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## INDUSTRIAL NOTES.

### CAPIZ.

Notice was given out at the close of school in March that plans were being laid to keep the provincial school shop open during the long vacation. Twenty of the students signified their desire to work. As a result over ₱1,000 worth of school desks and office furniture, for provincial offices and supervising teachers, was turned out under the supervision of Tomas Olivares during the vacation just closed.

In spite of the unusually heavy rains during January and February, the production of vegetables from school gardens showed an increase of 20 per cent over that of the preceding year.

During the past year the teachers of Romblon conducted a very successful camote campaign along much the same lines as those of the corn campaign. (H. W. B.)

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### BETTER-BABIES CONTEST IN BULACAN.

On Saturday, April 1, the final examinations in the better-babies contest in the Province of Bulacan were held under the auspices of the Public Welfare Board of the Philippine Islands. Specialists from Manila judged the six best babies from each municipality in the province. These had been selected in an elimination contest conducted during the earlier part of the month.

A feature of Baby Day in Malolos was the demonstration by the provincial nurses of the proper method of preparing the local supply of milk. This was attended with great interest by the mothers of young babies. There were attractive exhibits of milk and food products. The companies making these, donated acceptable prizes to the best babies. A free cinematograph entertainment show-

ing the process of preserving milk was given at the local theater. The baby who won the grand prize was Amado Santa Ana of Meycauayan.

This contest was in progress during the whole month of March. It aroused the very liveliest interest throughout the Province of Bulacan, and great crowds attended. The attention of parents was brought to bear upon the best methods of feeding infants. Campaigns of this kind exert a great influence in reducing the large infant mortality which restricts the proper growth of population in the Philippines. (G. G. L.)

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### SUPERVISION OF DOMESTIC SCIENCE IN THE HOME.

To stimulate interest in cooking as taught at the provincial school of Oriental Negros, a series of teas were given by the different classes, each girl inviting and entertaining one or two of her relatives or friends. As far as was possible, these invited guests were parent, guardian, or some member of the girl's own immediate family.

After refreshments were served, the guests were taken through the different rooms of the domestic-science building where the girls exhibited their own needlework, explained the use of the small private bedroom in connection with their housekeeping training, and last, but not least, led the way to the kitchen with its dozen of native ovens and stoves where the actual cooking of the refreshments just served had been done. Each girl took great pride in opening aparadors, linen closet, and drawers of cooking table, explaining the arrangement and use of each, to the interest and admiration of the guests.

These teas proved so interesting and satisfactory that it was decided to cooperate further with the parents

by having each girl of the seventh-grade cooking class prepare one entire meal in her own home to demonstrate her real efficiency in domestic science as applied to the home. Accordingly, arrangements were made with parents and special lessons planned for such a time as the cooking teacher could visit each home and inspect the work. The same plan of inspection was carried out as is used in the domestic-science building, each girl being held responsible for the sanitary conditions of the kitchen. The reports on these home lessons were very satisfactory, indeed. In one home the father was found bringing in the fuel and looking after the fire while the mother busied herself in the yard so that the daughter could have entire charge of the kitchen to carry out her domestic-science ideas in the preparation of food for her own family.

Feeling that the hearty approbation of the parents has been served, it is expected to further extend the work the coming year by having the girls do more real home work in housekeeping. (V. G. W.)

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COST RECORD OF ARTICLES FABRICATED—  
OCCIDENTAL NEGROS.

The accompanying form was evolved from a similar one which originated with the division of Bulacan. It was given a trial in the domestic-science department of the provincial school in Bacolod and was so successful during the past school year that it has been prescribed for 1916-17 for all schools of Occidental Negros.

The value of this form consists in the fact that it meets all requirements both as to time and materials expended upon articles, and that the pupils themselves make the entries. The cost sheets are issued when work is given out. They are distributed and collected daily by monitors, and

returned for file when the finished articles are turned in. Teachers maintain a careful supervision of the records and may actually make the entries. Usually, however, it is essential only to see that proper entries of materials received have been made. Pupils have no incentive to augment the time involved in the fabrication of articles and the record of the date begun precludes a minimization of it. Incidentally, the pupils learn the value of time, the names and the cost of materials, and the value of their labor as compared with that of their fellows in the class. Credit for home work is given by the teacher according to what has been accomplished.

When a cost sheet is turned in with the finished article the following summaries are made by the teacher:

1. Totaling the "Hours" column.
2. Determining the total cost of material with the usual 10 per cent added.
3. Placing a value on the pupil's labor.
4. Placing a value on the finished article—the value of materials used, plus value of labor.
5. Recording the authorized price.
6. "Variance (below, above)," is a comparison of items 4 and 5 given above, crossing out of either "below" or "above" when the value of the article is above or below the authorized Bureau price.

In the provincial school where this form has been in use, the teacher arrived at the value of a pupil's labor by a comparison with what other pupils were able to do and what she was able to do herself, valuing her own labor on embroidery work at 10 centavos per hour. The same rate was allowed to pupils who worked equally fast, and higher or lower rates were allowed to pupils who worked faster or slower. Quality of work was given consideration

## Cost record of articles fabricated in schools.

Article: Baby dress. Design No. 15-117.

Begun: September 6, 1915. Finished: October 5, 1915. School: Provincial.

Record of labor.			Cost of materials used.			
Part worked.	Amount finished.	Hours.	No.	Unit.	Name of material.	Cost.
Bottom	8 leaves, 4 flowers	2.00	135	Meters	Pearline	₱0.79
	10 leaves, 2 flowers	2.00	1	Skein	Thread No. 60	.04
	11 leaves, 2 flowers	1.00	1		Needle	.005
Neck	10 leaves, 2 flowers	2.00	1	Skein	Thread No. 10	.04
	7 leaves, 1 flower	.40			Padding thread	.01
	5 leaves, 2 flowers	1.20	1	Skein	Thread No. 60	.04
	2 leaves, 1 flower	.40				
Sleeve	2 buds, 1 flower	1.20			Total	.925
	14 leaves	2.00			Plus 10 per cent	.092
	8 leaves, 1 flower	.40			Cost	1.017
	7 leaves, 2 buds	1.20			Total cost of materials	1.02
	16 leaves, 6 scallops	2.00			Estimate of labor, 25½ hours at ₱0.03	.77
	78 scallops, P	2.00			Value of complete article	1.79
	40 scallops, P	1.20			Authorized price	2.00
	58 scallops, C	1.20			Variance (above)	.21
	15 scallops, C	1.20				
	25 scallops, C	1.20				
20 scallops, C	1.20					

REMARKS.—Standard price has not been received. This article was sold for ₱2.

Materials furnished by school.

Names of pupil working: Liberata Lamano.

Total number of hours: 25.41.

Certified correct: Eufemia Ebro, teacher.

Submitted this 4th day of January, 1915.

in estimating the value of the labor.

The form affords an accurate check on stocks of materials; it definitely determines the time required in which to make an article; and it furnishes an accurate basis on which to determine the selling price of an article that it may bring a profit. Such a record supplies accurate data for Municipal Form No. 48-A, and entries under "Materials Expended" on Form No. 153 may be made from a quarterly summary of these records made by the industrial teachers. (W. J. R.)

## HANDLING LARGE COOKING CLASSES.

For a teacher accustomed to having only 8 to 12 in a class, it is quite a problem to handle classes containing three times that number. Such, however, was the situation in the cooking and housekeeping courses in the intermediate grades of the Sorogon High School at the beginning of the past school year.

There were 34 girls in one of the classes; 26 in another; and 34, divided into two sections, in a third. A kitchen, a native stove, and an American stove were needed; the zinc worktable, aparadors, and a well-made sink were already a part of the equipment. Without either a native stove or an American stove a cafeteria was begun, but the cooking had to be done over stoves underneath the porch in such contrivances as ovens made out of petroleum cans.

The classes were divided into groups, each group cooking one kind of food. Occasionally a lesson was given in cake baking. Each group then had an oven and the girls were encouraged to see which group could produce the best results with the conveniences at hand. The results were satisfactory to all. Since many of the girls are compelled to use such ovens at home, it was decided to include a few such lessons during the succeeding year, despite the better facilities.

The initial inconveniences made everybody the more keen about getting a new kitchen and the necessary stoves. These were secured. The kitchen is so large that two or three groups of six each could cook in it at the same time. Often they did so; but ordinarily the classes were divided into five groups doing the following kinds of work:

First group, cooking.

Second group, cleaning the sink, stove, dishes, tables, and boiling water for the dishes and the towels.

Third group, cleaning and arranging the articles in the aparadors, changing the water in the bowls underneath, washing the dish cloths, and folding and putting away the uniforms.

Fourth group, polishing the floor of the recitation room adjoining the kitchen, mopping the kitchen floor, cleaning the water jars and putting fresh water in them.

Fifth group, cleaning the grounds below the kitchen and the near-by yard, and cleaning the toilet, in which task the janitor assisted.

By rotating the groups, every girl got her rightful share of each kind of experience. Group one on Tuesday became group two on Thursday, group two became group three, and so on until in the course of five lessons every group had moved on, so that in the sixth lesson, group one was again doing the work of the first group.

In order to give every girl an opportunity to be dressed and ready to form in line immediately when the bell rang, two or three girls dressed about three minutes before the close of the double period. These girls then took the place of those at work and finished whatever was left to be done before their class was dismissed, while the others dressed. This plan was used for about three months and it was found to be extremely satisfactory. Every girl was busy during every minute of the double period.

Each girl had a chance to demonstrate her ability in every phase of the work, and the appearance of the floors, table, stoves, dishes, and the room as a whole, was gratifying to all. The system devised had proved a success. (Mrs. H. E. McW.)

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#### DISPOSAL OF INDUSTRIAL ARTICLES.

Upon the degree of culture attained by the majority of the members of a community depends the success and profit with which industrial work can be carried on in the schools of that community. The financial condition and the cultural needs of the people determine the extent to which the fabricated articles may be disposed of locally. When the people are educated to the point where they demand for themselves the best that can be had and are financially able to gratify their desires, the problem of disposing of the industrial output of the schools becomes very simple. The schools at Bacolod, the provincial capital of Occidental Negros, are fortunate in that there are combined the culture and wealth necessary for the development of a local market for high grade industrial articles.

Until the past year these articles were disposed of at exhibits. But such a method was not satisfactory in every respect, as only the good articles were taken, while the poorer ones were returned to be sold at reduced prices. Since it was only the articles of inferior quality that were returned and put on exhibition, the people were led to believe that all of the work was of this quality.

As a means of correcting this wrong impression, at the beginning of the school year 1915-16, the girls were told that the articles on which they were working, aside from orders, might be purchased by themselves. The announcement was received with a great deal of satisfaction and practically all elected to take the articles on which each had been working.

When these articles were finished, taken home, and shown to parents and friends, the result was gratifying indeed. It was not long before the people who had never taken any interest in industrial work called to see what was being done and to leave their orders. Now that the people of the town know that they can get at the provincial high school the articles they want, there will be no difficulty in getting as many orders as can be filled.

This means of building up a local market for the output of the industrial classes may not be possible or even advisable in all the provinces nor in all the schools of this province, but it has worked out here to good advantage. In order to retain this local patronage, special designs in keeping with the tastes of the various localities may have to be developed. By so doing, however, it is believed that the local market will remain sufficient to care for the output of the schools. (G. B. M.)

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## INDUSTRIAL SUPERVISORS, 1916-17.

Agusan.....	Jose C. Orteza.
Albay .....	O. P. Allen.
Antique .....	Severo Encarnacion (act- ing).
Bataan .....	M. Buensuceso.
Batangas .....	Ward B. Gregg.
Bohol .....	Gilbert S. Perez.
Bulacan .....	Oliver Z. Stout.
Capayan .....	Alexander Wiley.
Camarines .....	Ernest Shaffner.
Cupiz .....	D. Macandog (assistant).
Cavite .....	Miner F. Smith.
Cebu .....	Sixto Balayan.
Ilocos Norte .....	B. F. Bennington.
Ilocos Sur .....	Gil Raval.
Iloilo .....	E. Ford Hickman.
Isabela .....	Carl P. Claypool.
Laguna .....	L. Palogan.
Leyte .....	Mateo Alfonso.
Mindoro .....	Sidney O. Dye.
Mountain .....	Faustino Sabile.
Nueva Ecija .....	Miguel Nebrija.
Nueva Vizcaya .....	Mrs. M. Agdamag.
Occidental Negros .....	John C. Cudoba.
Oriental Negros .....	Jose Hernandez.
Palawan .....	Walter J. Robb.
Pampanga .....	Charles Singletarry.
Pangasinan .....	Manuel Bacosa.
Samar .....	Jacob A. Robbins.
Sorsogon .....	Luther Parker.
Tarlac .....	G. I. Smith.
Tayabas .....	Hugh A. Wilson.
Union .....	G. M. McElfresh.
Zambales .....	J. J. Carl.
Zamboanga .....	Leroy Martin.
General .....	W. J. Cushman.
	E. H. Hespelt (provincial).
	H. D. Fisher.

## AGUSAN.

## THE SETTLEMENT SCHOOL FARM.

The settlement farm schools of Agusan continue to develop and increase in importance and in their influence on the agricultural development of the province in spite of the many drawbacks they have encountered during the past two years. The annual production for the school year of 1915-16, shows an increase of 33 per cent over that of the previous year, notwithstanding the fact that practically all crops were destroyed by floods during the last three months of the school year.

The products of these farms have been of great value in giving the pupils a greater variety of food, and their influence on the Manobo people in general is becoming more noticeable year by year. More diversified crops are being grown by the people and they are learning that it is economy to maintain a permanent farm instead of making a new clearing every year or two as was the custom before the influence of the schools was felt.

In two or three settlements the people have established community farms modeled after the school farms and are making a success of the plan.

## THE RATTAN SUPPLY.

The Province of Agusan offers great opportunity for the development of the almost inexhaustible supply of rattan which is found throughout the province.

This supply has hardly been touched except in the region around the barrio of Nasipit, from which place small quantities are exported to Cebu and other southern points.

Several varieties of rattan are found in abundance and could be made the source of large revenues if properly handled.

During the past year manufacturing rattan furniture was introduced into three schools of the division of Agusan with fair results, and the

work will be extended to other schools during the present school year. This is the first step toward the use of the supply of rattan. It is believed the work should be developed and a shop established with machinery for the production of furniture to take the place of that now imported from China. (C. A. B.)

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## ALBAY.

Mr. Felix Abejero of Zamboanguita, Oriental Negros, has been assigned to this division for the purpose of giving instruction in bamboo and rattan furniture. He is now working in the Catanduanes district.

Greater stress is being placed upon lupis coiled basketry than ever before. Polangui and karagumoy basketry are next in importance.

Filet drawn work is very popular and bids fair to become the most profitable form of girls' work in the division. It is being introduced into several additional schools this year. (T. H. C.)

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## ANTIQUÉ.

## THE SINAMAY INDUSTRY OF PANDAN.

The art of weaving on native looms is an important industry in the Pandan district. There is hardly a house in the entire municipality that is not provided with a native loom, and several families depend entirely upon this industry for their livelihood. In this district the young woman who does not know how to weave is considered poorly prepared for life. Day and night these women are busy knotting and sorting the fibers preparatory to weaving.

Of the several kinds of sinamay made here, the most profitable is the coarsest, commonly called "bajol." It is sold at 10 to 15 centavos a meter and the merchants export it to Manila. Thousands of meters of this heavy sinamay are sent to Manila

from Pandan every year. Practically all women in this section weave their own clothing, which makes them less dependent upon imported goods. (M. S. D.)

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## ILOCOS NORTE.

The housekeeping course has been introduced into the intermediate schools of Pasuquin, Bacarra, Vintar, Sarrat, and Badoc. There are now eight intermediate schools giving this course.

Hilario Bonoan and Elias Eugenio, recent graduates of the Philippine School of Arts and Trades, are teaching woodworking in Bacarra and Badoc, respectively.

Liceria Duldulao, Eugenia Ligot, and Margarita Roda, graduates of the domestic-science course at the Philippine Normal School, are teaching domestic science in Laoag, San Nicolas, and Sarrat, respectively.

During the month of May and June a ₱280 order for lace was filled.

During the vacation months, orders for vetiver fans amounting to ₱284 were filled.

The sixth and seventh grade boys of the Laoag Trade School are starting their work this year with some good practical experience in construction. The increase in attendance at the high school made it necessary to provide six additional classrooms for the use of seventh-grade pupils. No suitable building could be found near the high school and so it was decided to erect a new building, containing six rooms, on the hill overlooking the garden and the athletic field. Nearly all the materials, except nipa for roof and sawali for the sides, were obtained from the front part of the old Government building which was unroofed by the baguio last October. The experience in taking these materials from the old building was as valuable as will be the actual work of

construction. The new building will be ready for occupancy on July 10, 1916. (H. S. M.)

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#### OCCIDENTAL NEGROS.

Modesto Machan, the instructor in abaca coil basketry, formerly employed at Silay, is now employed as a teacher in Oriental Negros.

The Bulacan work basket, design 1105, was produced in the teachers' normal institute in nineteen hours, ten minutes by Esteban Bobe, an experienced basket maker of the Valladolid Central School. The cost of materials was 15 centavos. Figuring nineteen hours ten minutes at 4 centavos per hour—a low estimate for this vicinity—the labor amounts to 77 centavos, which, with 15 centavos added for materials, brings the production cost to 92 centavos.

The Occidental Negros wastebasket was produced by Generoso Legaspina, Washington barrio, Escalante, in the teachers' institute in twenty-five hours fifty minutes; counting 26 centavos for materials, production cost comes to ₱1.29. It is a thoroughly satisfactory wastebasket, and will nest and ship with little damage. With an export demand, it might have commercial possibilities. (H. B.)

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#### ROMBLON.

##### THE SUBPROVINCIAL INDUSTRIAL EXHIBITION: ITS EDUCATIONAL VALUE.

The people of Romblon, busy the greater of the year with their own affairs, have gained a clearer insight into the work of the schools through the recent industrial exhibit. Their notion that the industrial work is just a "keep-the-hands-busy" course has been changed, and the school now appears to them as the institution in which their children are trained to become useful citizens, capable of supporting themselves. To those in

charge of the schools, the sale was instrumental in deciding what articles were in local demand, and at what prices they could be sold, a knowledge which should be of great assistance in the planning of industrial assignments for the ensuing year.

The prices of articles at the exhibition were low enough to be within the reach of all. There was no profit on about 85 per cent of the articles sold; and many articles were sold at less than the actual cost of labor. The object was to sell the articles, to get them into the possession of people scattered about in the different localities of the subprovince of Romblon. Where the communities are more or less isolated, school advertising is sorely needed to arouse the people's interest in support of the work; so it was thought better to sell as many articles as possible than to raise the prices to a strict business basis and have two thirds of the articles left unsold. The articles bought become, undoubtedly, the subject of conversation in the respective towns and barrios where they are now found, and the schools and industrial instruction cannot but occupy a prominent place in these talks.

On the tables were displayed, and seen in use during the exhibit, models, forms, tools, charts, blue prints, designs, samplers, materials, and other devices and aids to industrial instruction. Well-informed teachers of industrial work were detailed to attend to visitors, to explain the work of each class and to answer intelligently all questions relative to industrial work.

The visitors were very much interested in seeing how the articles which they purchased were made. A few remarked that that was the first time they had ever seen lace made. Many sought explanations as to the use of the tools, others showed interest in the samplers, and some inquired how the blue prints aided the

teachers. This feature of the exhibition alone has given the people a knowledge which they could not have acquired otherwise in so short a time.

Another instructive feature of the exhibition was the information poster. These posters, which gave certain pertinent facts about the schools and their activities in the subprovince of Romblon, were in English and in Spanish. Some of the most important are here briefly described:

*"The industrial primary course aims at industrial efficiency for every pupil."*—This poster was adapted from one of the charts of the Bureau of Education at the Panama-Pacific International Exposition. It told briefly what the industrial primary course trains the Filipino boy and the Filipino girl to do.

*"The Hinugusan camote."*—This poster told of the excellent kind of yellow camote found in the barrio of Hinugusan, Badajoz; that this camote was planted in every school where gardening is prescribed, as it is one of the plants on the "dissemination of food plants" program.

*"The Odiongan Farm School."*—This concisely described the work of the farm school at Odiongan. Among other things, it told of the poultry work in that school.

The carnival committee for the fiesta was kind enough to appropriate ₱30 to meet expenses, and the teachers of Romblon and the pupils of the Romblon Provincial School did the cooking and serving. Of the foods served, the corn-meal mush with pork was the favorite. Over 2,000 people were served and attended the lecture and the seed-testing demonstration. The carnival queen and her court of honor were guests. This was the most largely attended corn demonstration ever held in Romblon.

The Romblon subprovincial exhibition has, it is believed, given the school patrons a broader view of the school industrial situation. While there is no room for complaint re-

garding the interest the people have taken in the school work in the past, it is hoped that through the the medium of this exhibition more in the way of coöperation from them will be forthcoming and that a step has been made in promoting the aim of the Philippine educational system to extend to the homes the knowledge gained in the schools. (F. V. B.)

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#### UNION.

##### THE EMBROIDERY IN SAN FERNANDO.

One of the first industrial centers to be established by the Bureau of Education is the embroidery center at San Fernando, Union. This was started under the leadership of Miss Oligario, a traveling industrial teacher, of Macabebe, Pampanga. The classes have been held in the old primary school building, but recently they have moved into more comfortable quarters in the provincial building. At present there is an enrollment of nearly 20 young women.

Included in this number are graduates of the School of Household Industries, former municipal school girls, and others who have had little if any school training.

The product which consists of corset covers and nightgowns is of good commercial quality. While the center has not been long enough established for any of the workers to make records for themselves, all those who have worked steadily and faithfully have made a wage, which is reasonable considering the limited experience they have had.

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##### ASSIGNMENTS OF TRAVELING INDUSTRIAL TEACHERS.

Assignments of traveling industrial teachers for 1916 normal institute work were as follows: Miss Teodora Bellen, filet lace, Batangas; Mrs. Segunda Ocampo, embroidery, Bohol; Mr. Eliseo Ocampo, coir mats and loom weaving, Bohol; Mrs. Bal-



bina Libornio, embroidery, Cagayan; Mr. Bernardo Picardal, basketry, Cagayan; Miss Felicidad Mendoza, embroidery, Cavite; Miss Euladia Madamba, valenciennes lace, Ilocos Norte; Mr. Paulino Pagui, loom weaving, Ilocos Norte; Miss Guillerma Lucas, embroidery, Ilocos Sur; Miss Perpetua Vasquez, embroidery, Iloilo; Mr. Edilberto Bien, basketry, Iloilo; Miss Maxima del Rosario, embroidery, Laguna; Miss Teofista Estrella, valenciennes lace, Occidental Negros; Mr. Guillermo Careño, coir mats, Occidental Negros; Miss Juana Guerero, filet lace, Tayabas; Miss Ana Oligario, embroidery, Union; Mr. Celso Militante, basketry, Oriental Negros; Mr. Luis Duka, industrial work in general, Surigao.

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#### THE POTTERY INDUSTRY OF SIMONOR, SULU.

It seems that from time immemorial the people of Simonor have been engaged in making clay pots of various shapes and sizes. Possibly it would be more specific to say that the women of Tubig Indangan are noted for their interesting pottery work, for it is the women only that do the work.

Simonor is an island of South Sulu, just south of Tawitawi, and has a population of approximately three thousand people. Tubig Indangan is the largest village on the island, and it is here that all the pottery work is done. When one learns that these people transport in vintas the clay for their work from Pababag, an island fifteen miles away, one wonders why the people from Pababag, or the people from nearby villages have not learned the pottery industry. The people from Tubig Indangan claim that other villages have attempted at various times the work, but has never succeeded in making a finished product as perfect as have the Tubig Indangan people. Therefore it seems that

they have decided to leave their more experienced neighbor without any real competition in this industry.

The only part the men take in the work is to procure the clay and market the finished product. Small boys and girls help in preparing the clay, and baking the pots. The rest of the work is left entirely to the women, some of whom in time become quite proficient in the work. One woman, after all the clay has been prepared, can make about six pots in one day. These will sell locally for from 4 to 20 centavos each, while if sold in Jolo or other places they will bring from 10 to 50 centavos each. Practically the same amount of time and work will be put on the smaller pots as on the larger ones.

The tools used in making these pots are few and very crude. The potter's wheel, "lumpang," is 15 or 18 inches in diameter. It is held on the lap of the worker, and on this is placed the clay to be worked into the desired shape. The table or wheel is turned at will on the lap of the worker as the work progresses. In the left hand is held a small hardened clay ball called "babato." It is bottle shaped. The neck is used as a grip for the worker. The "babato" is pressed against the clay on the inside of the pot, while with a wooden paddle, "tamampa," in the right hand the clay is beaten into shape. With a smaller light paddle made of bamboo, called "cohot" the outside of the pot is smoothed over and made ready for the fire. After the pots have dried in the sun for some time they are baked for several hours in a hot fire. This is done by putting the articles in a pile and building a fire around them. After baking they are ready for the market.

The articles made are those for which the people have immediate use with the possible exception of a tea-kettle shaped pot. The model for this is said to have come from Bor-

neo in the form of a metal teakettle. The shape appealed to the fancy of the people who modeled one in clay and burned it. A very serviceable article resulted, very similar to the original.

The following are some of the more common earthenware articles made: "Banga," pot for cooking fish; "lupo," pot for cooking rice; "binki," jar for drinking water; "lapohan," stove; "linga," large, flat, plate-shaped pot for cooking tapioca; "paso," wash basin; "tanang," small bottle-shaped water jar; "tataup," or "tambultambul," jar for keeping cooked food from one meal until another; this, however, it might be added, is very seldom put into actual use, as these people usually manage to consume all the food that is in sight and then wait until they feel hungry again before they begin to look for another meal. The clay teakettle is called "sille," and is used principally as an ornament. Many other useful and ornamental articles are fabricated. Much improvement could be made and many new ideas might be introduced.

These pots from Tubig Indangan find their way to Jolo, Zamboanga, Cagayan de Sulu, and all parts of the Sulu Archipelago. Usually four men will start out in a sapit with about 100 pots of different sizes for each man. They figure that on a trip to Jolo, or Zamboanga, one fourth of the pots will be broken by careless handling and bad seas. Some are traded for tapioca, some for palay, and a few are sold for actual cash. Formerly, the people claim, the best market for these pots was in Borneo. The prices were better and they could buy in exchange nipa, and rattan and other needed building materials. It seems a pity to see the number of houses in South Sulu that are poorly roofed when nipa could be secured so easily if they were only allowed to bring it in from Borneo. Customs regula-

tions however prevent this being brought in except as a dutiable article. At present the majority of their pots are sold in Jolo and there is seldom a day that some of the people from Tubig Indangan cannot be seen in the market there. Often there are in Jolo at the same time as many as three or four large sapits, all containing pots.

It seems as if some way of improving this crude manner of making and marketing an article that is so indispensable to the life of these people might be found. The most feasible way seems to be to begin with the school boys. The men laugh at the idea, and think it absurd, that they themselves should take any part in the actual work. The boys regard it as a part of their duty to help the women with their pottery work, and it would be an interesting experiment if a class in pottery or clay work might be organized in Tubig Indangan. This work should be begun with the smaller boys before they begin to think themselves men and the work undignified. In this way it is hoped that improved methods and new ideas will be assimilated by those whom it is most necessary to benefit. Furthermore, if the clay is suitable for making pots it may be suitable and the supply sufficient for making brick and tile. (J. P. C.)

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#### SAPPAN AND CAMPECHE DYE STUFFS.

Sappan, commonly known as a dyewood in the Philippines, is sold elsewhere under the name of Brazilwood and is used extensively in all civilized countries. It is a legume and is found in the tropical and subtropical countries of both the eastern and western hemispheres. The name Brazilwood was given to *Caesalpinia sappan*, not because of its being found in Brazil, but because of its fiery red color, *braza* being the Spanish word for a coal of fire.

Logwood dye, or campeche, also is obtained from a legume, *Haematoylon campechianum*. It, as well as sappan dye, is obtained by boiling chips of the heart wood. Identical colors can be obtained from these two dyes. Sappan or campeche will give a series of colors and shades ranging from tans through various shades of reds and browns to a bluish black, obtainable when the vegetable dye is used in conjunction with iron sulphate and sodium carbonate.

Anything definite as to quantity of either time or material necessary to obtain specific colors when using sappan, is out of the question, since a given amount of heart wood will not give a definite amount of dye, the older wood containing more coloring matter than an equal quantity of younger wood. The dye is accumulative in the growing plant. The only way to obtain a desired color is by experiment. The stronger the dye and the longer the material is left in the bath the darker the red or brown obtained will be. It has been said that lime in the dye bath with sappan will give the bright, blood-red seen on Igórot basketry. This, however, is not true, as three vines known as "isut," "tuptupen," and "sacot" are used in Mountain province in securing this color.

In obtaining blue-black the following process should be followed:

Soak overnight the material to be dyed in a solution of sodium carbonate, 50 grams to a liter of water. Dissolve iron sulphate in the proportion of 100 grams to the liter of water. Sappan paste should be prepared as described in technical bulletin No. 43, or sappan solution may be used without making the paste. The water in which chips have been boiled should dye the material a deep wine color in 10 minutes.

The materials having been soaked in the sodium carbonate solution, are immersed in the boiling iron sulphate solution for a short time, not to ex-

ceed 2 or 3 minutes, as the acid present in the iron sulphate, will weaken the fiber. The material is then cooled and drained slightly and while still dripping with the iron solution is placed in the boiling sappan bath where it is allowed to remain about ten minutes. When it is almost black the wet material is immersed once more in the sodium carbonate solution. After about a minute it may be taken out and dried. The color will be found to be a blue-black.

By making the sappan bath very strong or by using 150 grams of campeche gum, and adding 73 grams of  $\text{FeSO}_4$ , to the liter of water, a dead black may be obtained without using two different baths.

The necessity of reducing sappan to a paste is doubtful. It gives an approximate standard to the dye, but the chance of burning the dye and the amount of time and firewood necessary to produce the gum, make it more satisfactory to test the bath with abaca or lapat until it is seen to give the desired color. With care, however, sappan dye can be reduced, by boiling, to a gum which is a very satisfactory form, since it is of a definite standard.

A black dye can be produced by adding 20 grams of iron sulphate ( $\text{FeSO}_4$ ) to the extract from 2,000 grams of sappan heart wood, and boiling the mixture to a gum.

Campeche may be obtained from the Chinese stores in nearly every province, and should be used in case sappan is not obtainable, or in case the former is found to be less expensive.

In places where sappan is abundant the dye wood industry should pay. The trees could be grown from seedlings, and cared for, thereby making production sure. The useless brush and parts of the wood, as well as the chips from which the dye has been extracted could be used as fuel. (C. F. F.)