INDUSTRIAL NOTES.

BURÍ RAFFIA.

By M. M. SALEEBY, Chief, Fiber Division, Bureau of Agriculture.

The true raffia fiber of commerce is produced by the raffia palm of Madagascar, *Raphia ruffia* (*R. pedunculata*). It is obtained from the cuticle, or epidermal layer, of the leaflets before they are fully expanded. The leaves are cured the same day they are cut and the thin, epidermal, fibrous strips are divided into narrower strips, ranging from 1½ to 2 centimeters in width and about 1 meter or more in length. This division is made by means of special combs similar to those used in dividing hat straws or fibers. This raffia is used in the United States as a substitute for Russian bast as tie bands by gardeners and nursery men. In England it is woven into a superior matting for covering walls, as a substitute for tapestry. In Madagascar the natives use it for making hats, mats, and as a tying and wrapping material. It is said that the preparation of raffia both for domestic and commercial uses is one of the most extensive household industries in Madagascar.

The true raffia palm is not found in the Philippines, but a similar raffia has for some time been prepared from the leaflets of the burí palm (*Corypha elata*) by the Filipinos. The method used in preparing this raffia is similar to that used in Madagascar. Samples of true raffia from Madagascar and burí raffia have recently been received by the fiber division of this Bureau, and comparative tests of them were made. The burí raffia was superior to the true raffia in color, fineness, and luster; but the latter proved to be about 30 per cent stronger. The strips intended for the strength tests were 40 centimeters long and 1 centimeter wide, and the results of the tests were as follows:

Sample No.—	Breaking strength in kilograms.	
	Raffia.	Burí raffia.
4	10.3	4.5
5	6.4	5.1
0	7.9	6.65
1	6.8	4.35
6	6.35	4.9
1	10.3	6.8
9	7.25	7.2
3	6.45	5.5
8	8.2	9
7	8.1	6
Average	7.8	6

It is believed, however, that if the burí raffia is prepared so as to be of the same thickness as that of the true raffia, it will prove to be equally as strong as the latter. Hence there is no reason why the burí raffia of the Philippines cannot be employed for all the purposes for which the Madagascar raffia is used. Burí raffia might probably be used in preference to the latter in all articles in which color and luster are essential qualities.

PACOL FIBER.

Pacol is a species of *Musa* which closely resembles the sabá (banana) variety of the Philippines in its general outward appearance. It is extremely hardy of growth and produces a large number of huge stalks which are pale green in color. The leaves are similar to those of most banana varieties, though as a rule they are wider and less tapering than the latter. The seed pod is generally cylindrical in form, about 6 to 8 centimeters in length and

circumference, and full of large black seeds similar to those of abaca, though considerably larger in size.

The pacol plant may be seen growing along the bases or lower slopes of mountains in several of the larger islands of the Archipelago, but more especially in Mindanao, Negros, and southern Luzon. In certain localities in southeastern Mindanao and in Negros, pacol spreads so rapidly and grows so luxuriantly as to actually become a menace to adjoining plantations. It is propagated from seed by birds which are fond of the fleshy part of its pods.

Pacol, like any other species of *Musa*, produces a fiber which is said to be stronger than that of the banana, but undoubtedly much weaker than abaca. It may therefore be suitable for use in the lower grades of binder twine, but not for cordage purposes. It is prepared for commercial purposes in southern Luzon, and is usually of an inferior grade, for, owing to its weakness, the strippers are forced to loosen the tension of the knife on the table.

The pacol fiber has a value equal to that of the lowest grades of abaca, or slightly less. It is so similar to one or the other of the low grades of abaca that only experts can distinguish it from the latter. For this reason, pacol is sometimes mixed with abaca, especially when a shortage in the latter is expected. This practice is extremely unfortunate and every attempt should be made to discourage it. Abaca ranks as the premier cordage fiber because of its superior strength. If this quality is lowered or in any way impaired by mixture with a weaker fiber, abaca will lose the characteristics for which it is particularly desired.

Uniformity in strength is just as essential for many purposes as the absolute quality itself. The weak and the strong fiber have their respective use and value when kept separate; once they are mixed together, however, the value of the mixture is of necessity reduced to that of the weaker fiber. It is an established fact that the strength of a rope or cable is determined by the strength of its weakest part. If such a part is too weak to stand the necessary strain, then the whole rope is discarded as worthless for that particular purpose. Thus it is feared that if the practice of mixing pacol with abaca is allowed to continue, the reputation of abaca may be seriously injured. (The Philippine Agricultural Review.)

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NATIVE VEGETABLES.

The varieties of vegetables grown in the school and home gardens influence the food products of the community to such an extent that more emphasis must be given the selection of seeds which are available in the community or may be purchased of local merchants. The season when a plant grows best and the use for which it is intended are essential points to be considered along with the kind of plant, the part of it to use, and manner of growth, in choosing the vegetables for family use. A classification based upon the time of introduction in the Philippines may be made so as to distinguish the so-called native vegetables from those more recently imported. Few of the garden vegetables grown in the Philippines are of Philippine origin, but many were introduced a number of years ago and are now thoroughly acclimated. For this classification tugue, ubi, camotes, sincamas, taro (gabi), the many native beans, tomato, and eggplant, are grouped as native vegetables. They occupy an important place in the food production in the Philippines. Lettuce, endive, carrots, beets, turnips, and radishes are of more recent introduction and do not as yet greatly influence the main diet of the people. The need for

extending the production of native vegetables is shown by the fact that a better variety of food is needed and that the use of these vegetables is now known to some extent by all classes. Increased production by type improvement through seed selection and adequate cultivation, and a wider distribution of these improved varieties, remains to be accomplished. The failure to extend the production of certain desirable plants is often due to the lack of an available supply of seeds.

The introduction of new plants is too much emphasized. More energy should be devoted to the improvement of local plants. The people are being educated to believe that gardening and agricultural development is benefitted most by bringing in new plants for experimental work. This has been carried out to such an extent that, while the Bureau of Agriculture offers free seeds of new plants, no source is available for securing seeds of native vegetables. As a concrete example, it may be stated that any person may secure a package of turnip seed, yet nowhere can we obtain any seed of the sincamas, a hardy native vegetable, thoroughly acclimated, which is liked by the people and which has practically the same use as the turnip. This condition must be improved by those Government officials who are most concerned with the distribution of seeds.

The Bureau of Education has taken active steps to encourage the production of native vegetables by insisting that native vegetable seeds be grown in all school gardens. The general points of seed selection, seed preservation, and improvement of plant type are taught in connection with the garden work of the schools in order that the habit of saving seeds may be formed by the people. Existing varieties are improved and comparatively new varieties are developed by observing the essential points of proper plant selection and cultivation.

The need for giving emphasis to this work has been impressed upon those in actual charge of the garden work. In response to a request that information be supplied regarding the kinds of seeds available for distribution to other divisions a number of favorable replies were received, from which the following compilation has been made:

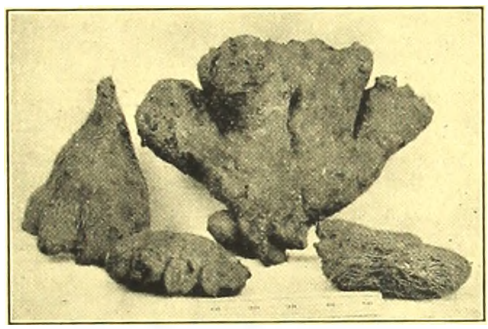
Batangas: Squash, radish, lettuce, okra, eggplant, tomato, pepper, beans, corn, sincamas, patola.

Bulacan: Roselle.

Camarines: Corn, pechay.

Cavite: Lettuce, eggplant.

Cebu: Sweet potato, corn, lettuce, liñga, squash.



Ubi—a native yam.

Ilocos Norte: Pechay, radish, mustard, pepper, native beans, papaya, squash.

Ilocos Sur: Tomato, eggplant, pechay, lettuce.

Laguna: Lettuce, squash, corn, tomato, pechay.

Mindoro: Lettuce, eggplant, cucumber, gourd.

Mountain: Papaya.

Nueva Ecija: Eggplant, lettuce, corn.

Nueva Vizcaya: Mustard, squash, beans, pepper, tomato, eggplant, cabbage, pechay, ginger.

Pangasinan: Mustard, pechay, eggplant, native beans, squash, tomato, condol, lettuce, amargoso, okra.

Samar: Amargoso (apari).

Sorsogon: Lettuce, corn.
Tarlac: Cabbage, lettuce, mustard, pechay, okra, radish.
Union: Roselle, lettuce, mustard, pechay, eggplant, native beans, pepper, tomato, radish.

Letters requesting seeds of these plants should be sent direct to the division superintendent and not through the Director of Education. (N. H. F.)

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TURNING ABORIGINAL DESIGNS TO COMMERCIAL ACCOUNT.

In the employment of aboriginal design in our industrial work and the turning of aboriginal craft to commercial account, certain unique articles in native wood craft offer suggestions which should prove of value. The spoons and forks with ornamental handles, carved by the Ifugaos about Banaue, would serve as excellent models for salad spoons and forks, mayonnaise spoons, etc. These would have the double attraction of being typically Philippine and of having unusual merit in design. The shapes are beautiful in line and proportion and should be reproduced with exactness even though the size of model were changed to suit any demand made by the special use for which the article was intended.

This same conventional treatment of the human figure should also prove a prolific source of suggestion for other applications to decorative carving.

Bolos would be of value as models for paper knives if reproduced in miniature.

Bolo handles mounted upon a suitable base would serve for paper weights and incised bamboo lime tubes, combs and arrow shafts offer many beautiful suggestions for carved bamboo flower holders. These could be planned either to stand or to hang after the fashion of the Japanese flower tube. (See illustrations on pp. 148, 155, and 156, THE PHILIPPINE CRAFTSMAN, Vol. II, No. 3).

Sections of the incised tubes, increased to proper size and mounted upon a suitable base, could be utilized as book ends, and motifs from these designs would have greater merit for the decoration of carved picture frames, boxes, etc., than those used heretofore. Moro ornament also offers many valuable suggestions for these latter applications. (See p. 157 and tailpiece on p. 164 of THE PHILIPPINE CRAFTSMAN, Vol. II, No. 3.)

Specimens of the articles mentioned can be found in the Philippine Museum, photos of which may be obtained through the Bureau of Science. Blue-print designs for complete adaptations will be issued by the Bureau of Education. (S. C. J.)

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THE DEPARTMENT OF VEGETABLE GARDENING ORGANIZED AT CORNELL UNIVERSITY.

The State College of Agriculture of Cornell, New York, has recently opened a department of vegetable gardening. The announcement distributed opens with the following statement:

"Few persons know that the vegetable products of the farms and commercial gardens in New York State are of greater value than all other horticultural products combined. Not considering potatoes—the production of which is valued at $20,000,000—the other vegetables represent a value of $16,000,000, against $17,000,000 of tree fruits. This includes no account of the large amount of produce that is yielded by home gardens in town and country."

It also calls attention to the need

for college-trained men who can qualify as leaders in the advancement of vegetable interests and emphasizes the necessity for instructional work of this nature. The following courses are included for the present in the department: (1) Home gardening, (2) commercial vegetable gardening, (3) vegetable forcing, (4) systematic vegetable crops. In addition to the regular courses of the department, short winter courses of twelve weeks are offered, covering the same lines of work as do the regular courses.

Emphasis is given the extension of the work into the homes. A member of the staff devotes his entire time to this extension work in gardening. Instruction is given in schools, at fairs, and at meetings of various kinds. Home interests receive as careful attention as commercial interests. This emphasizing of home interest and the value of gardening to the home are in direct line with the policy of the Bureau of Education as carried out in the Philippine public schools for the past four years. (N. H. F.)

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CLASSIFICATION OF PHILIPPINE INDUSTRIAL MATERIALS.

The need of some definite scheme for the classification of industrial fibrous materials of the Philippines has become insistent. This need arises from the fact that the same fiber has been assigned to different classes by various writers and as a result references to, and orders for materials are frequently misunderstood. To overcome this difficulty, an outline has been drawn up in which an attempt is made to assign each of the important industrial materials to a definite class. The outline is given below. The class names thus established will hereafter be used by this Bureau.

The classification which is here made is no doubt, like other classifications, more or less arbitrary. However, this outline is based primarily upon what is believed to be the most important consideration; namely, the use of the industrial material. Its appearance and derivation are considered as of secondary importance.

All available authorities have been consulted in drawing up this outline, in order that usage in the Philippines may conform as closely as possible to that of systems established elsewhere.

I. *Straws.*—The whole round stalks of grasses, sedges, rushes, and the like which are pliable enough to be platted, or the same when split but curled round like whole stalks:
  1. Grass straws—
    (*a*) Rice straw.
    (*b*) Wheat straw.
    (*c*) Cobboot straw.
    (*d*) Bacuit straw.
  2. Sedge and rush straws—
    (*a*) Tikug straw.
    (*b*) Balangot straw.
    (*c*) Tiker straw.
    (*d*) Chinese matting straw.
    (*e*) Japanese matting straw.
    (*f*) Cat-tail straw.
    (*g*) Alinang straw.
    (*h*) Tayoc-tayoc straw.

II. *Stalks.*—The whole stalks of grasses, sedges, palms, and the like, which are not pliable enough to be platted:
  1. Grass stalks—
    (*a*) Vetiver stalks.
    (*b*) Cogon stalks.
    (*c*) Tambo stalks.
    (*d*) Talahib stalks.
    (*e*) Bigao stalks.
    (*f*) Bamboo stalks.
  2. Other stalks—
    (*a*) Tiquio stalks.
    (*b*) Rattan stalks.
    (*c*) Agas stalks.

III. *Splints.*—Fairly coarse, stiff, fibrous pieces split off from stalks, stems, and other parts of plants and used as ribs or coarse weavers in baskets and the like:
  1. Splints from stalks—
    (*a*) Bamboo splints.
    (*b*) Cogon splints.
    (*c*) Vetiver splints.
    (*d*) Tambo splints.
    (*e*) Talahib splints.
    (*f*) Banban splints.
    (*g*) Rattan splints.

III. *Splints*—Continued.
2. Splints from palm petioles—
(*a*) Dumayaca splints.
(*b*) Sugar palm splints.
(*c*) Buri palm splints.
(*d*) Saguise splints.
(*e*) Coconut splints.
(*f*) Nipa splints.
(*g*) Pugahan splints.
3. Midrib splints—
(*a*) Buri midrib splints.
4. Splints from stems and roots—
(*a*) Nito splints.
(*b*) Kilog splints.
(*c*) Air-root splints.

IV. *Strips.*—Rather thin, supple, soft, more or less flat strips taken from any stalk, petiole, etc., or from a thin leaf blade:
1. Leaf strips—
(*a*) Buri strips.
(*b*) Pandan strips.
1. Sabutan strips.
2. Karagumoy strips.
3. Common pandan strips.
4. Majayjay pandan strips.
5. Bariu strips.
(*c*) Coconut strips.
2. Strips from splints, midribs, roots, and stems—
(*a*) Bamboo strips.
(*b*) Calasiao strips.
(*c*) Irao strips.
(*d*) Rattan strips.
(*e*) Nito strips.
(*f*) Air-root strips.
3. Strips from straws—Split straws.
4. Bast strips—
(*a*) Lusuban strips.
(*b*) Jute strips.
(*c*) Anilao strips.
(*d*) Gomamela strips.
(*e*) Takling-baca strips.
(*f*) Anabo strips.
(*g*) Tanag strips.
5. Lupis strips—
(*a*) Abaca lupis strips.
(*b*) Banana lupis strips.

V. *Raffias.*—The thin skin of leaves:
(*a*) Buri raffia.
(*b*) Pandan raffia.

VI. *Fibers.*—The extracted or naked fibers of any parts of plants:
1. Structural fibers—
(*a*) Abaca fiber.
(*b*) Piña fiber.
(*c*) Maguey fiber.
(*d*) Buntal fiber.
(*e*) Bowstring hemp fiber.
(*f*) Vegetable sponge.
2. Surface fibers—
(*a*) Coir fiber.
(*b*) Cotton fiber.
(*c*) Kapok fiber.
(*d*) Cabonegro fiber.
(*e*) Pugahan (kittul) fiber.

VII. *Roots.*—
1. Air roots—Amlong.
2. Ground roots—
(*a*) Bamboo roots.
(*b*) Vetiver roots.
(*c*) Coconut roots.

VIII. *Stems.*—
1. Orchid stems.
2. Fern stems.
3. Pamago stems.

IX. *Midribs.*—Palm-leaf midribs.

X. *Sheaths*—
1. Bamboo sheaths.
2. Areca sheaths.
3. Coconut sheaths.

XI. *Panicles.*—
1. Tambo panicles.
2. Tiger-grass panicles.
3. Cogon panicles.
4. Talahib panicles.

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GERMAN CONTINUATION SCHOOLS.

Germany does not allow her boys and girls to enter "blind-alley" employments if she can help it. The German continuation school system takes hold of the boy of 14 or 15 as soon as he finishes the elementary school and prepares him for some particular trade or business. What the work of these vocational schools means in the sum total of German industrial efficiency and social progress is well indicated in a bulletin on "Prussian Continuation Schools" just published by the United States Bureau of Education. The information was obtained from American consuls located in important German cities.

In Magdeburg, boys completing the common school are assisted by the school authorities in securing desirable situations, and are required to attend the continuation schools while employed. There are classes for bakers, butchers, barbers, waiters, painters, decorators, blacksmiths, tailors, cabinetmakers, and, in fact, for any other occupation in which it is practicable for a boy to engage. Even if the boy does not aspire to be a skilled workman, but is content to become a street cleaner, house servant, messenger, or to engage in any other form of unskilled labor,

he is nevertheless required to spend three years in the continuation school.

In Erfurt and other Prussian cities employers are compelled by law to excuse their employees for the lesson hours, without loss of pay, for four to six hours a week. Furthermore, the employers pay the tuition fees in these industrial schools, amounting to about $1.50 per year for an apprentice or $1 for unskilled workers. The main financial burden is met by the municipality, with some aid from the State. The State makes its appropriation contingent upon compulsory attendance, with the result that compulsory continuation schools are gradually replacing the optional type.

Barmen has a continuation school with an attendance of nearly 4,000. The pupils are divided into 131 classes. There are classes in textiles, lace making, machine-tool making, art forging, plumbing, electric installation, furniture and weaving-loom making, house carpentry, house painting and decorating, shoemaking, saddlery, upholstery, tailoring, gardening, printing, bookbinding and box making, lithography and engraving, baking and candy making, as well as for butchers, barbers, and wigmakers, messengers, and helpers.

Instruction in these continuation schools is by no means confined to technical branches. Besides definite vocational training, the pupils receive instruction in certain branches designed to aid them as citizens—civic affairs, trade history, and community welfare—in addition to composition and arithmetic based chiefly on the vocational work.

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SAFETY APPLIANCES FOR MACHINERY.

The attention of division superintendents has been again directed to the necessity of guarding against accidents by the construction of safety appliances for all machinery in trade schools and provincial school shops.

No set rules can be laid down for the construction of machinery safety appliances. Points of danger are different and no matter how well a certain machine may be located, there are some points that should receive attention. Pupils should be constantly cautioned regarding working around machinery and all danger points should be indicated by means of a placard with the word "Danger" printed in large red letters upon a white background.

Division superintendents have been requested to take special note of the provisions that have been made to supply adequate machinery safety appliances. In any case where negligence is apparent the matter is to be brought promptly to the attention of the Director of Education.

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CORRELATION OF SCHOOL INDUSTRIAL WORK WITH THE HOME INDUSTRIES.

Following up the editorial appearing in THE PHILIPPINE CRAFTSMAN for September entitled "Concentration of Effort in Promoting the Household Industries" the division of Albay has undertaken to harmonize the industrial instruction in the public schools with the home industries already established in the province. Graduates of the School of Household Industries have organized working centers for the production of embroidery in the municipalities of Ligao, Legaspi, Albay, Guinobatan, and Oas, with a total of some 400 workers. The provincial treasurer has made arrangements with the Sales Agency for disposing of all well-made articles, thereby placing the centers upon a satisfactory commercial basis. Assurance is therefore given to the workers that a stable and permanent

market exists for the product of their labor.

It was proposed to organize the industrial work of the schools in these five towns so that they would be feeders for the industrial centers which have been established. To this end, embroidery was prescribed as the home industry work for the girls in these schools. It will thus be possible for the girls to find remunerative employment when they leave school.

The provincial government of Albay is also encouraging other local industries such as Irish crochet, coiled, Polangui, and karagumoy basketry; abaca work; the manufacture of slippers, bags, and articles of macramé, by providing a market for the articles produced by adults and workers outside of school. Wherever a working center is organized industrial instruction is provided in the public schools for training workers in the industry of the locality. Provision is thereby made for the future development of the small industries and the working centers now in process of formation.

Further, the instruction in the household industries which is given in the provincial school is so arranged as to provide, in so far as is possible, instruction for each girl in the industry of her home town.

The household industry instruction approved for the schools of the division, so far as it has been worked out, is indicated below:

Municipality.	School.	Industries.
Albay	Legaspi	Embroidery; abaca slippers and macramé.
Do	Central	Embroidery; embroidery on abaca.
Do	Daraga	Embroidery.
Camalig	Central	Embroidery; abaca work.
Guinobatan	do	Do.
Ligao	do	Embroidery; coiled baskets.
Oas	do	Embroidery; coiled and Polangui baskets.
Polangui	do	Do.
Libon	do	Embroidery; coiled baskets.
Bacacay	do	Irish crochet; bamboo and rattan furniture.
Tabaco	do	Irish crochet.
Do	San Lorenzo	Karagumoy baskets.
Malinao	Central	Irish crochet.

REPORT ON VOCATIONAL EDUCATION.

Among educational associations there is probably none so well known nor with so large a membership as the National Education Association of the United States. It has been in existence for over fifty years and convenes annually in some important American city for the discussion of all phases of educational work. To it belong not only thousands of teachers in the United States, but many well-known educators from foreign countries as well. The various phases of industrial education have occupied the attention of its members for some years past and at the last convention held at Salt Lake City there was presented an important report on vocational education and vocational guidance. The committee having the matter in charge included a number of the leading educators, business men, and industrial specialists of the United States.

Though the report is but a preliminary one, it will not be out of place here to give a brief résumé of its contents to our teachers. A few excerpts will first be given to indicate some significant portions of it, with a concise reference to other interesting parts.

The opening paragraph of the report reads as follows:

"One of the most insistent present-day demands of the public is that

the work in the field of education shall be efficient. The measure of efficiency is found in the ability or lack of ability to cope successfully with the problems which arise in a higher school, in a particular occupation, or in the ordinary routine of life. This measure is applied ruthlessly to all types of education. The wonder is that the difference between the standard and the result is no greater than that expressed by the critics of our public school system.

"This committee believes that the fundamental thought underlying this movement, whether it be a movement of educators, manufacturers, workers, or philanthropists, is the closer relation between theory and practice in education work."

Then follows a series of resolutions in which the association definitely commits itself to the policy of supporting and developing industrial and vocational education and unifying it with the public school system. In its report the committee considered: A suggestion of the field which might be covered in the final report of the committee; a series of questions and issues which might be discussed in the final report; and an outline indicating the scope and possibilities of the work involved in any comprehensive study of the questions of vocational education for persons between the ages of 14 and 18 years. In the scope of the final report it is proposed:

"That the report shall take the form of a handbook of information for the use of those who are interested in adopting some plan of vocational education and vocational guidance.

"That this report shall contain also a discussion and presentation of plans for certification and training of teachers for vocational education.

"That it shall include an acceptance of principles and policies already prepared upon vocational education and vocational guidance, together with additional principles and policies in case such need arises.

"That it shall add warnings, as well as suggestions, concerning what needs to be done and what needs to be avoided to make the work successful in any given community."

Sections follow outlining the plan of work of the committee and the basis of vocational education under which appear the following fundamental factors in this connection: First, those which are of economic significance; second, those which are more distinctly social; third, those which may be termed educational. Each of these factors is in turn discussed in topical form and reasons clearly adduced to prove the necessity for this type of education.

Next the committee submits to the association for their consideration a series of vital questions bearing on the subject of industrial education. Then there is given a suggestive outline for a final report which contains an introduction upon such points as agencies at work, definition of terms, field to be covered in the report, also a presentation of the present status of vocational education under which appear legislation existing and proposed (state and national); summary of investigations by States and communities and private agencies in the United States; analysis of existing schools in that country; problems peculiar to each type of school; and, finally, a section devoted to the practical problems associated with vocational education, such as the discovery of the actual need for this work in a given community; the coöperation and united effort of all agencies within the community; source of revenue for the support of these schools; the selection or construction of buildings; equipment; selection of principals and teachers; securing of trained teachers; actual organization within the school;

courses of study; methods of instruction; disposal of products; methods to promote efficiency; and safeguards necessary for permanency and strength of the movement.

Of modern countries, Germany has undoubtedly the best system of industrial education throughout its common and high schools. Numerous technical and mechanical high schools are to be found in the United States, and of late years increasing effort has been made and success obtained in introducing some form of industrial or prevocational work in the higher elementary grades. With the present movement so vigorously supported conditions now point to some form of vocational or industrial training being widely introduced into those grades of American schools of a similar standing to our intermediate courses in which for over five years different lines of industrial work have been given to all pupils. (L. R. S.)

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CHANGED VIEWPOINT WITH RESPECT TO LACES AND EMBROIDERY.

A condition worthy of consideration is the changed viewpoint with which the public of the United States buys and uses embroideries and laces.

Formerly, real laces and embroideries were bought as are jewelry and works of art and they were used as the occasion required and as the owner desired and were passed from mother to daughter as heirlooms. These exquisite pieces of embroideries and laces possessed and still have great value and were usually obtained during travels on the Continent. The class of people who purchased such laces and embroideries still exists but in diminishing numbers.

Nowadays, laces and embroideries are used not only by the rich but by people of all walks of society who care at all for "dress."

"Seasons" in embroideries.—This popularizing of embroideries and laces has naturally led to the creation of "seasons" and fashions in them. A certain kind of work comes into fashion, everybody wants to wear it, and great demand results. People of little means buy the machine imitations. Those with more money to spend purchase the commercial hand-worked goods or the best machine goods, while the well-to-do who follow style, demand the real article in quality and quantity depending upon their respective purses and tastes.

Organization of foreign hand-embroidery industries.—That hand embroideries and laces can be made to follow the demands of fashion in such large quantities and in such short space of time, is a direct result of the organization of household industries in Europe. The workers have been brought into a system. Trade limitations have been overcome, unfair commissions and unnecessary middlemen have been eliminated, and the efforts of the workers turned into articles demanded in the United States.

While Europe has made the greatest strides in the organization of household industries, the movement is a world-wide one affecting Mexico, South America, China, and Japan. It is well for us in the Philippines to understand that semi-philanthropic organization of household industries is taking place in many other lands, as for instance, among the peasants of Russia by certain of the Russian nobility, and among the peasants of China and Syria by missionaries.

Wonderful results and very large production have been obtained by the commercial organization of household industries by merchants in Europe and Japan. The Philippines at present cuts very little figure in any household product and still remains a minor factor in seasonal trade. (H. H. M.)

MACHINE EMBROIDERY.

Most of the embroidery used in the United States is done on machines in Europe. The list of machine-embroidered articles is practically identical with that of hand-embroidered articles and ranges from handkerchiefs to the heaviest linens.

Most of the machine embroidery imported into the United States comes from Switzerland, although a little is now being made within the States themselves. The method of production and sale is as follows: The large companies in Switzerland employ special artists who study ancient embroideries and designs and construct new designs to be executed on sample articles. These patterns are sent to the United States and from them orders are taken by commercial travelers on the road or by agents stationed in various cities. These orders are forwarded to Switzerland and are executed there. Thus, it will be seen that considerable time elapses between the giving of an order and its delivery to the wholesaler or retailer in the United States. For many of the patterns no orders are ever received.

Machinery has been so perfected that first-class machine embroidery is a very beautiful product and much of it can be distinguished from hand work only by experts. In a leading linen store in New York, I saw selling in the same pile, hand-embroidered handkerchiefs and machine-embroidered handkerchiefs and the handkerchief buyer assured me that the public either does not know or does not care whether a given handkerchief is hand or machine made. What it most demands is a dainty, effective design.

Machine embroidery is becoming a dangerous competitor and its effect upon the demand for and the price of handwork should receive careful consideration. At the present time the best machine embroideries sell for about the same prices that hand embroideries bring. However, perfection in machinery may reduce the price of machine goods and this may have a marked effect on the demand for hand embroideries. I say "may," because we cannot be certain of the effect. The linotype machine resulted not in lower wages and fewer operatives in the printing trades, but in increased production and consumption of books, periodicals, and newspapers. The organization of the handicraft industries of Europe has resulted in increased output and demand. In like manner it is possible that the output of improved machines will be entirely consumed through a newly created demand and that hand embroidery will remain the embroidery of the classes. (H. H. M.)

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A LETTER FROM SPAIN.

An interesting letter has been received from Mr. Lewis S. Thomas, head teacher of Misamis. Mr. Thomas went home on leave some months ago and wrote concerning school conditions as he found them in Spain. At the time of his trip through Spain, schools were not in session, but Mr. Thomas examined buildings and equipment and made investigations at Barcelona, Tarragona, Granada, Sarragosa, Madrid, and other places. Mr. Thomas wrote in part as follows:

"During June there was held in Madrid a national exhibit of arts and trades in which the public schools, as represented by provincial schools of arts and trades, supplied the larger part of the exhibit. Excellent examples of decorative ceramics and ornamental ironwork were displayed from the schools. The cabinetwork did not equal the standards of the same kind of work in our trade schools. There were examples, how-

ever, of lace making and embroidery that would make many of our schools look to their laurels. None of the articles at the national exhibit were on sale.

"According to the owner of a machine shop in Malaga, beneficial results from the introduction of industrial work are quickly becoming apparent. This gentleman said that within a year from the introduction of free-hand drawing in the municipal schools, the workmen in his shop showed more knowledge and better understanding of the plans laid before them than ever before. He attributed this improvement to the fact that the children learned their lessons in school and then taught them to their parents."

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DYEING ABACA.

The results obtained in the past in the dyeing of abaca and other materials have been of rather a haphazard nature. This is due, perhaps, to various reasons, but primarily to the fact that this important work is left in the charge of teachers who possess an inadequate knowledge of the subject. Heretofore the cheap Chinese dyes, available throughout the Philippine Islands, have been used almost exclusively. These, too, have been the source of much unsatisfactory work.

At the present time there is available in Manila at Behn, Meyer & Co., and Viegelmann & Co. (as per information contained in circular letters from the Director of Education to all divisions under dates of August 6 and September 20, 1913), a substantial quantity of strong aniline dyes specially prepared in Germany for use on Philippine raw materials and fibers. The Philippine Education Company have also at the present time a quantity of the well-known "Easy Dyes." Both of these classes of dyes, if used in the proper proportion, give excellent results on all fibers.

It must be remembered that these dyes are much stronger than the ordinary Chinese dyes; therefore care should be exercised in making the various dye baths, in order that the proper proportion of dyestuffs is used. It has been found by experiments conducted by the General Office that 1 to 2 tablespoonfuls of aniline dye are sufficient for 5 gallons of water. However, when materials other than abaca are dyed, this amount should be doubled in order to produce suitable results. The above statement does not pertain to "Easy Dyes." The directions accompanying each tube of "Easy Dyes" should be followed.

It has been found that the dyeing of materials is often done in small basins or containers holding 4 liters or less. By this process it is impossible to dye enough material for a finished article which will have the same color tone throughout. Sufficient raw materials should be dyed at one time for fabricating the article for which the material is intended. If this is done, the color tone throughout will be uniform and the time consumed in the rematching of colors, which is generally a difficult operation for one who is inexperienced, will be saved.

The color chart on the harmony of colors appearing opposite page 162, Volume I, No. 3, of THE PHILIPPINE CRAFTSMAN, gives material aid in determining the exact tone of color desired. In using this chart it should be remembered that two colors connected by straight lines are complementary and that one will tone the other if it is used in the proper proportion. But a small quantity of a complementary color is necessary in toning. Should too much of the complementary color be

used the result obtained will be of a grayish nature.

Close observance of the following suggestions may aid in obtaining good results in the matter of dyeing:

(*a*) All aniline dyes should be dissolved thoroughly in boiling water.

(*b*) Generally the color depends upon the time the material is left in the dye bath. A light tone or shade may be obtained by dipping.

(*c*) The use of soft water is recommended. In case hard water is used, common salt or sulphate of soda should be added.

(*d*) Excellent results will be obtained by soaking the material before dyeing in water in which a small portion of washing soda has been dissolved.

(*e*) Attention should be given to the quantity of the aniline dye used. As before stated, these dyes are exceptionally strong and but a small quantity of dye is necessary to obtain the proper bath. Poor results are generally caused from a strong dye bath rather than from one too weak.

(*f*) After dyeing, care should be taken in the manner in which the materials are washed. They should be washed in running water until thoroughly clean after which they should be hung in the shade to dry.

(*g*) For dyeing raffia, tikug, balangot, and similar materials a double-strength dye bath is necessary.

(*h*) Dyeing is often done in receptacles or containers that are too small. A 5-gallon petroleum can may be easily obtained and it will serve the purpose nicely. For convenience, the tablespoon may be used as the unit of measure.

(*i*) Dyeing should be taught as a feature of industrial instruction just as other industrial subjects are taught. Bright and flashy colors should be discontinued and in their stead soft and pleasing tones should be substituted. (R. R. S.)

MAKING FURNITURE TO BE SENT TO THE UNITED STATES.

A large part of the fine furniture purchased by Americans in the Philippines is eventually shipped to the United States. Therefore, in the making of such furniture, additional precautions should be taken that would not be necessary were it to remain in the Philippines. With the 1914 exposition near at hand and the Panama-Pacific Exposition looming up in the background, it behooves every trade-school man to study up on this subject.

It is an established fact that cheaply made furniture imported from America will not stand up in these Islands; this being true, it is altogether probable that the rule works both ways and that poorly made Philippine furniture will depreciate in the United States. The reason is obvious. There is no lumber, however well seasoned, that will not shrink slightly when the surrounding dryness is increased, and likewise swell when the surrounding moisture is increased. Wood that is as dry as we can make it in the Philippines, when placed in one of the heated houses throughout the northern part of the United States, will dry still more.

Wood coming to the Philippines from the United States absorbs moisture and swells. A few scattered reports on furniture shipped from the Philippines to the United States show that the trouble is caused by shrinkage. No furniture maker has the right to guarantee that his products will remain in perfect condition if shipped away from the Islands. He can, however, by taking the proper precautions, guarantee that nothing will go radically wrong. A few of these precautions are given herewith.

Avoid combinations of different wood in the same surface. This re-

fers especially to the inlaying of camagon or molave in narra, or the placing of a camagon border around a narra top. Different woods do not expand and contract alike. Table tops with mitered corners, even of the same kind of wood, are a risky type of construction.

Follow the "one piece" idea throughout. When a single piece cannot be obtained for the making of a wide panel, a table top, or any wide, single surface, explain to the customer what is likely to happen. Make every panel out of a single piece and groove deeply to allow for shrinkage. If one piece cannot be obtained, alter the plans and put in two panels in place of one.

Use dovetail joints whenever practicable. Fasten all joints which cannot be made secure in themselves with screws as well as glue. Do not depend altogether on glue to hold the work together.

To guard against warping of table tops, make rims and hidden reënforcements just as heavy as the design will stand. Dovetail the hidden crosspieces into the rims and fasten with the largest possible screws, not more than 6 inches apart, all around and across the center. Make the head of each screw tight in proper sized hole, the rest of the screw working in an open slot so as to allow for play in case of shrinkage or expansion.

Fasten the tops of sideboards, small tables, chair arms, etc., with iron plates, with screws up into the top and down into the frame. In making picture frames, use the half-lap miter joint, or some other joint that is as secure, fastening with screws as well as glue. In no case depend upon a miter joint which is not reënforced.

Apply a coat of filler, varnish, shellac, or paint to every raw surface, whether exposed or not. A raw surface will absorb moisture or give off moisture faster than a finished surface, thus causing the piece to warp. (F. W. C.)

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REGULATIONS FOR NAUTICAL SCHOOLS IN ENGLAND AND WALES.

The curriculum of a school recognized under these regulations must provide for the continuance in a modified form of the education given in public elementary schools, including physical training. Provision must also be made for practical instruction of a progressive character in all suitable branches of seamanship.

A course of nautical training must be organized to cover not less than one and not more than two years, to occupy not less than forty weeks in each year.

With the consent of the board a period of practical experience on a seagoing tender under conditions of instruction approved by the board may be accepted as part of a course of training under these regulations.

The age limits for the admission of pupils must be such as the board may approve for each course; but schools should normally be planned to provide either a two-year course for pupils aged between 13 and 14 on admission, or a shorter course of at least one year's duration with a corresponding later age of admission. It is advisable that the board should be consulted upon all proposals for courses of less normal types at an early stage.

No pupil may be admitted unless a certificate is given by his parent or guardian that he is intended for the sea. An indenture of apprenticeship will be accepted as equivalent to a certificate.

No pupil may be admitted to the course unless a certificate has been given by the medical officer of the school in a form approved by the

board that he is physically fit for employment at sea.

A record must be kept of the employment of pupils during a period of three years after leaving the school. The board may withdraw recognition from a school if they are not satisfied that a reasonable proportion of the pupils go to sea and continue in that employment for a satisfactory period.

A reasonable proportion of the members of the teaching staff must have had practical experience of employment at sea.

Suitable facilities must be provided for recreation and physical exercises.

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THE MONEY VALUE OF EDUCATION.

Mr. J. M. Dodge of Philadelphia, in a noteworthy paper entitled "The Money Value of Technical Training," has computed the capital value of four classes of employees, each according to the amount of preliminary instruction which they have received. The first group he calls the unskilled labor group, the second the shop trained or apprentice group, the third the group trained in trade schools, and the fourth, the group educated in the higher technical schools. The unskilled laborer, with but primitive training, works under the immediate supervision of a boss and earns at the age of twenty-two $10.20 per week. This amount represents $530.40 a year, or capitalized at 5 per cent $10,608. This sum, then, $10,608, is the capital value of the unskilled laborer; in other words, it represents the amount which he is worth to himself, and also to the community.

The apprentice starts in at $3 per week, and is worth about $3,000 at the outset. At the age of twenty, he is earning $9 per week, and his worth amounts to $9,000. From the age of twenty to twenty-one and a half his pay is increased to $13.20 and his potential value to $13,200. At the age of twenty-four, he earns $15.80 per week and his value is $15,800. In other words, in eight years, the capital value of the shop-trained apprentice has increased $12,800.

The third group is composed of those young men who enter a trade school at sixteen years of age, and devote the next three years to acquiring a trade under competent instruction. At the age of nineteen, a trade-school man enters the machine shop, and he can command $12 per week, equal to the apprentice at twenty-one years of age. The three years at school have increased his value from $3,000 to $12,000, a gain of $9,000; thus he has caught up to the apprentice entering the shop at sixteen and who has been working for five years. Continuing the comparison, at the age of twenty-four the trade-school graduate is earning $20 per week, with a potential value of $20,000 or $4,200 greater than that of the shop-trained man. He increases his earnings up to $22 per week, a potential value of $22,000, and he does not, as a rule, go much farther. The members of the third group are worth, therefore, on the average $6,200 more to themselves than the members of the apprentice group, solely as a result of their more thorough preliminary training.

The fourth group is represented by a boy of sixteen who studies in a high school until his eighteenth year, preparing for admission to some technical institution, such as the Massachusetts Institute of Technology, Stevens Institute, or Cornell. Here, after four years of training, he is graduated at the age of twenty-two, ready to begin practical work. His wages at starting are $13 per week, or the same amount earned by the apprentice at the age of twenty-

one and a half and by the trade-school group at nineteen and a half. He has apparently lost by his six years of preparatory study, being six months behind the apprentice, and two and a half years behind the trade-school graduate. The graduate of the technical school, however, increases his earnings very rapidly. Within six months his wages rise to $14 per week, and he reaches $15.80 per week nearly one year before the regular apprentice. In three years' time, the technical graduate earns $22 per week, surpassing the members of the trade-school group, and his earnings continue to increase until at the age of thirty-two, ten years after entering upon his practical work, the technical-school graduate earns $43 per week and his potential value is $43,000. Six years of preparation have enabled him to far outstrip the shop group and the trade-school group. (Extract from "Modern Business," Vol. I, p. 41. Published by Alexander Hamilton Institute, New York.)

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SOME QUESTIONS FOR PUPILS IN TRADE SCHOOLS.

The Manual Training Magazine for June contains a short article stating the things which a pupil who has had two years of manual training should know. From this article the following questions have been prepared as a test for our own trade-school pupils:

1. How is sandpaper graded?
2. What is the correct method of tearing sandpaper?
3. When should the block be used in sanding?
4. Of what kind of wood should a sandpaper block be?
5. What use can be made of worn sandpaper?
6. What is the difference between an auger bit and a drill?
7. What does the figure 9 on a bit mean?
8. What is the difference between a brace and an auger?
9. In how many ways does a file cut?
10. What is the effect of grinding without water?
11. What is the difference between sharpening and grinding?
12. Should the flat side of a plane blade or chisel ever be ground?
13. How should the flat side of a plane blade or chisel be held when sharpening?
14. How should a plane be laid on a bench?
15. How does the ripsaw differ from the crosscut saw?
16. What does the number of the saw indicate?
17. For what work should a backsaw be used?
18. When using a mallet, what part of the chisel should be watched?
19. When using the mallet or hammer, where should it be held?
20. What is the difference between a bevel and a miter square?
21. In using a gauge, how far should the gauge point project?
22. How do you sharpen a screw driver?
23. How do you determine the size of a nail or screw?
24. How do you read "12d.?"
25. How long is a "12d." nail?
26. What is "toenailing?"
27. What is the difference between a nail set and a punch?
28. What is the difference between a hand screw and a clamp?
29. Which is stronger, a loose joint with much glue or a tight one with less glue?
30. How long does it take shellac to set?
31. How long does it take to dry?
32. How should shellac be applied?
33. Why should "sawdust and glue" be avoided?