time. The former were of the sixth grade and the latter of the fifth.

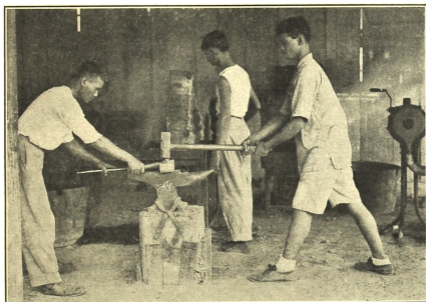
After the boys had become familiar with the names and uses of the tools, work on the exercises of the regular course was begun. The exercises began with bending an old horseshoe double and welding the two sides together to form a solid, rect-



View showing the open-air forging shop on the right, with closed vise room on the left. Leyte Trade School.

angular block. The block was finished straight and square. At different times the classes were given a set of blackboard notes, in order to emphasize interesting points. The composition of iron and steel was also explained. The written notes were found to be of great assistance, not only in helping the boys to distinguish the qualities of cast iron, wrought iron, and steel, but also in improving their English.

It was found necessary at times to repair the engine and machinery. These repairs were made in the blacksmith shop. They sometimes involved processes which had already been taken



Forging an iron stirrup used in school buildings. Leyte Trade School.

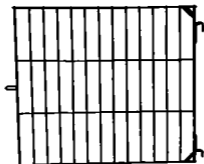
up in class work—brazing, welding, tempering, and annealing. In all cases where it was possible to do so, the boys were allowed to make these repairs or to assist in making them.

During the year it was found that some of the flatters, chisels, and tongs would have to be replaced. The making of these



Class in bench work and assembling. Leyte Trade School.

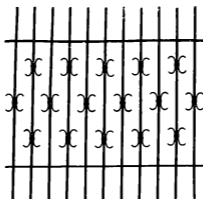
tools offered an excellent opportunity to teach some elementary lessons in tool making. As the boys did their own tempering they saw the result of making a chisel too hard or too soft; they



Iron gate made by sixth and seventh grade boys. Leyte Trade School.

learned the necessity of knowing the color and the corresponding degree of hardness to which a tool should be tempered. It was interesting to note that after the lesson in tempering had been given, many axes which looked as if they had been idle for a long time found their way into the shop. The boys dressed these, and also tempered and ground them.

Up to this time the shop equipment had consisted of seven forges, complete, with the necessary hammers, sledges, flatters, and swages; one small drill press; and one set of taps and dies.

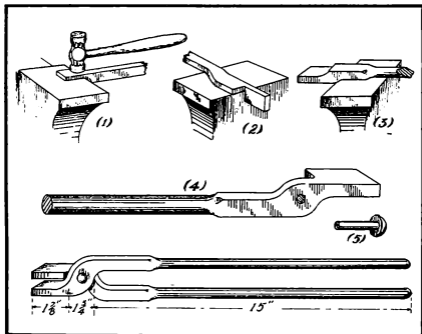


Iron grill used in school buildings as per design furnished by the district engineer. Made at the Leyte Trade School.

Early in the year, however, it was learned that considerable drilling was to be done. So two boys were set to work rebuilding an old worn-out drill press. The bearings were rebabbited and broken parts were repaired until the press was in good

working order. Repairing this old machine served a double purpose. The machine which the school had been using was inadequate to do the work planned for it, while the one which had just been repaired, being of a much heavier type, was capable of turning out twice as much work as the other machine. Thus the school was not only better equipped but the boys received the benefit of the experience derived from turning an apparently worthless machine into a useful one.

After a month's work in the forging shop, a closed frame structure 24 by 40 feet, it was decided that this building would



Method of forging longs.

not answer the coming year's demands, so a new structure was built of the same size as the old one, but open on three sides. The cost of the new building was comparatively small, yet it answered all requirements. In it all the forges were installed. The old building is used for bench work, drilling, and assembling. The open-air shop for forging has proved highly satisfactory, since the light and ventilation obtained leave nothing to be desired. Under the old conditions there was an accumulation of smoke that was very annoying, while now the smoke is carried off immediately—a very important factor.

The enthusiasm for the work was greatly increased in the early part of the year, by the receipt of several orders for ironwork from the district engineer. The first order was for the ironwork for two plan No. 2 school buildings. The boys went at this work with a will. They soon saw the value of some of the exercises which they had had in class work. Orders for ironwork for purposes indicated below, were received and filled during the year:

Two plan No. 7 school buildings.

Two large markets.

One plan No. 10 school building.

Ten thousand tramway spikes.

In filling these orders, there were forged over 2,500 bolts, the sizes varying from $\frac{5}{16}$ by $15\frac{1}{2}$ inches to $\frac{7}{8}$ by 16 inches, of which about 600 bolts are on hand, for stock, ready for filling future orders. The school is ready to do all the work of the province in the line of plain or ornamental ironwork. The sales from June until February amounted to about ₱2,200.

An order was received recently for twelve panels of grill work. The crossbars are made of 1 by $\frac{3}{8}$ inch iron, and the bars are $\frac{1}{2}$ inch round. The scrolls are forged from $\frac{1}{2}$ inch round. The first six of these were made in one week. After the first couple of orders were well under way, it was found that it was quite a task to keep account of the number of pieces of work a boy had finished. Some orders called for several hundred pieces, and it was necessary to know what each boy had finished in order to figure the amount due him. This difficulty was overcome by using a printed time sheet. The best boys were selected as contractors; and when a job was started each was given one of these sheets, on which to record the name of the article, the number of pieces required, the date when the job was started, and the date finished. When the work was finished, it was approved by the teacher in charge and returned to the pupil, who turned the time sheet in at the office for payment. Where there are a large number of small pieces made, this system saves much time and trouble. It is also a check on the amount of work that each boy has finished.

Successful reforestation projects have been carried out on one of the smaller islands of the Hawaiian group. Rotation of sugar cane and pineapple crops has also proved successful on the island of Maui where pineapples were formerly the only crop.

THE RELATION OF THE PROVINCIAL SCHOOL PRINCIPAL TO THE INDUSTRIAL WORK OF THE SCHOOL.

By HONORIO POBLADOR, Acting Division Superintendent, Batnan.

The person responsible for all the work in the provincial school is the principal, who is expected to exercise two kinds of duties—executive and supervisory. In those cases where the school contains intermediate grades he has under his general supervision not only the academic but the industrial work as well. In discussing the relation of the principal to the industrial work of his school, it is not the purpose of this paper to mark out definitely his functions as an executive and as a supervisory officer inasmuch as these offices are exercised by one person, but it is rather to point out some of his duties and his influence toward making industrial work a success.

Being responsible for the industrial work in his school it is incumbent upon the principal to have a general idea of the industrial courses to be taught in order that he may know what is expected. The principal should examine the designs and patterns of the industrial courses in his school and should read all circulars and technical bulletins of the Bureau dealing with the industrial work so that he may be able to plan the work properly and that he may make sure that the instructions contained in them are well understood by those teachers directly interested.

In making out his program and in assigning teachers, the principal should coordinate the industrial, physical, and academic training. None of these three aspects should be neglected. It is folly to sacrifice industrial work for the sake of athletics, the academic for industrial, or the athletics for either industrial or academic.

In carrying on the work the principal should make his teachers feel that he is their helper and adviser, and not a despotic chief who says "Do this." Often, it is advisable to consult them when their opinion may affect the success of the work, for much can be accomplished when there is close cooperation between the principal and his teachers, and when his subordinates are made to feel that they have a share in planning the work.

In his relation to the pupils, the principal should act much as a parent, pointing out the intellectual and financial benefits to be derived from their efforts and work. He must, however,

be cautious in discussing with pupils the financial returns they receive from their work. There is danger in putting emphasis on the matter of remuneration lest pupils should feel that they are underpaid and value their work on the basis of the length of time they devoted to the fabrication. As a matter of fact, the work is paid for according to the length of time required by professional workers.

Pupils should be made to understand that the most important aim is the training in fabricating articles rather than the money earned.

The success of industrial work in school is not due to the work of one person but of many—pupils, teachers, and principal work together to accomplish a common end. The share of the principal in the task is to organize wisely and to plan carefully for the success of the school work. For the sake of success pupils should be kept busy, and the principal should insist upon their making systematic progress. The noting of how much work an average pupil can accomplish in a day, a week, or a month, and how long it takes him to finish a certain kind of article, is desirable. This will help the principal to assign the correct amount of work to be completed by a certain specified date in case of orders received from the Bureau. A careful observance of instructions on the part of the teachers should be insisted upon. The output for each school year should be made to surpass that of any previous year in either quantity or quality. As a means of bringing about such a condition, a comparative study of the output of at least the last two previous years will be found helpful. Data for this may be obtained from the records on file either in the school or in the division office.

Of the problems to be dealt with in connection with the industrial work in a provincial school, that of raising enough funds to carry on the work is one of the most important. In the largest and wealthiest provinces, the matter of financing the industrial work is simple, for the provincial board generally provides enough funds for it; but in the smaller and poorer provinces the principals have to use considerable ingenuity to secure the necessary funds. There are several ways, however, of meeting the difficulties which arise in this connection. Tea parties may be given, box socials held, shows gotten up, and voluntary contributions made. One solution of the problem, however, is to interest and to encourage the people to support the school through increased taxation.

Another problem to which attention must be given is the filling of orders, and the finishing and delivering of articles on

time. In order to accomplish this pupils assigned to work should be kept busy, and the work should be distributed according to the ability of the pupils. It is in connection with the acceptance of orders that the knowledge of about how much time is needed to finish a certain article is very helpful. This knowledge is of equal assistance in gauging the ability of each pupil in fabricating articles. In assigning work it is usually best to set a date on which it should be finished.

Of course, it is rather difficult for the provincial school principal to demonstrate efficiently the best methods of improving instruction along all lines of school work, because few men are specialists in more than one line; but the principal can give his official and moral support to the teachers in their effort to make industrial work a success.

With the change of principals in a high school there may occur a change of policy in the manner of following the Bureau's instructions. The old principal may have for his hobby the academic work, while the new, the industrial or athletic. There is no objection to a man's having an intense interest in one line of work, but there is danger of sacrificing all other work to the one thing in which the principal is most interested. There is, however, little danger of going far astray in this direction if the course of study is followed strictly and carefully.

It is not intended to discourage a principal from having a hobby, but if he has one he should see to it that no one of the three aspects of the school work, academic, industrial, and athletic is neglected.

The chief duties then of the principal in his relations with the industrial work of the school are to see that the work is done on time, to advise and aid the teachers in their methods and work, and to demonstrate, if possible, ways by which the work can be improved.

Gardening and other agricultural work is emphasized in connection with the industrial training being given in the French schools in Tunis and in the recently organized French protectorate of Morocco. The eagerness of the population to learn various industries is very manifest. The ranks of teachers, depleted to 36 per cent of the original number by the call to arms, are being filled as rapidly as possible by the advancement of junior teachers. Education is provided for girls as well as for boys.

A WOVEN WIRE FENCE STRETCHER.

By JAMES E. McCALL, Supervising Teacher, Cotabato, Mindanao.

Usually much difficulty is experienced by the teacher of settlement farm schools in stretching a woven wire fence. It is impossible to purchase on the market a suitable stretcher that can be operated by school boys. The small hand stretcher cannot be used on woven wire as only one strand can be drawn at a time and then for only very short distances. Usually the wire sags because it is stretched unevenly. The method employing the hand stretcher is very slow as the stretcher must be readjusted at every 20 or 30 meters and brace posts set up. If too much power is then applied to the lever there is danger of breaking it. In fact the small hand stretcher can be used only for short pulls on barbed wire.

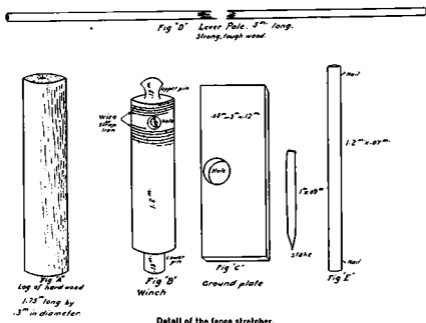
The block-and-tackle method in some cases has been found quite satisfactory. It is operated by means of a double block set at the end of the wire and a single block placed at a distance of about 6 meters back and attached to a post well set in the ground and well braced. In this manner as much as 100 meters can be stretched by twenty or thirty large boys on the rope. This method, however, cannot always be employed as the heavy one-inch blocks cannot usually be obtained.

After trying out both of the above methods a scheme for making a winch stretcher was finally hit upon. The first attempt was a success. It took two men, neither knowing much about carpentry, just three hours to make the stretcher and have it ready for use. The only tools needed were a hammer, a bolo, a one-inch chisel, and a saw. Nearly every school has these tools, or can get them with little difficulty.

The method of construction is as follows: A tough hardwood log that is perfectly solid at both ends (Fig. A) is selected. At each end a ring is sawed around the log 0.15 meter from the end and the wood is chipped away so as to leave pins projecting as is shown in Fig. B. When finished the pin at the bottom should be 0.1 meter in diameter and 0.15 meter long. It should be as nearly round as possible. The pin at the top should be about 0.1 meter in diameter and 0.15 meter long and should have a knob at the top to prevent the rope from slipping off. Below the top pin at a distance of about 0.12 meter a

hole is chiseled through the log. This should be 0.09 meter square. Just above and below the hole should be wrapped heavy wire or light strap iron. This should be stapled tightly.

The main winch (Fig. B) is then complete. The next thing to be made is the ground plate, for which purpose a heavy plank should be used, preferably 0.05 by 0.3 by 0.12 meter. Half way the length of the plate, but not in the center, a hole large enough to admit the bottom pin is chiseled. The hole should be as nearly round as possible (Fig. C). Four hardwood stakes will be needed to hold this plate in position on the ground.



Detail of the fence stretcher.

The stakes should be about 1 meter long by about 0.09 meter in diameter.

Next a lever will be needed. Any very tough hardwood pole about 0.09 meter in diameter in the middle and 5 meters long may be used but a pole of yakal is probably the best. It is imperative that this lever be of the very best wood obtainable as there is danger of its breaking under the strain and the opposite end flying around and seriously injuring some one. It should be remembered that the longer the lever the easier the work and also the greater the power.

A piece of good strong wood about 0.09 meter in diameter and about 1.2 meters long is next selected. At each end a nail should be driven to prevent the rope from slipping (Fig.

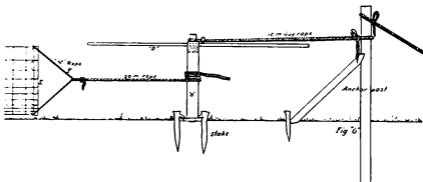
E). From the top and the bottom of this last piece is firmly fastened the V rope as is shown at F.

Besides the V rope there will be needed a rope about 20 meters long and one about 10 meters long which will be wound on the winch.

Everything is now prepared and ready to be set up.

Wire 200 meters in length may now be handled. This is firmly fastened to the end post which is at the greatest distance from the stretcher. It is necessary that this end post be as solid in the ground as possible and well braced. The first two posts should be braced also. Care should be taken that every intervening post in the fence is also solid. The braces are put in at distances of 50 meters.

The pole (Fig. E) is now attached at one end of the fence to be stretched, and each wire is wrapped securely and evenly



The fence stretcher in position.

around it. Care should be taken not to make one wire tighter than another.

About 15 meters back from the place where the fence is to start and on a line with it, the ground plate is set and held down firmly with the stakes. The winch log is now set into the ground plate in such a manner that the hole through which the lever is to pass will be near the top. The winch log is held in place by means of a rope reaching from the top of the log to the anchor post (Fig. G) which should be set back at a distance of about 6 meters. Since the greatest strain comes on the anchor post, it should be borne in mind that this must be stronger than any other post in the fence. The guy rope must be so firmly fastened that it will neither slip nor slacken.

After tying the 20 meter rope in the exact center of the V rope, wrap it four or five times around the winch log.

Half the length of the lever pole is now put through the hole

in the winch log and two strong boys take their place at each end of the lever. Some one should take up the slack in the end of the rope that feeds around the winch. When winding the rope the boys should walk around slowly being careful not to jerk. One will be surprised at the ease with which 200 meters of fencing can be drawn up in this manner. When the wire is as tight as desired it should be stapled to the first post from the end to which it was originally fastened. The winch should not be loosened until the entire fence is secured. Thus the strain will be spread equally over the entire length of the fence and the wire will not slacken. One should be certain that the stapling is finished before loosening the winch, otherwise all work will be for naught.

Six boys can stretch and fasten 200 meters in thirty minutes.

This stretcher has been found perfectly satisfactory and has everything to recommend it if good material is used in its construction.

THE SECRET OF SUCCESS.

The good gardener is he who has a beautiful garden, even if he grows only the easiest plant in it. For it is never easy to have a beautiful garden. You cannot do it if you want to excel others in growing difficult plants, or if you are eager to follow the latest fashion in garden design, or if you care more for the names of plants than for the plants themselves. That wonderful gift which some gardeners seem to have for growing anything is no magic; it comes from the love of plants. They think of their plants more than they think of themselves. And that other gift for making a garden beautiful is no magic either; it comes of loving the garden as well as the plants. If your garden is to be well designed, it must be a part of your home to you and not merely a plot for growing plants in. You must regard it as a place to live in and not as a place to show to other horticulturists. Those who would be good gardeners should learn to enjoy their gardens and not merely other people's praise of them.—Tropical Agriculturist.

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Let no one think that the new system aims at the extinction of that "culture" and mental discipline which have become the fetishes of the old pedagogy. But the new pedagogy believes that culture and mental discipline may be better acquired by learning something useful than by dawdling the time away on things which are admittedly pure mental gymnastics.—North American.

HELPS FOR INDUSTRIAL TEACHERS.

By BERNARDO PICARDAL, Traveling Industrial Teacher.

In carrying out the industrial work successfully in the schools there are certain essentials necessary for the teacher to bear in mind. All these essentials center around the proposition of harmonious coöperation between the industrial supervisor and the principals, teachers, and children with whom he works.

Whether the industrial teacher receives this help depends upon himself. It is presumed that all industrial teachers are not only willing, but anxious to acquire more knowledge and skill along their chosen lines of work. Many of them by means of a little careful management are capable of bringing out the best in their pupils. To help the teacher accomplish this, there are a few simple rules of conduct, management, and methods.

A teacher in charge of industrial work should plan thoroughly what he is going to teach and how he is going to teach it. He should have clearly in mind what he expects of the pupils in the class. The planning must not be haphazard but must be as much a part of his daily work as is his own presence in the class. This, admittedly, takes experience, but close application and hard work on the part of the teacher will reduce to the minimum the time spent in acquiring this experience.

Careful planning will mean a better organized class. A successful teacher will give to his pupils, verbally or written on the board, his working orders, specifications of designs, and instructions as to how to accomplish the work with the least expenditure of time. He will spend his time among the pupils of the class helping them and interpreting the difficult parts of the work. He will always have the entire class under observation, dividing his time among the pupils in such a way that none will be neglected. Although it is not necessary that absolute quiet should be insisted upon, the work should proceed with but little noise.

A teacher who expects a high-grade output must see to the proper preparation of materials. This is one of the prime essentials to good work. The proper preparation of materials does not necessarily mean that expensive materials should be employed. A basket may have more utility, more commercial value, and greater beauty if made of coarse materials which have been well selected with reference to color and uniformity,

and which have been properly cared for during all the processes of construction. Where blue prints are used, no difficulty need be met with respecting the proper size of materials, for all dimensions are given.

In most cases it is not essential that sandpaper be used in preparing materials for basketry. Many schools cannot obtain sandpaper conveniently, and it is questionable whether enough value is added to an ordinary commercial basket to justify its continued use. Ordinarily the judicious use of a sharp knife is all that is necessary.

There is more loss occasioned through lack of proper care of finished articles than is usually recognized. Too often articles are rendered unsalable and sometimes useless by becoming dirty, ink stained, or mildewed, all of which can be prevented. Dirty hands, rain, covering the articles with leaves, hanging them on the wall or unprotected from the ceiling, all help decrease the value of articles. A large cigarette box with lid and lock is a good investment for any industrial class. It will provide a place for partly finished articles on rainy days and for articles after they are finished. It is but little trouble to wash one's hands before beginning work and this will save the appearance of the articles.

Patience is one of the prime virtues of a successful industrial teacher. Patience and kindness will accomplish wonders where impatience, harshness, unpleasantness, and unusual forms of discipline will utterly fail. Tact is required. A pupil's work does not need inspection so much as the pupil needs someone to help him over the hard places and to show him how a thing must be done.

In all industrial work it is well to keep time records. They should not be detailed records, but should be definite enough to afford a comparison of the time required by different pupils to do the same work. This will be a standard whereby the student's efforts may be judged and a means of attaining to a greater degree of excellence and efficiency.

Three model rural schoolhouses have recently been donated to the Porto Rican government by a former official. The buildings are to be used as community centers.

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To do a mechanical or artistic piece of work thoroughly is much more than the material operation. It is a moral achievement.—President Emeritus Charles W. Elliot.

EDITORIAL.

EFFECTIVE SUPERVISION.

Supervision, to be effective, must be of a kind that brings results. The forces must not only be kept at work, but there must be unity of effort so that each individual lends himself to the accomplishment of a common purpose. Individuals may work very effectively as individuals, but unless their efforts are coördinated with those of other individuals working to accomplish the same end, the net result will not be what it should. There is bound to be needless duplication and useless effort expended through work done at cross purposes.

To avoid such defects in the organization and to assure the accomplishment of definite ends, the Bureau of Education early established the position of supervising teacher. Central control was retained by the Director of Education who directed the activities of the Bureau through the superintendents of school divisions. The record of the Bureau under this arrangement speaks for itself. In so far as a well defined and constructive program has been carried out, credit must be given to the effective supervision and central control of school affairs maintained, as well as to the excellent service rendered by individual teachers.

To supervise an activity presupposes a knowledge of the ends to be gained and the means to accomplish them. Certain forces must be set in motion and kept at work until satisfactory progress is made. To do this, requires tact and a large measure of executive ability. But more than anything else, it requires a definite purpose and the ability to carry it into effect. When such a purpose is in harmony with that of all other units, it becomes a general purpose or policy and is carried out as a program of the Bureau.

The supervising teacher is more than a supervisor. He is a teacher. In this sense, he is also an investigator. He tries out new methods and perfects new ideas to a point where they can be put to practical use. In this manner the greater part of the program of the Bureau of Education has been formulated. It is due to this fact that the Bureau of Education has been able to meet local situations with the degree of success which

has so far marked the work in the public schools. The work of both field and office has gone hand in hand—the one supplementing the other and both working toward a common end.

INDUSTRIAL SUPERVISION.

Supervision of school industrial work is a complex subject. It consists in looking over and learning the industrial situation as related to the public schools, seeing that the work is properly organized, that the necessary instructions are being received and followed, that suitable and adequate equipment and materials are duly provided, that mistakes are prevented or corrected whenever they come to light, that both pupils and teachers are encouraged to put forth their best efforts, that the finished articles are suitably disposed of, and that the product of the sales is correctly accounted for.

Supervision may be carried on by means of visits of inspection or through reports, though a combination of the two methods probably is the most satisfactory. When of the right sort supervision brings about closer organization, greater unity of action, and superior production.

The purpose of supervision is to assist in securing the greatest possible production of articles of a standard quality with the least waste of time and material, and with the greatest benefit to all concerned. To be successful, not only must the supervisor know what is going on, but he must keep advised the head of the organization, and must be able to show results arising from his labors. So closely are supervision and production related that one might be said to be the complement of the other.

Much supervision does not always mean much need of it nor does it mean that better results are being obtained than where there is none. If workers would all follow instructions there would be little or no need of supervision. Whether workers do follow instructions depends upon the early training given them by parents and teachers, and the habits formed meanwhile. The same thing is true of teachers in that they are certainly workers. If the teacher would form correct conclusions from what he sees, if he would read instructions intelligently, and govern his actions by instructions sent out from the division or General Office, much personal supervision might be done away with. Some teachers doubtless meet all these conditions but the mere fact that supervision is continued is an indication that its need is still felt.

One of the chief benefits to be derived from supervision is that which comes from a comparison of one's work with that of another. The teacher may have high attainments and may have spent years in normal institutes but without the right sort of supervision the results of his work are likely to lack in organization, quantity, and quality simply because he has no standard by which to judge his work.

BOYS' AND GIRLS' AGRICULTURAL CLUBS.

Three recent developments in the Philippine educational system have done an incalculable amount of good in giving agricultural information and guidance to the boys and girls who attend the schools. These are the requirement of school and home gardening for every school, the opening of secondary classes at Muñoz for giving training in vocational agricultural lines, and the extension of garden days in the form of district and provincial agricultural fairs. To correlate all these activities and to bring them more than ever into the homes, the organization of boys' and girls' agricultural clubs throughout the Philippines is being fostered in all school divisions.

These clubs follow and take up much of the work of the corn campaign of the past four years and receive the same active supervision. They are expected to be vigorous and progressive organizations. They will include as members the boys and girls who are now engaged in home project work for which industrial credit as required school work is received. There are pig raising contests, poultry raising contests, fruit growing contests, gardening contests, and corn contests.

The objects of these clubs here, as in the United States, are outlined as follows:

To offer to the young people careful guidance which will lead to a better type of farmers and home builders.

To demonstrate through the boys and girls the best farm and home practices.

To enlist the interests and efforts of the boys and girls in the problems of efficiency and economy.

To illustrate the best methods and to prevent waste in orchard, field, and garden through food demonstrations and better systems of marketing.

To offer the young people proper incentives for their own personal conservation and the conservation of Philippine country life.

To establish in boys and girls habits of industry and thrift.

Through the clubs, and by means of the instruction offered by the schools on garden days and at food demonstrations, the boys and girls are taught how to raise pigs and chickens, how to grow crops and market them, and how to look upon home duties as an essential factor in their education. In addition, they are taught the value of accurate records of expense of production so that they may sell intelligently and know when there is a profit or a loss.

This club work is not a new departure in the agricultural program but rather a forward step for which the schools are now ready.

SOME THINGS TO LOOK FOR IN SUPERVISING SCHOOL INDUSTRIAL WORK.

Often there exists a tendency on the part of those exercising supervisory functions to play the role of critic, and to mention only those features and matters meriting unfavorable comment. Correct processes and a high-grade product are essential factors in any efficient plan of industrial activity, even in such as form a part of the school system in the Philippines. But there are facts and issues bearing on the human side of a pupil's or teacher's work that need to be taken into account.

What has been the pupil's past record along school industrial lines? Has he, during his school career, grown in power and ability to express himself in constructive handwork? What is his attitude toward manual training? What is his home environment, and what is the local sentiment respecting manual occupations? What spirit and feeling regarding the program of industrial work pervades the teaching force of the school?

Questions of this and similar sort concerning individual teachers, or groups of teachers, will have to be asked and answered satisfactorily if the supervisor of industrial work is to size up the situation correctly and deal with it adequately.

While concerning himself with such things as materials, designs, workmanship, cost, rates of production, and similar matters, the view of the supervisor must not be restricted to these things. Some considerations which are not material in nature will also count for a great deal. Where interest in profitable work is being developed, where the dignity of labor is being fostered, and where pupils and teachers work for the joy of accomplishment and not because of sheer compulsion, real signs of progress in industrial education will be seen.

AGRICULTURAL CLUBS FOR FILIPINO BOYS AND GIRLS.

By NORTH H. FOSBEMAN.

A new stimulus to agricultural education is being introduced this year in the form of Agricultural Clubs for Filipino Boys and Girls. The plan of campaign is simple but thorough. The idea is a new one in education in the Orient as were, in their turn, the home gardens, tree planting, corn campaigns, garden days, and clean-up week. A need for this step is found in the effort to continue to make these movements successes. The new campaign is organized in a businesslike manner and it is expected that it will become a permanent feature of the school work. It will not take the place, however, of any of the other activities already under way.

In starting these organizations the Bureau is favored by the experience of the teachers who made the corn growing contest and home gardening contest successes in the first place. These teachers are now fitted to organize the contest features into clubs and to supervise the home projects in an efficient manner. The plan is to begin at once to make the clubs factors in the school life of every boy and girl.

To the credit of the Bureau of Education, it must be recognized that the leaders early saw the country's greatest need—farmers. The requirement of a garden at every school, and home gardens for pupils is now seven years old. During all this period there have occurred the various campaigns in the nation-wide agricultural contests, held under the direction of the Bureau of Education. The agricultural achievements of the boy have been placed on a par with the literary subjects of the classroom. The boy receives credit for his ability to raise vegetables, farm crops, or chickens, and to build fences. These activities are made real factors in his education as they are requirements under the supervision of a teacher.

Not only do the boys and girls receive school credit and recognition from the teacher but in the annual garden days they match their skill in raising corn and stock and judging and raising vegetables against that of the brightest pupils of other schools in the district or province. This contact is wholesome and makes the boys brighter and more alert. This general plan permeates all activities connected with the school

garden, the farm, garden day, corn campaign, and the home garden features of the Philippine public school system.

The division superintendents are asked to organize clubs in as many schools as possible in their divisions. The club members are the boys and girls enrolled in one of the agricultural and vocational contests for which they receive school credit for home work. Five school activities tried out at various schools for the past three or four years have been selected. These are outlined in a series of contests as follows: (1) Vegetable gardening contest, (2) pig raising contest, (3) chicken raising contest, (4) corn growing contest, and (5) fruit growing contest. In each of these, actual production is required. Likewise, participation in the garden day exhibit of the school is compulsory. Since these projects form the industrial requirement for which school credit is given, they will be carried on at the homes of the boys and girls and will be visited by teachers, regularly.

There are a number of distinctive points in the club organization which indicate both its definiteness of purpose and the way in which it becomes a school measure, and through the schools, a home factor. These general features are taken from the organization circular sent to the field:

1. Each club will be a regularly organized body with a constitution and by-laws.
2. Boys and girls may join the clubs.
3. The club member's project will be at his home.
4. Full industrial credit required of any grade in the public schools will be given club members.
5. All projects will be supervised by teachers who will make weekly inspection visits.
6. The club member is made the owner of his project. All proceeds are free from any surcharge for assistance or supervision.
7. Industrial work other than that pertaining to the project is not required of a club member, except certain work for girls.
8. Each club must hold a garden day at which each member must participate with an exhibit.
9. Records pertaining to production costs and profits must be kept by each club member.
10. The active coöperation of other Government agencies is sought.
11. Instructive lessons for club members are to be issued in the form of follow-ups for each contest.
12. Each contest is outlined in a definite manner. A boy or girl becomes a club member only by having a home project in one of the five contests.

The features of the work enumerated above indicate how the clubs will be made to fit into the school program. It betters

the school system by offering an active teacher an opportunity to:

1. Adapt school agricultural work more closely to home conditions.

2. Demonstrate business methods and profits in farming.

3. Emphasize diversified farming and the production of the food needed in the homes.

In this connection it will be of interest to note the club requirements. These are simple but concise and definite.

General membership regulations for all members:

1. Club members are required to enter one of the five contests authorized as projects for the agricultural clubs.

2. Club members may be of either sex but the full provisions of the contest entered must be met.

3. Each club member must continue the club work for not less than twelve consecutive months.

4. Regular attendance at all club meetings of the local club is required.

5. Each club member must plan his own project and do his own work.

6. Club members will follow closely all instructions given by the teacher in charge of the club of which they are members.

7. Each club member is required to exhibit as an individual producer at the garden day celebration of the school.

The requirements of each of the contests outlined for club members are well worked out and apply closely to the home condition of Filipino schoolboys and girls. The full details are too long to be included. It is thought best, however, to make a general summary of what these contests are.

Poultry raising contest.—A project consists of caring for four hens and a cock. Cantonese poultry is preferred. Yards must be inclosed, and houses and nests made; feed grown for the chickens; three hens set; and the work continued for a year.

Pig raising contest.—A young sow must be secured; a suitable fence built; food for the pig produced; and the sow bred at the proper age to a selected boar. If possible the public breeding Berkshire boar should be used.

Fruit growing contest.—Ten fruit trees or one hundred pineapple plants must be secured; cover crops planted with the fruit; trees cultivated and staked; selected trees used and bananas and papayas emphasized.

Vegetable garden contest.—Sixty square meters of land must be planted to vegetables; the land kept producing; seeds saved; and the use of vegetables studied.

Corn growing contest.—One hundred square meters of land must be planted to corn and crop rotation practiced; the land kept producing; corn judging and seed selection studied. Rice, or sweet potatoes, may be substituted for corn as the main crop.

The active coöperation of other Government agencies is sought. From the Bureau of Agriculture the gardeners will expect seed; the pig raisers, the use of the public breeding boars; the corn growers, selected seed corn; the chicken raisers, the distribution of public breeding cocks of the Cantonese breed; and the fruit growers, papaya seed as well as selected young fruit trees. And all of these will expect the hearty support and advice of the field force of trained agricultural men.

It is expected that the coöperative agricultural societies will aid the boys and girls in securing suitable places for carrying on the work at their homes. They would likewise find it highly profitable if they bore the expense of starting the pig and chicken contest boys in their work. Such assistance would be much appreciated and would be a great stimulus to starting animal husbandry work on a paying basis.

With all factions working together success will be assured in the same measure as for the corn campaign of the Bureau of Education. This club work will help the boys to like farm activities. It is a well known fact that nothing will develop the country so fast as plenty of good wholesome food and a liking for growing it.

“I should regard the most valuable of all arts to be the deriving of a comfortable subsistence from the smallest area of soil.—Abraham Lincoln.

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“Too much technology” is a criticism that is being urged against proposed extension of technical training in the schools of the United Kingdom. Critics claim that the old system provides for sufficient specialization while not omitting such training as promotes adaptability.

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“The best thing school gardening does for children is to help prepare them for their larger life in the world; and gardening will have accomplished this if only they have mastered one single lesson: how to attack a simple problem in scientific fashion and work it out coöperatively.”—Gardens and Their Meaning, by Dora Williams.

PROVINCIAL INDUSTRIAL DEPARTMENTS.

Ever since the matter was first taken up for discussion some months ago, a great deal of interest has been shown in the establishment of the provincial industrial departments though which materials and finished articles of school fabrication will be bought and sold. Requests have frequently been received for some definite information regarding the development of this phase of the industrial work of the Bureau, but it is only recently that plans have taken on such a definite form as to make advisable their publication.

The first definite move for the establishment of these departments, since the passing of Act No. 2629 by the Philippine Legislature, is given in a circular letter of the Director of Education to division superintendents, sent out under date of July 6, 1916, and the appended memorandum inclosed therewith, extracts from which follow:

The Executive Secretary is now sending out a letter to all provincial governments, recommending the establishment of provincial industrial departments and announcing his willingness to approve an appropriation not to exceed a certain amount specified for each province.

This letter makes three specific points:

1. That this Bureau has already taken orders for goods to the amount of about ₱100,000 and that additional orders are only limited by the amount of goods which can be produced under our direction;
2. That there must be in each division machinery by which orders can be transmitted to the provinces, articles made and shipped to Manila, and the school children and household workers paid immediately upon the acceptance of their work; and,
3. That the sum appropriated for the provincial industrial department, although it is for the purpose of buying articles and paying expenses, may be considered merely as capital, for it is believed that provincial industrial departments should be able to pay their expenses from profits and resell all goods bought.

The amount recommended as required by each division can be determined from the appended memorandum.

It is believed that division superintendents, with the assistance of this letter from the Executive Secretary, and knowing that orders for embroidery have already been given out and that, in addition, orders for over ₱50,000 worth of lace and some ₱20,000 worth of baskets are being placed as a beginning, should be able to have the necessary provincial resolution passed for their respective divisions. It is believed that the resolutions should be worded in conformity with sections 4 and 5 of Act No. 2629, and should be made as broad as possible, allowing for general regulations, to be provided by the Director of Education and for the accounting regulations of the Insular Auditor.

The tentative regulations formulated by the Director of Education and by the Insular Auditor will be expanded later so as to provide for the proper invoicing of and accounting for industrial materials and products, the payment and collection of bills, bookkeeping, and the receipt, disbursement, and accounting for cash. It is proposed, if possible, to have all money, including the provincial appropriation, deposited in the Philippine National Bank or branch thereof, subject to check by the division superintendent, who shall act as a special disbursing officer. The superintendent will pay promptly from his advance account vouchers submitted by schools and workers, and expenses, securing reimbursement from the provincial treasurer, monthly or oftener, on summary vouchers supported by copies of invoices.

For a fully equipped provincial industrial department, it is believed that the following should be provided by the provinces:

1. A storeroom.
2. A retail salesroom.
3. Clerks and laborers according to the amount of business handled.

In divisions which will do a rather small amount of business, it is possible that the present division force can handle all work. In the larger divisions probably the full equipment and assistance noted above will be required.

Arrangements have now been effected whereby the Purchasing Agent will stock the materials required by this office and the field will shortly be advised with respect to the method of requisitioning the various standard lines and with respect to credit terms, which will be very liberal.

TENTATIVE REGULATIONS.

The tentative regulations governing the provincial industrial departments, as authorized by Act No. 2629 of the Philippine Legislature are as follows:

The Director of Education shall exercise immediate control over the operations of the general sales department of the Bureau of Education as a part of the industrial program of the Bureau and in line therewith, and under the provisions of Act No. 2629; he shall also exercise control over provincial industrial departments.

The division superintendent of schools shall have direct charge of the operations of the provincial industrial department. In this work he may delegate authority to the division industrial supervisor or to such other attaché of his office as he may see fit, but he himself shall be held responsible therefor. The division superintendent will receive wholesale orders from or on approval of the general sales department only; he will receive retail orders for special articles to be made. He will place orders with schools and household workers and will be responsible for the acceptance or rejection of products of such schools and workers. He shall have general charge of requisitions for industrial materials from the Bureau of Supply through the sales department of the General Office, and of supplying these when needed.

All schools keeping the industrial accounting system shall, under the direction of the division office, make retail cash sales of articles not already covered by orders, receive products from pupils and from households, invoice and deliver articles to the provincial industrial department, and receive industrial materials and furnish the same to pupils and to workers.

The industrial accounting system of the Bureau shall apply to such schools, together with any additional regulations made by the Bureau of Education in the interest of proper accounting responsibility.

Aside from their dealings with the sales department of the Bureau of Education, provincial industrial departments may also sell locally at retail prices where the need exists or where it is to their financial advantage to do so, articles not already covered by orders.

The general sales department of the Bureau of Education shall issue price lists, stipulating the minimum prices at which articles will be retailed, and defining wholesale prices. Discounts from wholesale and retail prices shall be determined by the general sales department, except for retail sales of damaged goods which will be left to the direction of division superintendents.

The division superintendent of schools or the division industrial supervisor, as disbursing officer, will secure from the provincial treasurer an advance of funds which he will deposit in the local branch of the Philippine National Bank, when available subject to his check. He shall pay all invoices from schools or workers and bills for expenses promptly by check as soon as articles have been properly examined. Reimbursement will be secured by him from the provincial treasurer on summary vouchers submitted monthly or oftener, if necessary, and supported by copies of the invoices paid, on which notation will be made of the numbers of checks and dates of payment. The provincial industrial department stock account will be charged with the value of goods paid for in this manner.

Checks in payment of articles sent to Manila will be made in favor of the division superintendent. Monthly deposit of such collections and all others shall be made by him with the provincial treasurer, supported by detailed sales reports on which will be indicated the cost of articles and the profits. From those reports the provincial industrial department stock account will be credited with articles sold.

The following appropriations for provincial industrial departments have been recommended by the Bureau of Education:

Albay	₱5,000	Mindoro	₱1,000
Antique	1,000	Nueva Ecija	5,000
Bataan	1,000	Nueva Vizcaya	1,000
Batangas	5,000	Occidental Negros	5,000
Bohol	5,000	Oriental Negros	3,000
Bulacan	5,000	Palawan	1,000
Cagayan	3,000	Pampanga	5,000
Camarines	5,000	Pangasinan	5,000
Capiz	5,000	Rizal	3,000
Cavite	3,000	Samar	5,000
Cebu	5,000	Sorsogon	5,000
Ilocos Norte	5,000	Surigao	1,000
Ilocos Sur	5,000	Misamis	1,000
Iloilo	5,000	Tarlac	3,000
Isabela	1,000	Tayabas	5,000
Laguna	3,000	Union	3,000
Leyte	5,000	Zambales	3,000
Manila	5,000		

INDUSTRIAL NOTES.

AN INSPECTION OF THE CENTRAL SCHOOL OF SANTO DOMINGO, NUEVA ECIJA.

Santo Domingo is a progressive town situated about 5 kilometers west of the Manila North Road. The schoolhouse is a temporary affair of light materials but it is expected that a concrete structure will soon be built. The site, measuring about a hectare, is in front of the municipal building and plaza. The grounds are well laid out. A large playground occupies one half of the site, the garden about a quarter, and the schoolhouse and lawn the remainder. Everything is well arranged. Evidently one of the mottoes of the school is "A place for everything and everything in its place."

Before planting the garden or laying out the lawn, the boys had brought carabaos, plows, and harrows, and thoroughly plowed and cultivated the ground. In this way a uniformly level and deeply cultivated surface was obtained. The girls in groups of contesting teams assisted the boys in making the lawn and planting hedges and trees. The success secured in this project is largely due to teamwork. The garden is never allowed to lie fallow and the judicious rotation of crops, with frequent fertilizing, prevents soil exhaustion. The rather unsightly outlines of the main building, domestic-science shed, and outhouses, are softened by a heavy growth of Brazilian morning-glory.

A general inspection of the school and grounds was made. Upon entering the schoolhouse, instead of being deafened by a scattering volley of "Good Mornings," which so frequently greet the visitor at country schools, it was an agreeable surprise to see

the pupils rise simultaneously and silently take their seats again. Everyone was busy and noise was conspicuous by its absence. And this was in a building which really is one large room and where opportunities for noise and disorder are manifold. It was noted that academic work and athletics received due attention and thus contributed to the harmonious development of the school as a whole.

During the visit a general inspection of industrial work had been called for in connection with the elaborate exercises of "corn day." While final preparations were being made by the various committees, the school children engaged in regular tasks in order to give an opportunity for the inspection of routine work as well as of special features. Each group of workers faced a collection of completed articles and industrial materials. The amount of materials on hand was remarkable in view of the fact that most of it had to be imported or laboriously prepared. Blue prints of standard designs, patterns, and models were much in evidence. Each pupil was well provided with the equipment necessary for his work. The walls of palm leaves and bamboo wattle were covered with pictures, programs, and large drawings by the pupils.

Exquisite examples of buntal and polangui basketry were pyramided in front of the basket makers. Stacks of dresses, garments, and samplers formed a breastwork about the groups of busy needleworkers. Boxes of neatly put up lengths of bobbin and Valenciennes lace flanked the group of lace makers whose flying bobbins clicked like castanets. At the far end of the room the little folks gravely manipulated strips of buri

palm leaf or splints of bamboo. On the porch, boys were arranging vegetables and ears of corn submitted for prize competition and grown in school and home gardens.

The industrial records of the school gave the interesting information tabulated below.

Prescribed industrial courses:

- 2A-B. Bobbin lace.
- 6. Housekeeping.
- 7. Plain sewing.
- 8A-B. Elementary hand-weaving.
- 12A-B. Polangui basketry.
- 15. Buntal basketry.
- 26. Gardening.

Grades, Primary I to IV.

Pupils, 200.

The value of the industrial output for school year 1915-16 was:

BY GRADES.

Grade IV.....	P170.00
Grade III.....	60.00
Grade II.....	30.00
Grade I.....	26.25
Total	286.25

BY INDUSTRIAL COURSES.

Basketry.....	171.00
Lace.....	60.00
Gardening.....	20.00
Plain Sewing.....	10.00
Cooking.....	15.00
Weaving.....	10.25
Total	286.25

Average per pupil, ₱1.44.

Individual speed and efficiency records:

Felipe Salvatierra, age 13, 9 baskets (1006 and 1019), 40 hours each, value, ₱13.50.

Estelita Pablo, age 10, 3 pieces bobbin lace, 6-yard lengths, 60 hours, value, ₱12.00.

In the distribution of the sales fund, 25 per cent is allotted to the pupils' fund, and 75 per cent goes to the pupil. The cost of material is deducted before distribution is made. Some of the products are disposed of locally and others are exported through the Bureau of Education. A better system of securing

materials and of selling completed articles is needed and will be established. (J. C. C.)

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A SUCCESSFUL HAT-MAKING CLASS.

Since hat making is the chief occupation of many of the inhabitants of the municipality of Baliuag, several attempts were made during the school year 1914-15 to secure permission to establish a special class in this subject, but final consent was not secured until the beginning of the past school year. Though for the past three years a few of the pupils were incidentally engaged in this work, it was not treated as a special industrial subject.

The class was organized in July, 1915, and is engaged in the production of articles of bamboo and buntal, the latter material being most extensively used. More stress is laid upon the work in buntal because this fiber is most generally used by the people of the town who gain a livelihood by hat making. The fabrication of the bamboo product is fast dying out in Baliuag.

The two teachers in charge of the class are natives of Baliuag. Mrs. Guevara has been an insular teacher since 1903. Her knowledge of industrial work was acquired at home and at teachers' assemblies and normal institutes. She has taught hat making to some extent during the past three years, but only during the past year to a regular class. Miss Pañgilingan is of seventh-grade attainments. Hat making, the vocation of her parents, she learned at home. She has taught this subject in school for one year only. Both of these teachers have had practical experience in the hat industry and are better able to judge the grade of the output than are most teachers of industrial classes.

There are 24 pupils in the class, 10 girls and 14 boys, of Grades III, IV, VI, and VII. Of the seventh

grade there are 5 girls and of the sixth, 1. The rest of the class is composed of pupils of Grades III and IV. One section, the seventh grade, is held from 10 to 11.35 a. m.; another, comprising the rest of the class, is held from 2.50 to 4.30 p. m. Outside of school hours each pupil devotes to this work from an hour and a half to two hours a day. The seventh-grade pupils recite four days each week and the others, five.

The hats produced are of only one design, the standard man's hat of the type which has long been made in the households of Baliuag. Some of the third and fourth grade pupils of this class are engaged in making cigar and cigarette cases. These are made up in three sizes. Either bamboo or buntal is used. The use of buntal is not encouraged, however, as the time required to produce a case of this material is so much greater and the price, necessarily, is so much higher that buntal cases are not in demand.

The actual number of hats produced to the end of the year was sixty-seven. Of cigar and cigarette cases there were finished one hundred eighty. The total value of the output, hats and cases, reached the sum of ₱388. In this connection it should be remembered that the condition of the hat market is abnormal at the present time, due to the cutting off of the exports to Europe on account of the war. The hat which, before the beginning of the war, sold in the Baliuag market for ₱8 or ₱9 can now be bought for ₱4.50 or ₱5.

The ready market for hats is an especially attractive feature of this industry with reference to school pupils. Five pesos a month to the ordinary primary or intermediate schoolgirl of the Philippines means a great deal. This amount a pupil hat maker of average ability can realize. There is no question of finding a buyer, for there is the regular market day every Wednes-

day, where from two to three thousand pesos' worth of hats are bought and sold. This market does not, however, take cigar and cigarette cases. In fact these cases have no local sale worth mentioning. The principal reason for this is that the design prescribed by the Bureau is not the one most in demand. The cigarette case used by the Filipino smokers is of an entirely different size and shape.

All hats and cases are woven over wooden forms. The blocks used for hats are of one size and shape. Those for cases are of three sizes. No decorative design is used for either the hat or the case.

The classroom is furnished with two washbasins. Pupils furnish their own towels and tape measures. The equipment totals a value of about ₱15 and with the exception of the blocks for cigarette cases, is provided by the pupils. All equipment used directly in the making of the article is cared for by the pupil. It consists of a wooden block or form, a smooth stone with a rounded surface, and a hair-pin. For the last named instrument a sharp stick may be substituted and often a pointed thumb-nail serves.

The material itself is, of course, cared for by the pupil. During the hot season buntal fiber must be kept in a dark, damp, but clean place, as otherwise it becomes brittle and is difficult to weave. At other times it requires no special care. The fiber used in making the buntal hat is imported from Tayabas and is sold in the local market. The purchasing of the material by the pupils is found to be convenient for all concerned, as the distribution of the cash after the sale is an easy matter when compared with the trouble entailed in the sale of articles made from materials furnished by the municipality. The total value of materials used by the entire class during the nine months of school was approximately ₱45.

The best speed attained so far by

a hat maker falls to the credit of Jose Zafra, a 14-year-old boy of Grade IV, who completed a hat of the first quality in one hundred and forty hours. This places him among the professional hat makers. The average pupil hat makers require from two hundred and fifty to three hundred hours. The boy above mentioned who has had about seven years' experience in hat making, has attained speed by extensive practice.

The record for cigarette case making is held by Fernando Maniñas, 13 years of age, Grade IV, who produced a case in eight hours. The product was classed as second quality, which means that it was three-fourths the value of a first-class article. From 50 to 75 per cent of the work is done outside of school hours. In most cases the teachers have no difficulty in getting pupils to work overtime at home as the parents will generally see to it that the child loses no time.

During the past year the class has been doing better work than ever before, due to the fact that the pupils are more awake to the financial benefits to be derived from their labors. In many cases the pupil is not over enthusiastic about industrial work because so many articles are left on hand; and if all are sold, the compensation is so small that he doesn't feel disposed to exert himself. The case of a hat maker of average ability is entirely different. He can pay half or more than half of his board bill by the industrial work in school besides getting credit toward graduation. This fact is dawning upon the pupils and interest is growing. The only particular difficulty encountered during the year was that of arranging suitable periods for the work. This might be overcome, to a great extent, if hat making were prescribed for all pupils who desired to take the subject up to and including the sixth grade. Those who come from hat-making homes are anxious to engage

in this work, and their parents are more than willing that they should. Another benefit to be derived is the elimination of much vacation idleness. Pupils who learn this trade will follow it during the vacation period; a basket maker seldom thinks of pursuing basketry except during the school year.

No industrial work meets with more hearty approval from the parents than does hat making, and were it possible to teach this course more extensively in the schools of Baliuag, many more of the young people could afford to attend school because of the income it would be possible to obtain in this way. (J. W. L.)

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SPONGE CULTURE.

The following article which appeared in the form of a circular issued by Mr. John V. Crowe, acting division superintendent of schools, Sulu, for the purpose of helping standardize school work in sponge culture, contains so much interesting information concerning this branch of school industrial work that it is given in full, although the work will probably never be extended beyond a very few schools:

It is desired that experiments be made in sponge culture in certain districts of Sulu. Since it is believed that the best agency for conducting these experiments is the public school system, the attention of all teachers stationed in districts where sponges are found is invited to the following information and instructions relative to sponge culture:

While experiments have been made in several parts of the world to determine the merits of various methods of sponge culture, the general conclusion seems to be that, for the present at least, propagation by cuttings is the only practical method. Experiments will therefore be conducted along this line in Sulu. In brief, the method is as follows:

Cuttings about 2.5 by 4.5 or 5.5 centimeters are securely fastened in suitable locations, where they are left to grow as independent sponges.

Authorities agree that the cuttings should be placed in water where there is a current. The current, however, must not be too swift. They should never be placed where the water is brackish or where the sponges are likely to be left exposed to the air and sunlight when the water recedes.

Experiments have shown that better results are obtained where the cuttings are protected from light. This means that the cuttings should be planted as deep as possible.

If the sponges are transported more than one mile, they should be placed in a fish net or other suitable container and towed in the water.

Cut away the roots of the seed sponges if they contain pieces of rock, coral, or shells. For making the actual cuttings, use sharp bolos. The direction of the cuts will depend upon the size and shape of the seed sponge; but in the majority of cases, the sponge is placed on a wet board, root down, and cut into slices from 2.5 to 3 centimeters thick, each of these being subdivided to the best advantage as determined by the judgement of the operator. It is desirable, but not essential, to leave on each cutting one surface covered by the uninjured skin of the original sponge.

Various methods of fastening have been tried, two or three of which may be experimented with. One method is to fasten the sponges on copper wire. If this method is tried, two strong posts are securely driven into the sand or coral so that the tops of the posts will be at least 90 centimeters below the surface of the water at the lowest tide. One end of the wire is fastened to a post. The posts should not be more than 4 meters apart. The cuttings are then placed on the wire, at least 30 centimeters apart. After the cuttings are in position, the wire is fastened to the other post. Two or three strands of wire may be placed between the posts. The wires should not touch the bottom.

Another method is to make heavy frames of wood, preferably mangrove, constructed in a manner similar to a coir mat frame, and set about 30 centimeters apart into parallel sides, with holes drilled. Thin strips of mangrove wood are fixed across the frame with one end in a hole. The cuttings are put on at the free end, which is then placed in the hole on

the opposite side. The strips are securely fastened. The frame is then put into the water at a suitable location and firmly fastened to some immovable object either on land or in the water.

Planting cuttings on concrete discs about 27 centimeters in diameter has been done successfully. A small wire is passed through the cutting. The ends of the wire are then placed through holes in the disc and twisted on the lower side, and the discs are placed in the water. Some of these discs will be provided for experiments later.

Sheep's-wool sponges should be used for the experiments.

Very satisfactory results have been secured from experiments conducted according to the methods described above. After several months sponges have grown to many times the original size of the cuttings.

In order that the experiments may be of permanent value, careful data should be kept. The depth of the water, kind of bottom (sandy or coral), current, presence or absence of much animal life, date of planting, size of cuttings, distance transported, time elapsed after planting before sponges began to grow, methods used, number living at the end of each month, growth of cuttings, and the quality obtained, should be carefully recorded.

The following instructions for curing sponges are taken from Dr. Seal's report:

Commercial sponges in their natural state resemble big plum puddings. They are covered with a thin black skin, and are full of organic matter that must be removed.

They are gathered and placed on a platform, on bamboo slats, or on an old mat. They should be placed top side up, in the position in which they were growing, and allowed to remain in this way for three to four days, or until dead. They should then be placed in shallow water in a corral which has a bottom of bamboo or boards.

The sponges should at all times be kept off the ground, otherwise they will rot. They are left in the water in the corral four or five days, and are gone over every other day and squeezed out, all of the coral, shells, sand, stones, dirt, and the black skin being carefully removed.

Small sponges require less time in the water than large ones, the object being simply to clean them. The less time in the water consistent with thorough cleaning, the better for the sponges. They may be beaten with a flat paddle or rubbed on a wire washboard to facilitate this cleaning. When clean, and the water squeezed out, they are placed on a platform and dried. They are gone over with a pair of shears and clipped into good shape. Whenever sorted into uniform sizes, graded, and packed or baled, they are ready for market. They should not be bleached, as the dealers prefer to do this in their own manner, and there is no demand for bleached sponges in the wholesale trade. Great care must be taken to get the sponges absolutely clean and free from all coral and shells, and to pack all of one size and kind together.

For the present, it is directed that these experiments be made at Liminusa, Siasi, Lugus, South Ubian, Tung-gussung, Tubig Indangan, Bongao, and Sibutu. Copper wire will be furnished by this office. Arrangements should be made locally for the construction of the frames.

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MARKETS FOR SCHOOL-GROWN AGRICULTURAL PRODUCTS.

The rapid increase in the cultivated area in school and home gardens and at special agricultural schools, combined with extensive home projects in many sections, has brought crop production up to the point where there is a considerable surplus to be marketed outside the locality. Further production and the extension of planting enthusiasm among the pupil farmers will depend largely upon the successful marketing of the crop.

The Philippine Normal School, the Manila city schools and the Bayombong provincial school maintain sales booths at the gardens and prospective purchasers go there to buy the freshly gathered products. Usually boys are detailed as a sales force being on duty at the hours when local demands are the heaviest. Home garden products of the pupils are handled through such a force.

Various schools in Batangas, Tar-

lac, and Cebu have at times maintained sales booths in the public markets. While these methods serve to take care of food crops they are adequate only to the point where local demand is satisfied. At the best they are only temporary and do not provide for the rapid growth of home projects which attain their greatest success only when a pupil begins to want to extend his field work until definite financial returns are assured. The same system of supervision and assistance should be given the young farmers of the schools as is now available for making basketry, embroidery, and other handicrafts profitable to the pupils engaged in those lines of work.

The extent to which the need for profit is being emphasized is shown by the large number of Cantonese chickens being sold at the Santa Maria farm school. A recent sale was made to the Director of the Bureau of Science, Manila. The schools of Bukidnon have asked for assistance in disposing of some 40 cavans of peanuts and a large quantity of excellent pop corn. The Bureau of Agriculture showed a desire to actively cooperate with the schools by offering to handle this produce, stating, however, that it did not maintain a sales department and only limited assistance in this line could be given. (N. H. F.)

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GARDENING IN TARLAC.

In the barrio of Libueg, in the municipality of Camiling, Tarlac, where gardening is carried on, the pupils, numbering 22, not only work during school hours but they spend a part of their leisure time in cultivating their plots.

The school garden which is 88 square meters in area is divided into several plots. Each plot is 1 by 4 meters in area. There are in all 22 plots. The home gardens are 628 square meters in area, and are

divided into 179 plots all of which, including the school garden, are under cultivation.

The average area cultivated by each pupil is 28 square meters in both the school and home gardens. The amount harvested during the year without regard to kind of vegetable was worth approximately ₱275.50. The average per pupil was ₱12.52. Victoriano Patao, a boy 10 years old, made the best record, his plot yielding him during the year a total of ₱31.72. This school has only Grades I and II. (F. M.)

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THE "NIGUE" INDUSTRY.

Along the low, swampy coasts of many islands of the Philippines, grows a soft-wood tree (*Xylocarpus obovatus juss*), known in Tagalog as "nigue" and in Bicol as "tabigue," from the bark of which, for the past fifteen years, has been made an extract which proves of value in coloring goods and in tanning leather.

The nigue tree grows only in low and swampy soil along the seacoast. When transplanted elsewhere it will not thrive. It is found in abundance along the coast of Camarines, in Guinayanagan, Calawag, Silang, and Ragay. The tree, which grows to a height of about 15 meters, has wide-spreading branches, fairly well supplied with leaves of medium size. It is about 5 centimeters in diameter. The wood is unfit for building purposes, due to its lack of strength and to the rapidity with which it succumbs to the attack of white ants. The bark is about 5 millimeters in thickness. From the inner surface, pale-brown in color, the extract is made.

Due to the fact that the tree is, as a rule, located within the tide limits of the sea, and that most of the soil where it grows is soft and muddy, the tree is accessible mainly by boats. The inhabitants of the above-mentioned localities take off

the bark in strips about 5 centimeters in width and bind it into bundles of 3 kilos each. Due to the ease with which the bark can be separated from the tree, a laborer accustomed to the task can prepare as many as 200 such bundles in one day. After being thus gathered and tied into bundles, the strips of bark are sold to the local Chinese dealers at the rate of ₱6 per 1,000 bundles. During the first two weeks after being stripped from the tree, the bark must be spread out in the sunlight in order to become thoroughly dried, as otherwise it will mold and lose its value. When well dried, it is sent to Manila, from which place it is shipped to China to be manufactured into dyes.

The dye obtained is used extensively in coloring cloth and fish nets. It gives either a light or dark brown color, according to the process used in the preparation of the dye; and goods colored with it will not fade. When boiled in water with a small amount of soda, the bark can be used for tanning leather, giving satisfactory results. Many of the shoes made and sold in China owe their light-brown color to the nigue tree.

It is estimated that the collecting and selling of this bark to the local dealers gives occupation to three hundred or more men, and that there is room for extension of the industry on a larger scale. (W. M. B.)

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AN IDEA IN FLORICULTURE.

The following plan may be successfully followed in an intermediate school. Let the girls of each grade vote for flowers that they particularly like. The flowers or plants getting the most votes will be the ones to be adopted as class flowers or plants for that grade. It is preferable that each of the three grades of the intermediate school adopt a flower or decorative plant different from that selected in the other

grades. This will make it possible for every girl to have a chance to cultivate different flowers if she goes through the three grades of the intermediate school.

After the flowers or plants have been decided upon, plots should be set aside for their cultivation, under the charge of the particular grades selecting them. The difficult work of cultivation may be given to the boys of the grade, while the planting, care, and cultivation may be attended to by the girls themselves.

In order to teach the value of flowers and to inculcate lessons in home and school decoration, arrangements such as the following may be made. Exchanges of flowers may be made between the girls of the different grades in order that there may be variety in the use of flowers or decorative plants for schoolroom decoration. The girls may also take turns in taking home with them certain flowers or bouquets of flowers for home use.

It may also be possible to place this work in horticulture upon a commercial basis. It is suggested that, if this is to be done, arrangement be made whereby the officials of the town, or the families interested, may be supplied with flowers on certain days of the week at nominal prices. Where the proper enthusiasm is developed, many families in the town where the intermediate school is situated will be glad to receive supplies of flowers and plants for decoration regularly. The intermediate girls may prepare wreaths or crowns for special occasions.

If the idea is well worked out, the girls will be greatly benefited, because of the interest aroused in the flowers and plants, the lesson secured in proper decoration, the service rendered to the school and to the families furnished with flowers, and in the closer relationship established between the school and the home. (C. O.)

A PHILIPPINE EXHIBIT IN WEST VIRGINIA.

At the teachers' summer normal in the University of West Virginia in 1909, it was interesting to watch a model teacher trying to instruct the attending teachers in the art of basket making through a model class from the city public schools. Instructions to the class in all subjects other than industrial work were beyond criticism. Exceptions were taken, however, to the manner in which this work was conducted and to the fact that the material used, a vine somewhat similar to the one in use in the Philippines and known as "bacog" or "gumankilat," was not of local origin, notwithstanding that the State abounds in the very best of materials for basketry. And though she carefully advised the teachers where the material used could be purchased at so much for a prepared roll, no reference was made to the use of willow twigs or of oak and hickory splits, the materials from which the old pioneers made their bushel and half-bushel baskets. Another notable difference between the manner of instruction there and in the teachers' normal institutes of the Philippines was the fact that teachers were expected to learn basket making through observation only. They were not required to make a model for themselves, as in the Philippine normals. One could hardly refrain from speculating as to what results would be obtained by this method of teaching industrial work in the public schools.

On a second visit to the State of West Virginia in 1914, a large collection of school made articles was carried along to be placed on exhibition at county institutes and educational gatherings. The purpose of this exhibit was twofold—to serve as an inspiration to the teachers of the State, and to make known the

work of the Bureau of Education in the Philippines.

The collection consisted of baskets of all kinds, mats, hats, embroidered articles and lace; also copies of THE PHILIPPINE CRAFTSMAN and certain bulletins of the Bureau of Education. The articles were carefully chosen and were all of very good workmanship. Old carnival tags were used for labeling. Descriptions were complete except that the price was omitted.

The exhibit was displayed at the Doddridge and the Harrison County Teachers' Institutes, where it was well received and was given much favorable comment. The respective county superintendents allotted rooms and tables for the display, and requested that the representative give talks describing the industrial courses of the Philippine public schools. The exhibit rooms were well patronized during the intermissions at the institutes. It was almost impossible to make visitors believe that the articles were made by school children, in spite of the fact that everything not of school make was so designated. A few bolos and spears were displayed in connection with the exhibit. More than once, those in charge were questioned as to which articles were made by the teachers and which were made by the pupils. Many declared that it was impossible for school children to turn out such work. When it was intimated that the school children of West Virginia could be taught the same kind of work and could do it just as well, the teachers went away murmuring their doubts. The exhibit also met with a very favorable reception at Salem College, where it was displayed at the request of members of the faculty. Upon request a talk was given before the students of this college explaining the entire work of the Bureau of Education and of the Government of the Philippine Islands. Many of those in

attendance demonstrated considerable interest in this exhibit and in education in the Philippines.

Wherever the exhibit was displayed, visitors were anxious to secure some of the articles for themselves, and showed disappointment when they were told that nothing was for sale, but that the display was for educational purposes only. The local newspapers gave considerable space to descriptions of the exhibit, and commented favorably on the Bureau of Education of the Philippine Islands, the class of work accomplished, and the methods of instruction. (L. P. W.)

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INDUSTRIAL WORK AFFORDS A WATER SUPPLY.

For the central schools of the Santa Cruz, Tayabas, district an abundant supply of pure water for gardening, drinking, and other purposes has been obtained through the efforts of the school. In addition, large quantities are used by neighbors who formerly obtained their drinking water from the side of the river polluted by the bathing of people as well as horses and carabaos. In view of the frequent sickness and deaths resulting from the use of impure water pupils and teachers have rendered a distinct aid in the campaign for better health and sanitation.

A well was dug in the shape of a cube 11 feet in each dimension and the four sides walled up with concrete walls averaging about 18 inches in thickness. The top and bottom were also covered with concrete, a hole 18 inches square being left in the top. This hole was lined with hard wood projecting a few inches above the surface and covered with a box-like cap provided with hinges and a padlock. This wood cover was further protected by an outside lining of galvanized iron. A pitcher spout cistern pump was placed at a dis-

tance of about 8 feet from the well and connected by means of a horizontal iron pipe laid a few inches underground and under the concrete well cover, joined to a vertical pipe to the bottom of the well. The placing of the pump at the side of the well affords further protection. To prevent seepage of surface water the side walls were plastered with a 1 : 2 mixture of cement and sand. The ground surrounding was graded to slope away from the well. The well is on school premises and no refuse matter is allowed to accumulate in its vicinity.

Nine barrels of cement were used in the construction of the well, the cost of cement, pump, and pipe to school funds being about ₱70. The labor of digging, bringing materials, and construction was done by pupils and teachers. No reinforcing iron was used, the wall being built heavily enough to sustain itself. Rough stones, weighing often from 50 to 100 pounds were laid into the wall. A 2-inch plank, set on edge, was used as a form, and the wall built up of stones of varying sizes, all crevices being kept filled with a 1:4 mixture of cement and sand. The sand which was brought from the bank of a stream, and the stones, were washed before being used. The use of the stones resulted in the cleaning up of this refuse material from the surrounding streets and premises. The work was accomplished by relays of pupils, properly managed by their teachers.

As soon as the rains began the water seeped through the concrete bottom and an abundant supply has since been afforded.

For the use of the Santa Cruz intermediate school a concrete cistern was built above ground and connections made to catch rain water from the iron roof. This cistern has a larger capacity than the well mentioned, and supplies a large amount of pure rain water for school and

town use, its supply being dependent, however, upon the frequency of rainfall.

For the use of the central school of the town of Torrijos, where drinking water is difficult to obtain, pupils and teachers dug about 2 feet and obtained a rock foundation for a concrete cistern, the walls of which were nearly finished at the beginning of vacation. Upon completing this, with the opening of the primary schools a large quantity of water will be available, the floor surface being 7 by 13 feet inside and the walls to be carried to a height of about 2 meters. This cistern is being placed by the side of a plan No. 3 concrete building, two of the foundation piers and the connecting arch forming part of one side of the cistern. As the building is at considerable distance from the street a clean supply of rain water will be obtained. (C. S. H.)



WOODWORK IN ATIMONAN SCHOOL.

The principal of the Atimonan intermediate school states that this school has been giving the trade course since 1911. The course was not at all appreciated by the people of the locality at the start, and even the pupils themselves were unwilling to work. Through the incessant effort of the supervising teacher in encouraging the pupils, as well as the people of the town in this course, interest was aroused and the pupils began to like the woodwork.

At present, only hand tools are used as there is no machinery of any kind. The enrollment in this school is from 100 to 130 boys, all taking the daily shopwork throughout the year; and with the tools on hand, the boys have been able to furnish the towns on the coast from Casiguran down to Lopez with school desks, office desks, tables of different sorts, cupboards, bookcases, frames, drawing boards, handmade brushes, etc.

The output of this school during the last two school years has amounted to almost ₱3,000.

It should be remembered that, aside from regular work in the shop, the boys in this school have been doing real carpenter's work outside. The primary school of this town which was left unfinished in 1913, due to lack of funds, was finished by the boys of this school; the primary school building of Mauban was repaired by 20 boys from this school during the 1914 long vacation. The new domestic science building of Atimonan will ever be the pride of the boys of this school, for it was built and completed by them in less than three months.

The people of Atimonan are now convinced that woodwork is a very important part of the studies of their sons, and they do not hesitate to send their boys to this school. Atimonan will soon have a number of excellent carpenters.

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SCHOOL-GROUND IMPROVEMENT.

Cutting weeds, leveling the ground, and throwing away all sorts of rubbish that accumulates on school grounds constitute school-ground improvement. Preparing the ground adjoining the schoolhouses and cleaning under school buildings protect children from disease.

School-ground improvement is beneficial to the pupils and to the public. For this reason the Bureau of Education lays emphasis upon this phase of school activity. In certain schools the work has so interested the pupils that they have been willing to put forth every possible effort toward making school grounds as beautiful and sanitary as possible.

School grounds ought to be made more attractive than any other place in the community. This is where pupils spend most of their time, because they like to stay on grassy and shady grounds better than in their

own homes where they do not have such inviting conditions. Here a child begins to love beauty and learn cleanliness. When he goes out of school this idea will be well impressed upon his mind. Then perhaps he will make an effort to improve his own house and its surroundings.

School-ground improvement is also beneficial to the public. Many people who have had no previous idea about improving grounds are convinced that any time spent in this manner is worth while. It is from the school grounds that the people get the idea of improving their own homes and surroundings. Thus every school ground should be made a model for the community. (V. E. T.)

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KEEPING THE BELT SHAFT CLEAN.

It is well known that line shafting in trade schools or, for that matter, any shafting gets dirty very quickly. Take a block of wood about 3 by 3 by 6 inches, cut a V-shaped notch in one end and nail the block to a pole long enough to reach the shafting. Fasten a piece of emery cloth in the notch and, while the shaft is rotating slowly, pass the block along the shaft. This will clean the shaft all right but it will not cause it to stay clean if it is left alone. There is, however, a simple little contrivance that costs nothing and is easily made and applied that will effectually keep the shaft bright and shiny.

Take a piece of old leather belt and cut a circular piece about 4 or 5 inches in diameter. If the shaft is $1\frac{5}{16}$ inches in diameter, cut a whole concentric with the outside circumference about $2\frac{1}{2}$ inches in diameter; then cut this ring diagonally, that is, not radially. Slip two or three of these rings over the shaft and put on some oil. They will chase one another back and forth on the shaft and keep it clean. These have to be

put between every two obstructions on the shaft, such as pulleys and bearings. In the absence of leather, cardboard will do.

The right side of a belt.—One often wonders why a leather belt comes apart at the splice so quickly. On inspection it appears that the feather edge of the splice has begun to curl up and to roll back. The belt makers are therefore condemned for not making a good splice.

Now there are four ways that a leather belt may be put on; three of these four ways are wrong, so the man who unpacks a new belt and puts it on has only one chance out of four to get it right, and an inspection of the belts of some trade schools will show that the law of chance holds.

Every belt has two sides and two ends and was made so as to run with a certain side next the pulley and with a certain end coming to the pulley.

If one examines a leather belt he will see that one side is smooth and hard and that the other is rough and softer. Now, the questions are: Which side should be put next the pulley? Which side will grip the pulley the better? And which side will transmit the most power with the least strain and wear on the belt? Now consider which side will grip the pulley the better. Mechanics teaches that a smooth surface will grip another smooth surface with greater force than a smooth surface will grip a rough surface or than a rough surface will grip another rough surface, the areas being the same.

The surface of the pulley is smooth, hence we should run the smooth side of the belt on to the pulley. This is one reason for putting the smooth or hair side of the belt next the pulley. Another reason is that the smooth or hair side will bend with a shorter radius than will the rough or flesh side of the belt. This can be easily verified by taking

a piece of belt, bending it over the finger and noting the small cracks in the hair side while none will appear if the belt is bent with the flesh side out. Third and lastly, it is quite obvious that the hair side will wear longer than the flesh side. These three reasons make it clear that the smooth or hair side of the belt should be run next the pulley.

Now as to the end of the belt that should approach the pulley. Examination of the edge of the belt at the splice will show a line running diagonally across the thickness of the belt; this line is the surface of the two pieces of leather that are joined at this place. By running this belt so that as it comes in contact with the pulley, the pulley rim having a tendency to go faster than the belt, the slip would be in the direction to make the lap lay down; or by running it the other end to, the slip would tend to pick up the lap.

The tendency of the belt to slip over the following pulley is not as great as is the tendency of the driving pulley to slip under the belt; therefore, by choosing the less of the two evils and running the belt so that the feather edge of the lap approaches the driving pulley on the hair side of the belt the wear on the belt is decreased.

This applies both to single and double belts with the modification that there is no flesh side exposed in a double or triple belt; however most manufacturers stamp an arrow on one side and say, "Run this side to pulley." Where no arrow is to be seen and both layers of the belt are of the same thickness it is immaterial which side is run next the pulley; but the same conditions govern the way it is run with respect to the lap. If the belt is made of layers of leather of different thickness it is better to run the thinner layer next the pulley although some which are called double belts are really only of one and one half thickness. In

such cases one side appears to be the flesh side but as it is the thinner it should not be run next the pulley. (H. K. P.)

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BATANGAS.

The recent division normal institute which was held in the high school building was signally successful. This is unusually gratifying in view of the fact that the normal was this year entirely Filipinized, instructors, pupils, and the principal all being Filipinos. One of the main factors contributing to this success, besides the wide awake attitude of the teaching corps in general, was that the institute was held entirely on the lower floor of the provincial school building, in the provincial farm school building, and in the trade school. This gave ample room for the many activities of the normal and, at the same time, gave the teachers a demonstration of what a complete school plant is. Another reason for this success was the systematic way in which, through the efforts and instructions from the General Office, these normals are now organized.

This division has already accepted orders for 4 dozen baby pillows, 5 dozen napkins, 500 pairs of sedge slippers, and 4,500 yards of bobbin lace, and it is believed that in addition to the last-mentioned item 2,000 yards of more difficult lace can be finished during this school year, if necessary.

At the provincial school on the evening of July 4, there was held a box social, the purpose of which was to raise money to buy a new piano for the high school. The proceeds from the sale of boxes, of refreshments, and from the voting contest for the prettiest boxes, netted almost ₱350. When to this amount is added the money that the old piano will bring, it will be possible to purchase a new one. The spirit

with which the normal school pupils entered into this affair contributed largely to its success and amply demonstrated their appreciation of the favor shown them by the provincial school in giving up its quarters to them for the normal institute. (G. T. S.)

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BOHOL.

This division has 15 domestic science buildings owned by the municipalities, 11 of which are constructed of semipermanent materials. Two have galvanized-iron roofs. In 11 other towns buildings have either been rented or their free use for classes in cooking and housekeeping has been permitted by the owners.

Over 500 school desks were made during the past year in the primary and intermediate school shops and 1,300 in the trade school.

A feature of school work emphasized in this division is that of having the domestic science classes prepare and serve lunches to the boys of the gardening classes. Garden products are brought by the boys and dainty dishes are prepared from them and served by the girls.

Considerable interest has been taken by both teachers and pupils in providing the recitation rooms with potted plants. In the districts near the forests many beautiful orchids have been obtained for use in the schoolrooms. The barrio schools of Dimiao deserve special mention for their work along this line. (O. H. C.)

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CAGAYAN.

Mr. Cecilio Felix, industrial supervisor during the past year, has entered the Agricultural College at Los Baños for a year's work.

The Director of Education has approved the elimination of the teaching course in the intermediate grades of the provincial school, substituting therefor the general course with the

provision that gardening may be taught in Grade VII as well as Grade VI. Mr. Anselmo Rey, teacher of gardening in the provincial school, has his gardens well started.

The enrollment in the provincial trade school has reached 131. Mr. Bert Ashurst, formerly of the Vigan trade school, began work on June 12 as principal. (J. C. S.)

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CEBU.

The following is the record of work accomplished by the twelve pupils enrolled at the trade school during the past vacation:

Automobile work	₱57.45
Wood cuts	17.50
Miscellaneous	447.45
Total	522.40

Ten teacher's desks at ₱37.50 each and two filing cases with crates at ₱68 each were practically finished, but work was suspended on account of not being able to get the hardware.

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LAGUNA.

Mr. Mateo Alfonso, who was the industrial supervisor for the past year, has been reassigned for the present year.

Mr. Fisher, the general industrial supervisor, attended the normal institute at Calamba during the first two weeks and rendered very valuable assistance.

Mr. Fermin Buan remains in charge of the industrial work of Nagcarlan and Lilio.

The division of Laguna has received and accepted several large orders for lace and embroidery.

Laguna furnished kilog and sabutan for the Vacation Assembly in Manila.

The present record is sixty-seven hours of work and 3 centavos worth of material to make a coir mat which sells at ₱1.50. A large number of schools are making coir mats.

The course in housekeeping and household arts has been started in seven additional intermediate schools this year.

Magdalena and Cavinti are building shops for the woodworking of the intermediate schools. (H. M. W.)

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MINDORO.

Orders for laces, tray cloths, runners, and baskets have already been placed in this division by the Director of Education.

Mr. Osias has announced his policies to the teachers through a series of talks, the three main aspects of which were: Academic work, industrial work, and athletics. He also dwelt at some length on the use of English, and the reading habit.

In accordance with plans that have been made, academic, industrial, and athletic contests will be held in this division from time to time during the ensuing school year.

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SORSOGON.

Mr. Paul K. McWherter, principal of Sorsogon provincial trade school, has been compelled to resign his position on account of ill health, and will return to the United States. Mr. Esteban Legarde has charge of the trade school pending the arrival of Mr. McWherter's successor.

Miss Maria Maligaso, who graduated from the domestic science department of the Philippine Normal School last March, has been assigned to the provincial school as assistant teacher of domestic science subjects.

Mr. Zenon Escoto, a returned pensionado from the School of Arts and Trades, Manila, has been appointed as manual training teacher for Masbate subprovincial school. Mr. Emilio Gamos, also a returned pensionado from the Manila Trade School, has been assigned as shop teacher in Gubat. He will have charge of both

primary and intermediate manual training classes.

Mr. Leon Gonzales has been transferred from Masbate to the Sorsogon central school shop. Mr. Gonzales relieves Mr. Luis Bayto who has accepted appointment as pensionado to the School of Arts and Trades.

Miss Julia Guanero, a recent graduate of the two years' domestic science course of the Philippine Normal School, has been appointed as teacher of domestic science in the Gubat Intermediate School.

Mr. Justo Toloso, who had charge of the Gubat intermediate school shop last year, has been transferred to the Department of Mindanao.

Mr. Angel Destura has been transferred from the provincial school to Bulan. He will have charge of woodworking classes and mechanical drawing in Bulan.

Mr. Manuel Ortega, one of Sorsogon's best primary shop teachers, died last May in Manila where he had gone to attend the Vacation Assembly. He was a young man of excellent character and had the respect of all of his fellow teachers. (W. B. B.)

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TARLAC.

Mr. Herculano Orquiola has been reinstated and assigned to the Camiling Intermediate School as a shop teacher.

The garden harvest for the school year 1915-16 was ₱6,013.53 as against ₱1,801.85 for 1914-15. The total garden harvest for the month of April and May, 1916, was ₱148.89 and ₱130.53, respectively, as against ₱93.79 for the three months of April, May, and June of 1915.

The industrial output for 1915-16 was ₱6,293.46 as against ₱5,000 for 1914-15.

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TAYABAS.

Industrial work in this division has been placed on as sound a com-

mercial basis as it is possible without sacrificing its educational value. The industrial courses have been cut from a total of thirty-three given in the school year 1915-16 to twenty-five courses to be given this year. During last year the average number of industrial courses in each school was six; this year the average will be four.

The division normal institute, with Mr. Lloyd Pollard, supervising teacher, Lucena District, as principal, was the best institute ever held in this division. All materials and equipment needed were on hand and actual work commenced at the minute of the opening of the institute. Work was rushed on the domestic science house and woodworking shop, and the building was completed in time for the teachers attending the institute to have the advantages of a modern domestic science building and shop.

An industrial exhibit was held in connection with the division normal institute, in which every school in this division was represented by one article made in each course taught in the school.

The Atimonan municipal shop has lost the services of two old teachers, Mr. Cipriano J. Estrada and Mr. Miguel Antonio, the former having been assigned as assistant supervising teacher, subdistrict of Infanta, and the latter being appointed a pensionado in the Manila Trade School.

Mr. Pedro Echavarria, an expert in stem basketry, has been appointed supervising teacher of the Tiaong district, and a large output of good baskets is assured.

The market for rattan furniture is very good. Mr. Florida, teacher of rattan furniture in Lopez, reports orders for over ₱200 worth of rattan furniture and plans to turn out a minimum of ₱100 worth of salable furniture each month. (J. J. C.)

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. In filling orders should girls in embroidery be allowed to specialize to the extent of certain ones doing the padding, others the satin stitch, others the stems, and still others the scallops?

Answer.—The limit to which specialization by a pupil should be permitted is governed to a large extent by the judgment of the teacher. The welfare of the pupil is of more importance than the output of the class. If the pupil, however, has already had sufficient practice to execute well all of the various processes connected with the industrial course which he is studying, no harm is likely to result in permitting specialization on any one of these processes for the purpose of increasing the output of the school. Certain it is that the output can be increased by this sort of specialization, but the pedagogical feature of the work must not be lost sight of in the endeavor to secure the greatest possible production through specialization.

2. What solution will keep weevils from attacking bamboo and how may it be applied?

Answer.—Bamboo soaked for twenty minutes in a solution made up in the following proportions is not likely to be injured by weevils: Five ounces of quicksilver to one and one half liters of alcohol.