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**The Philippine Craftsman**

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# The Philippine Craftsman

VOL. II

MANILA, NOVEMBER, 1913

No. 5

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**F**OR there is a perennial nobleness, and even sacredness, in Work. Were he never so benighted, forgetful of his high calling, there is always hope in a man that actually and earnestly works. In idleness alone is there perpetual despair. Work, never so Mammonish, is in communication with Nature; the real desire to get Work done with itself leads one more and more to truth, to Nature's appointments and regulations, which are truth.

—Thomas Carlyle

# The Philippine Craftsman

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## ABACA.<sup>1</sup>

By JOHN F. MEXER.

### THE SINAMAY AND PINOLPOG INDUSTRY.<sup>2</sup>

#### HISTORY.

Cloth making, one of the principal household industries of the Philippines, antedates history, the natives having been engaged



Plate I. Abaca plants.

in the production of textiles when the Islands were discovered by Magellan.

<sup>1</sup>This is the fourth paper on the subject of abaca, which was begun in Volume I of THE PHILIPPINE CRAFTSMAN, appearing in Nos. 1, 2, and 4. The series will continue through Volume II.

<sup>2</sup>Acknowledgement is due to Messrs. E. Ford Hickman, of Capiz; Gilbert Perez of Bohol; Charles E. Hoyer, of Albay; and to Mrs. Emilia Jara, of Iloilo, for some of the information embodied in this article.

The weaving of the fibers of abaca into cloth, called "sinamay," has been an important industry in the Bicol Provinces (especially



Plate II. Preparing lupis.

Albay), in Panay, Bohol, Batangas, Cavite, and in other provinces where abaca is grown. Sinamay is woven of abaca only, or in combination with mercerized cotton or raw silk. These



Plate IIIa. Stripping banana fibers.

latter materials are purchased from the local Chinese merchants by the weavers, who are obliged to pay high prices for them.

In most places the natives are able to weave only stripes and plaids. Colored stripes are easily introduced in setting up the warp or by changing the color of the thread in the weft. Plaids result from a combination of stripes in the warp and the weft.

The weavers of Albay, Iloilo, and Capiz understand how to introduce designs into sinamay by a slow laborious process similar to that used in Europe before the advent of the Jacquard machine. This process requires two operators—one to operate the harness and the batten, and the other to operate the small sticks which differentiate the warp threads and produce the design. These sticks are laid on a frame above the warp between



Plate III. Moros stripping abaca.

the harness and the batten and are connected to the warp threads by heddles. The worker who operates them stands beside the loom and raises the various sticks (lifters) in a definite sequence until the design is completed. As a stick is lifted, the operator introduces a thin piece of wood ("balila") between the warp threads and turns it vertically thus producing a "shed" through which he throws the shuttle containing the colored cotton yarn. This operation is repeated for each line of design across the weft.

This is probably the crudest form of the hand method of weaving designs in cloth, a method followed throughout the Orient and still used to-day in producing some of the finest silks in China.

Some of the women have developed considerable skill in spe-

cial pattern weaving, which has the appearance of embroidery. The designs and figures produced are often of artistic merit.

#### PREPARATION OF FIBERS.

The fibers employed in weaving abaca sinamay are stripped under a smooth cleaning knife which thoroughly cleans the pulp from the fibers, leaving them brilliant white in color. A serrated knife produces a dark fiber. (See Plates IIIa and IIIb.) Abaca fiber for weaving is usually sold in *manojos* (fist bundles) and may be bought either classified or unclassified.



Plate IV. Tying and sorting abaca fibers.

The bundles of mixed quality are separated into several grades according to their diameter, the classes varying in different localities. In Albay at least 6 grades are recognized, in Cavite 5 classes, and in Lipa 5 classes. There are three ways in which abaca may be sorted: (1) The fibers in a bundle may be separated into the different classes between the fingers and each class tied separately. (2) The fibers may be separated according to quality into three bundles without tying. Then these bundles are separated and each is again classified into two grades. As this is done, the coarser fibers are tied at one end in pairs,

the finer being separated into another bundle between the fingers. The coarser pairs are then removed and tied into a continuous yarn. The finer fibers are tied separately. (3) Many workers classify and knot the fibers at the same time. The last process gives the most uniform yarn. The portion of a fiber at the



Plate V. Pounding abaca fibers in a mortar.

base is much coarser than the part taken from the tip of the stalk. In the most careful tying this is taken into consideration and the fibers are cut so as to classify them into finer and coarser. In tying, the coarse end is knotted to the end of the coarse yarn already completed. The worker then runs the fiber between her



fingers until touch tells her that the finer portion of the fiber has been reached. Here another cut is made and this end is tied to the finer yarn.

The ends protruding from the knot are cut by means of a sharp bamboo or steel knife. The weavers are so expert in this work that it is doubtful whether any machine could be used to advantage in supplementing the work done by hand.

In places where weaving is carried on extensively, the knotted fibers are usually purchased in the open market. However, in places where only a small amount of weaving is done all of the fibers are prepared by the weavers themselves. The coarsest fiber is employed in the weaving of "buckram" and fishnets.

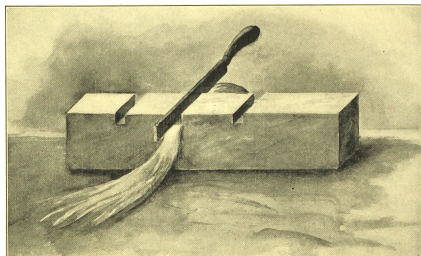


Plate VI. A substitute for a mortar.

The next three successive grades are employed in making sinamay, hence, in the manufacture of the best sinamay, these fibers are known as first, second, and third grades.

Much of the fiber is beaten in the following manner: A handful of fine, white fiber is folded or rolled into a loose ball, placed in a wooden mortar, and beaten with a pestle until it is soft. (See Plate V.) The mortar is usually well filled with the fiber. Some workers use a mortar having several cavities from 3 to 5 inches in diameter so as to admit a large or small amount of fiber at a time. In certain parts of the Philippine Islands the fibers are softened by being rubbed between the hands. The coarse fibers are pounded as described above. After being thoroughly beaten, the fiber is taken out of the mortar, unrolled, knotted at

the end, and hung up. In other parts weavers, instead of pounding the fibers in a mortar, use a groove block such as is illustrated in Plate VI. The fiber is twisted into bundles and placed into a groove and pounded by means of a piece of iron. This tends to soften the fiber and make it more brilliant and pliable.

#### WARPING.

Two kinds of warping frames are used in the Philippines—the square frame and the cylindrical frame. (Plates VIIa and VIIb.)

After the warp is taken from the frame it is put on the warping beam of the loom, run through the heddles and batten, and the tension perfected in the usual manner.



Plate VIIa. An upright warping frame.

#### THE LOOM.

The manner of weaving sinamay is practically the same in the various provinces throughout the Philippines. However, in some localities there is a slight difference in the looms. In Albay Province the "canaga," a low flat loom such as is shown in the illustration, is used. The weavers from Iloilo use the "caratel," an upright loom. At one time most of them were made from bamboo, but now in the larger towns, where weaving is carried on extensively, hardwood looms are made by the local carpenters at a cost of from ₱3 to ₱10 each. In some of the interior barrios looms of crude workmanship and design are operated in many of the native homes and are in constant use except during the rice planting and harvesting seasons. Much of the cloth woven on

these crude looms is for home use only. The harness, or heddle, of such looms is made of abaca cord attached to small pieces of bamboo. The reeds are also of bamboo and are tied with abaca cord. In a number of coast towns that were not burned during the insurrection are still found looms which have been in operation for many years.

The loom made of bamboo is in general use in a number of towns and provinces, especially throughout Bohol. It is simple in construction and is operated under the house. The frame is made of bamboo. The four perpendicular posts have one end stuck in the ground and the other fixed to the floor above. To



Plate VIII. A cylindrical warping frame.

the two front posts are attached the horizontal strips to which the harness and reeds are fastened. The reeds are made of a species of bamboo, and their average cost is about 50 centavos. The heddles are of cotton thread and are usually made in the towns of Baclayan and Loboc. The shuttle is hollowed from a piece of hard wood and holds the bamboo spindles upon which the woof threads have been wound.

The looms used by a number of the non-Christian tribes, as well as the methods of weaving, are different from those employed by the civilized Filipinos and on this account no attempt is made in this article to discuss the subject. However, later on this interesting phase of textile weaving will be taken up in a separate

article. One of the Mandayan looms is shown in actual use. (See Plate VIII*d*.)

In a number of localities an effort has been made to introduce an improved loom with flying shuttle. However, this shuttle has proven unsatisfactory for sinamay, inasmuch as abaca fiber is stiff and unwinds from the ordinary spindle. If spindles of special construction were properly adjusted, the flying shuttle would perhaps give better satisfaction.

#### DYEING SINAMAY.

Various methods of dyeing are employed in the different sinamay-producing localities. Most of the native vegetable dyes fade rapidly when exposed to the sun and are not very satisfactory. They are being replaced rapidly by imported aniline



Plate VIII*a*. An ordinary native loom.

dyes. For example, until about fifteen years ago the chief dye used in Albay was made locally of "talisay" boiled with rusty iron, vinegar, and water; but at the present time Maypole soap and German aniline dyes are the more satisfactory and do not require much time in their preparation. In Capiz Province, imported dyes have also been used for several years. Maypole soap is used to a greater extent than any other dye. The natives claim that this dye is more economical and gives better results than the dyes obtained from native woods, barks, and roots.

The most important vegetable dye materials used are the following: Talisay (already noted) gives shades of brown; sapan gives shades of red; turmeric produces yellow; deora gives shades of orange.

For the botanical names of the above dye materials and

methods of using Philippine vegetable dyes see *THE PHILIPPINE CRAFTSMAN*, Volume I, Nos. 3 and 4.

The mineral coloring matter at present sold in the Philippines is a very low grade, some of it containing as little as 5 per cent dye material, the rest being adulterations for the most part. Hence, a considerable amount of the colored sinamays is unsatisfactory as far as the fastness of their colors is concerned.

A movement is now on foot to encourage the use of better dye stuffs in weaving centers.

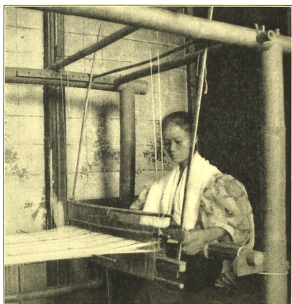


Plate VIII. A bamboo loom in use.

#### WASHING AND SIZING (BOHOL METHOD).

The cloth is divided into pieces 2 meters long. These are folded and soaked in lime<sup>1</sup> water for two nights. They are then washed in sea water and dried in the shade, after which the cloth is ready for bleaching. This is accomplished in the following manner: Fermented coconut water, a pepperlike fruit called *batuan*, and a species of citrus, somewhat resembling the orange, are the principal bleaching agents. The cloth, after being washed in this juice, is dried in the shade and later stiffened with rice starch. The ends are basted together so as to form one continuous piece of cloth. A piece of bamboo is inserted

<sup>1</sup> The lime such as is used by the natives is usually made by burning sea shells until they are reduced to a powder.

through each end and heavy weights or stones are attached to the lower bamboo as shown in Plate IX. This arrangement keeps the fabric taut and permits its drying without being wrinkled. After the cloth has been given the final drying it is ready for the press. This consists of a smooth, highly polished log and a curved wooden base on which the log may be easily rocked back and forth. The cloth is placed on the curved surface and then rolled with the log until it is smooth and even, after which it is neatly folded and is ready for the market.

Various other methods of bleaching and sizing are used in the different provinces; however, the following has widespread use in the Philippines. A small amount of lime, say, 2 ounces,

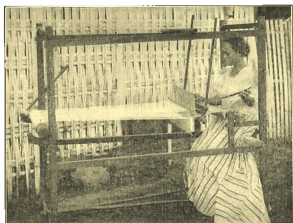


Plate VIII. The "saraga," or low flat loom.

is dissolved in a liter of water, the quantity of the solution used depending upon the amount of cloth to be treated. The folds of the cloth are taken up before immersion into the lime water. During this process the water is stirred frequently to prevent the lime from settling to the bottom of the receptacle. After being allowed to remain in the water for seven or eight hours, or until it becomes somewhat flexible, the cloth is removed from the bath and rinsed well in clear water in order to remove all particles of lime. No attempt is made to rub the cloth. After being rinsed it is usually of a yellowish tinge, which disappears after it is soaked for at least three hours in fermented rice water<sup>1</sup> specially prepared for this purpose. After its removal from the

<sup>1</sup> Fermented rice water is made from the water obtained from washing rice. It is placed in a receptacle and allowed to remain in the sun for two or three days. The sediment settles to the bottom leaving the clear water which is used for washing the cloth.

rice water it is rinsed in clear water, starched with sago or rice meal, and dried by the same method as that followed in Bohol. Before the cloth is completely dry it should be loosened from the frame, the bastings removed, and then rolled loosely on a piece of wood about a meter in length and 4 centimeters in diameter. It is then placed on a smooth surface and pounded softly with a small mallet until it becomes soft. It is then unrolled and hung in the open air to dry.

#### PRODUCTION AND MARKETS.

Daraga, Albay, is the most important of the towns engaged in the sinamay industry in Albay Province. In this town and its barrios almost every home has one or more looms. The

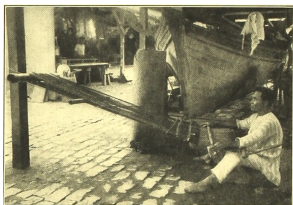


Plate VIII. A Mandayan loom.

women prepare the fibers and weave them when there is no pressing field or housework to be done. Practically all the arranging and knotting of fibers is done at night. The cost of production is difficult to determine, inasmuch as most of the women work at weaving irregularly and keep no record of the time.

Mr. Charles E. Hoye, of Albay, gives the following illustration in regard to this matter:

The cost of material for two pieces of first-class sinamay, one piece of 11 varas (9.34 meters) and another of 5½ varas (4.66 meters) or the amount sufficient for a skirt and a camisa, is about as follows: Abaca fibers, ₱1.70; imported thread, ₱0.60; dye, ₱0.10; total cost, ₱2.40. The preparation of the fibers used requires about six times the work of actual weaving, or four days of eleven hours each. The weavers of Daraga receive about ₱6 for two pieces of cloth similar to those referred to above, therefore making a profit of approximately ₱3.60 or ₱0.36 per day for their labor. However,

some of the most expert weavers earn as much as ₱1 per day of eleven hours each.

Prices received in the Daraga market vary according to grade of the material used and the quality of the cloth woven. Most of the sinamay for the market is made from 10 to 11½ varas (8.48 to 9.36 meters) long. The first class sells from ₱2 to ₱3 per piece; and second class, from ₱1 to ₱2. The pounding of this cloth costs 20 centavos additional. The finer cloth, in 5½-vara (4.66-meter) lengths, sells from ₱3 to ₱5 for the first class and from ₱0.50 to ₱2.50 for the second class. A piece of pinolpog of 20 varas sells from ₱4 to ₱7, and the finest for as much as ₱8.

Daraga, Albay, and its barrios alone produce about ₱40,000 worth of cloth in one year. The producers display their product

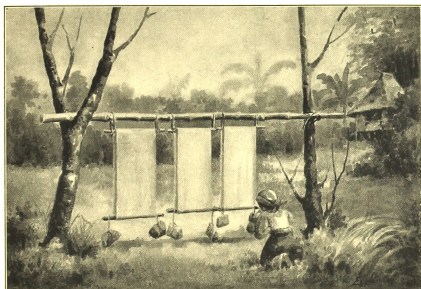


Plate IX. A method of drying and stretching sinamay.

in the open market in Daraga every evening. The towns of Albay and Legaspi also produce much sinamay for the market. Camalig exports a small amount of very fine cloth. Tabaco makes a large quantity of the coarse, stiff cloth which is used chiefly for skirt lining, and for making sieves and fish nets. Most of the other towns and barrios of Albay produce considerable sinamay for local use only. The total value of sinamay in this province in a year amounts to approximately ₱150,000, of which about ₱60,000 worth is exported. Most of the sinamay exported from the Province of Albay is sold to the merchants on Calle San Fernando, Manila. More than a dozen merchants are regularly engaged in buying sinamay in Daraga and Legaspi.



The merchants give little or no attention to instructing the weavers and seldom do anything to improve either quality or design of the cloth; on this account the weavers naturally follow the same methods that were in vogue generations ago.

In Iloilo, the cost of production of sinamay varies in the different localities. In some towns where abaca is produced in great quantities, cost is much less than in those where imported materials are used. However, it is estimated that the expense of producing the coarsest sinamay averages from ₱0.20 to ₱0.30 a bolt of 4 meters; the next grade, from ₱0.40 to ₱0.60; and the finest, from ₱0.75 to ₱1. The selling prices vary in the different localities.

In Iloilo dealers buy unwashed sinamay from Pototan and



Plate X. Pounding pinollog.

some from the Santa Barbara markets, which are the two largest markets for unwashed sinamay in the Province of Iloilo. The dealers usually pay for washing the sinamay and place it on sale at the Jaro market, where it is bought for export. A local dealer usually makes a net profit of 15 to 25 per cent on this investment.

Bauan is the great sinamay center for Batangas Province. Most of the cloth woven is rather coarse and is exported from the Philippine Islands to Europe and the United States.

Indang is the center of the sinamay industry of Cavite Province. Its products have a finer luster than abaca sinamay from any other locality and command the highest price among the sinamays in the Manila market.

Most of the abaca sinamay with small designs woven in (as previously described) comes from Daraga in Albay Province

and is known as "Legaspi," from the port from which it is shipped. Other sinamays of this class (that is, with small designs woven in) are made in Iloilo and Capiz Provinces and in the town of Malabon, Rizal; but practically all of these are woven from pineapple or jusi or combinations of these fibers.

#### PINOLPOG.

A soft, glossy fabric somewhat resembling Canton linen is made from sinamay and is called "pinolpog," which means pounded or beaten cloth. It is woven in the same manner as ordinary sinamay. However, the finishing process is somewhat different. The ends of the piece of sinamay from which pinolpog is to be made are usually sewed together and the whole piece dampened with a small amount of water. It is then loosely folded and placed upon a piece of hard wood, several feet long, about 1 foot wide, and from 5 to 6 inches thick. A boy sits on each side of the log; one holds and turns the cloth with one hand and beats it with a mallet held in the other, while the second boy beats it with mallets held in each hand. The cloth is then neatly folded and further beaten with large mallets. (See Plate X.) The boys who do the pounding usually receive ₱0.20 for finishing an 8-meter length.

The partly finished pinolpog is now placed in a solution made by mixing with water the juice of several limes or lemons and allowed to remain in it from fifteen to twenty minutes, the time depending upon the strength of the solution and the amount of cloth to be bleached. After this bleaching operation, the cloth is washed thoroughly in clear water and dried in the sun. During the drying process, care is taken to have the cloth thoroughly stretched in order to make it smooth and even.

The cloth is next rolled on a hardwood cylinder about 1 meter long and at least 5 centimeters in diameter, and given its finishing touches by being placed on a smooth block and further beaten with heavy mallets until it becomes soft and glossy. It is then folded or made into a tight roll and is ready for the market. In some places the cloth is unrolled a little at a time from the first cylinder and slowly rolled on a second one, during which time it receives further pounding. This additional pounding tends to increase the softness and silky appearance of the pinolpog. It is then rewashed in a solution of lime or lemon juice, dried, and again put on the cylinder and pounded.

In Albay Province the manufacture of pinolpog is confined almost exclusively to the town of Daraga. Early in the morning

and in the cool of the evening, before dark, the sounds of clubs striking the cloth resemble muffled drum beats. A considerable amount of pinolpog is manufactured in Capiz Province. In Albay it is usually made in 18½-meter lengths, while in Capiz the ordinary pieces contain from 3 to 5 meters.

Sinamay is used for the upper garments, the camisa and pañuelo, of Filipino women and the camisa de Chino of men. Pinolpog is used for skirts. It is also used to some extent in European dresses.

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SCHOOL AND HOME GARDENING, BULLETIN NO. 31, REVISED.

The old edition of this publication was the first industrial publication prepared to encourage the extension of industrial work. The advancement of the work and the rapid introduction of the school-garden idea into the homes made it advisable to revise the previous bulletin which was issued in 1910. This revision was accomplished by a committee composed of the most experienced men in the Bureau some of whom helped prepare the first edition. It is believed that the new bulletin will be of great assistance to both the old and new teachers as it contains the result of the experience of teachers actively engaged in the work for several years. The advancement in garden instruction and the rapid extension of the work into the homes has resulted in an augmented food supply for the people. This revision of the bulletin is gotten out in a very attractive manner and is well illustrated with photographs and working drawings of the work accomplished at various schools.

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## RESULTS OF THE 1912 CORN CAMPAIGN.

By NORTH H. FOREMAN, Inspector of School Gardens and Sites.

**T**HE Bureau of Education, during the school year of 1912-13, conducted a campaign, along the clearly defined lines given in an editorial in Volume I, No. 3, of *THE PHILIPPINE CRAFTSMAN*, for promoting the growing of corn and for extend-



Final corn exhibit, Manila, February 1 to 9, 1913.

ing its use as a human food. A keen interest was manifested in the work. This article attempts to present to the public the immediate results secured.

The campaign was conducted as a practical educational feature of the school work, as it was believed that any increased interest in corn as food for man would be the direct means of awakening interest in all food plants. The various popular campaigns conducted in the United States had demonstrated that successful results could be expected. The assistance and coöperation of other bureaus, provincial and municipal officials, newspapers, and



Catalino Alger, Calamba, Laguna, winner first place, contest No. 2.

private parties were received. The municipal and provincial officials, in response to a suggestion of the Executive Secretary, made funds available for the corn-campaign work. A tabulation of the financial support received in the various school divisions shows that ₱15,483.69 in cash and large donations of labor and materials were received. The adequate organization and the able management given the work by the Bureau of Education included the distribution of three illustrated posters, the prepara-

tion of Civico-Educational Lecture No. 8, Corn, and the introduction of 150 hand corn mills.

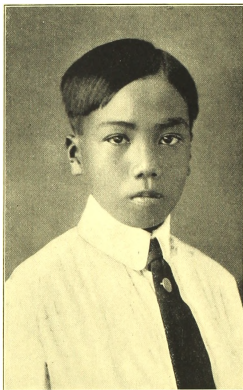
Difficulties were encountered in many provinces of a nature not



Francisco Duerme, Iba, Zambales, winner second place, contest No. 2.

to be overcome by well-laid plans. A pronounced drought, the worst for many years, was followed by swarms of locusts. It was the worst locust year during the American administration. Entire sections of the Philippines were devastated. The locust

experts of the Bureau of Agriculture, in cooperation with the people, worked hard but in two or three provinces practically all crops were eaten up. In these provinces the boys enrolled in the corn-growing contests had their corn destroyed. Many plots were replanted two and three times. Two or three very destructive baguios caused extensive damage in certain provinces. Buildings as well as corn plots were destroyed. The corn campaign was conducted during a year when there were more than



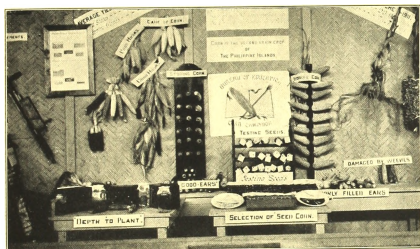
Amador Jaca, Nais, Cavite, winner third place, contest No. 2.

the usual number of agricultural calamities, but the part the campaign played in reducing the want and suffering usually following the destruction of crops cannot be readily expressed in terms of money value.

During the Manila Carnival, February 1 to 9, 1913, the first corn exhibit ever placed in Manila was featured by the Bureau of Education. It contained an exhibit of the corn submitted by contestants in the ear contest, a practical demonstration of all

points pertaining to the production and use of corn, and food booths from which the general public was served tasty dishes of simple corn foods prepared with such cooking appliances and ingredients as are found in the ordinary Philippine home. The 189 exhibits of five ears each, submitted by contestants, were scored by the following judges: Mr. H. T. Edwards, Assistant Director, Bureau of Agriculture; Mr. Teodoro R. Yangco, Filipino merchant; and Mr. Harold M. Pitt, president of the Manila Merchants' Association. These gentlemen shared with the schoolboys the honor of being connected with the first active food campaign inaugurated as a part of an educational system in the Orient.

Figures show that 11,661 boys entered contest No. 1 (the 100



A demonstration booth at the 1913 agricultural exhibit of the Bureau of Education.

square meter contest) and 18,666 boys entered contest No. 2 (the ear contest), making an enrollment of 30,327. All sections were represented, since practically every public school of the Philippines had entries. The fact that 30,327 boys grew corn means added agricultural interest and economic improvement. The great reduction in the importation of rice, which is the main food staple, is to a certain extent due to the corn campaign of the Bureau of Education. The reduced importations have caused a considerable loss of public funds secured from the import duty on rice, although the economic conditions are really improved to a much greater extent by the retaining in the Philippines of the several million pesos which annually leave the country for food staples.



The average yield of corn per hectare in the Philippines is approximately 8 cavanes (7 bushels per acre). In the 1912 corn campaign more than 200 boys made a production of 60 cavanes per hectare. The boys winning first, second, and third places produced corn at the rate of 124, 114, and 111 cavanes per hectare, respectively. Men who considered themselves farmers of the first class saw their children and their neighbors' children produce unheard-of crops. The economic question involved in these yields is obvious. It is estimated by the Bureau of



Vicente Meria, Asingan, Pangasinan, winner first place, contest No. 1.

Agriculture that the Philippine Islands plant 302,516 hectares (756,390 acres) of corn, giving an average of 8 cavanes per hectare, or a total yield of 2,485,396 cavanes (5,283,568 bushels). Were all farmers to follow the methods used by the winners in this contest and each hectare to produce corn with an average yield of 60 cavanes, or half as much as these boys did, the 302,516 hectares in the Philippines would produce 18,150,960 cavanes and give an additional wealth to the Philippines of ₱54,452,880.

It must interest everyone concerned with the development of

the Philippines to learn who were the boys producing the large yields of corn. The names of the winners in the corn-growing contests of the 1912 corn campaign are as follows:

## WINNERS OF THE 1912 CORN CAMPAIGN.

## INSULAR WINNERS.

## Contest No. 1:

1. Vicente Meria, Asingan, Pangasinan.
2. Enrique Sinio, Calamba, Laguna.
3. Florencio Campo, Santa Cruz, Cavite.

## Contest No. 2:

1. Catalino Alger, Calamba, Laguna.
2. Francisco Duerme, Iba, Zambales.
3. Amando Joco, Naic, Cavite.



Enrique Sinio, Calamba, Laguna, winner second place, contest No. 1.

## PROVINCIAL WINNERS.

*Manila.*

## Contest No. 2:

1. Leoncio Castillo, Manila.
2. Eugenio Mendoza, Manila.
3. Eufemio Pablo, Manila.

*Agusan.*

## Contest No. 1:

1. Juan Moday, Bunauan.
2. Florencio Polido, Bunauan.
3. Gregorio Guzman, Bunauan.

*Agusan—Continued.*

## Contest No. 2:

1. Eusebio Mambugsahan, Butuan.
  2. Matias Campello, Butuan.
  3. Simeon Manlomoyan, Butuan.
- Albay.*

## Contest No. 1:

1. Anselmo Palima, Guinobatan.
2. Lorenzo Oliver, Guinobatan.
3. Florencio Talavera, Ligao.

*Albay—Continued.*

## Contest No. 2:

1. Gregorio Pareja, Albay.
2. Lorenzo Oliver, Guinobatan.
3. Eugenio Lauraya, Ligao.

*Antique.*

## Contest No. 1:

1. Anacleto Alavanta, Laua-an.
2. Mauro Abiera, Dao.
3. Pastor Demabildo, Laua-an.

## Contest No. 2:

1. Juan Zerarso, San Remigio.
2. Maximo Encarnacion, San José.
3. Narciso Mision, San Remigio.

*Bataan.*

## Contest No. 1:

1. Gervasio Banzon, Balañga.
2. Estanislao Angeles, Moron.
3. Lazaro Bugay, Moron.

## Contest No. 2:

1. Fernando Tuazon, Balañga.
2. Manuel Paguio, Balañga.
3. Mariano Camacho, Balañga.

*Batangas.*

## Contest No. 1:

1. José Rosa, Lemery.
2. José Ricalde, Balayan.
3. Filoteo Ramirez, Lobo.

## Contest No. 2:

1. Emilio Mercado, San Juan.
2. José Lantin, Tanauan.
3. Dionisio Guerra, San José.

*Bohol.*

## Contest No. 1:

1. Higinio Café, Jagna.
2. Miguel Gabe, Cortes.
3. Monico Pintac, Dauis.

## Contest No. 2:

1. Eutiquiano Timosa, Duero.
2. Pablo Escobia, Anda.
3. Leoncio Cachapero, Guindulman.

*Bulacan.*

## Contest No. 1:

1. Julio Villena, San Miguel.
2. Alfredo Capulong, San Miguel.
3. Nicanor Trinidad, San Ildefonso.

*Bulacan—Continued.*

## Contest No. 2:

1. Nicanor Reyes, San Ildefonso.
2. Jorge Hernandez, Baliuag.
3. Amado Samson, San Ildefonso.

*Camarines.*

## Contest No. 1:

1. Mariano Asuela, Calabanga.
2. Eusebio Florentes, Magarao.
3. Benigno Cadores, Minalabac.

## Contest No. 2:

1. Pedro Rojo, Calabanga.
2. Pastor Besano, Milaor.
3. Pio Severo, Calabanga.

*Cavite.*

## Contest No. 1:

1. Florencio Ocampo, Santa Cruz.
2. Bonifacio Fojas, Santa Cruz.
3. Francisco Romero, Indang.

## Contest No. 2:

1. Francisco Romero, Indang.
2. Vicente Poblete, Naic.
3. Macario Maranan, Silang.

*Cebu.*

## Contest No. 1:

1. Jorge Otlang, Ginatilan.
2. Felix Bello, Alegria.
3. Marcos Alovro, Bantayan.

## Contest No. 2:

1. Simeon Rosos, Bantayan.
2. Vicente Castro, Medellin.
3. Bernabe Deliarde, Bantayan.

*Ilocos Norte.*

## Contest No. 1:

1. Pedro Silvestre, Batac.
2. Timoteo Pobre, Paoay.
3. Andres Tuladi, Batac.

## Contest No. 2:

1. Vicente Colomo, San Nicolas.
2. Alvaro Bagaosian, Batac.
3. Remigio Dulig, Batac.

*Ilocos Sur.*

## Contest No. 1:

1. Cipriano Barbosa, La Paz.
2. José Bargas, Bangued.
3. James Barry, Lagangilang.

*Ilocos Sur*—Continued.

## Contest No. 2:

1. David P. Barrows, Lagangilang.
2. Tomas Boce, Peñarrubia.
3. Simeon Montero, Narvacan.

*Iloilo.*

## Contest No. 1:

1. José Cabading, Leon.
2. Gregorio Pama, Passi.
3. Rufino Palabrica, Passi.

## Contest No. 2:

1. Melquiades Palmares, Passi.
2. Diego Sorongon, Santa Barbara.
3. Aurelio Palabrica, Oton.

*Laguna.*

## Contest No. 1:

1. Enrique Sinio, Calamba.
2. Canuto Manzanilla, Calamba.
3. Manuel Duran, Alaminos.

## Contest No. 2:

1. Catalino Alger, Calamba.
2. Enrique Sinio, Calamba.
3. Alberto Escala, Calamba.

*Leyte.*

## Contest No. 1:

1. Ambrosio Tomado, Ormoc.
2. Aniceto Pitas, Naval.
3. Pascual Hembra, Jaro.

## Contest No. 2:

1. Gerardo Quijano, Naval.
2. Francisco Perú, San Miguel.
3. Macario Galenzoga, Baybay.

*Mindoro.*

## Contest No. 1:

1. José Alveyra, Calapan.
2. Crispulo Arellano, Calapan.
3. Leoncio Bacay, Calapan.

## Contest No. 2:

1. José Alveyra, Calapan.
2. Crispulo Arellano, Calapan.
3. Antonio Barrientos, Calapan.

*Mountain.*

## Contest No. 1:

1. Juan Manganooan, Tagudin.
2. Juan Fontanilla, Sudipen.
3. Gregorio Massi, Sudipen.

*Mountain*—Continued.

## Contest No. 2:

1. Juan Manganooan, Tagudin.
2. Juan Fontanilla, Sudipen.
3. Gregorio Massi, Sudipen.

*Nueva Ecija.*

## Contest No. 1:

1. Leandro Padilla, Peñaranda.
2. Marcelo Domingo, Nampicuan.
3. Fausto Santiago, San Isidro.

## Contest No. 2:

1. David Villasan, San Isidro.
2. Pablo Sapang, Cabanatuan.
3. Mariano A. Diaz, Cabanatuan.

*Nueva Vizcaya.*

## Contest No. 1:

1. Bartolome Basongan, Bambang.
2. Sebastian Gumiran, Bayombong.
3. Santiago Depalma, Bambang.

## Contest No. 2:

1. Ruperto Fabia, Bambang.
2. Paulino Samiao, Bambang.
3. Tomas Veles, Bambang.

*Occidental Negros.*

## Contest No. 1:

1. Natalio Bumban, Bacolod.
2. José Cuachon, Binalbagan.
3. Francisco Quillamar, Soledad.

## Contest No. 2:

1. Tomas Teodoro, Bacolod.
2. Raymundo Claridad, Bacolod.
3. Rufo Borrromeo, Binalbagan.

*Oriental Negros.*

## Contest No. 1:

1. Roman Gador, Tayasan.
2. Simeon Orillana, Dumaguete.
3. Casimiro Valencia, Dumaguete.

## Contest No. 2:

1. Regino Tuban, Dauin.
2. Cipriano Putalon, Siaton.
3. Zoilo Balajan, Larena.

*Palawan.*

## Contest No. 1:

1. Tansa, Aborlan.
2. Aska, Aborlan.
3. Boyag, Aborlan.

## Contest No. 2:

1. Oting, Aborlan.
2. Takiang, Aborlan.
3. Tomas Tamarit, Taytay.

*Pampanga.*

## Contest No. 1:

1. Zoilo Galang, Arayat.
2. Ignacio Palacio, San Luis.
3. Ramon Gaddi, Arayat.

## Contest No. 2:

1. Esteban de Leon, San Simon.
2. Hilario Uybungco, San Simon.
3. Albino Tarozza, San Simon.

*Pangasinan.*

## Contest No. 1:

1. Vicente Meria, Asingan.
2. Romualdo Fontanilla, Asingan.
3. Alipio Vilerio, Asingan.

## Contest No. 2:

1. Pedro Visperesz, Mangaldan.
2. Vicente Agud, Sta. Barbara.
3. Evaristo Odon, Bayambang.

*Rizal.*

## Contest No. 1:

1. Catalino Año, San Mateo.
2. Felix Cruz, Malabon.
3. Victorino Domingo, Montalban.

## Contest No. 2:

1. Feliciano Buensuceso, Pasig.
2. Feliciano Paulino, Pasig.
3. Nicolas Roldan, Pasig.

*Sorsogon.*

## Contest No. 1:

1. Doroteo Correa, Sorsogon.
2. Amadeo Grafilo, Sorsogon.
3. Numeriano Bonifacio, Sorsogon.

## Contest No. 2:

1. Numeriano Bonifacio, Sorsogon.
2. Doroteo Correa, Sorsogon.
3. Federico Empleo, Sorsogon.

*Surigao.*

## Contest No. 1:

1. Pio Tuazon, Cantilan.
2. Eugenio Alapan, Cantilan.
3. Luis Ayarcon, Cantilan.

## Contest No. 2:

1. Severino Ayarcon, Cantilan.
2. Ambrosio Orgino, Cantilan.
3. Rita Ravelo, Cantilan.

*Misamis.*

## Contest No. 1:

1. Remigio Lugod, Gingo-og.
2. Mauricio Bacunga, Cagayan.
3. Bernardo Casoro, Baliangao.

## Contest No. 2:

1. Duhaylunsud, Baliangao.
2. Melecio Abuton, Oroquieta.
3. Isidro Gaita, Mambajao.

*Tarlac.*

## Contest No. 1:

1. José Reguindin, Paniqui.
2. Victor Paray, Paniqui.
3. Bernardo Bang, Pura.

## Contest No. 2:

1. Victor Paray, Paniqui.
2. José Reguindin, Paniqui.
3. Fausto Bagalay, Moncada.

*Tayabas.*

## Contest No. 1:

1. Guillermo Barreto, Gumaca.
2. Placido Nilooban, Mauban.
3. Dionisio Pera, Gumaca.

## Contest No. 2:

1. Placido Nilooban, Mauban.
2. Guillermo Barreto, Gumaca.
3. Gregorio Villate, Gumaca.

*Union.*

## Contest No. 1:

1. Felipe Caoile, Aringay.
2. Pedro Bonogo, Aringay.
3. Hermogenes Desesto, Balaogan.

## Contest No. 2:

1. Fermin Eisma, Santo Tomas.
2. Jaime Martinez, San Fernando.
3. Severino Mangaong, Aringay.

*Zambales.*

## Contest No. 1:

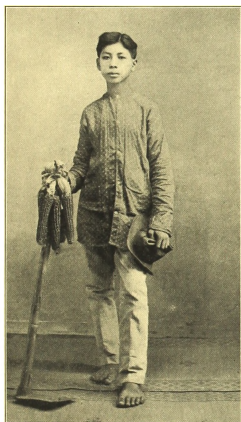
1. Antonio Gozon, Iba.
2. Leoncio Atienza, Iba.
3. Pedro Pamplona, Iba.

*Zambales—Continued.*

## Contest No. 2:

1. Francisco Duerme, Iba.
2. Martin de la Rosa, Iba.
3. José Abad, San Felipe.

In addition to the emphasis given the production of corn, its use as a human food was encouraged. The need for this part of



Florencio Ocampo, Santa Cruz, Cavite, winner third place, contest No. 3.

the corn campaign is clearly understood by students of home life in the Philippines. In many localities the use of corn is thought to indicate the poverty of the family. To better the food supply of the people it was necessary not only to increase the yield of corn, but also to increase its use as food. To this end, a series of corn demonstrations was held in the various municipalities and barrios where the people might witness the preparation

of various corn dishes and eat the food prepared. These demonstrations took the form of large popular corn demonstrations, the teaching of corn recipes in the domestic-science classes of the public schools, the serving of special corn lunches to invited guests, and the operating of food booths in the public markets. The extent to which the people were reached is shown by the 235 popular corn demonstrations attended by one-half million people, of whom 247,048 ate corn foods.



Emilio Aguinaldo, jr., son of General Emilio Aguinaldo, Kawit, Cavite, in his corn plot.

The fact that 6,660 Filipino girls were taught the preparation of corn foods means the rapid extension of the use of corn. Corn recipes in the local dialects were distributed in large numbers. Recipes tried out in the locality and liked by the people were used. Only the recipes involving the use of ingredients and cooking utensils available in the average Filipino home were distributed.

The value of the corn exhibits as a feature of the corn campaign is not to be overlooked, as 189 exhibits were held in various

provinces of the Philippines and attended by 137,438 people, who were in this manner interested in the quality of corn grown in the community and in the efforts being made to increase the production by means of better seed corn and thorough cultivation. Agricultural displays were included at 90 corn exhibits. These small "garden days" of the Bureau of Education will develop a desire for agricultural competition, and the organization of agricultural fairs as an essential factor in the agricultural development of the country will naturally follow. When such annual fairs are common throughout the Philippines as a feature of the provincial life, the people will look back upon the small agricultural displays, begun and carried out as "garden days" by the school-teachers, as an important step in the agricultural development of the Philippines.



A device for attracting attention.

What has been accomplished in the 1912 corn campaign is the beginning of the 1913 corn campaign, which includes all its important features and such improvements as are needed to insure the greatest success.

#### HARD WOODS TREATED BY BURYING IN LIME.

A special treatment of native woods for use in the better grades of furniture has been tried with success in Germany. Freshly cut birch, oak, elm, pine, or spruce is buried in earth mixed with lime and other materials and left for from three to five months. A remarkably fine color is imparted to the wood so that it can be used without painting or staining, and after this treatment it has practically no tendency to shrink or swell. (Popular Mechanics.)



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## HANDICRAFT WORK IN THE PHILIPPINES.

[The following abstract of the achievements and plans of the Bureau of Education was prepared in the General Office at the request of Ex-Governor-General W. Cameron Forbes upon the eve of his departure for the United States. It attempts to show in tabloid form the conditions that must be considered in the carrying out of our industrial policy and the efforts that have been made to meet them.]

### I.—CONDITIONS WHICH HAVE DETERMINED THE CHARACTER AND SCOPE OF INDUSTRIAL INSTRUCTION.

#### (A) CAPACITY OF PEOPLE TO WORK WITH HANDS.

When the officials of the Bureau of Education determined to include organized industrial instruction in public-school activities, it became necessary, in order to institute and administer the system intelligently, that information of a general and local character be gathered and compiled. It was known that Filipinos possessed great ability for fine work with the hands and that they enjoyed such work, but many other data were necessary before definite policies could be formulated and advice and direction given the field. The organization of the Bureau is such that a competent representative is stationed in every town and it was through these teachers and supervisors that the necessary information has been obtained.

#### (B) ECONOMIC CONDITIONS.

The first subject to be investigated was that of economic conditions. The activities of the people in various parts of the Islands, the amount of their income, their products, routine of life, and such subjects were investigated, and the information digested and compiled. Certain of these data have been published in *The Materials of Commerce for the Philippines*, Bureau of Printing, Manila, and in *Economic Conditions in the Philippines*, Ginn & Co., Boston.

#### (C) EXTANT HOUSEHOLD INDUSTRIES.

Through these and special investigations the extant household industries were located and studied. Their size, the raw materials utilized, methods of manufacture, designs, and the systems of gathering and disposing of the products have all been determined. The character of these data may be determined from

THE PHILIPPINE CRAFTSMAN and special publications, such as Bureau of Education Bulletin No. 33, Philippine Hats.

(D) LOCAL RAW MATERIALS.

One of the most successful pieces of work was the gathering and the study of local raw materials, particularly fibers and dye materials. Bureau of Education Bulletin 49 (now in the hands of the printer) will discuss the fibers and their uses, but some idea of the work accomplished may be obtained from Bureau of Education Bulletin No. 46.

(E) PHILIPPINE DESIGNS.

From its inception, the commercial and artistic value of industrial work has been reduced by lack of utility and artistic merit in many of the articles made. After a thorough study of handicraft articles in the industrial museum of this Bureau and the ethnological museum of the Bureau of Science, and of hundreds of drawings submitted from all parts of the Islands, it has been found that whatever of art the Christian Filipinos may have possessed has been practically exterminated by Spanish culture. Even articles made by them purely for native consumption are decorated with modern commercial designs. The decoration of textiles is nearly always commonplace and of modern aspect. Most of the baskets are without decoration. The art of embroidery, introduced by Spanish nuns, reached a high degree of excellence in technic, but whatever was superior in design seems to have left no lasting imprint upon the needle craft of the Philippines. It is only occasionally that we meet with specimens of any value for design, and these are always found among the oldest work. Only in the wood carvings on bolo handles and the bows of boats is the Malayan type of ornament generally preserved entire by the Christian Filipinos. It is among the non-Christian inhabitants (the "wild" tribes) that Malayan decorative art is still preserved in weaving, basketry, wood carving, and a few other crafts. The Mandayan hemp skirts of Mindanao are among the articles of special merit.

II.—CHARACTER OF THE WORK NOW BEING CARRIED ON.

(A) ESTABLISHED INDUSTRIES.

The industrial instruction now being undertaken includes two classes of products—those of established industries and those of introduced crafts. With respect to established industries, our problem is to improve, to extend, and to commercialize the manufactures.

1. *Hats*.—The export hat industry has been an established commercial one for some time, and in the last few years several foreign firms have capitalized it heavily. Our problem has therefore been to extend the hat industries beyond the towns to which they have been confined and to hold them to a high standard of quality. In this connection it must be noted, however, that the market for fine hats is extremely limited in the United States. Few Philippine hats can be retailed, blocked, for more than \$5.

2. *Mats*.—Philippine mats are still woven almost entirely for domestic consumption. Our problem is to improve the designs in these, to encourage the use of better dye materials and more pleasing color combinations, to find a market in the United States for the export of surplus mats, and to design for the Filipino home and the foreign market other articles which can be made from mat materials in mat weaves.

3. *Textiles*.—Philippine hand-woven textiles are produced almost entirely for domestic consumption. In general, Philippine textiles are too stiff to be used for foreign dresses. They do not hang gracefully. It is realized that there will be a small foreign market for textiles in unique design and weave. Several such textiles are found among the non-Christian peoples of the Mountain Province and they will be preserved, as far as possible, and their form commercialized. Other tribes, among whom beautiful weaving is done (such as the Mandayans of Mindanao), are not as yet within the influence of the schools. The unique textiles of the Christians are being preserved, and we are introducing, through the public schools, the weaving of Manila hemp and other Philippine fibers on hand looms. Such fibers cannot be woven commercially on power looms. We are also trying to determine what weaving industries should be assisted and encouraged in competition with imported machine products. The Bureau is encouraging the introduction of sericulture and the weaving of silk. Our greatest problem is to improve the Philippine loom. The one used is very crude. The flying shuttle is now being introduced.

4. *Embroidery*.—The present great development in the manufacture of waists, robes, and other articles on pearline lawn is almost entirely the result of commercial effort. It is natural that this material was used, because it possesses the fine qualities of the Philippine pineapple cloth without having the stiffness of the latter fabric, and because it can be obtained in commercial quantities. Two facts must be noted concerning this embroidery

business: (1) That it is confined to the environs of Manila and (2) that of late it has been exploited for the United States trade and the standard of quality very greatly lowered. The Bureau of Education, through the School of Household Industries and the embroidery classes in the regular course, is attempting (1) to extend the embroidery industry to all favorable localities, (2) to counteract the tendency toward cheap work and sweatshop methods, (3) to introduce new forms of embroidery on various materials, and (4) to revive the old work on piña. Through the Sales Agency (a Government institution) the Insular Government has provided a medium of disposing of Philippine handicraft products and of protecting the workers against exploitation. Bureau of Education Bulletin No. 45, on the School of Household Industries, gives information on this point.

5. *Pottery*.—Most of the pottery used in the Philippine homes is made locally. It is very crude. The Bureau of Education has recognized the opportunities for advancement in clay work and has organized a ceramic department in the Philippine School of Arts and Trades, besides providing a place for pottery in the regular course. (See *THE PHILIPPINE CRAFTSMAN*, Vol. I, No. 7.)

6. *Other extant industries*.—Besides the above industries there are several others of very minor importance, such as broom making, slipper weaving, and wood carving. The products are used locally.

#### (B) NEW INDUSTRIES.

In addition to extending the extant industries the Bureau is also introducing new crafts, for the most part utilizing local raw materials.

1. *Basketry*.—The most important of the new industries is basketry, because so many and varied materials are available for it. Baskets now made in the schools are native and foreign in type. The style has depended largely on the material at hand, and great variety and individuality have resulted. In some cases American teachers deliberately adapted available materials to the fabrication of Indian and other types of baskets. The most important type, the Polangui, is a direct outgrowth of natural colored materials available, and originated in the schools. Other types are modifications of baskets made by hill tribes and lowlanders. Most of the weaves employed in our baskets are known to Filipinos, but we are now especially encouraging the typical Philippine weaves. Our aim in basketry is to produce salable

articles of utility and beauty. Volume I, No. 1, of the THE PHILIPPINE CRAFTSMAN presents our most important types of baskets. The Bureau of Education is now controlling both the form and design of baskets as later explained.

2. *Miscellaneous articles.*—The same local raw materials are well adapted to the making of a great variety of other articles, including slippers, fans, bags, and brooms. Our policy with respect to these is the same as that for baskets.

3. *Furniture.*—In furniture construction, two fields are noted—one for furniture adapted to Filipino homes, and made of wood, bamboo, and rattan; the other utilizing the fine cabinet woods and turning out articles for foreign use.

4. *Lace.*—Lace requires imported materials. The making of several different kinds has been introduced into the schools with considerable success. From a financial standpoint the value of lace making seems doubtful. The industry seems to be in the line of least resistance in handicraft work, and so many countries are taking it up that the world's market is oversupplied and low prices prevail.

#### (C) ASSISTANCE RENDERED THE FIELD.

1. *Investigation.*—The Bureau of Education is constantly investigating new industries (those extant have been covered in the first part of this memorandum), local materials, and markets, and forwarding data to the field in correspondence, bulletins, and THE PHILIPPINE CRAFTSMAN.

2. *Designs.*—As one pursues the subject of applied design of Philippine origin it becomes quite evident that the Philippines affords a much less abundant amount of ornament than other Malayan countries. Whether this is due to the fact that craft work has never reached the standard here that it has in other countries, India for example, or to its having been depleted through many changes in cultural conditions, is a debatable question. However, the fact remains that Malayan ornament is the rightful heritage of the Filipino people, which may be drawn upon without fear of that injurious effect which results from copying the art of an entirely foreign people. Moreover, we agree with the authorities of the National Museum, Washington, D. C., that art is no longer national but individual and that it is no longer possible to confine certain types of designs to a given cultural area. It is therefore our purpose to take from the field of art what seems to us meritorious and adapt it to our products in such a way that designs commercially identified with the Phil-

ippines will result. Designs are being constructed in the General Office and supplied to the field together with the proper color combination. Two distinct classes are being worked out: (a) Designs not distinctive of the Islands, to be used in woodwork, embroidery, and lace making—crafts not original with the Philippine people; (b) designs distinctively Malayan in type, to be used in wood carving, basketry, mat, and other weavings—aboriginal crafts. Designs for the first class are again divided into so-called art and commercial designs, the former being original designs, aimed to have distinction and art value in addition to their commercial value, and the latter being copied from European or American designs with a purely commercial purpose in view. Both classes of designs are originated or selected, copied, and adapted in the General Office, and blue prints of the same, with full instruction for color schemes and fabrication, sent to the field. (See *THE PHILIPPINE CRAFTSMAN*, Volume I, No. 6.) This work is carried on by trained American designers and a corps of assistants.

3. *Dyes*.—A close study of Philippine native vegetable dyes has determined that they are very unsatisfactory. Most of them are expensive when time is considered, very fugitive in light and water, and not dependable for color tone. The colors produced are often garish. The only entirely satisfactory colors yet noted are those on the Mandayan skirt cloths and the dye material employed in these has not yet been determined. It has been discovered that the poor colors found in many Philippine craft products result from the cheap mineral dyes employed. Some contain only 5 per cent dye matter. This Bureau has therefore established direct communication with German dye factories and proposes to supply the schools and craft workers with the highest qualities of dyes in such form that they can be easily and quickly utilized. Moreover, the Bureau is seeing that only good colors are provided and that these are used in pleasing combinations by the workers. Just as they have lacked designs, so have they lacked good ideas on color combination suitable for foreign markets. Hence, the Bureau has limited embroidery to white thread on white cloth. Certain types of baskets are made with natural colored materials (browns, grey-greens, and yellows) and no restrictions need be placed on these since the colors cannot be used in other than pleasing combinations. Where dyed materials are employed the use of the neutral natural color and one dyed color and its tones is prescribed except in the official designs, for each of which the color scheme is

carefully worked out. While it has thus been found necessary to stifle individuality in color combination, it is hoped that the example of good combinations and the instruction given in the schools will ultimately result in Filipinos' obtaining correct ideas on this subject.

### III.—SOME OF THE GREATEST PRESENT PROBLEMS.

#### (A) MAGNITUDE.

The scope of industrial instruction in the Philippines, therefore, does not consider the production of a few hundred baskets, the weaving of a few bolts of cloth, and the making of a lot of novelties for local sale and export to the limited number of small exclusive shops in the United States. Its ultimate purpose is the household production of articles in large export quantities, in order that the people may add to their present meager income from agriculture. The fact is not lost sight of that the real product of the public school is the pupil trained to take his place as a useful citizen in the fullest capacity.

#### (B) INTRODUCING INDUSTRIES FROM THE SCHOOLS INTO THE HOUSEHOLDS AND ESTABLISHING MARKETS FOR THE PRODUCTS.

The activities of the Bureau have up to this time been chiefly concerned with the training of pupils to make a large variety of articles with the idea of introducing their making as household industries. The introduction of these industries in households and the disposal of product are now receiving first attention. Bulletin No. 45, *The School of Household Industries*, indicates how embroidery and lace making are, through the training of adult women, being introduced into the homes over a wide area. Special industrial schools are accomplishing the same results for a smaller area in Irish crochet and sericulture. The problem, however, is by no means solved by these schools. The graduates from them cannot be left to their own resources. They must be directed by some competent and responsible agency, working in connection with the Bureau of Education and in touch with fashion and commercial houses of the United States and Europe. This agency should secure the markets, help graduates and other competent craftsmen to organize a corps of workers, provide them with orders to execute, and buy the products and dispose of them. It should try out and determine the salability of articles originated in the schools and give this Bureau advice on improving its products and on the introduction of new articles. If necessary it should be in a position to place its own agents in

towns to instruct workers in the manufacture of certain products and to buy of them direct. The ultimate purpose of this agency should be to turn over these industries to private capital but it should always exercise enough control over them to maintain quality and variety and to protect the workers from exploitation.

(C) MAINTAINING QUALITY.

It is evident that pressure for lower prices in the United States and the action of a certain class of shortsighted merchants in the Philippines will tend to lower the quality of Philippine products. This result is already noticeable in embroidery. Philippine embroidery and hats have always enjoyed a reputation for quality and this should be maintained. Also the initial standard of quality for new export products should be high and should be kept high. This is easily accomplished as far as the schools are concerned. Filipinos take great personal pride in the results of their hand work and the schools have found no difficulty in maintaining a high standard of workmanship in industrial instruction. In fact, the standard has been so high that it has not been commercial; that is, the articles have been of such fine workmanship that the markets of the United States would not accept them at a price remunerative to the workers. Nevertheless, the educational value of this procedure is of prime importance, and on this account only the very finest workmanship is encouraged in the regular course. There is undoubtedly a commercial limit of fineness, beyond which the standard of quality of household products cannot be raised. Our standard, however, should be maintained at that limit, and this should be accomplished through the commercial agency above noted. The products sold direct from this agency to the markets would have some effect on maintaining quality but it is believed that just as the Government regulated the Philippine cigar export to the United States so should it regulate the export of handicraft articles and guarantee their quality to purchasers. Otherwise senseless and shortsighted competition will reduce the quality of the Philippine product and destroy its reputation.

(D) PREVENTING EXPLOITATION.

This same agency could also guarantee the workers full measure of reward for their labor. The same pressure tending to reduce quality will tend to lower the wages of paid workers. This could be counteracted if the agency stood ready to purchase products direct from workers or their agents. In this manner



a minimum list of prices could be maintained and a minimum wage guaranteed the workers who would sell to the agency rather than accept less remuneration from export merchants, should the latter attempt to reduce wages.

(E) STANDARDIZING.

The standardization of our articles must be accomplished in order that they may be salable through the channels of trade. Standardization must be effected with respect to the shape, quality, and design of articles. The standardizing of designs and the identification of them with the Philippines have already been discussed. The Bureau is also planning to standardize the form and quality of articles found commercially sound. However, it is not intended to limit industrial instruction to these standard articles, for otherwise originality will be prevented and individuality stifled.

(F) CENTRALIZING.

Where economic conditions are favorable and workers and raw materials exist, the Bureau plans to focus the efforts of the community on one craft. This is done by prescribing the articles to be made in the schools and by establishing special schools in the community where adults are taught the craft.

(G) FASHION.

The question of fashion is a most important one and can be solved only by close relations with the markets of Europe and America. In the meantime we propose to evolve articles so typical of the Philippines and of such high qualities that their sale will be affected by fashion only in limited degree.

IV.—SUMMARY.

Filipinos possess only the fundamentals for handicraft work, i. e., fibers and great dexterity. By providing designs, colors, and models and closely supervising and directing the work, it is hoped to build on these fundamentals great handicraft industries.

This memorandum discusses handicrafts only. They are but a part of one general program of industrial instruction, the scope of which is indicated by the appended extracts from the Thirteenth Annual Report of the Director of Education.

[Extracts from the Thirteenth Annual Report of the Director of Education, Manila, 1913.]

The program of industrial instruction for the public schools has been carefully worked out and includes most of the important Philippine industrial activities. It covers seven years of work—the four years of the

primary course, and the three years of the intermediate courses—and provides instruction in agriculture, domestic science, needlework in its various forms, weaving of Philippine fibers, and work in wood, iron, and clay. No provision is made for passing pupils through the primary and intermediate grades without some industrial instruction. In general it may be said that the industrial work of the two lower primary grades consists of weaving for both boys and girls, sewing for the girls, and gardening for the larger boys. Work along similar lines is further developed in the last two years' work of the primary grades.

Specialization is begun at once in the intermediate grades. Six courses are provided—the general course, the course for teaching, the course in farming, the trade course, the course in housekeeping and household arts, and the course in business. The general course, although it is more purely academic than the others, still provides for industrial work in every grade.

Under the direction of the division superintendents of schools, 736 teachers give their entire time to industrial work. Of these 32 are division industrial supervisors and assistants, 115 are domestic science teachers, 101 are trade school and shop teachers, the remainder being instructors in the various lines of handicraft. In addition, several hundred other teachers give part of their time and attention to industrial instruction. As a result of this organization every school in the Philippines, except the 37 schools offering secondary instruction, gives industrial work in one form or another. The results secured by the consistent following of the industrial program during the past three years are most satisfactory. The quality of the work is improving very rapidly. The following figures give some idea of the extent of this instruction.

For the school year 1911-12, 91 per cent of the February monthly enrollment of pupils were doing some form of industrial work. During the past year stricter compliance with the requirements has brought this percentage up to 93. A portion of the 7 per cent not engaged in industrial work is found in the secondary grades. The remainder represents the lowest grades, for which work has not yet been provided. This means that practically every pupil in the primary and intermediate grades is learning under intelligent direction to do something with his hands—a condition sought by up-to-date school systems everywhere.

In this year, 19,956 boys were taking the trade and shop work; 100,648 boys were engaged in gardening and farming; 12,969 girls were taking the gardening work; and 83,193 girls were studying housekeeping and household arts. Among other crafts and industries we find 12,993 girls learning lace making; 12,625, embroidery; 6,660, cooking; 10,456 boys and 3,031 girls were making hats; 29,527 pupils were studying mat making; and 73,835 were working on baskets.

Of particular interest is the showing made in the extension of gardening from the schools to the homes of the people. Three years ago, with the exception of one or two provinces where this work got its first start, home gardens were practically unknown. For the school year 1911-12 this office was glad to be able to report 22,958 home gardens, about two and one-half times the number reported for the preceding year. The 1912-13 school year shows a further increase of 50 per cent over the above number, or 35,719 gardens cultivated by pupils themselves at their homes, and modeled closely after the plots which they worked in the school gardens. There were 2,310

school gardens during the past school year, practically the same number as for the preceding year.

Without question, the garden feature of the school program is largely responsible for the marked improvement in the quality and quantity of fresh vegetables now available in the public markets all over the Islands. This work logically leads up to the course in farming, which this Bureau is endeavoring to establish in at least one farm school of approved size (10 hectares) in each province.

The number of provincial trade schools has been increased from 5 in March, 1909, to 18 in June, 1913. In addition to these standard trade schools, in which 1,211 pupils were enrolled, there were 121 intermediate school shops in which 832 pupils took the regular trade course, and 2,620 other pupils received some instruction in woodworking during the school year 1912-13. Twenty-three of these shops are equipped with woodworking machinery.

The eighth annual exhibition for the industrial work of the public schools was held in connection with the Philippine Carnival in Manila from February 1 to 9, 1913. Some 23,305 units of work, worth ₱57,183.24 were displayed, as compared with 16,362 units, worth ₱34,418.68, for the preceding year. Of this exhibit ₱40,113.53 worth was sold as compared with ₱25,777.08 sold the preceding year. This exhibit not only gave to the thousands of people who saw it an idea of the industrial work done by the public schools, but also gave to many Filipinos their first definite idea of the industrial and agricultural possibilities of their country. The profits of this work, a large part of which went to the pupils themselves, will further serve the purpose of showing them where they may direct their energies most profitably.

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#### BANANAS AS FOOD.

A recent report from Agusan states that the Settlement Farm Schools for Manobos and Bukidnons now have under cultivation 10,800 banana plants and an equal number of papaya trees.

The production of bananas is being pushed by the school authorities of this section and large numbers of young plants are being distributed to the parents of the schoolboys. In a few years this excellent tropical fruit will aid materially in increasing the food supply of the people. The 11,000 plants grown at the schools alone will produce each year 11,000 bunches of bananas besides some 20,000 young plants for further distribution. This line of work deserves the support and encouragement of all officials.

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## THE VEGETABLE EXHIBITS OF THE BUREAU OF EDUCATION.

By NORTH H. FOREMAN, Inspector of School Gardens and Sites.

The farm and garden products at the 1913 industrial and sales exhibition were indicative of the amount and kind of garden work which is being done in the regular industrial classes of the public schools. To understand the advance during the past school year thoroughly, it is necessary to compare the last vegetable exhibition with those of former years.

From the very first exhibit of industrial work of the Bureau of Education, vegetables and fruits have been included. Previous to the year 1911, the products consisted of *papier-mâché* imitations of actual fruits. The grotesqueness of seeing these scattered among the other articles in the various booths of the earlier exhibitions is more fully comprehended after a visit to the Santo Tomas museum in Manila, where such vegetables are still to be seen. The first real exhibit of agricultural products was made in February, 1911, in connection with the industrial exhibition of the Bureau of Education. The size of this exhibit can best be judged from the fact that a single upturned packing case was used for a display rack. The meagerness of this exhibit, which was simply an experiment to determine the advisability of attempting an agricultural exhibit, was entirely overlooked on account of the excellent products displayed. Although these products came from but one school, the Batac Farm School, they were the first of the kind ever exhibited in Manila and consequently brought forth many favorable comments and press notices. The feasibility of having a representative display of garden and farm products was demonstrated, and definite plans were adopted for making this one of the important features of subsequent exhibitions. At the 1912 exhibition the people saw a larger and better display of garden and farm products. In addition to the general vegetable rack for products from school and home gardens there were a number of individual exhibits, maintained by special schools. Forty times as much space was used as in the previous year. The interest of the general public in the exhibit is shown by two or three incidents, which, while somewhat amusing, showed the incredulity of the public regarding farm and garden products of the Philippines.

An old Spaniard, who had probably spent the larger part of

his life in the Philippines, visited the agricultural section and was much interested in the fine tomatoes and other products displayed. On his first visit he attracted attention by his outburst of enthusiasm over the different displays. On the afternoon of the same day, he returned to the booths with three or four companions. The group attracted the attention of the writer and he endeavored to explain the many features relative to this line of industrial work. The entire exhibit was gone over, but the main point of interest was the tomatoes. Several times the Spaniard



The 1910 Agricultural Exhibit.

remarked that it was most excellent work for school children to make such *papier-mâché* products. It was explained that the tomatoes were grown in school gardens. This information was received with considerable doubt. It was seen by their faces that the visitors questioned the statement. One of the best tomatoes was handed to the old gentleman, and he was requested to insert his thumb into the juicy contents until he was convinced that it was a real edible tomato.

Another incident is recalled which also demonstrated the general interest. An old priest who had been thirty years in Mindanao was paying his second visit to Manila. He insisted

that he be given one of the tomatoes for seed purposes. Hundreds of such requests for fruits for seed were refused daily. But the fact that the old priest returned twice after being refused was assumed as a justifiable reason for breaking the general rule, and he was given two of the tomatoes. It was suggested that the tomatoes be opened and the seeds removed, but he requested that he be given the entire fruit as he wished to show them to fellow priests with whom he was staying. His genuine gratefulness was unmistakable and he represented only one of the many who by the exhibit were turned into firm believers in practical industrial work in the public schools.



1911 Agricultural Exhibit (half section).

At the exhibition held in Manila, February 1 to 9, 1913, space equal to four times that of the previous year was used for the display of agricultural products. The collection of vegetables was much more complete and represented 33 of the 37 provinces in the Philippines. The products exhibited contained better individual fruits and a larger variety than any previous exhibit. Although the products were not offered for sale, this section was constantly thronged with visitors, who not only saw the exhibit but asked intelligent questions concerning the products.

Five features of the agricultural education given in the schools were shown. Such special schools as the Indang Farm School, Iba Farm School, Batangas Farm School, Bukidnon Agricultural

Schools and Settlement Farm Schools, Philippine Normal School, and the Manila city schools maintained exhibits which were indicative of the actual work being done at these schools.

The display of seedlings and cuttings secured from the Tanauan intermediate school nursery indicated the emphasis which this line of agricultural work is receiving in the different provinces. In this connection it should be noted that the Bureau of Education has in operation some 80 nurseries which are devoted to the improvement and distribution of the best varieties of native fruits.



1912 Agricultural Exhibit (half section).

Closely associated with this exhibit of seedlings was a complete display of edible fruits common to the Philippines and available at that date. These were shown in a booth adjoining the nursery stock and included practically every edible fruit in the Philippines which is ripe during the month of February. The fruits were of such excellence that they surprised even those who are the most conversant with the varieties and distribution of fruits in the Philippines. The small basket of grapes secured from Cebu attracted a great deal of attention, as most people do not know that this excellent fruit is grown to a limited extent in the Philippines. The exhibit also contained the largest coconut ever exhibited in Manila. This coconut was grown on the island

of Marinduque and was presented to the College of Agriculture at the close of the exhibition.

The actual work of the school and home gardens was shown in the products seen on the large display rack for vegetables. Vegetables too numerous in variety and kind to list in this article were displayed throughout the exhibition. Included were all classes of vegetables which characterize the actual garden work of the Bureau. The tomatoes and peppers of this section attracted the most attention, although the exhibit of native roots and dry seeds received a large part of the study given the exhibit by people interested in securing information as to Philippine resources. In this connection it is interesting to note that several groups of Chinese and Japanese, who presumably represented both visitors and merchants, devoted considerable time to this section. On two occasions groups of young men who formed the Japanese athletic contingency in the Far Eastern Olympiad visited this section and made a close study of both native seeds and root crops. They brought their notebooks and made numerous entries. It is believed that these young men made the closest study of the products of any visitors. On another occasion a group of Chinese, among whom were recognized two or three of the Chinese athletes entered in the Far Eastern Olympiad, devoted some time to the seed and root section. They were also attracted by the fruits displayed and by the work of the several farm schools, and asked numerous questions concerning the types of agricultural schools and the way they were conducted.

Exhibits incident to the 1912 corn campaign, which was the special feature of the agricultural work of the past year, were shown in a series of booths. These booths contained the final corn exhibit of corn-growing contest No. 2, and a series of exhibits demonstrating all points pertaining to the growing of corn and its preparation as food. This section attracted a great deal of attention, and awakened much interest in the efforts of the Bureau of Education to extend the production of corn and to encourage its use as a supplementary food staple.

That many palatable and most excellent dishes can be prepared from corn was demonstrated at the daily free service of corn foods prepared with such ingredients as are available in the ordinary Filipino home. During the exhibition 15,000 people were served samples of corn foods by Filipino girls trained and directed by an American instructor.

Several noteworthy incidents of this year's exhibit were reported. One of these was that a Filipino farmer from southern



Tayabas presented a sincamas which he wished to exhibit, as it was the largest and best sincamas ever grown in his community. This man, when questioned as to why he brought the sincamas, stated that he had read in one of the Manila papers that the Bureau of Education was placing an exhibition of agricultural products and as his sincamas far exceeded the others in his town, he had brought it in with him for the purpose of demonstrating the excellent products of his community by exhibiting it. While the Bureau of Education's exhibit is intended to demonstrate the work in agriculture given in the public schools, the sincerity of this man, in his simple endeavor to aid in the success of such an exhibit by journeying three days with a sincamas, shows the interest which an agricultural exhibit can arouse. While the incident is small in itself, it represents an attitude toward agricultural development that is very wholesome. It clearly demonstrates that properly organized agricultural fairs, both of local and Insular importance, could well be encouraged.

The frequent requests for fruits for both seed and food purposes showed so much interest that it was a matter of regret that the requests had to be refused in order to maintain an exhibit. A well-dressed American lady who had twice been refused a tomato presented herself for the third time and insisted to such an extent that one was finally given to her. Regardless of danger to her gown she walked away eating the tomato in the same manner and with the same apparent relish as an American boy eats an apple.

An agricultural section is planned as a part of the 1914 industrial and sales exhibit of the Bureau of Education to be held in connection with the Second General Philippine Exposition. The exhibit will contain the same general features as the one of last year and will occupy about the same space. The only change to be noted is that the special booth of Philippine fruits will be replaced with a special exhibit of dry seeds. This is in line with the present policy of making a special exhibit each year of some one product and thus giving students of economic conditions an opportunity to make a study of the actual food supply in the Philippines. The recent construction of two boxes for storing corn in order that the corn exhibits for Contest No. 2 may be properly preserved has been accomplished. The winning corn exhibits from a province can now be submitted to the General Office as soon as the exhibit is ready with full assurance that the corn will be properly placed in good condition at the final exhibit.

The agricultural exhibit is placed only as the result of much work on the part of the field employees of the Bureau of Education. The very nature of such an exhibit precludes its being prepared in advance. It is to be noted that many sections of the Philippines are as remote from Manila in point of time as Europe is from America and to place an exhibit of perishable products in Manila is as difficult to accomplish as to place an European exhibit in America. That it can be done has been demonstrated by our past exhibit, where products were displayed which arrived in fair condition after being ten days en route.

That the Bureau of Education is accomplishing much by the present system of school and home gardens and by the introduction of farms in both Christian and non-Christian localities, is recognized. For every product shown in the exhibits hundreds just as good were grown during the year in the different parts of the Philippines, and constituted the actual work of the school year in this important school industry.

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#### COMMENTS ON BUREAU OF EDUCATION.

Mr. Perley Q. Howe, president of the Kamehameha Schools, Honolulu, writes as follows concerning the industrial education in these Islands:

The efforts you are making toward training the pupils along industrial lines that they can follow at home merits every encouragement. I have no doubt that the training of these young people will not only develop the present industrial system of the Islands, but also would create new desires and so offer new opportunities for still greater development.

A letter has also been received from Lister H. Dewey, botanist in charge of fiber investigation, Department of Agriculture, Washington, D. C. Mr. Dewey writes that the campaign for education regarding the products of the manual trades in the Philippines seems to be making progress in the United States and is almost certain to result in a popular demand for hats and other articles that are made in the Islands.

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## THE OUTPUT OF PHILIPPINE PUBLIC SCHOOLS.

By AUSTIN CRAIG, Assistant Professor of History, University of the Philippines.

Such a subject suggests statistics, forebodes figures and facts. The articles made in the public schools are almost as various as the wants of tropical man, for thus broad is the field that the education aims to cover. This article, however, will not deal with iron manufactures, or furniture, or cloth, or hats, mats, and baskets, or vegetables. It will consider only the boys and girls, more or less educated, who work the iron, construct the furniture, weave the cloth, make the hats, mats, and baskets, plant the vegetables, raise staple crops, and engage in many other useful activities, some simpler and others more difficult in their progress from the first to the seventh grade. Qualities and not quantities, capability instead of measure and value, only will enter into the discussion. Time, and not (newspaper) space, is needed to estimate the achievement—to show how distant or near are aim and accomplishment.

What is the purpose back of the present plan? The schools are industrialized from the bottom to top, all through the Bureau of Education. Are, for instance, classes of hat makers every so often to be turned loose in the community; carpenters less frequently in smaller number; and, still rarer and at long intervals, mechanical engineers to be graduated? The answer is that there is no such foreordination; the craftsmen and housekeepers, the needlewomen, mechanics, draftsmen, and engineers are by-products in the making of Philippine citizens. This is now a democratic land, with the only real equality there is (that of opportunity) afforded by American public schools, just as in continental America. Every boy or girl has at every step, or grade, the preparation requisite for advancement to the next higher grade and, these grades accomplished in turn, the course as a whole fits for the most exalted positions in life. Every child is to take his place as a useful citizen in the fullest meaning, with his chance depending upon himself and his (mental, moral, and physical) endowments, and not upon fortune or favor. When he finds himself unable to advance toward his ambition, or ceases to aspire further, he drops out without disgrace, not a failure, but fitted to achieve and maintain a position in society suited to his attainments, above the unskilled laborer and, in the average, above his fellows who have stopped earlier.

An examination will show how the various activities fit into one another, each preparing for the next, and none dwelt on longer than is needed for the mastery of its essentials, yet always requiring only practice to give the expertness which insures employment or capacity to produce marketable articles sufficient for a livelihood. Incidentally, there is suggested that it is not a part, but an abuse, of the system that some instructors keep pupils on work long after they have mastered it just for the sake of the slight profit that goes to the pupil. Of course, the pupil owes a return to his school, but to hold him back in order to swell an insignificant bank balance is unbusinesslike, for by the time the cost of education is added to the net financial return such labor will be found too high for any use except making the barest number of articles needed for learning.

The industrialized system of education is not only of advantage to the very large majority who fall by the wayside, but is also the best for the few who do get through. Only because the learned professions (so-called) and literature are getting to be held in less esteem through the attraction they seem to hold for the indolent, mediocre, and snobbish, has so little been heard of the truism that he who observes, reasons, and has skilled hands as well as memorized facts is the superior of him who has only memorized facts.

Said Doctor Belfield:

My opinion is that an hour in the shop of a well-conducted manual-training school develops as much mental strength as an hour devoted to Virgil or Legendre. I am satisfied that three years of a manual-training school will give at least as much purely intellectual growth as three years in the ordinary high school, because every school hour, whether spent in the classroom, the drawing-room, or the shop, is an hour devoted to intellectual training. I am convinced that the manual-training school boy's comprehension of some of the essential branches of knowledge will be as far superior to that of the ordinary high school boy's as the realization of the grandeur of the Alps of the man who has seen their glories is superior to the conception of him who has merely read of them.

In speaking of conditions in the United States, Francis A. Walker states the case for the Philippines still more exactly:

If we ask a boy to take his place at a carpenter's bench, it is not that we wish to make a carpenter of him, but that we wish to make him more of a man. We know that there is only one chance in fifty that he will use the saw, the chisel, the plane, the hammer as the tools by which he earns his bread; but if he has had proper training in their use he will carry to his work in life, whatever it may be, not only a better hand and a better eye, but also a better mind, a mind more perfectly filled and rounded out on all sides.

The Philippine practice would seem to have the advantage over the ordinary manual training that nothing is made merely for the making and then thrown away, but every article must have either personal usefulness or marketability.

The same magnificent opportunity that education has had in Prussia and in Japan, of making over a nation, is here offered. Let us hope that the output of the schools will be what it now promises—a people zealous for peace rather than war, industrious, prosperous, intelligent, democratic, and united.

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#### EDUCATION IN CHILE.

Chile has a total population of 3,250,000. The total number of pupils enrolled in the public schools is 117,951 boys and 125,980 girls. The appropriation for public instruction for 1912 was \$8,864,199. Mr. Alfred A. Winslow, American consul at Valparaiso, states that for several years the Government has conducted an agricultural and manual-training school at Santiago and several commercial schools in larger cities, but so far very little attention has been given to manual training in the public schools. A small amount has been set aside in the last appropriation to be used in Valparaiso and Santiago as a test in the establishment of manual training.

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#### COMMENTS ON THE PHILIPPINE CRAFTSMAN.

J. Howard Renshaw of the Apprentice Continuation School, Cincinnati, Ohio, writes that he greatly appreciates *THE PHILIPPINE CRAFTSMAN* and the only suggestion he has to make in respect to its improvement is to enlarge it.

Mr. H. V. Brill, superintendent, New York Trade School, states that he finds *THE PHILIPPINE CRAFTSMAN* to be exceedingly interesting and delightful reading.

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## EDITORIAL.

A question is sometimes raised as to what should be the ultimate purpose of industrial education. Should it be the production of a perfect hat, basket, or mat, or should it be the improvement of the character of the maker of these articles? This question will never arise if industrial training is given in the right manner.

Developing character by industrial work.

Development of character is so closely interwoven with material progress that one should not be disassociated from the other, even in discussion. It would undoubtedly be wrong to have the pupil spend time, materials, strength, and labor in the production of articles simply for the purpose of developing skill in his fingers or of keeping him busy and out of mischief. It would be equally wrong to have the pupil devote a large part of his school time to industrial work, unless the development of character were continually kept in view. In order to accomplish the purpose for which they are intended, industrial lessons must be given in such a manner as to keep definitely in view not only the development of skill but also that of character.

It must not be forgotten that the child is the most important raw material we have to deal with. His moral development is of the utmost importance. Every turn or twist he makes has its influence upon his mind and helps to form his character. In other words, his industrial work should not only develop his mental and physical powers, but should also raise his moral standard. Lessons in good habits, learned while the child is in the plastic period, will later carry him safely over rough places in life.

In the years of school life, the child should receive right impressions, ever learning to command the respect and confidence of others. If the teacher permits him to shirk his duties, to practice deceit with regard to his work, she helps to lay for him a foundation that will later result more or less disastrously not alone for him, but for those with whom he deals. The teacher should never permit the child to pass off a finished article as his own when the bulk of it is perhaps the work of the teacher or of someone else, the child having had but a small share in its making. If defects creep into the work, they should never be hidden with a view to deceiving the buyer. The child should learn that, although such a procedure was for a long time one

of the tricks of the trade in the commercial world, such conduct is no longer countenanced as good policy, even when considered from a strictly business standpoint. The child should be taught in school that such actions are neither honorable nor profitable.

In the present keen competition for superiority of workmanship, the time element involved in school industrial work is frequently overlooked. Failure to give importance to the length of time required by a pupil to complete a job is always unfortunate. No one will question the advisability of insisting upon first-class work, but it is of equal importance that the work be finished within a reasonable length of time. Unless the teacher is always on the alert, a pupil is likely to fritter away a whole month on a piece of work which he could just as well finish in a week. The problem for the man in the field is how to obtain the highest degree of excellence in the shortest period of time.

It may be argued that insistence on the completion of a job within a given time will result in hasty and careless work, but such has not been found to be the case. If the time element is overemphasized, harm will result; but not greater harm than will result if no attention is paid to time. Success lies in keeping a perfect balance between time and quality. Overemphasis of either is detrimental. Teachers who have not tried it will be surprised at the spirit which working against time seems to put into a class. There is something of the spirit of a race in it, making work interesting which before was dull. If handled properly, pupils working under this stimulus will produce work which averages higher in quality than work done without reference to time. It is usually the pupil bent on killing time who turns out shoddy work.

A uniform system throughout the Islands prescribing a certain amount of time for the completion of any standard article is not feasible. A system of grading industrial work which gives weight to the time element as well as to quality must not be rigid. So much depends on the supervising teacher, the classroom teacher, the amount of training pupils have had, and the accessibility of materials that any attempt at uniformity would be futile. The details of how to emphasize the time element must be worked out for each province and for each school. Wherever

such a plan has been tried out, results have been effected that have repaid, many fold, the care and labor required in putting the plan into operation. An account of how this problem has been met in the Province of Tarlac is found in the industrial notes of this issue, and is full of suggestions to all who have not already given this subject careful study and attention.

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At the beginning of the present school year, plans were laid so as to allow the distribution of the CRAFTSMAN on the 15th of each month. In order to provide for this, all copy is sent to the printer on the 1st of the month preceding that in which the CRAFTSMAN is to appear. Although the Bureau of Printing is running both day and night shifts, lack of adequate room and equipment and the rush of work connected with the publication of annual reports of the different bureaus and departments have made it impossible to print THE PHILIPPINE CRAFTSMAN in the six weeks set aside for it. Although the Bureau of Printing is greatly handicapped in its operations, the quality of the work which it has been doing on THE PHILIPPINE CRAFTSMAN has been of the highest type and has won distinctive praise from all parts of the world. Neither the Bureau of Printing nor the Bureau of Education is desirous of having the typographical work on THE PHILIPPINE CRAFTSMAN rushed to such an extent as to lower its high standard in the slightest degree. For these reasons it will be necessary for our subscribers to be patient with the delay until such a time as the Bureau of Printing is provided with facilities to handle its enormous volume of work in a more expeditious manner.

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The certificates for the winners in the two contests of last year's corn campaign have been recently distributed. These certificates are artistic and very suitable for the purpose. In many places they have been awarded in an appropriate manner, designed to emphasize the importance which has attached to the corn campaign. They are an acknowledgement of merit and as such are highly prized by the recipients, many of whom are having them framed and placed in their homes.

Delay in issuing  
the Craftsman.

The corn campaign.



This issue of THE PHILIPPINE CRAFTSMAN contains a résumé of last year's campaign. This résumé of the work, together with the final awarding of the certificates, marks the close of the first campaign in one of the most important undertakings of the Bureau. Before this first campaign was officially closed, however, the second campaign was on in real earnest. Aided by the experience gained in last year's work and supported by the increased enthusiasm of both Government officials and the general public, the second campaign bids fair to eclipse the first in respect to encouraging a more general planting of corn, the use of better methods of cultivation, and the increased use of corn as food. A number of reports have already been received and a perusal of the industrial notes of the next issue will show that the 1913 corn campaign is well under way, with the best prospects for most successful results.

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"UYAÑGO"

Mr. José C. Orteza, industrial supervisor, reports that the wood of the "uyaño" is being successfully utilized in Agusan Province for spokes in basketry. "Uyaño" is a pandan which has been reported principally from the Visayan and Bicol provinces. The plant grows to a height of about 8 meters, has large leaves and dark brick-red fruits in clusters of from 6 to 10. It is somewhat similar to the pandan of Majayjay, but its leaves have as yet not been used extensively. Some coarse mats, bags, and hats have been made of the leaves. The trunk is cut and the bark is removed; then it is divided into pieces for spokes. The material is pliable and does not require sandpapering as does rattan. After it is cleaned with an ordinary knife, its color is white.

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## INDUSTRIAL NOTES.

### DISTRIBUTION OF GARDEN SEEDS.

The annual allotment of garden seeds has recently been sent to all divisions. These shipments include the imported varieties of vegetables which it is advisable to introduce annually in small quantities in order to maintain the high quality of the vegetables. A considerable quantity of legumes has also been distributed. These will be welcomed by the teachers, who are always hard pressed to secure a sufficient quantity of suitable seeds for the school and home gardens. In some sections the lack of seeds is largely overcome by the saving of seeds from the previous year.

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### CORN RECIPES IN THE ILOCANO DIALECT.

A small folder containing 16 corn recipes in the Ilocano dialect which was prepared in the division of Union for use and distribution at corn demonstrations has been received. It is a very commendable folder and will undoubtedly be of great service in promoting the use of corn. The issuing of recipes in the local dialect in this form is preferable to the use of placards, as the visitors are able to take the recipes home with them for future use. The division industrial supervisor and the teachers of the division of Union are to be complimented upon the neatness of the folder.

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### SUGGESTIVE MENUS FOR SPECIAL CORN LUNCHES.

The division of Union has organized the corn campaign so as to include a large number of special corn lunches for invited guests. As an aid to the various teachers in

giving these lunches, the following menus were prepared:

- I.—Corn soup, roast pork, baked squash, fried mush, johnny cake, corn and tomatoes, corn sirup, string-bean salad, baked corn meal pudding, corn coffee.
- II.—Corn chowder, roast pork, stewed corn, hominy, boiled mush, tomato and lettuce salad, sweet corn cakes, corn sirup, tiste.
- III.—Pork pot pie, baked camotes, scrapple, succotash, radishes, delicate Indian pudding, corn sirup, corn coffee.

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### A SUCCESSFUL SCHOOL NURSERY.

The school nursery of the Provincial High School of Albay, Albay, contains a large number of shrubs, young trees, vines, and flowering plants for sale and distribution to other schools of the province. The school nursery contains the following plants which may be secured by other towns:

Annual flowering plants: Balsam, zinnia, verbena, sunflower, carnation, marigold, cypress vine, gailardia, cocksecomb, chrysanthemum, calliopsis, bachelor's button, dahlia, paplogñon.

There are also available a large number of shrubs and vines including the following:

Hortencia, rosal, gumamela, pascua, cypress, santan, poinsettia, malvarosa, cadiapa, meliendres, sampaguita, sampaguita de japon, adela, granada, acalypha, bane, platito, kilala, embeleso, pasao, paraiso, hibiscus mutabilis, strobilanthos, dama de noche, tea plant, pali, colens, cadlum, lagrimas, ilang-ilang, allamanda, delangleon, morning glory, cadena de amor, rosas de pasion, maravilla, Brazilian

morning glory, jazmin, mil-leguas, bougainvilla, rosate, escarlata, escarlata doble, rosa virgen, alejandria, rosa amarilla, pitimini.

The nursery also contains a number of fruit and other desirable plants. It is planned to have the young seedlings of the following varieties available:

Rain tree, maninila, coles maluco, pili, canda, fire tree, agujo, mando, caturray.

In addition to the plants listed under the various headings a number

#### TACLOBAN DISTRICT CORN-GROWING CONTEST.

The final judging of the corn grown in the Tacloban district during the 1913 corn campaign was held at Palo, Leyte, on Saturday, July 26. This was the termination of the work launched last March and carried on by pupils under the direction of teachers during the long vacation. Twenty-four schools, representing five municipalities, placed exhibits in the contest. A fifth-grade pupil from the Palo Inter-



Judges at work.

of other plants which will be propagated are listed as miscellaneous:

White pandan, uraro, alocco, yuca, oliva, anahao, Chinese bamboo, cactus, tiger's tongue, cometa, suerdo-con-suerdo, lohoy-lohoy, camia, azucena, hydranga, pineapple, tea plant, lily, alabahaca, violeta, red gabi, Spanish flag, bukingan, maguey, puñalada, lengua de perro, koroquilitis, coconut trees, santol tree, pili tree, papaya, banana tree, lemon tree, lanka, lukban, cajil, ransas, cacao, chico, atis, macopa, tambis, baligang, lanzones, tipontipon, rain tree, mulberry, kapok.

mediate School won first place in contest No. 1, having harvested 23½ kilos of corn from his plot. A boy from the Tanawan Primary School took second place with 23 kilos of corn. First place in contest No. 2 was awarded to a pupil from the barrio of Castilla Mayor, Palo, and second place to a Tanawan intermediate school pupil whose credits were only a fraction less than those received by the boy who took first place. Mr. Carl M. Moore, division superintendent of schools, Mr. Wayne Gray, of the Tacloban Farm School, and Mr. Pedro Pacheco, municipal president, served as judges.

The contest was arranged by the supervising teachers. All exhibits were sent to Palo on the day previous to the contest. The pupils and teachers from the Palo schools arranged special booths for the exhibits from each municipality. Each contestant's corn was placed in a heap on the floor in the space allotted to his municipality. The five ears which the contestant desired to enter in contest No. 2 were tied together, but remained in the heap until the corn had been weighed. The visitors were interested in comparing the different exhibits.

The best corn season for the east coast of Leyte is during the vacation period from April to July. At first it appeared that this placed pupils at a disadvantage, but it proved otherwise, as many of the best pupils in the higher grades of the central schools often live in distant barrios. These pupils when in town stay with friends or relatives, and it is often difficult for them to find ground for garden purposes. Then, too, they are occupied with other school work during the school months. It was these boys who took the greatest interest in corn growing during vacation. They went to their farms in the country and gave their full time to the corn contests. The result was that most of the corn was ready to harvest when school opened in June.

The first intermunicipal athletic games for the year were played at Palo on the date of the exhibit. Tanawan's volley ball and indoor baseball teams clashed with the teams from Palo. The honors were equally divided—Palo winning the indoor ball game and Tanawan the volley ball game. (Fortunato M. Sevilla.)

At Lansing, Michigan, an automobile course on the cooperative plan has been established in the high school. Boys in this course spend

the first year wholly in school. After that they divide their time equally between school and shop work, spending one week at school and the next week in the automobile or gas engine shop where they are employed. They are paid for their work as apprentices in the Lansing manufacturing plants.

At Port Ewen, New York, 700 home gardens have been started under the direction of the school authorities.

Among the noteworthy achievements of schools along the line of tree planting is that of the school children and teachers of Pointe Coupee Parish in the State of Louisiana, who planted 15,000 fruit and pecan trees last year.

A recent report of the United States Bureau of Education calls attention to the fact that Germany, Austria, Switzerland, Norway, and other European countries have for many years been making provisions for industrial and technical instruction in public schools. English-speaking countries have been slower in adapting education to industrial needs. In Canada, a commission on industrial training has been investigating the subject for the past three years. Scotland has been unusually successful in providing continuation schools that prevent the danger of too early specialization. In Ireland municipal technical schools are transforming industries just as the earlier agricultural movement transformed the rural industries. England is laying particular stress upon the better adjustment of school work to industrial needs. Thus, it appears that the industrial system of education which has been in force in these Islands for a number of years is rapidly becoming a world movement.

The ninth-grade pupils of the Juncos, Porto Rico, schools took part in the Third Insular Fair of Porto Rico by erecting a model house and furnishing it with a complete set of furniture made by school children. The house contained a parlor, dining room, bedroom, kitchen, balcony, and bath and toilet.



#### PRACTICAL SCHOOL WORK IN A MICHIGAN TOWN.

Boys in the Ishpeming, Michigan, High School repair the school buildings for pay, conduct a coöperative school farm for profit, and are about to erect a gymnasium for their school in the same business-like way they have learned to do other things for themselves and the community. All this work is under the direct supervision of the regular school authorities, according to H. W. Foght, of the United States Bureau of Education.

For the past 6 years, Mr. Foght states, high school students from the manual training department have been employed to repair the various city school buildings. During one summer \$3,000 was thus paid for student labor. The boys have repaired roofs, laid cement floors, built brick walls, and installed plumbing fixtures. The gymnasium to be erected by the boys is from plans drawn by seniors in the high school.

Particularly successful has been the coöperative farm enterprise. Superintendent Scribner induced the board of education to rent a patch of ground on the edge of the city, and at the same time procured \$500 for development expenses. Sixty-four boys responded to a call for volunteers to form an association. They were immediately organized into 3 working squads, each with its own "boss." The boys made their own rules, and they carry them out. Strict discipline is enforced, and

drones are discouraged. As a first step, 6 acres were planted to potatoes, cabbages, and strawberries. It is the plan ultimately to plant 20 acres in strawberries for the northern markets. The boys receive 10 cents an hour for their labor, and they are to have 7½ cents additional when the products are marketed.

These plans to meet the actual needs of the community through its schools developed out of peculiar local conditions. Ishpeming is a mining and industrial town of some 13,000 inhabitants in the upper Michigan Peninsula. Under the State law, children are not allowed to work in the mines and factories until they are 18 years of age. The compulsory age is 14. As there are almost no other industries in the region, there is more than the usual danger of "drifting" on the part of growing boys. It was to meet the problem of these boys that the practical experiments were undertaken, and the results have amply justified the effort. Not only have the boys become interested in school, but their parents have had brought to them in a thoroughly understandable way the direct economic value of education.



Practical work in sewing, cooking, and other household arts is required in all English schools for girls above the infant grade.



#### JUNIOR TECHNICAL SCHOOLS IN ENGLAND AND WALES.

Among the educational developments of recent years none has been more interesting and important than the growth of junior technical schools—that is to say, day schools which provide courses for boys and girls for two or three years after leaving public elementary schools, and which continue the general education of their pupils, while at the same time aiming at preparing them

for industrial employment. The growth of these schools has undoubtedly been in response to a definite educational need, the need, namely, of those who can afford some time for the continuation of their fulltime education beyond the normal age for leaving the public elementary school before entering upon industrial life. Fostered by the interest of local education authorities and aided in many cases by the ready coöperation of those actually engaged in industry, whether as employers or employees, these schools have now reached a point of development at which they may fairly claim to constitute a distinct educational type, and to require special treatment under the board's regulations.

Junior technical schools have hitherto been aided by grants from the board under article 42 of the Regulations for Technical Schools. It is the purpose of the following new regulations to recognize that the schools have emerged from the experimental stage, to detach them for administrative purposes from the somewhat miscellaneous body of work at present aided under article 42, and, by means of increased grants now made available, to encourage the establishment of more junior technical schools and to strengthen and improve the work of those which have already been established.

The inclusion of languages, other than English or Welsh, in the curriculum will not be approved, unless such instruction can be shown to be of direct vocational value in connection with the occupations for which a preparation is provided.

Practical work will be required in all suitable subjects, and must be of a progressive character throughout the course.

Visits of pupils to suitable works, museums, galleries, and other places connected with the subjects of their courses, will be approved as part of the instruction.

Each course must be organized to cover not less than two and not more than three years, to occupy the whole time of the pupils to the exclusion of any regular employment during six or nine terms, and to extend over not less than thirty-six weeks in each year.

No pupil may be admitted unless a certificate is given by his parent or guardian that he is intended to enter into employment for which the school provides a preparation. A record of the occupations actually followed by pupils leaving the school must be kept. A school will not continue to be recognized unless, as a rule, the pupils enter into employment for which the school provides a preparation.

Suitable facilities must be provided for recreation, physical exercises, and, wherever possible, organized games.



#### SCIENTIFIC MANAGEMENT ON THE FARM.

The matter of attaining a high degree of efficiency through scientific management has demanded a great deal of attention in all business centers particularly during the past few years. President Joe Cook, of the Mississippi Normal College, has applied the principles of scientific management to the elimination of needless drudgery in the labor of women on the farm.

As an example of the amount of work that could be eliminated, he makes the following reference to the handling of the water supply:

"The getting of the water from the source of supply to the point of application requires more manual labor than any other item of house-keeping. The water for the kitchen has to be lifted from the well, carried to the kitchen, poured into a kettle, poured out of the kettle into the dishpan, and from the dishpan out of doors. This makes six times

the water is handled; and a bucket of water containing 2 gallons with the containing vessel, will weigh 20 pounds. When this is handled six times, the total lifting is 120 pounds. The cooking of 3 meals a day on a meager allowance of water will necessitate 10 buckets, which will make for cooking alone 1,200 pounds of lifting per day. When to this is added the water necessary for bathing, scrubbing, and the weekly wash, it will easily bring the lift per day up to a ton; and the lifting of a ton a day will take the elasticity out of a woman's step, the bloom out of her cheek, and the enjoyment from her soul."

In order to eliminate this item of drudgery, President Cook urges the installation of a system of water-works at an expense of about ₱500. The use of a gasoline engine, pump, tank, bathtub, kitchen sink, basin, and commode will supply all of the household needs, and will save the women on the farm an enormous amount of work.

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#### WOOD-OIL TREE.

The Chinese wood-oil tree is the subject of a circular by David Fairchild recently published by the United States Bureau of Plant Industry, the purpose of the publication being to advocate an extensive cultivation of the tree in this country, where it has been grown in a small way since 1906. The importance of this recommendation is shown by the fact that 5,000,000 gallons of wood oil (also known as tung oil), made from the seeds of this plant were imported from China last year, and the product is said to have had a revolutionary effect on the varnish industry of the United States. It has, says Mr. Fairchild, largely taken the place of kauri gum and has made possible the manufacture of a quicker drying varnish, which is less liable to crack

than that made from kauri gum, and has been found of special value in waterproof priming for cement. The tree is climatically adapted for cultivation in the Southern States, and the Department of Agriculture is distributing 1 year-old specimens to bona fide experimenters.

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#### "PANAMA" HAT TRADE BRISK.

The export trade of panama hats has made remarkable progress in Japan during the last few years. The material is obtained from Formosa, and the hats are generally known as "Formosa panama hats." In 1910 shipments abroad were 392 dozen, valued at 9,316 yen. In 1911 the shipments increased to 962 dozen, valued at 21,209, and in 1912 to 5,001 dozen, valued at 125,640 yen.

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#### INDUSTRIAL INTELLIGENCE.

If a personal touch may be permitted here, I should like to tell briefly two incidents in my experience as a teacher.

I once had a teacher who, with his pupils from the public school, was assigned to me to do gardening and to keep the school grounds in proper shape. A few of the boys I myself took to the back garden, and the others I gave into his charge to clean the walks, plant some shrubs, take out stones, etc. I made a working sketch of what I wanted. I went over the ground with him, pointing out where the shrubs were to be planted and explaining the kind of plants to be used. He understood perfectly. I shall not weary you as he wearied me, day after day, over this simple work. Let me tell you some of the facts. He could make nothing of my sketch and forgot my directions. When I staked out a line, he could not follow it. One day I found him working in one place, the next, in another. Some of the walks were hoed in any way but the right

way. He was slow in getting his pupils to work and early to quit. He spent most of his time in looking at things in an absent-minded sort of way, accomplished nothing, and I was compelled to send him away.

I had a student in high school who took a great deal of interest in carpentry and other work. I appointed him assistant to take charge of two classes in industrial work. He was given his program and sketches of work the boys were to do. I told him to go ahead and show me if he was able to teach. As soon as his class was finished in the high school he was in the carpentry shop preparing the wood, examining the tools, and getting everything ready for his class. His work advanced from the very beginning; the pupils liked his methods; and at the end of the month, the work assigned for them to do was finished. They did good work and were happy. The young man is now teaching with great success in Calivo.

These two incidents from life are typical. The teacher who undertook to keep the school grounds in good condition was a fair representative of the indifferent, careless, and uninterested teacher. The other teacher took his work in earnest and was determined to do his best. The first teacher had a fair education, but he lacked something which the second possessed—a something which we might call industrial intelligence. A close study of the two incidents which have just been related will reveal the qualities which a good teacher should possess.

1. Ability to grasp a situation—to see what is to be done.
2. Ability to interpret directions, spoken, written, or drawn.
3. Ability to foresee what will be required, and to plan accordingly.
4. Ability to cooperate intelligently with others.
5. Ability to do thoroughly whatever is undertaken.

6. Ability to secure from work the highest satisfaction of success.

This sixfold ability, which constitutes industrial intelligence and belongs to industrial efficiency, does not grow rapidly, but develops through the pupil's school training and that of the home itself.

This training of industrial intelligence is begun in the primary schools in which are found the bases of industrial education; without them the manual training and trade schools are handicapped and cannot do the advanced work required. The primary schools stand for general intelligence. They must open to the child what one celebrated educator calls the five windows of the soul—language, mathematics, history, art, and industry. These must ever stand first in the primary school and be molded into this sixfold ability which constitutes industrial intelligence gradually developed from grade to grade. (Jos. H. Loughran.)

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#### THE SAGADA MISSION.

A copy of the latest annual report of the Sagada Mission has been received by THE PHILIPPINE CRAFTSMAN. In this interesting report, Rev. John A. Staunton, jr., describes the progress made in the Mission of St. Mary the Virgin, at Sagada, Mountain Province. This mission is in charge of Father Staunton and is rapidly making its influence felt throughout the Bontoc section. The first paragraph quoted from the report is illuminating in its clear presentation of the relation between material and spiritual development. The remaining paragraphs contain interesting references to the difficulties which have been encountered, the successes which have been achieved, and the plans for future development of the mission.

"The savage in his 'gee-string' or loin cloth may indeed be a sincere Christian, but his aspiration will



then necessarily include material development. There is no hope for the Christianized savage who has no discontent with his former surroundings; who does not want to be cleaner in body, better clothed, better fed, better housed, better educated, more industrious, and to push his children upward by giving them advantages which were denied to him. It is not the absolute value of soap over dirt; trousers over 'gee-string;' beef over dog flesh; board houses over those made of grass; reading, writing and figuring over illiteracy; the use of saws and planes instead of the primitive axe, that is important; but it is the tendency of these things, and the aspirations which they represent. There is no absolute standard of civilization, or education, or enlightenment; these things are relative; but there is an absolute direction which a man must follow if he is ascending.

"The construction of our new church is well underway, and the piles of cut stone grow larger every day. The incessant ring of the stone chisels in the stonecutting shed is music indeed; not only because we can see in our minds' eye the new church rising, but because we see character and independence developing in the Igorots who are doing the work. Christians and non-Christians are allowed an equal opportunity, but those who rise to any branch of industrial work scarcely ever fail to embrace Christianity and to ask to be baptized. At Sagada, labor leads to prayer.

"The necessity of putting up buildings for the mission station largely through our own efforts, though apparently a disadvantage, has given the Mission of St. Mary the Virgin, Sagada, an opportunity which few missions possess of training natives in industrial work at the same time that Christian influences are being brought to bear on them. When we first came to Sagada it

was impossible to get any work done which required steady application by natives of the vicinity. Japanese workmen had to be brought in from a distance for all serious undertakings.

"To-day, in building our new church we have 14 natives, most of them Igorots, doing excellent stonecutting under the superintendence of one Japanese foreman, and it is one of our Igorot boys, Pio, now grown up, who does the best forge work, making, sharpening, and tempering the stone chisels used. Our quarry is worked by other Igorots under the charge of another Japanese. Our press room where we have now installed a fine new Chandler & Price job press is under the charge of one of our mission boys, Francisco, who, although only just beginning, has already done some very creditable work in typesetting and printing. The mission sawmill has been an invaluable aid in training Igorots to steady and regular habits of industry. This mill has produced practically all the lumber which has been used for building in this sub-province, yields us an income, and above all has enabled us to give many Igorots steady work, which inevitably tends to the betterment of their lives. Throughout the year we have daily an average of 40 natives working for us in connection with the mill alone. These men are paid by the mill itself, which for several years has been self-supporting, no assessments having been levied on mission funds to keep the mill in operation and repair.

"The demand for lumber from the mill is likely to be a continuous one as we sell to consumers in the neighboring town of Bontoc, so we may expect the mill industries to continue; but, in view of the ultimate completion of our mission building in Sagada, it has been desirable to look forward for some means of replacing the present work carried on

by us with other work which will provide continuous training for our children, and a productive occupation for those who have already been lifted out of savagery. With this end in mind, I have installed in our mission shop a 15-horsepower petroleum engine which will, I hope, eventually run our printing press, lathe, saw table, band saw, rice machine, looms, and other auxiliary machines from which we may hope to produce doors, window sashes, furniture, and other salable products. I believe that this plant, too, will before long be as lucrative as our sawmill has been, and as great a blessing to the community. We have already been promised orders for products which we can turn out; but the greatest value of the plant will be that it will enable us to maintain a first-class manual training school for our own boys and young people.

"Incidentally, but by no means as its prime purpose, this petroleum engine will furnish electric lighting for our mission buildings by running a dynamo which we have already in place. Careful figuring has showed us that running our engine at only a third of its capacity, viz., 5-horsepower, and using only a little more than the petroleum which is now consumed in the mission lamps, we can obtain quite five times the amount of light; and that when our new church, hospital, and boys' school are completed, our plant will illuminate with less than the amount of oil which would be used in kerosene lamps all of the buildings of the mission effectively. The danger of fire from the careless handling of oil, lamps, and matches will be entirely eliminated when we get our dynamo in operation.

"During the year we have made an experiment in brick burning which has not been a success, though we have been able to utilize all of

the 50,000 bricks burned. The clay at our brickyard evidently contains some ingredient which prevents the brick from firing well. We have experimented with other clays and have now found a bank which promises good results. We hope to pave the floor of the new church with tile of our own manufacture. We are burning lime now at Sagada as well as at the old kiln at the sawmill.

"In another year, and after some preliminary experiments have been made, I am hoping to get a pottery in operation at the mission. There are deposits of clay in the vicinity which will, I think, serve for the manufacture of utensils sure of a ready sale in this district."

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#### COIR MATS.

The preparation of the material is very simple. The coconut husk is pounded until quite pliable with any heavy instrument used for such purposes. It is then shredded with the fingers to the size and quality desired by the worker. For rough work the ordinary shredding with the fingers is sufficient, as it is not necessary to remove all the pith which surrounds and connects the fibers. If fine work is desired the husk may be pounded, shredded, and twisted until the fibers are free from the pith. When this is properly done there remains a bundle of clean fibers from 6 to 10 inches long.

The shredding of the fiber to any desired stage can be done by a machine. Machine shredding saves the mat maker a great deal of unnecessary labor. Such machines are now used by the Wright Furniture Company, of Manila. This company, it is said, uses the shredded coconut husk in the making of mattresses.

Where coconuts are abundant, the pupils get the husks without cost. In many instances the pupils bring them from their homes to the schools.

The only possible cost of the material to the pupil would be the time spent in preparing the husk for his work. The number of hours that it takes a worker to make a good mat depends mainly on the worker. The best workers generally make a mat in a month, working one and a half hours per day.

The tools necessary for preparing the husk are a bolo and a mallet. For making the mat, a simple frame is necessary. Four pieces of inch board,  $2\frac{1}{2}$  to 3 inches wide, will make the frame. It should be a little larger than the size of mat desired. An adjustable frame is best. The average commercial door mat is 18 by 30 inches. The frame for it should be 20 by 32 inches.

It is a very simple operation to put the four pieces of the frame together. The two long pieces are put on a workbench or on the ground, parallel to each other, with their outer edges 20 inches apart. The two short pieces are laid across these, one at each end. The four pieces are then securely fastened together by driving three or four nails into them at each corner. This makes a good solid frame, with each corner a right angle, if the work is properly done. The next step is to bore a row of holes one-fourth inch in diameter and 1 inch apart in each end piece of the frame. These holes are for the pegs that hold the warp. When the pegs are put in place the frame is ready to be warped.

Most of the time spent in making a door mat is consumed in making rope, as the fibers of the coconut are short. This could be easily overcome and the time of making a mat cut down to one-half if hemp fiber were used for the warp and the woof. It would not be necessary to use the best grade of hemp. The brown discolored material would do. It would also conform in color with the brown coconut fiber.

*Warping the frame.*—The warp should be made of rope about one-half inch in diameter. It may be made of one long piece of rope and the ends worked into the parallel sides of the warp or it may be made of a series of loops which are stretched from one opposite peg to the other. The worker should see that the warp is stretched firm and tight; otherwise loose, sagging work will result.

*The woof.*—The woof is the next part of the mat with which the operator has to deal. It should be about half the diameter of the warp rope. If the woof is not absolutely uniform in diameter uneven edges will occur at the sides of the mat. Such unsymmetrical mats, although strong and serviceable, do not look well and will not sell easily.

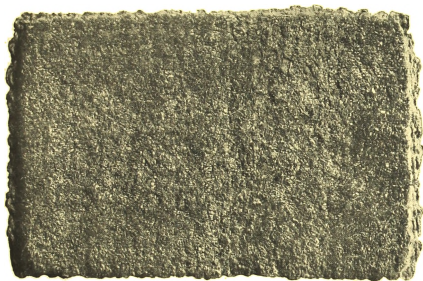
*Preparation for weaving.*—When the woof is ready it is woven across the warp once at one end of the frame. This leaves the ends of the woof extending from each side of the warp. Then either end is taken and woven across once. The opposite end should also be woven across once. In this manner the warp is crossed five or six times. The number of times the woof should be woven across depends on the border or selvage desired at the ends. Care should be taken not to pull the woof strings too tight, since this will draw the warp together. The opposite results will take place if the woof strings are too loose. Carelessness with the woof causes the mat to shrink or bulge on the sides. This is a very common defect in mats made by the beginners. After the woof has been woven across a sufficient number of times, it should be set firmly against the pegs by placing a piece of wood made for the purpose, between each warp thread and tapping it with a hammer.

*Putting the fiber in place.*—At this stage of the work the woof strings extend from each side of the frame

and the worker is ready to twist a bundle of coconut husk fiber around each warp. No fibers are placed on the two outside warps on each side of the mat. This arrangement leaves a selvage or border on each side of the mat as well as on the ends. After a row of fiber bundles has been placed in position, the worker weaves one end of the woof across and then the other. The woof thread and the bundles of fibers are tamped tightly into place by placing a piece of wood between each warp and striking it

at the end. Care should be taken that the selvages at each end are of the same width, otherwise the mat does not look well.

*Finishing the mat.*—When the woof strings which form the selvage at the end are woven as close to the pegs as possible, the mat is removed from the frame. The finishing work is now begun. Much care must be exercised at this point, as many well-made mats are ruined on account of carelessness and impatience in the finishing. The finishing is not hard or



Coir mat.

several times with a hammer. The row of fiber bundles is now trimmed and the bundles are cut even with a sharp knife. To guide the knife, a stick  $\frac{3}{4}$  by  $\frac{3}{4}$  inch, and long enough to extend over the sides of the mat, is placed tight against the fiber bundles and held in place by the hand and foot or by tying it at each end to the sides of the frame with the ends of the woof strings. When the fibers are cut level, they are trimmed with a pair of scissors. Work is continued in this manner until the mat is completed far enough to leave the selvage

difficult. The best workers, moreover, usually take great pride in properly finishing their work and skillfully concealing the ends of the woof strings in the selvage at each end.

*The braid.*—The last step in the finishing of the mat is to sew a braided rope of coconut fiber around the edges of the mat to make it firm. The braid is made so that it will fit snugly around the edges. The ends of the braid are carefully united by interweaving so that the braid forms a united loop. It is carefully fitted

around the bundles of fibers that form the mat. A needle made of the end of an umbrella rib, 4 or 5 inches long, is then threaded with a small string of coconut fiber and the braid is securely sewed into place. In sewing on the braid care should be taken with the corners so that they will not appear round. If the braid is too tight it will make the corner appear curved. The braid should be small and fitted closely to the base of the edges. It should never extend above the edges.

*Selling price.*—Good mats will sell easily for ₱2 to ₱3, a low price for this class of mat. When they are well made they will outlast any of the commercial mats now on the market in this country. A plain mat generally sells for not less than ₱2. One embroidered with cabonegro is worth ₱3. This is not because of any difficulty in construction, but a cabonegro designed mat sells quicker, for the material is not so abundant as coconut husk.

*Demand for mats.*—Although a door mat is generally a rough-looking object of service, found outside of a house on the doorstep or on the porch, it may be used to adorn the inside of the house or a well-regulated apartment. Many of the mats that have been made here, especially those of design and color, would look well inside of the door or at the foot of the stairs of any house. This is especially noticeable in well appointed steamships and hotels, two classes of mats being used; rough, unattractive mats on the outside and fine, harmoniously colored mats on the inside. Where possible the mats are made of coir or other similar fiber. In countries where this material is not available rubber and steel mats are generally used.

One of the latest uses of coir mats is for the floors of automobiles, to take the place of expensive rubber or linoleum, both of which soon de-

teriorate in this climate. One automobile company, selling machines at \$4,000 to \$5,000 each, has made a special announcement that their machines will be equipped this year with coconut husk mats for the floors. From these few facts it can easily be seen what a demand there is for coir mats if the matter is properly handled.

As a branch of school industrial work and a home industry coir mat making should be taken up and introduced in districts where there is an abundance of coconuts. For such districts coconut fiber is a cheap and handy industrial material which should be put to some use. As it is now, in most places this valuable waste product is not utilized. (Thomas Leach, jr.)

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#### HOW TO INCREASE SPEED OF WORKERS.

This problem has been met in Tarlac province by the use of a system of grading which allows 50 per cent for excellence and 50 per cent for speed. For instance, when a pupil is assigned to make a certain standard basket he is told that the work must be finished in forty days. If he completes the basket in forty days his grade will be 50 per cent for time plus, perhaps, 40 per cent for the quality of his work, making 90 per cent. If he takes sixty days to finish the basket, his grade will be 25 per cent for time plus 40 per cent for excellence, making 65 per cent. If he takes eighty days to do the work he will be given 0 for time plus whatever the grade for excellence may be, but certainly not more than 50 per cent. The teacher, of course, uses judgment in deducting for time lost on account of sickness, since it is not desirable to make a pupil's grade so low for any one month that he cannot be promoted at the end of the year providing he merits promotion.

In the beginning, the amount of

time which should be consumed in making an article is decided arbitrarily. A common method is to let the teacher say how many days it would take him to make the article and then add 25 per cent to offset the pupil's lack of skill. This is a matter which must depend on the training and experience of both teacher and pupils, therefore no arbitrary rule should be followed. Where pupils repeat the same exercise the time allowed should be lowered for each succeeding performance.

An accurate knowledge of the amount of time required to make an article, is of considerable importance in fixing prices. Once the time equation is solved, the problem of properly pricing the finished work becomes merely a question of materials, time, and quality. One of the chief causes of the former wide disparity between prices of similar articles made in different provinces was the fact that prices were too often based on the time actually consumed in a piece of work when they ought to have been based on the time which should have been consumed.

Any system correlating time with quality in the grading of industrial work must not be too rigid. Anything like a uniform system throughout the Islands allowing a certain amount of time for the completion of any standard article would not be desirable. Even within this division the amount of time prescribed for the making of similar articles is not uniform nor has any effort been made to make it so. One supervising teacher, for instance, requires a certain basket to be made in thirty-five days while another allows forty days for the same work. So much depends on the supervising teacher, the classroom teacher, the amount of training the pupils have had, and the accessibility of materials, that any arbitrary attempt at uniformity would be futile. (David C. Loveland.)

In order to standardize all municipal shop benches in the Province of Leyte, the division superintendent has issued a circular giving complete bills of material, specifications, and drawings for the making of work benches for municipal shops. Working drawings were run off on the Roneo and thus put into very convenient and serviceable shape.

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#### WOODWORK.

The need of a textbook on the subject of woodwork for use in the Philippines has frequently been felt. Mr. G. A. Hansen, principal of the Tagbilaran Trade School of Bohol, has made the first step in the preparation of a suitable text by publishing a 14-page pamphlet upon this subject. In a concise and simple manner, Mr. Hansen has treated the following subjects: Care of benches and tools; laying out tools, and their uses; try square; saws; planes; rules for planing; boring tools; chisels and chiseling; sharpening tools; whetting bevel-edge tools; to tell whether a tool is sharp or not; saw filing; spoke shave; scrapers; sand-papery; hammers; mallets; nails; size of steel and wire nails; lumbering terms and measurements; wood finishing; preparation for varnish; filling; shellacing; rubbing and polishing; French polish; waxing; finishing; staining; woods most commonly used, their uses, prices, etc.; and review questions.

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#### DOLLS IN NATIVE COSTUME.

The making of rag dolls has developed in the Camiling schools into an industry that is pleasant, instructive, and lucrative. The different processes involved in fabricating fine white undergarments trimmed with lace, and bright dresses trimmed with pretty silk braid of some harmonizing color, give more

pleasure and a greater diversity of instruction than many another industrial branch. Our first dolls were made in the intermediate school for the purpose of teaching the girls the correct stitches to be used on different articles of clothing. Since there was at that time no place to keep the work at school, it was necessary to take it home for safe-keeping. The girls often came to sewing class without their dolls, hence I

rag doll with elaborately done hair, bright, stiff little camisa, and pretty, long train.

I returned to school without the doll, but with the determination to put one into every home in Camiling that had a girl to enjoy it. I at once placed doll making in the primary school also, to permit more girls to carry their work home. The teachers seemed to enjoy the doll-making classes quite as much as the pupils. It was a matter of gratification to tiptoe into the sewing room to watch their little faces glow over their work and their excessive affection bestowed upon these creations of a few bits of bright cloth.

The school had a Christmas tree that year. It was placed in the band stand to insure a large attendance, and each girl in the audience was given a doll.

As an experiment, two or three dozen dolls were sent to the carnival the following February. These all sold the first or second day and many orders were taken. Last year the sales were much larger. This year we have filled orders for more than 300 dolls, and it is yet three months before the carnival.

The dolls are made of khaki, which, besides being the most suitable color, is strong and will not wear out. A meter of cloth is sufficient for four dolls  $3\frac{1}{2}$  decimeters tall. The front and back are sewed together by machine, a place about 5 centimeters long being left under the arm for turning and stuffing. The first dolls were stuffed with cotton, but as the industry grew we exhausted the supply and were compelled to use rice chaff. Sawdust is too heavy. Great care and patience must be exercised in packing first the legs, then the arms, then the head and lastly the body with all the chaff they can hold. It must be pressed in little by little with a blunt



A rag doll from the Camiling exhibit.

was obliged to send for them. One day a little girl who had left her doll at home cried bitterly but refused to go when ordered to fetch it. As her home was near I determined to go with her and find out for myself the cause of her disobedience. As I entered the barren little house, I found a child of 4 or 5 years of age moaning and tossing with fever, but with her eyes fixed upon the only cheerful thing in the room—the

bamboo stick. When every part is so packed that no more can be forced in, the side is sewed up and the doll is ready for its hair.

Our greatest difficulty has been in securing hair. The girls have not only contributed their own "combs" and cut their servants hair, but have collected from all the barrios. One girl in her extremity took a generous lock from a peddler who happened to be taking her siesta under a tree. We finally applied to the division superintendent, who collected from all the province, but still

a face to match its coiffure. The face must not be inked in until after the hair is arranged or the damp fingers will blot the ink and ruin the whole expression of the face.

The underwear consists of two garments, both of which are trimmed with lace. One meter of coco makes three suits. The chemise measures 48 centimeters around the bottom before being hemmed. The hem is one-half centimeter wide. The flounce is 65 centimeters long and 5 centimeters wide. This is finished with a hem one-fourth of a centimeter



Having a pleasant time with the dolls on the school lawn.

there was a deficiency. We experimented on several fiber plants and found that maguey colored with a kind of dye furnished by the Bureau of Education is an excellent substitute. This is rolled into puffs and fastened tightly on to the head with coarse black thread, then decorated with a narrow ribbon which matches the dress in color. The puffs should come well down over the forehead and on to the nape of the neck.

The faces are drawn from stencils, then inked in. Much individuality may be given a doll by selecting

wide, on to which a narrow lace is oversewed.

The dresses are made of jusi and mangas, the former for the more expensive dolls. One meter of jusi or one-half meter of mangas is the amount required for a dress. The mangas skirts are made "serpentina," this being the style most commonly worn by the girls. The upper part of the skirt is 18 centimeters long in front and 20 centimeters long in the back. It is 23 centimeters around at the top and 43 centimeters around at the bottom.



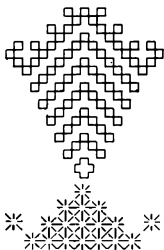
The flounce is 7 centimeters wide at the front and 13 centimeters wide at the back. It measures 43 centimeters around at the top to match the bottom of the skirt part, and 86 centimeters at the bottom. This gives a pretty sweep. A piece of abaca  $3\frac{1}{2}$  centimeters wide in front and 6 centimeters wide at the back gives the usual stiffness and finishes the bottom of the skirt. The seam that joins the flounce to the top part of the skirt is covered with a silk braid which either matches the color of the skirt or forms a pretty contrast to it. The placket is finished in the usual manner, while the belt is hemmed down and finished with a draw string such as the girls use in their skirts.

The *camisa* is made of three pieces—back, left-side front, and right-side front. It is 10 centimeters from the shoulder seam to the bottom of the waist. The back is 9 centimeters across the shoulders. The left-side front is 6 centimeters from the seam in front of the arm to the opposite edge, and the right-side front measures 12 centimeters between the same points. The fronts are gathered at the top and bottom so that the *camisa* may fit closely at the neck and waist and yet give the proper fullness over the bust. The sleeves measure 10 centimeters from the shoulder seam to the hand and are 22 centimeters around. All fullness is gathered or pleated into the top of the armhole to give a broad-shouldered effect.

The *pañuelo* is 22 centimeters square. It is trimmed with braid on two sides, and about 3 centimeters up the other sides. To fold the *pañuelo*, lay it on the table right side down with the untrimmed corners toward you. Fold over with this

corner to within 2 centimeters of the opposite corner. This forms a triangle. Grasp the bias fold, and fold it over toward the right-angle of the triangle 4 centimeters. Crease, then fold one-third of this fold toward you. Fold this under. Now take the little triangle left and make another 4-centimeter fold. Fold this back upon itself and you have three folds on the right side and two on the wrong. Divide into halves, and crease. Then divide these halves again and crease to form a square. Fasten the corners together with a pin, place the folded *pañuelo* on the doll's shoulders and fasten the front to the belt.

I have found that dressing dolls is the easiest and most pleasant method of teaching the required industrial work in the primary school. Making samplers or bobbin lace of cotton thread for practice only does not arouse much enthusiasm with little girls; but when perfect and correct stitches or even clean lace are required for their dolls the work is usually done correctly and never forgotten. The various stitches employed in making the different articles of the doll's clothing embrace all those required by the course of study for the primary grades, while the cutting and fitting teaches them the principles of dressmaking so that, even though they leave school after completing the primary course, they are able to make their own clothes, employing pleasing color schemes and trim their underwear with bobbin lace of their own fabrication. I believe, however, that important as all these benefits are, the greatest good they receive is from the many happy hours of wholesome and natural play they have with their dolls. (Hattie A. Grove.)



No. 5.—Back Cover Design.