
NOTES ON THE WORK OF THE BUREAU OF AGRICULTURE.¹

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NO survey, however brief, of agricultural education in the Philippines would be complete without mentioning the Bureau of Agriculture, which was one of the first bureaus organized under the present Government. The work of this important Bureau is as clearly defined as is that of the Bureau of Education. It directs its energies to work among the actual producers—the adults—while the Bureau of Education deals primarily with the potential producers—the children.

For administrative purposes the Bureau consists of the following divisions: Finances and property, clerical, animal husbandry, veterinary, agronomy, horticulture, fiber, demonstration and extension, publications, statistics, and machinery and construction. The chief of each division is directly responsible to the Director for its success.

The experimental and scientific work of the Bureau has been extended as far as practicable during recent years with the purpose of discovering improvements possible to Philippine Agriculture. As it is appreciated that the results obtained are of value only in so far as put into practice, a carefully planned and skillfully managed campaign is being carried on to get the Filipino farmer to act upon the suggestions of the Bureau. This effort, most of which is known as demonstration and extension work, is accomplishing much and is deservedly popular.

It is believed that a better understanding can be reached through a brief discussion of the work of these divisions of general interest to the public.

PUBLICATIONS.

The publications of the Bureau of Agriculture consist of the Philippine Agricultural Review, published monthly; bulletins, issued from time to time on various subjects of interest to agriculturists; and circulars which give a more concise treatment of some agricultural topic. The publications usually appear both in English and Spanish, and a few are also published in one or more native dialects. These publications afford a valuable means both of making permanent record of the practical results secured

¹ Photographs by courtesy Philippine Agricultural Review.

from scientific research and experimental work and also of disseminating this information among the farmers of the Islands. It is interesting to note that the Philippine Agricultural Review has been widely quoted especially by agricultural periodicals in the tropics.

FIBERS.

To the fiber division belongs the important work of encouraging the production of fiber plants, especially abaca, of improving the methods of cultivating, marketing, and harvesting them, and of raising the standard of the product. So general is the production and preparation of fibers of one kind or another and so numerous the ways in which they can be utilized for local use and for export, that the work of this division probably benefits indirectly every municipality in the Islands. Our most important export product is abaca. Maguey is largely used locally but is also exported. The work of the Bureau must of necessity be concerned for the most part with abaca, maguey, and kapok although much attention is given to others, especially cotton and household fibers.

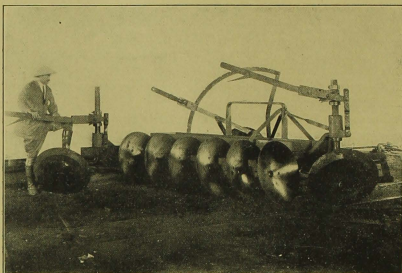
Abaca, next to rice the most important crop in the Philippines, owes its place in the world's markets partly to the length and whiteness but chiefly to the strength of its fibers. The higher grades are practically free from competition but the lower grades compete with fibers which can be grown and marketed more cheaply in other countries. The less the quantity of inferior grades placed upon the market the more the abaca industry will thrive, but it will surely decline if the production of inferior fibers is increased. Hence the importance of the effort to raise the standard of the product. Improvement in the methods of cultivating, harvesting, and marketing abaca is expected as a result of the demonstration and extension work in the hemp producing provinces.

There are immense tracts of land in the Philippines admirably suited to the production of maguey but unsuited to the growth of other Philippine plants. Maguey fiber is probably superior to its competing fiber, sisal, which also grows well in these Islands, but the Philippine product in either case cannot compete advantageously with that from other countries without better methods of fiber extraction. The Bureau of Agriculture has shown this fact, but as the maguey and sisal planters have isolated holdings and small capital, they can with difficulty adopt up-to-date methods. It is evident that the results of the work of the fiber division must be sought in the fact that every

year a larger number of planters put into practice the recommendations of the Bureau and consequently secure for themselves and for all handling their fibers larger returns for the money and labor invested.

MACHINERY AND CONSTRUCTION.

The machinery and construction division is occupied mostly with machinery and construction work for the use of the Bureau. It should be noted, however, that attention has been invited to the Planet, Jr., wheel hoe and cultivator which should prove to be very valuable to small farmers in the Philippines. This division has made an important contribution to Philippine agriculture



A heavy six-disk plow designed to plow any class of soil in the dry season; gives excellent results.

in the matter of power plowing. The plows which had been tried by private individuals had been too light in construction and were soon broken beyond possibility of repair. The Bureau secured from the United States the plow which was considered to be the best manufactured. This also proved to be too light. Plows were then designed which worked well and which will undoubtedly come into general use on large plantations.

VETERINARY.

The veterinary division has had a most difficult and thankless task. Rinderpest and surra were introduced into the Philippines before the American occupation. As animals died off others

were imported which oftentimes were infected and later died of the disease, thus continuing its spread. At present only four provinces and twelve towns are infected with rinderpest, the lowest since American occupation. Doubtless every possible precaution will be taken in the future to prevent the importation of diseased animals.

AGRONOMY.

The work of the agronomy division is most important to the agriculture of the Islands but it is work of which the general public sees little. At the present time investigations are being carried on with rice, sugar cane, corn, cover crops, and grasses. Few people realize that nine hundred ten varieties of rice are grown in the Islands and that the rice crop would be much larger were all inferior varieties eliminated. The agronomy division is working towards this end and by breeding and seed selection is improving the best varieties. Several imported varieties of sugar cane are being tried out. By seed selection and good cultivation and breeding a better variety of corn is being produced. Tests with cover crops have shown that the native bean called balong and the New Era cowpea are the best for that purpose, and should be cultivated extensively as rotation crops. Considerable effort has been made to secure a good hay crop. Two grasses which seem to be suitable are being tried out on a large scale.

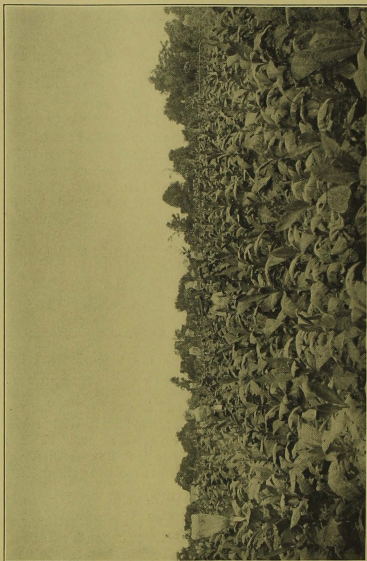
ANIMAL HUSBANDRY.

This division cares for all the live stock belonging to the Bureau, purchases stock in the Philippines for other bureaus, and carries on public live-stock breeding at the various agricultural stations, keeping stallions, bulls, and boars, for the use of the public. In addition to this, stallions are available in 20 provinces. While these animals are not used as much as could be desired, nevertheless, in those localities where they have been for some length of time an improvement in the live stock is quite noticeable.

HORTICULTURE.

The work of the division of horticulture is interesting and of great value to the country. Very little attention had been given to this phase of agriculture before the American occupation, but now interest is steadily increasing. The attention given to school gardening by the Bureau of Education has helped materially to arouse interest in it. Attention has been given mainly to the cultivation of fruits and vegetables although some effort has been made to cultivate and extend the use of ornamental plants includ-

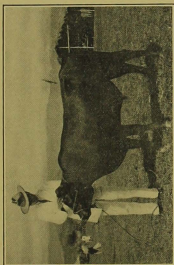
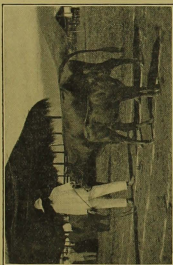
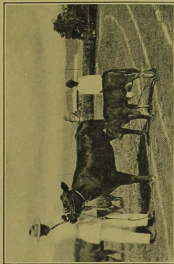
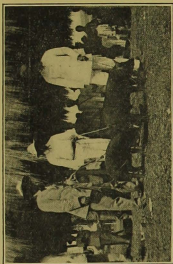
ing annuals, aroids, orchids, palms, and shade and ornamental trees. The striking display of cannas at the Singalong experiment station has attracted much attention and has demonstrated what gorgeous effects can be easily secured.



Tobacco field, showing "bagging" method of seed selection.

The division of horticulture has charge of the work of seed distribution, of introducing new and improved varieties of vegetables and fruits, of improving and introducing into parts of the Islands where they are unknown various native vegetables and

fruits. It has also the work of studying insect pests with a view to their extermination. More than ₱5,000 worth of seeds alone are distributed every year. During the busy season about 1,000 packages are distributed daily. No requests are denied. Im-



Live stock shown at the Nueva Vizcaya Agricultural Fair.

ported seeds lose their vitality very quickly in this climate and oftentimes fail to germinate because the recipient keeps them for some time exposed to the atmosphere instead of keeping them in tightly corked bottles. Some attention has been given

to raising seed in the Islands, as in the case of roselle, cowpea, and seguidillas.

Frequently some valuable plant or fruit is featured and very generally introduced, as in the case of the improved papaya, roselle, and canna. Cowpeas and seguidillas will receive like attention. The division deserves much credit for the introduction of many new and valuable plants. Roselle, which is one of these, will undoubtedly prove to be both popular and profitable.



Morgan stallion "Duke of Albany."

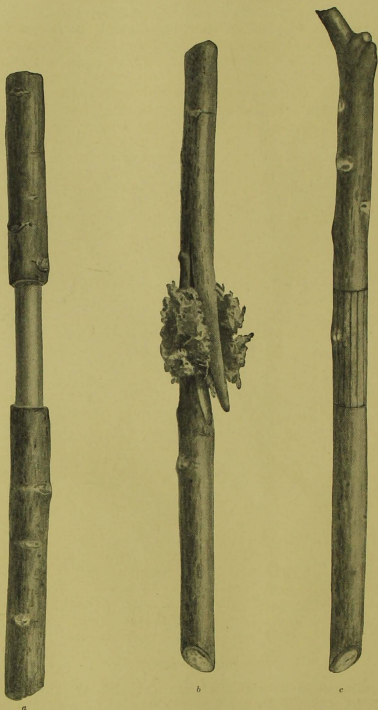
The native seguidillas compare favorably with string beans minus the strings. It bears heavily and grows luxuriantly, requiring little care. Lima beans are being grown quite extensively for seed at the present time. Pineapples are being grown which would seem to equal the famous Hawaiian fruit. The Bureau has a large collection of bananas which is by far the largest in the world. For the first time in the history of tropical horticulture, a definite attempt is being made to work out the

synonymy of the world's banana and plantain varieties. Of the 500 or more supposedly distinct sorts now under observation



"Victor" Roselle.

at the Singalong experiment station and Alabang stock farm, it is believed that about one-half will be found to be of more or



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a. Marcottage method employed in the Philippines; b, c. Marcottage methods employed in the United States and Europe.

less distinct sorts. Our neighboring tropical countries have most generously contributed to this international collection and have a right to look forward to the publication of a bulletin by the Bureau of Agriculture which will set at rest a large number of disputed questions along this line and act as a guide-book to the future banana planter of this and all other countries.

Much attention has been given to importing and improving citrus fruits. There is at L^amao the largest collection of citrus fruits in the Far East. The work along this line which is being done at the present time will undoubtedly bring large returns to the people of these Islands. The distribution of the world's best oranges, pomelos, limes, and lemons to the Philippine planter has already begun. The seedless breadfruit has been successfully propagated by using a piece of a root as a cutting; this will make it possible for every Filipino who has any land at all to have one of these ever-living food trees. Another fruit which should prove to be very valuable in the Philippines is the cherimoya which has been successfully grafted on the more vigorous mamon stock and is now growing well at L^amao; several hybrids of this and other annona species which bid fair to surpass anything else of the kind are now being propagated there.

Insect pests are numerous and consequently there is always need for disseminating information regarding their treatment, and also for studying others that have not yet been successfully treated.

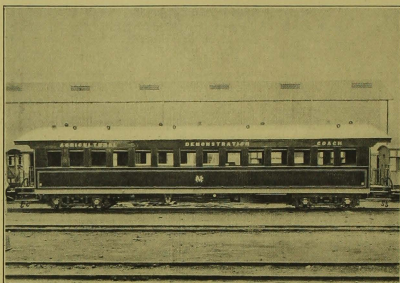
DEMONSTRATION AND EXTENSION DIVISION.

This division measures its results in larger and better crops grown by Filipino farmers who put into practice upon their own farms the recommendations of the Bureau. The results of other divisions are made of practical value by this division. During the three months following the first period of demonstration work in one province more corn was hauled by the railway than during the three years previous and in another more agricultural implements were sold in six months than during the preceding four years. These results are secured by means of coöperative demonstrations, demonstration stations, lectures, and in Luzon by the use of the demonstration car.

COÖPERATIVE DEMONSTRATIONS.

An agricultural inspector visits the farmers of a given locality and from the more progressive secures a number of coöperators, men who are willing to work at least a part of their farms

under the direction and with the assistance of the inspector. The latter assists them to select their seed or if necessary provides them with it. He assists each man in plowing his land, furnishing for the purpose a small inexpensive but modern plow and encouraging him to secure one like it. After the ground has been properly prepared he assists him in planting the seed in the most approved manner and later in cultivating the growing crop and protecting it from the ravages of insects. He also assists in selecting new seed and in harvesting the crop. As a result the farmer secures a larger crop and seldom fails to interest his neighbors in the new methods as well as in the



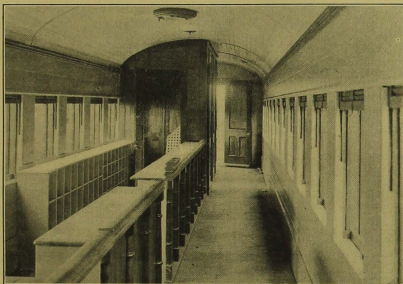
A—Agricultural demonstration car.

results obtained. The average yield of corn in Cebu in 1912 was 32.5 cavans per hectare while the demonstration plots yielded 59.1 cavans. The number of plots supervised has been limited by the number of inspectors available and many requests for assistance have to be refused for lack of funds and inspectors. Farmers are ready and willing to adopt modern methods which have been demonstrated by one of their number to produce larger results.

DEMONSTRATION WORK.

The headquarters of the coöperative demonstration work of a given locality are at the demonstration station. There certain lines of work can be carried on to better advantage than on

the farm and new inspectors are trained by experienced men. Seeds and plants are grown for distribution and in some cases are produced in sufficient quantity to pay a part of the cost of operating the station. Frequently live-stock breeding is carried on as a part of the work; at the Batangas station this has been the most successful feature of the work. The chief advantage of the demonstration station lies in the fact that demonstrations can be carried out on a larger scale than would be possible on the farms and that they can be observed by a larger number of people. The demonstration station and coöperative demonstrations are carried on under the same direction and each makes



B—Interior of demonstration car.

the other more effective; together they accomplish much for the improvement of agricultural conditions.

DEMONSTRATION CAR.

Coöperative demonstrations together with demonstration stations are undoubtedly the most effective means of bringing about immediate development of agriculture. A larger number of people can be reached in connection with lectures and the demonstration car. This work is carried on very much like that which has proved so successful in the United States. The car was built by the railway company for the purpose. Lectures and exhibits are furnished by the Bureau of Agriculture. These exhibits include pictures of farm operations and products, vege-

tables, implements, and agricultural products of superior quality. The stereoptican lectures are given in any building that is available, frequently in the cock pit, and sometimes in the open air. Packages of seed and also various publications of the Bureau are distributed free. The attendance has varied from 50 to 1,500. Much enthusiasm and appreciation have been shown and it is believed that many of those present go back to their farms and do better work.

SUMMARY.

A careful study of the work of the Bureau of Agriculture must convince any unprejudiced observer of its practical value to the country. It is the sincere wish of everyone desiring the prosperity of the Philippines that this work may continue until these fertile Islands become the garden of the East and each inhabitant is able to secure all of the necessities and many of the comforts and luxuries of life.

And here we have at last an inevitable distinction. There must be work done by the arms, or none of us could live. There must be work done by the brains, or the life we get would not be worth having, and the same men can not do both. There is rough work to be done, and rough men must do it; there is gentle work to be done, and gentlemen must do it; and it is physically impossible that one class should do, or divide, the work of the other. And it is of no use to try to conceal this sorrowful fact by fine words, or to talk to the workman about the honorableness of manual labor and the dignity of humanity. "Fine words butter no parsnips." (Ruskin: Work.)

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Life is fundamentally hunger for food and physical comfort, and the school for women which begins its work with these elemental needs is "on to its job." (Musselman.)

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Labor is discovered to be the grand conqueror, enriching and building up nations more surely than the proudest battles. (Wm. E. Channing.)

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Moderate labor of the body conduces to the preservation of health and cures many initial diseases. (Dr. W. Harvey.)

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It is true that he who does nothing for others does nothing for himself. (Goethe.)