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REPORT OF
THE GOVERNOR GENERAL
PHILIPPINE ISLANDS

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES

TRANSMITTING

REPORT OF THE GOVERNOR GENERAL OF THE PHILIPPINE
ISLANDS, TOGETHER WITH REPORTS OF THE HEADS
OF THE VARIOUS DEPARTMENTS OF THE
PHILIPPINE GOVERNMENT, FOR
THE FISCAL YEAR ENDED
DECEMBER 31, 1921



SEPTEMBER 1, 1922.—Referred to the Committee on Insular Affairs
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MESSAGE.

To the Congress of the United States:

As required by section 21 of the act of Congress approved August 29, 1916, entitled "An act to declare the purpose of the people of the United States as to the future political status of the people of the Philippine Islands, and to provide a more autonomous government for those islands," I transmit herewith, for the information of the Congress, the report of the Governor General of the Philippine Islands, together with the reports of the heads of the various departments and bureaus of the Philippine government, for the fiscal year ended December 31, 1921.

I concur in the recommendation of the Secretary of War as to the printing of this report as a congressional document.

WARREN G. HARDING.

THE WHITE HOUSE,
September 1, 1922.

REPORT OF THE GOVERNOR GENERAL OF THE PHILIPPINE ISLANDS.

JANUARY 1 TO DECEMBER 31, 1921.

SIR: I have the honor to submit my report as Governor General of the Philippine Islands for the calendar year 1921.

The resignation of the retiring Governor General, Hon. Francis Burton Harrison, took effect on March 5, 1921, and he was succeeded by the Vice Governor, Judge Charles E. Yeater, who in turn was succeeded by the undersigned on October 15, 1921.

Under instructions from the President a special mission to the Philippine Islands, consisting of the undersigned as chairman and the Hon. W. Cameron Forbes, former Governor General of the Philippines, arrived in Manila on May 4, 1921, and undertook a general survey of the government and conditions in the Philippine Islands. Since the termination of my work as chairman of that mission I have served as Governor General only two and one-half months, so that I feel that the report of the mission best answers the purpose of a report for the calendar year, no report having been prepared by the retiring Governor General or Vice Governor, and I submit it herewith with the usual reports of the secretaries at the heads of the executive departments and the report of the auditor of the Philippine Islands appointed by the President, which will give in detail the financial operations and conditions for the year.

The exhibits attached to the original report of the special mission cover thoroughly all other matters which might be of interest to the Executive and to the Congress of the United States.

The mission spent much of its time traveling through the archipelago, and considering at first hand general conditions and the actions and reactions of the government. This valuable experience, with the analysis of the policies of the insular government and the report itself, has given me a most favorable basis for deciding what action may be taken to improve the administration of the Government.

The general policy of my administration is outlined in my inaugural address and message to the Fifth Philippine Legislature herewith attached and the following letters:

MANILA, *December 6, 1921.*

DEAR MR. SPEAKER: You will notice in the report of the special mission of investigation, under the heading "Government in business," a very brief statement of what the mission considered as one of the evident mistakes of government during the past administration.

I am sure that you concur in the opinion that the government should, as soon as possible and as far as possible, get out of business and keep out. This is, of course, easy to say, but hard to do under the commitments already made and it can only be successfully accomplished with your earnest cooperation.

Realizing the mistakes that have been made, I appeal to you most earnestly for your help in remedying them along the specific lines I shall propose from time to time.

The special mission found the Filipino people happy, peaceful, and, as individuals, in the main prosperous. To keep them so, to push forward their progress and development, and to add to their happiness and physical and moral well-being and prosperity by wise and more efficient administration is the main object of our Government.

Their rapid development has created a keener appreciation of certain vital needs which they have expressed themselves emphatically for:

- (a) Better health and sanitation, more hospitals and better public institutions, especially for the care of defectives, insane, and lepers, and a well thought out program looking to a better control of the ravages of tuberculosis.
- (b) Continued and even more rapid progress in public instruction, more schools, and more thoroughly trained teachers.
- (c) More and better means of communication and a more efficient handling of the same.

These all require great efficiency and economy in administration in order that we may have more money for these necessary purposes.

In spite of unexampled prosperity in the war years, government finances do not meet legal requirements and are in a most unsatisfactory condition. Only the support and cooperation of the United States Government has saved us from bankruptcy with its resulting loss of credit. I am confident that this support and cooperation will be continued if we show ourselves worthy of it.

It is claimed, with some degree of fairness, that the American and Philippine Governments in their endeavors to safeguard the people and patrimony of the Philippine Islands from exploitation have gone too far and have reached the point where little or no new capital seeks investment in the islands. When this is coupled with the fact, which we all must face, that there is not sufficient capital in the Philippine Islands to develop effectively our natural resources, we find ourselves in an unsatisfactory position.

In order that this situation may be cured, I am convinced that we must do all that we can do to encourage and attract foreign capital to the islands.

In the near future I propose to outline a program for government administration in the execution of which I will need your active assistance. At the same time I will furnish a plain statement of the government finances, with recommendations for putting them on a sound basis.

As the heads of departments finish their studies I hope, from time to time, to propose changes in the laws which will not only safeguard the interests of the Filipino people, but at the same time encourage foreign capital to invest in the islands for the development of our natural resources and communications.

To give you the benefit of some very wise observations on certain propositions which were set forth by one of the members of the Brussels Financial Congress, whose general conclusions have already been furnished you, I am inclosing for your information certain excerpts from a letter recently received from the Secretary of War.

Very sincerely yours,

LEONARD WOOD,
Governor General.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES
AND PRESIDENT OF THE SENATE.

EXCERPT FROM LETTER OF THE SECRETARY OF WAR TO THE GOVERNOR GENERAL,
OF SEPTEMBER 19, 1921.

"Governments have everywhere, but in a different measure, taken into their management and away from private management, a very large series of services for which they are utterly unfit, as ancient and recent experience has proved, viz:

- "(a) They can not manage railways;
- "(b) They can not manage shipping;
- "(c) They can not manage harbors;
- "(d) They can not manage international commerce;
- "(e) They can not manage the commerce in bills;
- "(f) They can not regulate prices of commodities; and

“(g) They can not conserve and distribute commodities after requisition. “They have done and are doing all this and more, neglecting their proper functions.”¹

The propositions set forth were not unanimously adopted by the conference, but they are not without, as you know, the backing of very serious opinion, and this opinion is strengthened by recent results in the Philippines. It is probably wise to adopt the policy that the government must, as soon as possible, get out of the several investments, such as the Philippine National Bank, the Manila Railroad Co., the investments of the National Development Co., etc.

Doing this, however, is quite a different thing from determining that it is the wise and proper thing to do. It is quite obvious that at this time the government could not get out of any of these investments without a very serious sacrifice. The wisest thing, therefore, would seem to be to make every endeavor possible to put the investments in good shape with a view to disposing of them hereafter when it becomes possible and, in the meantime, to prevent their being interfered with by the political elements of the government. In other words, the management of the several investments should be made as independent of political control as it is possible to make them.

Where these investments (loans) would give corporate control to the Philippine government, I think the management should be placed in the hands of proper management corporations, or should be leased until the government interest could be disposed of.

Whatever may be decided on as a future policy, there is immediate need of improvement in the management of several of these investments.

MANILA, *December 13, 1921.*

DEAR MR. SECRETARY: The report of the special mission, which has already been furnished you, gives a general survey of government in the Philippine Islands.

It is likely that the policy therein outlined will be followed for the immediate future and gives us a good basis for deciding what action may wisely be taken at this time to improve the administration of government.

The principles and policies which have been successfully followed are plainly stated, and the evils which have grown up in government are so evident that it behooves us to suggest and carry out the necessary measures to remedy them. I have already, in various letters and memoranda, outlined some of them to the heads of the departments concerned, or taken them up personally with the council of state.

I now intend to prepare a government program which, although stated in general terms in so far as principles and ultimate objectives are concerned, I believe should be prepared in as much detail as possible for the next four years.

This program will set forth the principles of government, the objectives it is hoped to attain, and the means that are thought necessary, whether they be legislation, money or personnel, to attain the objective sought, together with concrete recommendations on these points.

The basis for this outline of policy will be the recommendations submitted to the various secretaries.

I desire to have you submit to me at the earliest practicable moment a program for the activities of your department during the period referred to. To assist in formulating this I am inclosing a general memorandum prepared by the members of the special mission which suggests some of the subjects which should be considered and a definite method of dealing with the problem. This memorandum I hope enters into enough detail to be of assistance to you.

I desire to have the program as condensed and concrete as possible consistent with clarity and completeness of detail. Where it is possible tables and figures should be used.

When these programs have been received I propose to combine and coordinate them into the government program which I have referred to above, and after discussion with the various secretaries and the council of state, to present it to the legislature in comprehensive form for its consideration.

¹ Quoted from a memorandum submitted to the International Financial Congress, Brussels, 1920.

The gentlemen of the legislature have shown a commendable desire to cooperate, and I feel sure that they will appreciate our being able to present to them broad general policies and definite objectives toward which we can work together.

Sincerely yours,

LEONARD WOOD,
Governor General.

To all DEPARTMENT SECRETARIES.

IMPORTANT SUBJECTS THAT SHOULD BE STUDIED FOR THE PURPOSE OF OUTLINING
DEFINITE PROGRAM RUNNING THROUGH A NUMBER OF YEARS.

These programs should be prepared in as much detail as possible for the next four years, showing the ultimate objectives and the limited objectives which it is hoped to reach each year, the present defects, and suggested measures to remedy the same, administrative and legislative. In each case, and especially where more than one bureau or more than one department of the government is concerned necessary measures must be taken to insure the cooperation of the necessary officials in the preparation of a program, and if it is approved, in its execution. The program should be the result of a study made by the proper heads of bureaus and departments, in conjunction with the advice and assistance of representative individuals not in the government who are especially concerned with the subject in question or especially qualified on the practical and commercial side to realize the practical difficulties of handling any particular problem. After the programs are received by the Governor General it is suggested that he discuss them fully with the leaders of the party in power and endeavor to have them agreed to, in principle at least, by such leaders of the party in power. In this way legislation recommended in such programs may be obtained, and any new legislation proposed may be judged on the basis of whether it conforms to the program. When this has been accomplished outline of such program should be given as much publicity as possible in the local papers, in order that the public may know of such programs and assist. It is thought that each program should follow these general lines:

(a) A statement of the general principles of the mission and policy of the government in connection with the specific subject, with final objective to be reached and intermediate objectives to be reached in their order of importance.

(b) Statement of present situation with criticisms and difficulties that are at present noted in the situation.

(c) Present means at disposal of the government for carrying out the policy and reaching the objectives outlined in (a).

(d) Program for the next four years in detail, showing the necessary measures (legislative and administrative) to carry out the program, with the estimated expenditures and estimated personnel needed.

The following general subjects are suggested as suitable for each program:

1. Government administration. How greater economy and efficiency in government may be secured in the matter of preparing the budget, efficiency of personnel and organization, cost accounting, etc.

2. Commerce, improvement of commercial facilities, and communications and encouragement of trades: Reduction of costs of navigation, excessive crews, reduction of price of coal; Manila port, improvements, including administration and building up of Manila port area, docks, and rail communication with deep water; abolition of tonnage dues and wharfage taxes; improvement of customs facilities; free port area; docking facilities; aids to interisland navigation, subsidies; improvement of railway; encouragement of Philippine improvement of roads, telegraph and postal communications.

3. Finances, corrective legislation necessary: Mint, depositories, Gold Standard Fund, government credit, provincial deposits, improvement of collection of taxes and dues.

4. Coal and fuel problem. (This may well come under the heading of "Encouragement of natural resources.")

5. Agricultural measures to assist farmers, sugar, rice, hemp grading, copra, tobacco, rural credits, rural cooperative associations, rinderpest, irrigation.

6. Law and order: Constabulary, island's defense, Manila police, prisons, administration of justice.
7. Natural Resources: Lands, forests, minerals, fisheries.
8. Health.
9. Public instruction.
10. Opium situation.
11. Administration of backward areas, such as the department of Mindanao and Sulu, and the Mountain Province.

REHABILITATION.

The financial situation is a source of grave anxiety. The chapters in the report of the special mission on finance, the Philippine National Bank, and the government in business plainly state the conditions and causes. At the time I assumed my duties as Governor General, large sums were already invested in the operations of the Philippine National Bank which can not be liquidated for years. Under the existing budget monthly overdrafts were common. Measures were at once taken to curtail expenditures, to stop all leaks pending the preparation of the budget for 1922, and to prepare the necessary legislation to put the government on a sound financial basis.

As stated in the mission report, the lesson has been a bitter one for the Filipinos and the gravity of the mistakes is beginning to be appreciated. I have had effective cooperation from the heads of the departments and the legislature in the preparation of a well-balanced budget for 1922, which was promptly passed as submitted. Under this the estimates were cut down from \$45,250,000 asked for to \$36,250,000, which will leave an estimated surplus of \$1,250,000 at the end of the year, plus such further administrative economies as may be possible without too serious interference with the operations of the government. The budget approved is about \$6,250,000 less than the expenditures for the preceding year.

The following letter written to the speaker of the house and the president of the senate covers in general the constructive financial program presented to the legislature to put the government on a sound basis and to set up once more the various funds in a legal position, and so prevent a recurrence of the hectic crisis of the past two years.

MALACAÑAN PALACE, *January 29, 1922.*

DEAR MR. PRESIDENT: I wish to convey to the gentlemen of the senate my hearty congratulations on the budget for the coming year. It is always difficult for the representatives of a constituency with many pressing needs to agree to cut down government expenditures so determinedly. The secretary of finance has convinced me that the expenditures under the budget for the current year will fall within the revenues.

It will interest you to know that the Philippines is one of the very few countries in the world that is able to balance its budget. Last year 3 out of every 4 countries, and 11 out of 12 of the European countries anticipated a budget deficit. The close connection between these budget deficits and the cost of living, which is causing such suffering and unrest throughout the world, is far from being grasped. Nearly every government is being pressed to incur fresh expenditure, largely on palliatives which aggravate the very evils against which they are directed. The first step is to bring the public to realize the essential facts of the situation, and particularly the need for reestablishing public finances on a sound basis as a preliminary to social and public progress which the people demand. So I feel that you gentlemen have taken the first step by passing a well-balanced budget, and have given me assurance of the passage of the necessary financial legislation to put the government on a sound basis and re-establish the credit of the government at home and abroad.

The nine bills submitted to your honorable body, with the recommendation of the secretary of finance, are comprehensive and provide a large measure of relief for the financial evils which arose during the period of war inflation and provide safeguards for future emergencies, and have had the most thorough and disinterested study and preparation by the secretary of finance, the United States Bank Examiner Mr. Ben F. Wright, and the representative of the Secretary of War, Mr. R. L. Herrick, of Boston, and comply with the general conclusions unanimously reached by the International Financial Congress which met at Brussels and studied just such situations as confront us.

The bills are as follows:

1. Revised currency act.
2. Act providing for replenishment of following funds:
 - (a) To reimburse the United States Government, etc., \$5,250,000.
 - (b) Manila port works, \$6,000,000.
 - (c) Irrigation bond fund, \$10,000,000.
3. Act providing for issue of \$5,000,000 emergency bonds.
4. Act amending national bank act to safeguard issue and handling of circulating notes, and repealing clause making it obligatory upon all government officials to deposit funds in bank.
5. Act amending charter of city of Manila providing for deposit of funds in insular treasury instead of in the national bank.
6. Act validating issue and sale of city of Manila bonds in sum of \$2,750,000.
7. Act providing for investment of sinking funds in United States and Philippine Government bonds.
8. Act providing for issue of insular bonds based upon provincial, municipal, and city bonds as security.
9. Act amending act No. 2950 so as to allot to insular government all provincial, municipal, and city bonds for and in consideration of proceeds of sale of the corresponding insular bonds issued upon them as security.

I also submit a draft of a concurrent resolution which will authorize me to represent the Philippine Government in urging upon the President and Congress of the United States the advisability of increasing the debt limit of the Islands from \$30,000,000 to \$75,000,000. This is not large, as compared with other countries, as their national debts amount to:

China.....	\$1, 886, 000, 000
Japan.....	1, 713, 000, 000
French Indo-China.....	47, 000, 000
Siam.....	36, 000, 000
Straits Settlements.....	72, 000, 000
Dutch East Indies.....	149, 000, 000
Cuba.....	87, 000, 000

It is generally considered safe and reasonable to incur indebtedness up to 10 per cent of the aggregate tax valuation of national property, which would, under the last assessment, fix a reasonably safe limit of indebtedness for the Philippine Islands at ₱156,000,000.

This apparent large increase of \$45,000,000 in the public debt of the islands provides, of course, for the retirement of \$10,000,000 certificates of indebtedness due in August of this year and also reimburses the United States Government in the sum of \$5,250,000 remaining from a loan made at a time of emergency, while no part of the \$12,500,000 net increases in debt involved in restoring currency reserves will be spent, but all retained permanently in gold or silver deposits.

The increased provision for the public debt in the way of interest and sinking funds must be met by repayments from the Philippine National Bank, which owes the government about \$27,000,000 and by rigid economy and better administration or by increased revenues. During the past year the Philippine National Bank has reduced its indebtedness to the government very materially, and has agreed to do so this coming year by about ₱11,000,000.

Respectfully,

LEONARD WOOD,
Governor General.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES
AND PRESIDENT OF THE PHILIPPINE SENATE.

As the letter of the Secretary of War of September 19 indicated, the policy has been adopted to get the government as soon as practi-

cable out of its business investments, such as the Philippine National Bank, the Manila Railroad Co., the National Development Co., etc., all of which with the possible exception of the railroad having been operated at a heavy loss. The government is, however, so extensively involved in these institutions that this can not be done at once, and successive steps are being taken to safeguard the government's interests, provide better management, and to make the several investments independent of political control. The Philippine National Bank has been prohibited from issuing any more notes, it already having issued more than eight million during the current year without any reserve, thereby greatly embarrassing the government through inflation of the currency and consequent sale of exchange, adding seriously to the depletion of the currency reserve in New York.

The following letter and executive order No. 54 will show the organization through which I propose to safeguard the interests of the government and its relations with the national bank and provide a program which will definitely and effectively cover these relations and the operations of the bank which have, in the past, so seriously involved and embarrassed the government.

[Executive Order No. 54.]

OFFICE OF THE GOVERNOR GENERAL OF THE PHILIPPINE ISLANDS,
Manila, December 3, 1921.

A committee is hereby appointed, consisting of Mr. Miguel Unson, Undersecretary of Finance; Mr. E. W. Wilson, general manager of the Philippine National Bank, and Mr. Ben. F. Wright, special bank examiner, to study and report upon the condition, resources, obligations, and requirements of the National bank and the insular treasury, respectively, in order that there may be full cooperation between them and the interests of each fully protected.

The committee will report in writing and submit recommendations to the Governor General on Saturday of each week and such other times as may be necessary in order that the Governor General and the board of control may be fully informed as to conditions and needs of both the bank and the treasury, their requirements and resources and the procedure necessary to meet them.

LEONARD WOOD,
Governor General.

MALACAÑAN PALACE, *December 5, 1921.*

DEAR MR. UNSON: As a result of the very thorough study which has been given the insular finances since my inauguration, and the very plain statement of their general condition already in your hands, I am particularly impressed with the absolute interdependence of interest of the government and the Philippine National Bank and the absolute and ultimate responsibility of the government for the bank.

For that reason I have appointed a committee of my confidence, representing both interests, with the general objective as laid down in executive order No. 54 (copy of which is attached). I feel the time has come to prepare and carry out a definite program which will coordinate the government finances with the necessary steps that must be taken for the rehabilitation of the bank. Otherwise there will always be present the danger of the management considering only the interests of the bank from a purely banking point of view, losing sight of the fact that these interests may embarrass the government in its financial administration and the tendency may well be that too much emphasis is laid on good banking business rather than the imperative necessity of safeguarding and building up the government and bank reserves.

I recognize also that the urgent demands of the government should not be inconsiderate of good banking policy, so that in preparing a program for the consideration of myself and the board of control it is necessary to have the bank represented and its point of view fully presented to the responsible officials of the government.

To harmonize the best interests of the government and those of the bank, since the bank is the fiscal agent of the government and practically owned by it, you are requested to consider the following particular issues on which the government's and the bank's interests may be at variance:

(1) The advisability of deciding the minimum amount that shall be set aside each month and establishing the principle that such amount must be set aside each month to rebuild as soon as possible the reserves of the bank.

(2) Issue of bank notes for which the bank has no reserve, and for which the government is actually responsible.

(3) The making of loans, emergency as well as others, since the government is more or less dependent upon the bank for its current funds.

(4) The advisability of investing funds of the bank in short-time receivables, which should rather go to building reserves.

(5) The advisability of not allowing the deposits of the government to exceed the present amount of such deposits.

Very sincerely yours,

LEONARD WOOD,
Governor General.

Mr. MIGUEL UNSON,
Undersecretary of Finance, Manila.

The Manila Railroad Co., of which the government owns practically all the stock, is such a good property that I am hopeful of very shortly turning it over to an operating company, which will relieve the government of the embarrassment of the next most important government investment. Every effort is being made to secure the investment of local and outside capital to take over the various government properties, and I feel as the competition of the government is gradually withdrawn, that conservative capital will realize the inherent advantages of investments in sugar centrals, oil production, and other tropical products of the islands which have the advantage of free entry into the United States and the opportunity for continued development of American trade, which has advanced greatly during the 15 years of my absence from the islands.

DEFECTS IN PRESENT JUDICIAL SITUATION NOTED BY SPECIAL MISSION.

Such defects as could be remedied by administration are already corrected, and there is already a notable clearing of the dockets. The legislature has cooperated to the extent of authorizing seven additional auxiliary judges, who have been selected with great care and after consultation with the supreme court. Legislation has been recommended by the secretary of justice covering all of the defects noted.

PERSONNEL.

On my inauguration I asked the secretaries and heads of departments to remain in office. Most of them were experienced officials and had been in the civil service for from 10 to 20 years. Before the end of the year the secretary of agriculture and natural resources resigned on account of ill health, and I was fortunate in persuading Mr. Rafael Corpus, who had long and varied experience in the government service as bureau chief and undersecretary, to relinquish at a great self-sacrifice a most desirable position in private life and

return to the government service. His prestige and character in this most important position will insure an effective administration of the department. He, in turn, has persuaded younger men of similar high character and experience to return to the service. It is one of the most heartening and satisfying experiences in the islands to find the gospel of service still believed in by the best men and preached by them to the Philippine people.

The only other change in the cabinet has been due to the resignation of the secretary of justice, and I persuaded a former distinguished justice of the supreme court, Mr. Florentino Torres, to leave his well earned retirement and help in the reorganization of the department of justice and in the reformation of the abuses and delays in justice. His appointment, however, was subject to an amendment in the existing law which now prevents officials who have retired from returning to active duty without repaying to the government the retiring pension and so fell through. The existing vacancy has therefore been filled by the appointment of Mr. Jose Abad Santos, who has cheerfully set a fine example of public service in giving up the lucrative practice of a successful corporation lawyer to assist in this most important work.

Another of the able experienced men of the younger generation educated in America, Mr. Jose Sanvictores, has returned to administrative service as chief of the bureau of non-Christian tribes, a position that requires a most active man of high character.

One of the two appointive senators representing the Moros and non-Christians having resigned, I have been able to reappoint Senator Hadji Butu, of Sulu, whom I have long known as one of the ablest of the Moro leaders, which gives that large body of inhabitants of the southern islands some representation in the Philippine Legislature. The other appointive senator is a Christian Filipino, who has been chief of the bureau of non-Christian tribes with a long and thorough experience amongst these primitive peoples and who has a sense of responsibility and friendship for them and a thorough understanding of their conditions and needs. Most of the appointive members in the house of representatives for the special provinces are either Moros or non-Christians themselves or have had experience in dealing with them, so that the special responsibility of these people resting upon these particular senators and representatives and the Governor General is felt and appreciated.

Force of circumstances and financial conditions and the pressing needs of reorganization caused me to insist on great reductions in subordinate personnel and postponement of the beginning of such new public works as can be delayed until the revenues again increase. The department heads and bureau chiefs have cooperated most sympathetically in this unpleasant and unpopular work and have agreed also to make no further promotions or appointments to vacancies for the first six months of the fiscal year. Fortunately the easy conditions of life and the fact that the great majority of Filipinos are agriculturists on a small scale makes it possible to avoid the serious hardships that would follow such reductions of personnel and discharge of labor in a country outside of the tropics.

LAND TITLES.

The present unfortunate land-title situation reported by the special mission is general, and will require a considerable period of more efficient administration and better coordination of work and a very considerable increase in the allotment of money to the bureau of lands. The secretary of agriculture and natural resources, with a very wide personal experience in this work, is slowly bringing this about. He has secured the services of an able and active executive and has asked for legislation and appropriations which will enable him to carry out this program. As the unfortunate conditions reported seemed especially bad in the Province of Nueva Ecija (a condition which has existed there for many years), that province has been taken as the first objective in the general clean-up. Additional judges have been sent into that province, with sufficient agents of the bureau of lands, and a very effective drive for final settlement of as many cases as possible is in progress with such results thus far as to warrant the belief that in the near future it will be a bright and shining example for the remaining provinces of the islands.

RINDERPEST.

One of the most serious economic losses in the islands has for many years been due to the prevalence of rinderpest, with a consequent annual loss of hundreds of thousands of cattle and carabao, which falls most heavily on the poor Filipino agriculturist. The government scientists and veterinarians have long been working for an effective remedy, which it now seems has been discovered and made effective by Dr. W. H. Boynton, of the bureau of agriculture. Doctor Boynton, like many another self-sacrificing scientist, has worked along for some years without the assistance of public interest or the means of working on a large scale. He has at last, however, apparently achieved success, and means have now been found to use his vaccine on a large scale.

It has already been a great success in Masbate and in the provinces around Manila. The campaign against rinderpest will be carried out on a much bigger scale from now on, and the elimination of this dread disease will mean an incalculable saving to the islands and a real event for the millions of people in the Far East.

COOPERATION OF THE ARMY, NAVY, ETC.

Both in the work of the special mission and since my inauguration as Governor General I have had the thorough cooperation of the local heads of the Army and Navy and of many officers of both services, who have had long experience in colonial affairs. The surgeons of the Army, the Navy, and the United States Health Service and numerous individuals, officials of the government now engaged in private business in the islands, have assisted me by their advice and suggestions, many of them agreeing to serve on the various boards under the control of the government.

PUBLIC HEALTH.

The introduction of modern civilization into tropical countries means also that much disease is introduced and that facilities are

afforded for the rapid spread of that which already exists. In the tropics, more than elsewhere, the price of health is eternal vigilance and the rigid application of the laws of hygiene and sanitation.

Through defective methods in the past few years more than 50,000 lives have been lost in the Philippines from smallpox. Typhoid fever has been steadily increasing. The care of the insane and lepers is rudimentary in character and lacks that humane consideration which these unfortunates deserve. There is not sufficient provision for the sick in the provinces.

Every effort is being made to meet the most urgent needs, but before real constructive work in public health can be expected it will be necessary to place under one head the many health functions which are now widely scattered among so many departments of the government.

The legislature will be asked to enact legislation to make possible more centralized control. In order successfully to cope with the many difficult health problems that confront us, it will also be necessary to secure, or train, individuals to fill positions for which special qualifications are required.

The low state of the insular finances make it impossible to undertake the new construction which is so urgently needed to provide more facilities for the care of the sick and the insane throughout the islands. Until the finances have been rehabilitated it will be necessary to simplify the health machinery and bring it more in line with the resources of the islands. This will be done and at the same time greatly improve existing health conditions.

Dr. Victor G. Heiser, director for the East of the Rockefeller Foundation International Health Board, who for some 12 years had been director of health in the islands, has been generously allowed by the foundation to outline and assist in the starting of more intensive sanitary work in the archipelago. The foundation has gone still further and has approved Doctor Heiser's program under which a number of American experts in the various lines of health work have been loaned to the government to improve our efforts in this direction and have arranged for a limited number of scholarships in America by which specially selected Filipinos may prepare themselves for public health service. During the latter months of 1921 we were fortunate in having the services of Miss Embry, who voluntarily came down from Peking, where she is engaged in important work in the hospital there, and who spent a most useful and effective period in the Bureau of Science in Manila and in the Culion Leper Colony in carrying out experiments whereby a much better balanced ration and a cheaper one could be provided for the people of the islands, and especially for those suffering from leprosy.

Dr. H. W. Wade, of the medical school of the University of the Philippines, has volunteered to head a group of surgeons and scientists in pushing forward the new cure and studying its effects during the next two years. A large amount of Chaulmoogra oil, necessary in this treatment, has been purchased from India, and arrangements made by the bureau of science to prepare it in the best form for use,

and legislation has been asked which will enable the bureau of science not only to provide this for the Philippines but for other countries in the Far East.

The women's clubs of the islands have shown a most commendable interest in the affairs of the Culion Leper Colony and are helping in raising money for improving the personal and social conditions in the colony.

With the help of these able and self-sacrificing men and women, I have full hope that within a short time we will be able to cure a large percentage of the 5,000 lepers at Culion and finally clean the islands of the curse and fear of that ancient and terrible disease.

LEONARD WOOD.

The SECRETARY OF WAR.

THE ROUTES COVERED
BY THE WOOD-FORBES MISSION
IN
THEIR SPECIAL INVESTIGATION
OF THE
PHILIPPINE ISLANDS

LEGEND

- Train ————
- Boat ————
- Motor Car ————
- Horse Back ————

Approximate Scale

20 40 60 80 100 120 140 STAT MILES



REPORT OF THE SPECIAL MISSION.

INTERESTING DATA ON THE PHILIPPINES.

Population.—Total population—1903, 7,635,426; 1919, 10,956,730. Christian, 9,350,240; Mohammedan, 434,868; Pagan, 540,054; Buddhists, 25,568. Foreigners: Americans, 6,931; Spaniards, 4,271; British, 1,202; Chinese, 55,212; Japanese, 12,636. All others, 2,893.

Physical.—Number of islands approximately 3,000. Total area (square miles), 115,026. Total area under cultivation, 11,503 square miles (10 per cent), valued at \$229,000,000. Total area of forest land of commercial value, 64,880 square miles, 99 per cent of which belongs to the government. Number of Provinces, 49. Number of municipalities, 829. Total wealth of the islands, \$5,500,000,000.

Educational.—Number of public schools, 6,493. Total enrollment of pupils including private schools, 1,020,000. Degree of literacy (about), 37 per cent. Percentage having received primary instruction, 35.9 per cent; having received secondary instruction, 0.89 per cent; superior instruction, 13 per cent. Number of teachers (of whom 501 are Americans), 18,134. Number of colleges and universities, 17. Enrollment of students in the University of the Philippines, 4,130. Number of students attending colleges and schools in the United States, 2,700.

Health.

Years.	Death rate.		Birth rate.		Infant death rate.	
	Manila.	Provinces.	Manila.	Provinces.	Manila.	Provinces.
1904.....	45.57	26.10	33.80	40.06	801.86	203.71
1913.....	22.58	18.85	33.25	39.34	322.46	147.55
1920.....	26.47	20.73	43.54	36.54	213.02	160.71

Financial.—Income of the Philippine government (1920), \$40,500,000. Tax per capita, \$3.96. Trade with United States (imports and exports), 1903, \$17,807,141; 1920, \$197,506,041. Persons rendering income-tax returns for 1920, 9,519 (Americans, 1,434; Chinese, 3,123; Filipinos, 3,667; all others, 1,295).

Newspapers.—Daily newspapers published, 45. Total circulation, 131,400. Weekly and other publications, 69. Total circulation, 195,700.

Suffrage.—Number of votes cast, general election 1919, 672,122. Women do not vote.

Languages.—Number of distinct dialects spoken, 87. Number of ethnographic groups or tribes, 43.

Roads.—Number of miles of railroad under operation, 755. Number of miles of roads rated as first class, 2,920.

Historical.—About 200 to 1325 A. D., dependency of various Hindu-Malayan Empires in Indo-China, Sumatra, and Borneo; 1325–1405 subject to Javanese Empire of Madjapahit; 1405–1440 governed by China (under Ming Emperors); 1440–1565, northern Luzon subject to Japan; from Manila south subject to Borneo. From 1565 to 1762 all islands subject to Spain through Mexico. (Paid tribute to Japan 1592–1623 to avoid invasion by the Toiko Hideyoshi); 1762–1764, seized by England, but restored to Spain by the treaty ending the Seven Years War; 1763–1898, subject to Spain (through Mexico until 1821 and to Spain direct after that date); 1898–1921, under American sovereignty; military government, 1898–1901; Philippine Commission, 1901–1907; Philippine Commission (American majority) and assembly, 1907–1913; Philippine Commission (Filipino majority) and assembly, 1913–1916; elected assembly and senate, under Jones bill, 1916–1921.

COMPOSITION.

Special mission.—Maj. Gen. Leonard Wood, chairman; Hon. W. Cameron Forbes.

Attached.—Col. Frank R. McCoy, chief of staff; Mr. Ray Atherton, Department of State; Lieut. Col. Gordon Johnston, United States Army; Maj. Edward Bowditch, jr., United States Army; Prof. H. Otley Beyer, University of the Philippines; Lieut. Commander Stewart F. Bryant, United States Navy; Capt. Robert C. Candee, aid-de-camp; First Lieut. Osborne C. Wood, aid-de-camp.

REPORT OF THE SPECIAL MISSION OF INVESTIGATION TO THE PHILIPPINE ISLANDS.

OCTOBER 8, 1921.

The SECRETARY OF WAR,
Washington, D. C.

SIR: We have the honor to submit the following report of the Special Mission to the Philippine Islands. The purpose and instructions of the mission are set forth in the following letters:

THE WHITE HOUSE,
Washington, March 20, 1921.

MY DEAR MR. SECRETARY: In the message transmitted to the Congress on the 7th of December, 1920, President Wilson said:

“Allow me to call your attention to the fact that the people of the Philippine Islands have succeeded in maintaining a stable government since the last action of the Congress in their behalf, and have thus fulfilled the condition set by the Congress as precedent to a consideration of granting independence to the islands. I respectfully submit that this condition precedent having been fulfilled, it is now our liberty and our duty to keep our promise to the people of those islands by granting them the independence which they so honorably covet.”

The suggestion made was not acted upon by that session of Congress. Undoubtedly that nonaction was due to the fact that all of the evidence available to Congress was not of this same tenor. Based, however, as it was, on official reports from the highest authority in the Philippine Islands, as well as on current reports from lesser authorities given the widest circulation in the United States, as well as in the islands, it can not, with propriety, be ignored, nor yet can it, in the face of conflicting evidence from any sources, be accepted as the final word on so important a subject.

I have, therefore, selected Gen. Leonard Wood and W. Cameron Forbes to go to the Philippine Islands and to make there a study of the situation and to report thereon, in order that I may have a judgment on which I can base my action and my recommendations with a consciousness that I am dealing justly with the Filipino people and pursuing a policy which the American people will sanction and support. I have discussed this subject with you, and will ask

you to give such instructions as may insure to them every convenience and assistance in their most important undertaking, and to give to them such instructions as will insure a full understanding and a frank report of the problem submitted.

Very sincerely,

WARREN G. HARDING.

The SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, March 23, 1921.

Maj. Gen. LEONARD WOOD.

Chairman Special Mission to the Philippine Islands.

SIR, I beg to hand you a copy of a letter from the President briefly giving the object of your mission to the Philippine Islands.

I have acquainted the Acting Governor General and the commanding general of the Philippine Department with the fact of your coming, and have directed them to place at your disposal every facility and convenience that may be of assistance to you in your work.

It is asserted with positiveness by persons who have had every reasonable opportunity to know the conditions whereof they speak that the Philippine government is now in a position to warrant its total separation from the United States Government and that the Filipino people are in a position to continue to operate the Philippine government without aid of any kind from the United States and that the government so conducted would be one in which the American people could take pride because of the assistance heretofore given it.

All of this is quite as positively denied by other persons having similar opportunities to study the situation and to know the exact conditions existing in the Philippine Islands.

Between these conflicting views you are to render judgment.

The decision of the question thus arising is of momentous importance, involving, as it may, the very life of the Filipino people as a people and the reputation and credit of our own country. Even if it were possible hereafter to correct an error now made, it would be difficult to measure the cost of this correction.

Every consideration, therefore, urges us, before taking a step of importance in this matter, to satisfy ourselves that we are not acting through emotions, but are acting wisely as the facts present themselves to us after a careful, impartial study.

I am not unaware that your experience peculiarly fits you and Governor Forbes for the task that you are undertaking and renders detailed instructions superfluous if not embarrassing. Nevertheless, I desire to suggest briefly the doubts which I should like to have cleared up for my personal satisfaction, and these may, in a degree, indicate to you the doubts of others who are interested in the subject but whose minds have been confused by conflicting reports and rumors.

There are, naturally, many points of great importance in passing on our future policy with reference to the Philippine Islands about which there is no doubt and with reference to which, therefore, there need be no detailed study. The general characteristics of the Filipino people, their many attractive qualities, their progressive spirit, love of education, and their rapidly developing spirit of nationality are no longer questions.

The maintenance of a government, however, in a territory so situated as the Philippine Islands involves many problems not dependent entirely on these accepted qualities.

In the instructions of Mr. McKinley for the guidance of the commissioners sent to the Philippine Islands in 1900 he said:

"In all the forms of government and administrative provisions which they are authorized to prescribe, the commission should bear in mind that the government which they are establishing, is designed not for our satisfaction or for the expression of our theoretical views, but for the happiness, peace, and prosperity of the people of the Philippine Islands, and the measures adopted should be made to conform to their customs, their habits, and even their prejudices, to the fullest extent consistent with the accomplishment of the indispensable requisites of just and effective government."

There is to-day no better guide for a judgment of the adequacy of the Philippine government as it now exists or as it would exist as an independent government.

In passing now on the question of the stability of the existing government in the Philippine Islands, if American support should be withdrawn therefrom and of the probability of the permanence of such a government thereafter and the likelihood that such a government would protect the people in their essential rights and privileges, the standard should not be one of perfection from our point of view, but the standard outlined in the instructions of Mr. McKinley.

We can not neglect in considering the question of the maintenance of a government in the Philippine Islands the financial condition of the people. A study of the situation must embrace, therefore, a first-hand examination of the financial condition of the Philippine government and of the Filipino people—the present and prospective revenues of the government and the extent to which these revenues are dependent on the present relation of the islands to the United States.

Of even more importance than the economic position of the government is that of the people. A careful study should be made of the effect on the people of treating their products in the American market as those of a foreign country, as well as, on the other hand, such disadvantages as may accrue to them as the result of the free entry of American goods in their markets.

Passing now from the economic question, attention should be directed to the likelihood of the maintenance of a stable government in the islands as this likelihood may be determined from evidence drawn from the operation of the existing government.

It is unnecessary to review the steps in the development of the existing government. It is sufficient to say that it is most liberal in its concession of powers to the Filipino people. The legislature to which is given general legislative powers is purely Filipino, both as to its elective members and as to those few appointive members designated by the Governor General to represent the interests of the non-Christian people of the islands. The judiciary, with the exception of the supreme court, is almost exclusively Filipino; the executive officials of the government in the municipalities and Provinces are exclusively Filipino, and in the central government are largely so, the exceptions being the Governor General and the vice governor. But few of the ministerial officers are now American, and of the supreme court the chief justice and three of the eight associate justices have generally been Filipinos.

The government thus constituted is the one to be studied as the basis of judgment. Of first importance it should be determined whether or not this government has contributed duly to the happiness, peace, and prosperity of the Filipino people, and the determination of this question must necessarily depend largely on the views of those people.

It should be determined whether or not the government is reasonably free from those underlying causes that result in the destruction of government. Is the government effectively administered; are the officials and employees reasonably faithful to the trust imposed upon them; is justice impartially administered; are the elections conducted honestly so that the public will receive expression in the selection of elective officers; are the results of the elections generally acquiesced in by defeated minorities; are the civil service laws honestly administered; and are appointments to office and to employment under the government made as a result of competency?

The effect of extension of powers to Filipinos in their own government should be carefully scrutinized, and it should be determined whether such extension results in a lowering of the standards of government and whether such lowering, if it exists, decreases with the experience of the Filipino so charged with responsibility, or if there is a steady relaxation of effort and a more marked deficiency as we recede from the previous standard. The result of Filipinization on the important services, education, health, public works, and agriculture, should be noted and given due weight in a final determination of the problem submitted.

In passing on the questions thus presented, it is necessary to avoid comparison with a standard of other countries and other climates and particularly with our own idea of perfection.

It should be remembered that our obligations are to all of the people who inhabit the Philippine Islands, and in a particular manner, because of their relative helplessness, we are committed to look after the welfare of the back-

ward people of the islands—Christian, Moro, and Pagan. The keeping of our faith to these people has been committed to the present Philippine government. How has this faith thus committed been kept, and what is the outlook for the future?

The Filipino people have for ages, due to the fact that the sovereignty of the Philippine Islands rested first in Spain and then in the United States, been protected in the ownership of territory and potential wealth out of all proportion to that of their neighbors. It is important to determine whether reasonable plans exist for the utilization of these resources by the Filipino people in order that their unused land and resources may not continually be a source of temptation to their less fortunate, but probably stronger neighbors, and whether on the withdrawal of a strong sovereignty from these islands these resources would remain exclusively available to the Filipino people.

Certainly it would be a vain thing to turn the Philippine Islands over to the Filipino people without reasonable assurance that the resources of the islands would remain the heritage of the people of the islands. The pleasing of the Filipinos of this generation would be a minor satisfaction if it were believed that it would result in the bondage or destruction of the Filipino people for all time hereafter.

Your selection by the President for this work is the best assurance of his desire that it should be impartially done, without prejudice, fear, or favor. Likewise, it is an assurance that it will be undertaken and carried out with an appreciation and a delicate regard for the feelings of the Filipino people. Whether the result of your investigation may or may not be to the satisfaction of the majority of the Filipino people at this time, I am convinced that, undertaken in the spirit in which it is committed to you and in which you have undertaken it, it can not but be to the future satisfaction of the Filipinos and must, of necessity, result in their permanent well-being and progress.

Very sincerely,

JOHN W. WEEKS,
Secretary of War.

The special mission, as above constituted, arrived in Manila on May 4, 1921. Attached to and assisting the mission was a representative of the State Department, secretary of the legation in Peking, who had also served for some years in the embassy in Japan and is generally familiar with international affairs in the Orient; a staff officer of the admiral commanding the Asiatic Fleet, who had served some two years in the Orient; and Spanish-speaking officers of the Army experienced in Cuban, Philippine, and foreign affairs generally, three of whom had had prior and long service in the islands both in civil and military establishments, in executive and administrative work, and as members of legislative councils. Two of these officers had also accompanied the Harbord Mission to the Near East.

During the travels of the mission throughout the islands they were accompanied by an experienced correspondent of the Associated Press; a special correspondent of one of the leading American dailies committed to giving independence to the Philippine people; and, as the representative of the Filipino press, one of the editors of the leading Manila journal who, during the insurrections against Spain and the United States, had been an officer in Aguinaldo's army.

The attached members of the mission and the correspondents represented a wide variety of opinions.

From the moment of its arrival in Manila the mission received every assistance from the Acting Governor General, the commanding general, the admiral, and their staffs; also from Americans throughout the islands; and from the Philippine people and their political leaders generally, many of whom gave the benefit of advice and suggestions in the most cordial and friendly spirit. Their assistance has been coupled with a sincere and charming hospitality which continued to the last moment of the mission's stay.

During these four months in the islands the routine of the mission consisted of periods of about a week in Manila, during which conferences were held with officials of the central government, with representative Americans, Filipinos, and foreigners of every walk of life. Investigations were undertaken looking to a thorough analysis of the government and its activities, followed by periods of from two to four weeks of investigation in the Provinces. During these trips 48 of the 49 Provinces into which the Islands are divided were visited. The mission has aggregated 11 weeks of travel by sea, auto, horse, and rail, and has held conferences in 449 cities and towns. All parts of the archipelago were visited, and your mission feels it has placed itself in intimate touch with the great mass of the Philippine people—Christian, Moro, and pagan—and with practically all Americans and foreigners domiciled and doing business in the principal cities and towns of the islands.

Too often there has been a marked disinclination on the part of individuals, especially Filipinos not in sympathy with immediate or absolute independence, to state their opinion openly, for the reason that they feared loss of standing or persecution if they did so. Their fears were very genuine, and unhappily there is evidence that their apprehensions were well grounded.

When practicable, important administrative investigations were made, with the knowledge and assistance of the Acting Governor General and his assistants. The mission and its attached members, however, personally visited administrative and judicial offices, the courts (including justices of the peace), schools, hospitals, jails, and other public institutions throughout the islands and feel they have completed a thorough and careful survey of the government, the people, and their institutions. As a result it has been able to form definite conclusions on the general subjects and upon the conduct of the government.

The date of the arrival of the mission at the various towns and cities was made known well in advance, in order that there might be ample time for the preparation of petitions, memorials, and addresses. Almost without exception the officials and people of the regions visited paid great attention to the reception of the mission. The roads and streets were decorated with arches, generally bearing the word "Welcome," followed by a statement that the people desired their independence.

The public assemblies to greet the mission and present addresses and memorials were usually of a size which indicated a keen interest in the question of independence. The people were attentive and quiet, but there was a lack, due in part to racial reserve, of that exuberant enthusiasm which so often marks the public discussion of questions of national import.

The proportion of speakers representing business and agriculture was relatively small. The majority were from the younger generation.

HISTORICAL SKETCH.

In considering the question of granting independence to the Philippine Islands it is of interest to note that they have always been a dependent group under the influence of a stronger power. It is appro-

priate to review briefly their history. Previous to 1400 the islands had been subject to Hindu-Malayan empires in Sumatra, Indo-China, and Borneo; at that date they ceased to form an integral part of the Javanese Madjapahit Empire.

Shortly after 1400 Mohammedanism was introduced, but politically the islands were subject to China during the reign of the ambitious Ming emperors.

The first Europeans who visited the Philippines were Portuguese about 1517, and Spaniards in 1521. The century preceding the European discovery had been one of the most eventful periods in the history of the islands. In addition to the Chinese attempt at political as well as commercial domination, the Japanese entered the islands in the north and the Mohammedans of Brunei (Borneo) in the south. At the time the first permanent European colony under Spain was established in 1565, all of the islands as far north as Manila were subject to Borneo and, it is said, paid tribute equal to about one and one-half litres of gold per annum. While the Japanese and Chinese were also settled in Manila, the strongest Japanese influence was in the north of Luzon, from which they were driven by the Spaniards in 1582 with the conquest of their fortified trading stronghold in the Cagayan Valley.

The chief cause of Japanese interest in the islands was their search for rare pottery, gold, and pearls.

The first permanent Spanish colony was founded in Cebu in 1565, and Manila was conquered in 1570. Spanish records state that in 1600 there were some 25,000 Chinese and 1,500 Japanese in Manila alone, but of these about 20,000 Chinese were massacred in the year 1603 by the Spaniards, fearful of their numbers. There were three subsequent massacres of Chinese by the Spaniards for the same reason. During the next two decades the coastal regions of almost the entire archipelago were brought under Spanish control.

The Spanish government of the Philippines was placed under the viceroy of New Spain (Mexico) and all communications were through him. A captain general was at the same time military commander and head of the civil government. The main purpose of the Spaniards in the Philippines was the search for treasure, commerce, and the spread of Christianity, but they soon discovered that the amount of treasure obtainable in the islands was limited and, although a constant expense to both the Governments of New Spain and Spain they were retained to spread the Christian religion.

In 1592, the Toiko Hideyoshi of Japan demanded that the Spanish government of the Philippine Islands pay annual tribute and acknowledge the sovereignty of Japan. The Spanish Government was loath to do this but due to shortage of men and ships and lack of support from New Spain was forced to acquiesce to the extent of paying tribute, which was actually paid on several occasions during a period of from 15 to 20 years.

Spanish control continued in the Philippines until 1898, although the Portuguese, Dutch, and British tried at various times to overthrow Spanish power. All these efforts were unsuccessful, though the British captured Manila in 1762 and ruled it under Alexander Dalrymple, until June, 1764.

From these various partial conquests of the Philippine Islands there remains to-day a strong influence on the native customs, lan-

guage, and religion; the Mohammedan religion, from Indian and Arabic sources, a dominant Chinese influence in commerce and trade; Christianity, Roman law, and many features of occidental civilization from Spanish sources.

American control in the Philippines began during the war with Spain, but was not firmly established until 1900.

Racially, the mass of the Filipino population is of Malayan stock, though other types are to be found, especially among the 10 per cent of non-Christians. Chinese and Spanish race mixtures are common among the wealthy and better educated classes, this mixture seeming to strengthen the native stock. The inhabitants of Borneo, Sumatra, Java, Formosa, and, to some measure, Indo-China (the Malay groups), are racially the most nearly related to the Filipinos.

Whatever may be said of Spain's methods (and too much is said without knowledge), the fact remains that she implanted the Christian religion and European ideas and methods of administration in these islands and laid the foundations which have been of far-reaching value in our work here. From a number of warring tribes, Spain succeeded in welding the Filipino people into a fairly homogeneous group, sufficiently allied in blood and physical characteristics to be capable of becoming a people with distinctive and uniform characteristics.

Spain did not, however, seriously undertake to give them a common language, and although most of the more progressive and intelligent people managed to learn Spanish, no effective effort was made to make it a common language for the different groups, who continue to this day speaking many distinct dialects. There are eight languages in the islands, each of which is used by not less than 500,000 people, and some seventy-odd more which are used by smaller groups. Some differences between their dialects are slight enough so that people using different ones can make themselves understood, but many are so radically different that they are mutually unintelligible.

The United States obtained possession of the islands by conquest in 1898. The islands were formally transferred to the United States by Spain in the treaty of Paris.

Almost immediately President McKinley announced that the Philippine Islands were not to be exploited for the aggrandizement of the American people. "The Philippines are ours not to exploit but to develop, to civilize, to educate, to train in the science of self-government. This is the path which we must follow or be recreant to a mighty trust committed to us."

The 23 years of American occupation may be divided into the following four distinct periods:

First: The military period, from August 13, 1898, to July 1, 1901. During this period the islands were under a military governor and the insurrection against the United States, headed by General Aguinaldo, was being suppressed. United States troops went to the Philippines in large numbers, and the first problem confronting the Government was the establishment of public order.

In spite of the continuance of military operations, substantial beginnings were made in the establishment and maintenance of a civil government, particularly in establishing respect for the authority

of the United States; in the opening of schools in which the first teachers were noncommissioned officers of the Army; in the establishment of the judiciary; and also in the matter of public health and works. Organization Order No. 58, 1900, of General Otis, laid broad and secure foundations for the establishment of civil government.

Second: Organization period, from July 1, 1901, to October 16, 1907, in which the sole legislative body of the islands was the Philippine Commission, appointed by the President of the United States. In this period much constructive work was done, the creation of a working government was undertaken, a public-school system organized; 5,000 schools were opened with 7,671 teachers and an enrollment of 400,000 children, about one-fifth of the children of school age in the Philippine Islands; a census taken; the judicial system organized and the procedure adopted; a currency system established; public works started on a systematic basis; health service reorganized and put in more effective condition; and in general the structure of government built on secure foundations. Governors Taft and Wright, members of the original commission, were the governors responsible for most of this work.

Third: The constructive period, from 1907 to 1913. In this period one-half the legislative powers, namely, the lower house, were turned over to a body of elected Filipinos known as the Philippine Assembly, the commission becoming the upper house or senate, this with the proviso that in case of disagreement between the two bodies as to appropriations the previous appropriation bill should carry over. On three occasions the two houses failed to agree on the appropriation bill and the previous bill was carried over without any great injury accruing to the public service.

During this period a broad and practical public works program was laid down and carried out, involving the construction of roads, bridges, port improvements, irrigation works, schoolhouses, markets, and other public buildings. Artesian wells were driven. Practical and effective negotiations were entered into for the financing and construction of railroads and for encouraging interisland transportation. Steamship subsidies were established and a large number of lighthouses were built. A comprehensive cadastral survey of the islands was undertaken and many other constructive enterprises, which met with the cordial appreciation of the Philippine people.

In this period the University of the Philippines was founded; also many professional schools; and the policy of the general extension of education was continued.

Throughout these three periods the policy was established and followed of utilizing Filipinos in the government on the general principle of putting them in the less responsible positions—which was proper, as they had little experience—and carefully training them for promotion and working them up as rapidly as their efficiency and training proved, through protracted periods, justified. At the end of this period the proportion of Filipinos in the service was 72 per cent as against 28 per cent Americans.

Fourth: Period of Filipinization, 1914 to 1921. The first step taken by the new administration was to give the Filipinos a majority of the commission or upper house. The second was the pas-

sage of what is now the fundamental law of the islands, known as the Jones bill, attached hereto as an exhibit. Under it the Christian and civilized Provinces were permitted to elect a senate and house and the Governor General authorized to appoint representatives for the non-Christian portions of the islands, the legislature having legislative control over the whole archipelago. During this period the administration deliberately adopted the policy of getting rid of most of the Americans in the service, competent and otherwise, and made the service so unattractive that very few remained, until at this writing the percentage of Americans in the service is only 4 per cent, 96 per cent being Filipinos. The orderly process of promotion of proved efficiency from the less important positions was changed to a hurried Filipinization, placing Filipinos in nearly all of the higher positions. Many, including some of those selected for judges, were chosen apparently without due reference to their training or experience.

Great emphasis was laid during this period, particularly toward the end, on the extension of education, many new schools of all grades being established and the enrollment in the public schools being brought up to the present high figure of 945,000, or double what it had been at the beginning of the period, more children of school age finding an opportunity to go to school than ever before.

There are also about 75,000 children in standard private schools, or a total of over 1,020,000 in school.

Further progress was made in public works, particularly public buildings, extensive boring of artesian wells, construction of new hospitals, etc.

The period was marked, however, by a deterioration in the quality of public service by the creation of top-heavy personnel, the too frequent placing of influence above efficiency, by the beginning of a political bureaucracy. In this period, taxation and expenditures were very greatly increased.

THE PHILIPPINE PEOPLE.

The Philippine people possess many fine and attractive qualities—dignity and self-respect, as shown by deportment, complete absence of beggars, personal neatness and cleanliness, courtesy and consideration to strangers and guests, boundless hospitality, willingness to do favors for those with whom they come in contact, which amounts almost to inability to say "No" to a friend. They are happy and care free to an extent seldom found among other peoples, keen to own their land, strongly attached to their homes and their children, proud of and devoted to their beloved Philippines; they are free from worries arising from international difficulties and responsibilities; they are refined in manner, filled with racial pride, light-hearted and inclined to be improvident, as are all peoples who live in lands where nature does so much and people require so little. In many positions they have shown marked capacity and have done better than could reasonably be expected of an inexperienced and untried people. There are many holding high positions in the judicial, executive, and educational departments who would be a credit to any government. They are proud, as they well may be, of the advance they have made since the beginning of American control of

the islands, for it can be safely stated that no people, under the friendly tutelage of another, have made so great a progress in so short a time, for 23 years is but a brief time in the development of a people.

They possess active minds, their children are bright and precocious, and learn rapidly. The whole people have a consuming thirst for education, and, as is common among those who have had little opportunity and much hard work, there is a leaning toward the learned professions or occupations which do not involve severe manual labor and a tendency to underestimate the importance of agriculture and the dignity of labor, and to overestimate the standing given by the learned professions.

Their support and aid in the building up of public education is beyond praise. They have sacrificed much that their children might be able to go to school, and the interests of an entire family are often subordinated to sending the selected member to a higher school or university. Schoolhouses are often constructed by voluntary contributions of labor, money, and material.

There is a serious lack of educated public opinion, for as yet the Philippine public is not a reading public, and there is a lack of a strong, independent press, although there has been a great advance in this respect during recent years, and there are several outstanding independent papers of great local influence. The daily total circulation of all island papers is a little less than 140,000, and in the remote Provinces people still depend largely upon the circulation of news by word of mouth.

The Philippine people are readily led by those who understand them. They make brave soldiers, and under good leaders make excellent troops. Due to the lack of a well-informed public opinion they are easily swayed by their leaders.

As a result of generations of disregard for sanitary measures, they are still rather oriental in their attitude toward diseases and questions of public health and sanitation. This indifference is being rapidly corrected.

The Filipino woman is a strong and dominating influence in every home and community. She is modest, loyal, and hard working, and while not much in evidence she is nevertheless always to be reckoned with. She is the strong conservative influence which keeps together the home, saves the money, and is the foundation of the success of many families. The establishment of large numbers of women's clubs that concern themselves with hygiene and other civic matters is a most encouraging sign of the times.

The mass of the Philippine people are and always have been agriculturists or fishermen. They have not in the past been active in commerce, except in small stores principally run by the women, although at the present time they are taking a constantly increasing part in the commercial affairs of the islands.

They have, however, a long road to travel before the bulk of the business done in the islands is in their hands, as most of the retail stores, the import and export business, financial institutions and corporations are in the hands of Americans and foreigners, especially Chinese.

In many sections the heads of the old families, who were almost feudal in the extent and method of control, still exercise a dominant

influence and are able to impose their will upon the people. Happily, as education progresses this condition is steadily lessening.

The people are mostly Roman Catholic, with predominant Mohammedan groups in the southern islands, and various pagan groups, especially in Luzon, Mindanao, and Palawan.

They are naturally an orderly and law-abiding people.

The numerous languages and dialects, the separation of the people into groups living on the islands, the lack of a press of wide circulation printed in a common language, have delayed the building up of a common tongue with the resulting spirit of solidarity.

They possess marked ability in many fields of effort, an ability which is not as apparent as it would have been had not all the intricacies of a highly organized, representative form of government been imposed upon them with too great rapidity.

The Philippine people represent the most advanced experiment in the establishment of representative government in the East, and in our endeavor to establish it, complete in all its details, we have in many instances, by the rapidity of our procedure, overtaxed the ability of the people to absorb, digest, and make efficient practical use of what it has taken other nations generations to absorb and apply, and in our critical impatience we forget the centuries of struggle through which our own race passed before it attained well-balanced self-government.

PRESENT CONDITIONS.

There has been a progressive transfer of government to the people of the islands, and at the present time it is very largely in their hands. So extensive has been the transfer that many fail to realize that there still continues in the islands a decisive American control that assures the maintenance of an orderly government, secure against disturbing influences from within and without.

In view of the difficult situation which existed after the insurrection, the difference in language, customs, and in conceptions of citizenship obligation, the progress which has been made in the 23 years of American occupation is extraordinary. It is a high tribute to Americans and Filipinos alike. The animosities have disappeared and there remains a spirit of confidence and friendliness for the American people throughout the archipelago. Much has been done, but much remains to be done.

While there has been retrogression in the efficiency of most departments of the government during the past few years, we do not feel that the responsibility for this rests solely upon the Filipinos or that they should be unduly blamed for such failures as have occurred, as the ultimate responsibility for the selection of responsible officers and for the exercise of proper supervision was in the hands of the American Governor General, whose duty it was to exercise due care to appoint competent men at the heads of departments and bureaus, and, above all, to exercise proper supervision over them.

A reversal of policy is not needed now, but time for the Filipinos, under careful but friendly supervision, to absorb and master what is already in their hands. We must remember that the good qualities of the people, their enthusiasm, and their determination can not take the place of experience.

We must build up an informed public opinion, a stronger spirit of civil responsibility, and a better appreciation of the obligations of citizenship. In this the island press has a vitally important part to play. The task of building up a truly representative form of government is made much easier by the fact that the great bulk of the people are Christians; that they are free from caste distinctions; that although oriental in blood and birth, they are essentially western in religion, form of government, and in ideals and aspirations; and that their true sympathies and affiliations lie with the great Christian nations.

The influence of our efforts to establish representative self-government in the Philippines extends far beyond the Philippines. It reaches every part of the Orient where free institutions and representative government are the dreams of the people.

The great bulk of the Christian Filipinos have a very natural desire for independence; most of them desire independence under the protection of the United States; a very small percentage desire immediate independence with separation from the United States; a very substantial element is opposed to independence, especially at this time. The Moros are a unit against independence and are united for continuance of American control and, in case of separation of the Philippines from the United States, desire their portion of the islands to be retained as American territory under American control. The pagans and non-Christians, constituting about 10 per cent of the population, are for continued American control. They want peace and security. These the Americans have given them.

The Americans in the islands are practically a unit for the continuance of American control.

The people, as a whole, are appreciative of the peace and order which prevails throughout the islands. Many do not understand what independence means, or its responsibilities. They are living under the best conditions they have ever known. It is not generally realized that the American Government can not be expected to assume responsibility for the results of internal disorders, particularly as they affect the nationals of other powers, the treatment of foreign capital, and external political relations, unless the United States retains a certain measure of control.

The great work which the American commercial population and organizations have done in the islands should not be overlooked. It has contributed greatly to the betterment of conditions. They have built up and established business and credit from one end of the islands to the other. They have always been a strong force in the support of law and order, intensely American in sentiment, and, on the whole, a good, stabilizing, and helpful influence. At times they have been impatient, and justly so, with the discouragement of American business efforts and there have been conditions which have given rise to strained relations between individual Americans and Filipinos, but never resulting in any disturbance of public order.

The American and foreign church missions and schools and charitable associations have done much to improve the spiritual and physical condition of the people and to build up better relations between the Filipinos and Americans.

Generally speaking, administrative departments of the government are top-heavy in personnel and enmeshed in red tape. There is a vast amount of paper work. The methods of the administration are purely bureaucratic. There is a lack of supervision and personal contact.

The general administration of the Philippine government in 1913, the period of greatest efficiency, was honest, highly efficient, and set a high standard of energy and morality. Inherited tendencies were being largely replaced by American ideals and efficiency throughout the Philippine personnel, but the time and opportunity was both too short to develop experienced leaders and direction in the new English-speaking and American-thinking generation. Both the political and administrative leaders were still Spanish-trained and Spanish-speaking, and many are so to-day.

It is the general opinion amongst Filipinos, Americans, and foreigners, that the public services are now in many particulars relatively inefficient; that there has occurred a slowing down in the dispatch of business and a distinct relapse toward the standards and administrative habits of former days. This is due in part to bad example, incompetent direction, to political infection of the services, and, above all, to lack of competent supervision and inspection. This has been brought about by surrendering or failing to employ the executive authority of the Governor General and has resulted in undue interference and tacit usurpation by the political leaders of the general supervision and control of departments and bureaus of the government, vested by law in the Governor General.

Again, the legislature has passed laws tending to demoralize and introduce into the civil service the infection of politics. For example, numerous exemptions from the requirements of the civil service and many provisions for temporary employment. All these defects can and—unless we fail to understand the spirit of the legislature and the leaders—will be corrected in the islands.

CONSTABULARY AND PUBLIC ORDER.

Public order is maintained principally by the constabulary, a force of approximately 5,800 officers and men. This organization has proved itself to be dependable and thoroughly efficient. In discipline, morale, and appearance it still bears the strong impress of the carefully selected officers of the United States Army who organized, trained, and developed it.

This force, excellent as it is, is designed to meet the police needs of the situation in time of peace. There is no adequate local organization of the Philippine people for defense of the islands against aggression. The American Government should at once take the necessary steps to organize, train, and equip such a force.

There has been some lowering of standards, due principally to the sudden loss of the bulk of the experienced American officers, who left the service to enter the World War, and to the effects of the low rate of pay which resulted in many leaving the service; also to the demoralizing, and at times intimidating, effect of political influence, the detached nature of their duties, in frequent inspections and frequent change of officers. But on the whole this force is a

very satisfactory one and is entitled to great credit for its morale, efficiency, and orderly effective performance of duty.

Some years ago a school for constabulary officers was organized and has been in operation with excellent results. No men are now appointed to the constabulary who are not graduates of this school, where they have undergone a careful preparation and training. The quality of the graduates shows what can be accomplished when opportunity for careful training is offered.

Public order is excellent throughout the islands, with the exception of minor disturbances in the Moro regions, due principally to energetic and sometimes over-zealous efforts to hasten the placing of Moro children, especially girls, in the public schools, and to the too sudden imposition upon the disarmed Mohammedans of what amounts to an absolute control by Christian Filipinos. It is also due in part to failure to give adequate representation in local governments to Moros.

ADMINISTRATION OF JUSTICE.

Justice is administered in the Philippines by a supreme court, numerous courts of first instance, justice of the peace courts, and municipal courts.

The supreme court has the respect and confidence of the Philippine people. The other tribunals do not enjoy an equal degree of confidence. In the lower tribunals, generally speaking, the administration of justice is unsatisfactory, slow, and halting, and there is a widespread feeling among the people that political, family, and other influences have undue weight in determining issues.

During the existence of the Philippine Commission, a most serious effort was made to secure the best available men for the bench, without regard to party affiliation, and the men appointed at that time as a rule enjoyed public confidence. In later years the same care has not been exercised.

There are pending in the courts of the islands to-day, in round numbers, approximately 50,000 cases, including some, 8,000 probate and guardianship cases. Conditions are growing steadily worse, and with present personnel and methods the dockets will never be cleared.

The condition of the courts of first instance is generally deplorable. The number of cases filed has steadily increased from year to year. The number of judges has not been increased proportionately and is insufficient to dispose of promptly and efficiently the great volume of business that they are called upon to transact. The abolition of the court of land registration imposed a heavy additional burden upon these courts. The judges in too many courts do not realize the necessity of reaching early and prompt decisions and are too ready to postpone hearings and trials. The clerks of the courts of first instance are too often without necessary experience. There is no uniform system of filing records, and in many instances it is difficult for attorneys to secure records promptly.

The justice of the peace courts are the weakest point in the judicial establishment. Complaints against these courts are numerous and come from all parts of the archipelago. Because of the remoteness and isolation of many of these tribunals, the want of frequent and effective supervision and inspection, many abuses are perpetrated.

A frequent cause of complaint is against extreme action taken under the provisions of act 2098, which enables employers of labor to prosecute their laborers for breach of contract and in many cases to hold them against their will, resulting in a kind of legalized peonage. The laborers are kept in debt through the advance of money and supplies, and in return for these advances agree to work for definite periods and under certain conditions. Under the provisions of this act, should they leave before completion of contract they can be arrested and tried for violation of contract and for obtaining money or supplies under false pretenses. During the fiscal year 1918 there were a total of 3,266 cases of this nature, of which 1,456 were convicted.

Another common cause of complaint is the initiation of proceedings resulting in the arrest and confinement at remote places of people who are unable to give bond. This procedure results often in holding of men in confinement for months before the cases are acted upon by the judge of the first instance.

The present condition results first and above all from the lack of proper inspection and prompt, corrective action where inefficiency and negligence have been shown, from an insufficient number of judges, insufficient pay, and no provisions for retirement, and in some instances to lack of careful selection.

Investigation also indicates very clearly that more care should be exercised in the selection of the fiscals or prosecuting attorneys.

The unsatisfactory condition in the administration of justice can be corrected by the insular authorities. In doing this, it is important to build up a strong public opinion in support of a prompt, effective, and impartial administration of justice. Provisions should be made for the retirement of judges of the first instance and the entire administration of justice must be placed outside the scope of political and other improper influences. In brief, the independence and stability of the judiciary must be established. It lies at the foundation of stable government.

LAND TITLES.

The land titles situation in the Philippine Islands is a serious one. It should be the policy of the government to push forward the cadastral survey, determine titles to lands as quickly as possible, and to facilitate in every possible manner the acquisition of title by homesteaders. Nothing is more conducive to good government than having the people secure in the ownership of their land and possessing titles guaranteed by the government, as is the practice in the Torrens system. Filipinos have the excellent trait of strong inherent desire to own their own land.

The present unfortunate land title situation is largely due to an inefficient administration of the land office in recent years and to an increase in the number of problems which the government has to handle.

In 1913 the insular government had a thoroughly efficient and trained bureau of lands and an experienced and effective court of land registration. To-day the inefficiency of the bureau of lands is due in part to lack of experienced and trained personnel, to inefficient management, and lack of funds.

Delay in the obtaining of titles is also due to the abolition of the court of land registration and to the transfer of land cases to the overloaded courts of first instance. This has resulted in an increase in the number of abuses by which the poor farmer and homesteader, ignorant of his rights, is forced off his land by his richer and more unscrupulous neighbor. The situation tends to serious discontent and must be corrected.

An adequate court of land registration should be reestablished.

PRISONS.

The insular government maintains Bilibid prison in Manila; San Ramon prison and penal colony combined near Zamboanga; the Iwahig penal colony near Puerto Princesa, on the island of Palawan; the Fort Mills prison on Corregidor; and a prison at Bontoc, in the Mountain Province. The total number confined in all these prisons for 1920 was 5,254.

Bilibid is the receiving station and distributing point of all classes of criminals, except those of the Moro and Mountain Provinces, who are held at San Ramon and Bontoc, respectively. Bilibid retains convicts who can not be worked outside and about 1,500 employed in industrial work.

TREATMENT OF PRISONERS.

Prisoners upon arrival in any of these prisons are physically examined, treated if found necessary, given a period of training in drill and exercise movements and, if possible, assigned to work for which preference is expressed. The time of confinement in prisons under guard is determined by character and length of sentence and expressed desire of prisoner, governed by good conduct. Incentives are provided for good conduct in additional privileges, gratuities, by additional liberty through classification as "trusties" or penal colonists, and by automatic reduction of the time of sentence by reason of good behavior.

Prisoners of excellent conduct who have served one-fifth of their sentences at Bilibid may be sent to Iwahig, where five additional days per month are allowed for good time credit. Also, life sentence is commuted to 30 years in the cases of convicts who are sent to Iwahig, and good behavior counts so that life sentences can be served in about 22 years. Furthermore, at Iwahig, a convict by good conduct may become a settler and receive one-half of what he produces, the land, tools, animals, etc., being provided for him.

The Iwahig penal colony has a reservation of over 100,000 acres on the Island of Palawan. It is a partially self-governing community, founded originally somewhat upon the principle of the George Junior Republic. It has a population of about 1,200 colonists and has proved to be a most successful institution, far advanced in reformatory methods and results, the number of convicts returned to prison after release from the colony being extremely small.

PROVINCIAL AND MUNICIPAL JAILS.

Besides the above-mentioned prisons, most of the provincial and municipal jails in the islands were carefully inspected. The provin-

cial jails were generally overcrowded. There are little or no provisions for taking care of the sick. Marked favoritism is often shown to prisoners with influential friends. The food is generally good and sufficient. The condition of the clothing is fair. The prison guards are poorly trained and poorly disciplined.

The municipal jails are, as a general rule, unsatisfactory. They are small, dark, usually poorly ventilated, and unsanitary. The municipal prisoners are poorly fed, poorly clad, and generally poorly cared for. In the great majority of municipal jails no proper provision is made for female prisoners.

It was observed generally throughout the islands that there were a great number of prisoners awaiting trial for unusually long periods.

PUBLIC INSTRUCTION.

The Filipinos are deeply interested in public education. Their enthusiasm, their keenness to secure education for their children, is beyond praise. The progressive development of the school system has been phenomenal. Indeed, enthusiasm has at times outrun prudence, and expansion has taken place so rapidly that efficiency has not been able to keep pace. However, such mistakes as have been made have resulted from enthusiasm in a noble cause—the education of the youth of the islands.

The following gives an idea of the progress in this department:

Annual enrollment, public schools.

	1898	1902	1907	1914	1920
Pupils.....	4,504	1,200,000	479,978	621,030	935,678
American teachers.....	847	746	658	341	316
Filipino teachers.....	1,914	6,141	7,013	7,234	20,691

¹ Estimate.

In 1920 the public owned 4,063 and rented 1,163 buildings.

The total expenditures for administration and instruction were about \$6,869,654.50 for 1920. The university had in 1920 an enrollment of 4,130 with a teaching force of 379 professors and assistants. The cost of operation was \$755,926.57.

As before stated, the self-sacrifice of the parents has been great. They have willingly deprived themselves of many necessities in order that they might aid in the voluntary building of schools and properly equip their children for school attendance. The percentage of the population in the schools is about 10 per cent, an excellent showing for a new government (the percentage for the United States for 1918 was 20.13). The amount spent for each pupil per year is \$9.50 (the United States annual expenditure is \$36.62). The amount per capita for the entire population of the Philippine Islands is \$0.86.

One of the most difficult problems has been to secure efficient teachers. No class of men and women should be selected with more care, for they are charged not only with the routine education of the children but inevitably have a great influence in forming their

ideas of citizenship obligation, respect for the law and the authorities, and as these teachers do their work to-day so will the Philippine people of to-morrow be. Too much care can not be exercised in their selection, for only men and women of capacity can teach children to think straight and to intelligently apply their minds to the problems of life.

The exceedingly rapid expansion of the school system has made it difficult to secure a sufficient number of well-trained teachers. The great majority of the teachers in the primary schools are products of the intermediate schools and have had comparatively little experience in teaching, so that hand in hand with the education of the children has gone the effort to train and build up a competent teaching force.

One of the principal objects of the schools is to teach the children to speak English, so that it may become the language of the people. This is of vital importance, as it will form a bond of union for the numerous and more or less distinct language groups and establish a common medium of communication, which will make for efficiency in government and tend to the building up of a spirit of solidarity. It would also result in a more widely circulating press and the creation of an instructed public opinion, which is most important.

There is a great shortage of English-speaking teachers. Many of the Filipino teachers who are instructing in English are themselves far from proficient in it. The force of American teachers is altogether too small and should be increased to approximately 1,000, if instruction in English is to be rapidly and successfully pushed forward.

In order to secure this number of American teachers, in addition to present salary, a liberal allowance will have to be made for transportation to and from the islands. And as a further measure toward better conditions for instruction in English, arrangements should be made for an intensive course in English for the native teachers during the summer months.

The preparation of the Filipinos to meet the professional and scientific requirements of their country and for the advancement of general culture are in part provided for by the University of the Philippines, the high school, and certain private schools and colleges.

At present these institutions are not turning out a sufficient number of graduates to meet the needs of the situation. The University of the Philippines is an institution full of promise but is not meeting the demands upon it in as satisfactory a manner as could be reasonably expected. There is an urgent need of Americans of high standing and capacity for the heads of some departments. A general reorganization is urgently necessary and business management must be put on a sound basis. The medical school should be brought on a par with the best in America and the school of tropical medicine should be reestablished and placed under the direction of thoroughly competent personnel. This school a few years ago had attained the highest standing in the East. At present it is not in operation. The colleges of agriculture, veterinary college, and the college of education should be strengthened and enlarged to meet the needs of the people.

A serious effort has been made on the part of teachers and others to impress upon the children the dignity of labor, and we are glad

to say that good progress has been made. There is a very general interest and strong development throughout the school system in the industrial and agricultural training adapted to the needs of the people; in the manual training for boys and domestic science and hygiene for the girls. There is a strong interest in athletics throughout the public school system and in the university. This has received the strong encouragement of the Philippine people. Filipino athletes have on two occasions won the championship of the Orient in the far eastern olympiad, in competition with athletes from Japan and China.

THE BUREAU OF SCIENCE.

This is probably the most important single institution in the Philippines, and for years it rendered vitally important service not only to the Philippine government in its various departments but also to the world at large, through its scientific research work. It attained a position of great eminence and credit, but on account of the lack of adequate support and adequate personnel it does not occupy the position to-day that it did from 1905 to 1915. Reorganization and the appointment of a personnel adequate in all respects is imperative. The work of this institution is of inestimable value to the Philippines and to the world at large.

HEALTH AND SANITATION.

It can be said, without fear of successful contradiction, that the average Filipino is born, lives, and dies without medical attendance or nursing. There is a great lack of hospitals and dispensaries. The excellent health service which previously existed has become largely inert. Much of the personnel remains, but it has lost the zeal and vigor which formerly characterized it.

Appropriations for sanitary work and medicines, etc., are insufficient.

The statistics of the Philippine health service show that there has been a steady increase in recent years in the number of preventable diseases, especially typhoid, malaria, beriberi, and tuberculosis. Before suggestions could be intelligently offered as to remedying this and other shortcomings in health administration, a detailed study would be necessary. It would seem, however, that as a basis for constructive action it is a sound assumption that the health activities and measures for medical relief, which are so scattered throughout so many different agencies, should be coordinated into one department and that an endeavor to correct conditions should work toward the realization of that object.

There is a great shortage of doctors, nurses, and properly trained sanitary personnel. Outside of the largest towns, hospitals are so few and far between that they are a negligible quantity. There are about 930 nurses for a population of ten and one-half million. The number of nurses should be greatly increased. They are most useful as sanitary inspectors and visiting nurses. Wherever you find good nurses you find lowered infant mortality and improved sanitary conditions.

LEPERS.

The Philippine Islands have the largest single leper colony in the world. About 5,000 lepers are assembled at Culion. Much excellent work has been done here, and the efforts and results are entitled to much credit, but much remains to be done. Lepers are too congested. There should be a segregation of those who have become negative and of the children who are born clean. At present, those whose reaction is negative are living with those who are in the active stage of the disease, and children who are born clean are associating with their leper parents and companions. The establishment of an isolation colony near the main colony is absolutely essential.

Recent discoveries render it almost certain that a large percentage of lepers can be cured. Although the remedy costs little, funds have not been made available in sufficient amounts to provide this treatment for more than 10 per cent of the lepers.

In brief, it can be stated that the original work done in Honolulu has now received confirmation to a degree that fully warrants introducing this treatment on a large scale in the Philippines and abandoning other treatments which have been advocated in the past, as there is every reason to believe that a large percentage of patients would soon recover to a point where they could be paroled. It is obvious that the dictates of humanity demand a very general use of the approved treatment. Furthermore, the economic advantage of relieving the government from the care of large numbers of cases would be another desirable outcome. In a short time the money saved on patients discharged would more than provide funds for treating the entire number.

INSANE.

The care of the insane is medieval. Proper accommodations are entirely lacking. Steps should be taken to provide a proper establishment for the treatment of the insane. The present institution lacks practically every feature which should characterize a hospital for the insane, and possesses many which can be guaranteed to turn those who are balancing between sanity and insanity in the wrong direction. There are no provisions for the separation of the violently insane from the incipient and mild cases and conditions are, from the standpoint of proper treatment, exceedingly bad and should have been corrected long ago.

This is a matter which will be presented to the legislature at the coming session, and although funds may not be available for the construction of a fitting establishment, steps can be taken to improve greatly present conditions and lay the foundations for the future proper treatment.

DEFECTIVES.

According to accepted ratios per thousand, there would be in the Philippines between 5,000 and 10,000 defective children, deaf, dumb, or blind. So far the Government has provided for the care of only 65 of these defectives, to whom it owes a particular duty.

ECONOMIC CONDITIONS.

We are pleased to note and record many evidences of progressive development in the islands as indicated by the following significant figures:

The postal savings bank was started in 1907, and by 1913 it had 42,271 depositors and \$1,411,066.38 in deposits. In 1920 these had reached 107,229 depositors and \$3,327,217.44 in deposits.

The law requires that 1 per cent of the gross business done in the islands be paid to the government in the form of taxes. This business was computed to be \$200,000,000 a year in 1907, when the tax was first imposed, and had increased to \$325,000,000 in 1913. In 1920 it had reached the figure of \$863,000,000. The number of cigars manufactured had increased from 300,000,000 to 500,000,000. The total resources of commercial banks rose from \$15,000,000 in 1906 and \$31,000,000 in 1913, and are now estimated to be \$215,000,000; this, however, includes the impaired resources of the Philippine National Bank without reduction for losses. Money orders sold increased from \$8,000,000 in 1913 to \$17,000,000 in 1920, and postage receipts from \$380,000 in 1913 to \$780,000 in 1920. Telegraph receipts show a similar increase. The earnings of the Philippine Railway have risen from \$380,000 in 1913 to \$750,000 in 1920, and the Manila Railroad from \$2,400,000 in 1914 to \$5,900,000 in 1920; this latter, however, is partially to be explained by the sharp increase in the mileage and rates.

All this development is very gratifying and shows how rapidly the Philippine people respond to improved conditions of transportation, finance, public order, and markets, brought about since the American occupation. The sharpest advances have been made during the war, as was to be expected, as the Filipinos had few additional war burdens placed upon them and were able to take advantage of the great increase of prices, which brought them unexampled prosperity.

The country is suffering from the general world-wide depression at the present time; the prices of products have fallen off very sharply, but even this is less acute than in other countries.

It should be noted, however, that whatever mistakes have been made here, they have not been sufficient to arrest the steady rate of progress which these figures prove to have taken place.

Your mission has had a careful report prepared showing the gross trade of the Philippine Islands. From 1903 to 1909 the figure was almost stationary. Nineteen hundred and nine was the year in which the Payne bill was passed creating free trade between the Philippine Islands and the United States. In the first three years of free trade the trade with all countries nearly doubled. Beginning with 1916 the trade went sharply upward until in 1920 it reached the remarkable total of \$300,000,000. We have tried to get the figures of tonnage in order to analyze this growth in trade and see how much comes from increase in volume and how much is due to increase in price, but have not been able to get these figures.

An analysis of the trade shows that a curve indicating the exports and imports from the United States follows almost the same lines as does that of total trade. Roughly speaking, two-thirds of the business of the country, or \$200,000,000, is trade with the United

States, and one-third with all other countries. The proportion of gross business done with the United States has been steadily increasing. As the trade with the United States pays no customs duties, and the bulk of the increase has been in that class of trade, the result is that the total revenues of customs has shown a tendency to fall off, while the cost of collection shows a steady increase.

In case free trade were to be taken from the Philippine Islands, it is probable that the closing of the rich markets of the United States to the products of the Philippine Islands would be very sharply felt. While the Philippine government would receive customs duties on an important part of their imports that now come in duty free, it is believed that the first effect would be a very serious blow to trade. For example, in 1920 nearly \$40,000,000 of sugar was exported to the United States, the duty on which would have been 6 or 8 per cent of its value. It is problematical how well Philippine sugar could have stood the handicap of 8 per cent added to the high cost of freight from the Philippines to the United States. The value of cigars exported to the United States was \$10,500,000; the duty on these at the present rate would amount to about \$30,000,000, which would practically have closed the markets of the United States to these cigars. There would have been a similar closing of the United States markets to leaf tobacco. The collector of customs estimates that the trade which has grown up in Philippine embroidery now reaches \$7,500,000 a year and would have to pay a duty of \$4,500,000. As there is no other market for this product, he believes the industry would be practically ruined.

In the main, it is believed that the loss in internal revenue, were the stimulus of free trade to business removed, would be greater than would be the increased collection of customs duties. In this connection it is interesting to note that the increase in internal revenue started when free trade was given and practically offset the drop in customs receipts at the time.

Further analysis of the customs shows that the principal articles exported, measured in value, to have been copra, \$2,565,483; hemp, in which the Philippine Islands have a virtual monopoly, \$35,682,000; coconut oil, \$23,268,085; sugar \$49,619,025; and tobacco, \$12,721,038.¹

FINANCES.

In 1905, the Philippine government was put on a thorough business basis. All services rendered by one branch of the government to others were paid for, and the books were so kept that the appropriations did not include any interbureau or intergovernmental payments.

The law has since been changed, so that the present cost of government includes items of receipts for services sometimes from other branches of the government, which makes analysis difficult and exact comparison impossible. The books are so kept that these amounts can not be ascertained without an analysis of governmental accounts involving prohibitive expense. So that the gross figures of receipts and expense are padded on both sides by intergovernmental charges which are neither real receipts nor expenditures as they are payments

¹ These figures are taken from the report of collector of customs, and are all for 1920

by the government to itself. The accounts should be so kept that these fictitious entries would be eliminated, in order to enable the officers of the government to get a true picture of government costs.

Certain figures, however, stand out so boldly that they can not be questioned. The rate of taxation has been sharply advanced. The insular gross revenues from taxation in 1913, before the Filipinos were given virtual control of their government, were \$12,500,000, as opposed to \$28,000,000 in 1920, an increase of 124 per cent. Government expenditures show a still greater proportion of growth. This increase in the general cost of government has not been accompanied by a proportionate increase in efficiency; on the contrary, as has been noted elsewhere, there has been a general falling off in efficiency.

The per capita revenue from taxation has risen from \$1.32 in 1913 to \$2.50 in 1920. This compares with the per capita taxation of \$23.78 in Great Britain (1914-15), \$9.92 in the United States (1914-15), \$5.57 in Japan (1915-16), \$17.33 in the Argentine Republic (1915), and \$7.79 in Brazil (1915), from which it will be seen that the Filipino bears a smaller burden of taxation than the natives in any of the other cited countries.¹ One reason the burden of taxation is so light in the Philippine Islands is because the United States has borne all costs of military and naval establishments necessary for the defense of the islands, and other expenses incident to the maintenance of the sovereignty of the islands, including international diplomatic and consular representation.

Of the total revenues of \$40,500,000,² \$28,000,000 is from taxation and \$10,500,000 from operating income and commercial and industrial units; this does not include earnings of the railroad, which the Government owns through ownership of the stock.

An analysis of revenue derived from taxation shows the receipts from internal revenues to be \$18,500,000 or two-thirds of the total. This internal revenue collection is nearly four times as heavy as the collections of 1913.

The bonded debt of the Philippine Islands in 1920 was \$22,000,000, for the redemption of which is laid aside nearly \$5,000,000 sinking fund, so the net liability is something less than \$17,500,000. A comparison with the debt of other countries demonstrates that the Philippine Islands has a smaller bonded debt than most countries, the per capita being \$1.81, compared with \$25 in Cuba, \$237.07 in the United States, \$853 in England, and \$1,159 in France. The Dutch East Indies, with \$1.92, is the nearest, and China next with a little less than double that of the Philippine Islands.¹ It will be seen that the recent act of Congress increasing the authority of the Philippine Islands to borrow was highly conservative and could be safely further increased without jeopardizing the financial stability of the government. Bonds and notes of the Philippine Islands have been made exempt from federal taxation and are received on deposit as currency reserve. Although not directly guaranteed, it is understood that the credit of the United States Government is behind them; this accounts for the high market value of these bonds.

¹ These figures are taken from the World Almanac, 1917.

² The Census shows "income" of \$49,000,000; this, however, is incorrect, because analysis proves that it includes moneys from the sale of bonds.

In addition to the insular revenues, there are the provincial and municipal revenues. These are expended by the Provinces and municipalities by vote of their own local authority. An examination of their accounts shows a similar expansion, the receipts and expenditures having increased about 100 per cent in the past eight years.

The government expense and cost of materials have shown a tendency to a sharp increase. And it is to be noted that a number of new bureaus and offices have been created.

THE PHILIPPINE NATIONAL BANK.

The story of the Philippine National Bank is one of the most unfortunate and darkest pages in Philippine history. This bank was started in 1916 and a law passed compelling all provincial and municipal governments to deposit all their funds in it; and at the same time arrangements were made to transfer from other banks all government funds there deposited, except trust funds which were held on deposit in the United States; later the bank was put into a position to get control of these moneys and reserve funds. The sum of \$41,500,00, held for the conversion of currency, was transferred to the Philippine Islands, the bank making a large profit in exchange in doing so. Much of it was then loaned out to speculative concerns under circumstances which have led to grave doubt as to the good faith of the transactions.

A man presumed to be experienced in banking was brought from the United States and took the first presidency which he held a short time. An American inexperienced in banking was then put in charge, and upon his death a Filipino also without banking experience became president. The result of all this has been a series of banking losses estimated by the insular auditor to reach the severe total of \$22,500,000. A partner of Messrs. Haskin & Sells, certified public accountants of New York, after a careful examination of the bank, makes the following comment:

Our examination thus far reveals the fact that the bank has been operated during almost the entire period of its existence prior to the appointment of Mr. Wilson as manager in violation of every principle which prudence, intelligence, or even honesty, dictate.

As a result of these findings, charges have been filed against General Concepción, a former president of the bank.

The government became alarmed at the seriousness of the situation and secured the services of an experienced banking man from the United States, under whose conservative guidance the affairs of the bank are in a fair way to be put on a sound footing. But a large part of the assets of the bank have been loaned to concerns which will be unable to repay for many years—very largely in sugar centrals and coconut oil factories. These loans were made in excessive amounts during the period of boom prices; and minimum precaution in regard to security was taken, with the result that the bank has allowed its reserves to run down much lower than required by law, is unable to meet its current obligations, has had to ask other banks not to press for the redemption of its notes, and has further had to ask time for the payment of its obligations to many banks in Shanghai representing many countries, a list of

which is attached, to whom it owes large sums of money as a result of losses incurred in speculation in exchange transactions.

Attached hereto is a copy of the agreement entered into by the insular auditor and these banks for the settlement of these claims.

The bank also established branches and agencies throughout the Philippine Islands, in charge of which they placed untrained Filipinos, and without exception these branches have been mismanaged. Of the four branches in which the examinations have been completed criminal charges have been preferred against the managers of each one.

These losses have seriously involved the Philippine government and the fact that it has not been able to meet its obligations has seriously impaired its credit. We have been informed by representatives of banks in North Borneo and Japan that they have received instructions not to honor the notes or drafts of the Philippine National Bank.

The currency resources have been depleted; the silver on deposit to redeem the currency has been pledged and used for other purposes. The fund for the maintenance of the parity of gold and silver is involved in these losses, with the result that instead of a metallic and cash basis for the currency, its principal support now is the pledge of the Philippine government and the confidence on the part of the public that the United States will not permit these things to happen again. The currency is now practically a fiat currency.

In view of good earnings, moderate expenses, inherent wealth, a small public debt, and backed by the credit of the United States, the problem of rehabilitating the credit of the Philippine Islands should be an easy one. The lesson has been a bitter one for the Filipinos and the gravity of the mistake is generally appreciated.

One of the functions of the national bank was to manage government exchange. Having transferred all the funds usually available for exchange to Manila, and then loaned the money in such a way that it could not be recovered, the government had to discontinue selling exchange. The rates ran up as high as 15 per cent, which was equivalent to a depreciation of the Philippine currency to almost that amount, which resulted in great hardship to the inhabitants of the Philippine Islands, especially those engaged in business.

The Philippine Islands, contrary to general belief, have maintained all of the expenses of civil administration since the beginning of American occupation from insular revenues and without assistance from the Treasury of the United States, which has, however, defrayed all the costs of the military and naval establishments and fortifications. The only aid received by the Philippine government from the United States has been a \$3,000,000 appropriation for famine relief made in 1903.

PUBLIC WORKS.

In the matter of public works, your mission has to report both favorably and unfavorably.

The government and people of the islands realize the value and necessity of public works and large appropriations from current

revenues have been made annually for such objects as the construction of roads, bridges, irrigation systems, school houses, markets, port works, and artesian wells among others. We find, however, an undue increase in the cost of public works, due in many instances to construction by administration instead of by contract; this has necessitated the purchase of an equipment ordinarily furnished by contractors. There has also been a deterioration in the quality of the work performed in this service. We find also a lack of competent supervision.

On the other hand, there has been a great deal of excellent work done. The director, a Filipino, is a man of unusual capacity and foresight, and he impressed the members of the mission most favorably.

An important proportion of all revenues of the government is allocated to public works, and in the opinion of this mission this proportion should be increased.

In the last three years there has been a notable progress in construction of irrigation systems. Sixteen projects have been undertaken, involving an expenditure of \$4,640,158. Many more projects are under consideration and are awaiting the availability of funds. The completion of these projects is of the utmost importance and it is an encouraging sign of progress that they have advanced as far as they have.

There are now 2,920 miles of roads rated as first-class in the islands and 7,500 permanent bridges and culverts. The standard, however, of first-class roads has been lowered and we found many roads rated as first-class which are not so. There was an earnest effort made by the government to hurry through deferred repairs in order to prepare the roads for inspection.

During the earlier periods a system of road construction and maintenance was adopted and consistently followed. All structures on first-class roads were reinforced concrete and a standard system of road construction adopted suited to the traffic. Although the work progressed slowly, it was thoroughly well done, adequate provision being made for constant maintenance by a force of laborers. The result was that the road service reached a high degree of perfection, comparing favorably with the roads of any other country and much better than most roads in America. The terrific force of the torrential rainfall in these islands made these precautions necessary.

We have to record that this system has not been consistently maintained; the roads are falling into disrepair, some are impassable, and the system of maintenance is carried on spasmodically. In certain districts money has been spent for new roads instead of keeping up the old ones, which is unwise. We also regret to say that a tendency has crept in to revert to the old practice of building bridges and other structures, of wood, and a uniform policy of permanent construction has not been maintained. This practice, in the long run, is poor economy. Heavy trucks have been purchased for carrying passengers and freight, and regular routes have been established on the highways. These trucks, in some cases, are much heavier than the roads were designed to carry, and much of the deterioration noted is attributable to this fact. The maintenance service should be

restored to old standards and the weight of the roads regulated, and standard sections strengthened to enable the use of heavier vehicles.

The roads are, at first sight, good at the present time, but a great proportion of the wearing surface has been worn off without replacement.

In the Mountain Province and non-Christian Provinces we find that the service of maintaining the roads and trails has been neglected, but it is believed that a better organization can remedy these defects without the necessity of additional revenues.

GOVERNMENT IN BUSINESS.

The government has entered into certain lines of business usually left to private initiative. Among these can be cited the national bank with disastrous results, the purchase of the Manila Railroad Co. now operated at a loss, also the National Development and National Coal Cos., etc. At the request of the mission a thorough examination of the Manila Railroad Co. was made by competent Army engineers, whose report is among the exhibits. In our judgment the government should, as far as possible, get out of and keep out of business.

ELECTIONS.

Enough elections have now been held to base an opinion upon results and to note the reaction of the Philippine people in the exercise of this important and fundamental function of a representative government.

In June, 1919, the first general elections were held under the enlarged suffrage granted by the act of August 29, 1916. The suffrage is still confined to men and to those who can read and write, who hold a certain amount of property or pay a certain tax, or to those who held office under the Spanish régime.

Interest in the elections was widespread and election day passed without any serious disturbance. There was a general, quiet acceptance by the minority of the results of the popular vote, although the executive bureau was deluged with complaints. The courts, since that time, have been loaded with fraudulent election cases, the legal action on which has been so slow that there are still 350 cases pending in the courts, and many terms of office will be served out by people who were either fraudulently elected or, in some cases, appointed by executive order to the vacancies, even though their cases have been pronounced by the courts as fraudulent. These were caused not only by the local conditions, to be explained, but by an election law which is undoubtedly defective in providing sufficient safeguards for the ballot and which should be thoroughly revised.

It is surprising that the elections have been conducted as well as they have been, in view of the fact that, outside of the larger cities and principal towns, the organization of society is very primitive and the people generally are unaware of their civil rights.

In the present condition, law officers, known as "inspectors of election," are required to prepare the ballot for illiterate voters. This is a fruitful source of frauds. The election machinery is practically in the hands of the dominant parties and the inspectors of election are too often their tools.

Such social organization as exists is of a patriarchal form, characterized by a strong feeling and centuries of leadership by a few influential individuals known as "Caciques," since the subservance of the people to these leaders has not yet been supplanted by new ideals that come with modern education or by a confirmed sense of duty to the State. Whenever representatives of two powerful family groups oppose one another at elections there is sure to be a bitter contest and an unwillingness on the part of the minority to accept the situation.

The party in power is so intrenched that, under the present election law, it would be very difficult for the people to dislodge it if they attempted to change.

During the visit of the mission through the Provinces, the charges and countercharges of fraudulent practices have been widespread and intense. On the whole, this interest is indicative of a certain development of public opinion which will, in the end, right the wrongs.

As a rule, there is little evidence of a party system and program, and the elections are fought out upon personalities rather than on principles.

LEGISLATION.

Legislation in which the Filipinos have participated may be fairly divided into three periods:

1. *1907 to 1913.*—Under the strong, conservative influence of the commission with American majority, the legislation passed is constructive and good, with marked emphasis placed upon the improvement of education and construction of permanent improvements.

2. *1913 to 1916.*—The restraining influence is withdrawn with the appearance of a Filipino majority on the commission. Good, constructive legislation is passed but there are marked tendencies to inject politics into administration and to interfere with administrative efficiency. Injudicious economy by salary cutting and discouragement of government personnel becomes marked. The tendency toward government interference in business and radical government paternalism begins, the legislation showing a conscious effort to encourage Filipino nationality and independence.

3. *1916 to 1921.*—With an elected House and Senate, the legislation in this period becomes increasingly radical in its paternalism and government interference in business. Some constructive legislation is passed but the general trend is toward injection of politics into administration and encroachment of the legislative on the executive. Legislation affecting finance, banking, and currency has been radical and unwise.

Another tendency in recent legislation has been the deliberate effort to take away from the American officers of the government supervision of the different branches of the government and put it into the department controlled by Filipinos. An act provides that the secretaries of all departments must be Filipinos. This is discriminatory legislation against Americans. The Jones bill provides that the President of the United States shall appoint the Vice Governor and secretary of public instruction, and so far he has always appointed Americans, and it further provides that the health duties should be under this officer. The Philippine Legislature has endeavored

to evade this by transferring the managements of all government hospitals to the department of the interior and by creating and placing in the same department a board of pharmaceutical officers, a board of optical examiners, etc.

The tendency which is found in all legislatures of passing the bulk of the legislation in the last two days of the session is noted. By this means much important legislation is passed with a rush. The forms of budget and current appropriation bills are good.

GENERAL CONCLUSIONS.

We find the people happy, peaceful, and in the main prosperous and keenly appreciative of the benefits of American rule.

We find everywhere among the Christian Filipinos the desire for independence, generally under the protection of the United States. The non-Christians and Americans are for continuance of American control.

We find a general failure to appreciate the fact that independence under the protection of another nation is not true independence.

We find that the government is not reasonably free from those underlying causes which result in the destruction of government.

We find that a reasonable proportion of officials and employees are men of good character and ability, and reasonably faithful to the trust imposed upon them, but that the efficiency of the public services has fallen off and that they are now relatively inefficient, due to lack of inspection and to the too rapid transfer of control to officials who have not had the necessary time for proper training.

We find that many Filipinos have shown marked capacity for government service and that the young generation is full of promise; that the civil service laws have in the main been honestly administered, but there is a marked deterioration due to the injection of politics.

We find that there is a disquieting lack of confidence in the administration of justice, to an extent which constitutes a menace to the stability of the government.

We find that the people are not organized economically or from the standpoint of national defense to maintain an independent government.

We find that the legislative chambers are conducted with dignity and decorum and are composed of representative men.

We feel that the lack of success in certain departments should not be considered as proof of essential incapacity on the part of Filipinos, but rather as indicating lack of experience and opportunity, and especially lack of inspection.

We find that questions in regard to confirmation of appointments might at any time arise which would make a deadlock between the Governor General and the Philippine Senate.

We feel that with all their many excellent qualities, the experience of the past eight years, during which they have had practical autonomy, has not been such as to justify the people of the United States relinquishing supervision of the government of the Philippine Islands, withdrawing their Army and Navy, and leaving the islands a prey to any powerful nation coveting their rich soil and potential commercial advantages. In conclusion, we are convinced

that it would be a betrayal of the Philippine people, a misfortune to the American people, a distinct step backward in the path of progress, and a discreditable neglect of our national duty, were we to withdraw from the islands and terminate our relationship there without giving the Filipinos the best chance possible to have an orderly and permanently stable government.

RECOMMENDATIONS.

1. We recommend that the present general status of the Philippine Islands continue until the people have had time to absorb and thoroughly master the powers already in their hands.

2. We recommend that the responsible representative of the United States, the Governor General, have authority commensurate with the responsibilities of his position. In case of failure to secure the necessary corrective action by the Philippine Legislature, we recommend that Congress declare null and void legislation which has been enacted diminishing, limiting, or dividing the authority granted the Governor General under act of Congress No. 240 of the Sixty-fourth Congress, known as the Jones bill.

3. We recommend that in case of a deadlock between the Governor General and the Philippine Senate in the confirmation of appointments the President of the United States be authorized to make and render the final decision.

4. We recommend that under no circumstances should the American Government permit to be established in the Philippine Islands a situation which would leave the United States in a position of responsibility without authority.

LEONARD WOOD, *Chairman.*
W. CAMERON FORBES.

INAUGURAL ADDRESS OF GOVERNOR GENERAL WOOD.

DELIVERED ON THE LUNETTA UPON HIS ARRIVAL IN THE PHILIPPINE ISLANDS
ON OCTOBER 15, 1921.

LADIES AND GENTLEMEN :

I appreciate, more than I can tell you, this cordial welcome and the spirit which prompted it. I feel highly honored by the confidence of the President in appointing me to this most important post, and deeply touched by the cordial expressions of approval of his action by Filipinos and Americans.

It is my purpose, so far as lies in my power, so to conduct the government that it will be characterized by economy, efficiency, and true progress; a government of the people by their representatives to the extent provided in the Jones bill; a government characterized by honesty, morality, and an appreciation of the fact that public office is a public trust; that fitness is an absolute requirement for appointment to office. There must be no turning back, but steady progress on sound lines.

The Philippines people have made wonderful progress in the last 23 years. I doubt if any people, under the friendly guidance of another, have made a greater advance in the same period of time. This has not been accomplished by the Filipinos alone, but with the absolutely unselfish aid of the United States, acting through thousands of loyal, unselfish Americans who have worked with an eye single to the best interests of the people of these islands.

In considering the progress made we must not forget the work of Spain through centuries spent in implanting the Christian faith, European forms of administration and law, a foundation which, although covered in places, has greatly facilitated the rapid building up of representative government among a Christian, self-respecting people, free of caste distinctions and imbued with occidental rather than oriental ideas of government and of ideals.

Although oriental in blood and birth, the people of the Philippine Islands are closely allied in religion, in ideas of government, in methods of administration, and in law to the great Christian nations of the west, and especially with America as to form of government, civic and religious liberty, and liberal institutions. As a people, you were born and educated as Christians. There must be no sliding backward in the Christian faith. In this connection it is well to remember that the first sign of the decadence of the people is a disregard for religion. That a people be well grounded in their faith is essential to real stability and progress.

Your enthusiasm and thirst for education and your accomplishments in building up a sound system of public education is beyond praise. We must keep it up. Indeed, we must extend and improve it. Education must be free to all. Your women must be given equal opportunity with your men. Nothing I have seen in the islands has impressed me more than the character, loyalty, thrift, and all-around good influence of the women of the Philippines.

The government must encourage, not discourage, private enterprise. As a general policy, I believe that the Government should keep out of business. The judiciary must be independent and stable and kept absolutely outside the scope of political influence and out of politics, for an independent, fearless judiciary is the foundation of stable government.

We must push forward our public works, especially roads and irrigation. We must give far more attention to public health and sanitation. Too many precious lives are lost each year that could be saved, and easily saved. Almost one-third of all the children born in the Philippine Islands die in the first year of their lives, a frightful indictment of our sanitary and health conditions.

We must provide the remedies for the cure of our lepers, for a large proportion of them can be cured. We must take better care of our insane and defectives.

We must do all we can to build up a fuller appreciation of the dignity of labor; to increase our agriculture and push forward the development of our natural resources, and so organize and conduct the government that funds adequate to the needs of progress and development will be available. We must live within our income. Above all, we must all work together to a common end—the welfare and happiness of the people of the Philippine Islands. We must hold on to sound principles and policies. This is no time for rash experiments. We must keep our feet on the ground and remember that our road lies ahead of us, not behind.

My purpose is to do the best I can to reestablish the credit of the islands; to build up their commerce, increase the prosperity of the people, and make the government a model of efficiency. This I can not do without your cooperation and support, all of you—Filipinos and Americans and others living in the islands. With your cooperation the work will be easy, for the spirit of the people is excellent and the natural resources enormous.

We must do all we can to build up an instructed public opinion, for without it true representative government can not endure. In this the press is charged with a great responsibility. We must do everything possible to push forward the study of English, and make English the language of the people of the islands. Nothing will do more to strengthen the spirit of solidarity and aid in developing an instructed, sound public opinion than a common language.

The establishment of a sound, stable, representative government in the Philippine Islands must not fail, for the far-reaching effect of the efforts which we have made here, in the Orient, to establish such a government extends far beyond the limits of the Philippine Islands; indeed, it reaches out to every people who are dreaming of liberal institutions and of government by the people. It shall not fail, because the United States has put its hand to the plow and will not turn back.

In concluding, I want to take this opportunity to express my sincere and deep appreciation of Governor Yeater's assistance, his unflinching courtesy and kindness during the entire stay of the mission in the islands. He has helped us in every possible way. Governor Yeater is a man whose efficiency and ability are only equaled by his modesty. We shall all be sorry to see him go. He has been a good friend and has done his best in every way for the people of the islands. He has rendered most excellent service, and takes with him the respect and regard of all with whom he has come in contact.

In the great work before us I bespeak your cooperation and assistance. Working together we can not fail.

MESSAGE OF THE GOVERNOR GENERAL TO THE FIFTH PHILIPPINE LEGISLATURE,

DELIVERED IN THE HALL OF THE REPRESENTATIVES ON OCTOBER 17, 1921.

GENTLEMEN OF THE LEGISLATURE:

My appointment as Governor General is so recent that I shall not attempt in this message to go much into details, but will bring matters requiring your action to your attention from time to time.

My recent and very thorough inspection of the islands, involving visits to 48 Provinces and 449 cities and towns, has given me a very clear idea of conditions throughout the archipelago. I find the people as a rule happy and law-abiding and in the main prosperous. Public order is everywhere excellent, with the exception of minor disturbances in the Moro regions.

The constabulary as an organization is well disciplined and efficient. It deserves and has the confidence and support of the people.

Too often the administration of justice has been slow and unsatisfactory. The courts of the islands are clogged with approximately 50,000 cases awaiting decision.

There are not enough judges of the first instance to promptly dispose of the cases coming before them. The judges of these courts are underpaid. I believe that their number should be increased somewhat; that they should be better paid and that provisions should be made for their retirement in case of disability or after a certain number of years of service. The amount of retired pay should depend upon the length of service and the cause for which retired.

A very rigid supervision of the administration of justice should be inaugurated and steps taken to prevent unnecessary delays.

The penal establishments of the islands and penal colonies are, on the whole, well conducted and carried on under a policy which makes not only for proper punishment of the offender but also for his reform and eventual return to society as a useful member.

There is a marked business depression throughout the islands, due principally to the fall, after the World War, in the prices of the principal staple products of the islands. Happily, this condition is improving and there are many evidences of progressive development in the islands. This development is gratifying and shows that the Filipino people have responded to improved conditions in transportation, finance, public order, and markets.

I am glad to inform you that I find in neighboring countries a very keen desire for closer and more extensive trade relations with the Philippine Islands. This speaks well for future trade development and should be encouraged.

A serious blow has been dealt insular credit through incompetent management of the national bank. Responsibility for this rests in part upon Filipinos, but also upon those Americans who placed untrained and incompetent men in charge of affairs with which they were unfamiliar. These losses have established a condition which necessitates an economical and efficient administration of the finances of the islands.

While rigid economy and wise and careful financial administration are essential for the reestablishment of insular credit, there are certain departments of the government which, while they should be administered economically, will not permit any curtailment of allotments. These are public health, education, and public works.

Great economies can be made throughout the insular service by cutting out all unnecessary personnel, the elimination of certain unnecessary expenses, and the consolidation of various activities under the departments to which they properly belong; also by doing away with unnecessary boards and special agencies. Action to this end is already being taken by the finance commission, whose report will soon be available for the consideration of the legislature.

Investigation has also shown an unsatisfactory condition in the public health service and in sanitation. We must pay much more attention to the prevention of disease as well as the care of our sick, our insane, and our defectives. An increasingly vigorous campaign must be attempted against the conditions which are causing the present alarming infant mortality, amounting, as it does, to nearly one death in three among infants in the first year of their lives.

More hospitals and dispensaries are needed. Every effort should be made to secure a larger number of trained nurses for work in hospitals, dispensaries, and the various branches of public health. The Filipino woman has demonstrated great aptitude in these fields and her greater participation should be encouraged.

In brief, public health and sanitation must be given more attention and support, not only for humanitarian reasons but because it is in the care of the sick, the insane, and helpless that the civilization and development of a people is in large measure indicated.

The welfare of the people and the efficiency of the public-health service will be best served by placing government hospitals, measures for the relief of the sick, and public-health agencies, in one department. The present division of authority and responsibility in this important field involves unnecessary expense and is prejudicial to the best interests of the people.

The great leper colony at Cullion needs better facilities for the segregation of those whose reactions have become negative and for the children who are born without apparent taint of the disease. Sufficient appropriation must also be made for continuing the development of the new treatment, which gives such encouraging promise for the cure of the disease. We are now able to provide means for only a portion of those requiring the treatment. The condition is one which demands your prompt and humane consideration.

Conditions with reference to the care and treatment of the insane are deplorably bad. They can be described as medieval and are not consistent either with the humane instincts or the intelligence of the Filipino people.

There is no adequate provision for defectives, such as deaf, dumb, and blind. These are matters which should engage your sympathetic attention.

I found everywhere a sound appreciation of the importance of public works, especially communications. This department has, on the whole, been conducted with creditable efficiency. Although much excellent work on roads has been done, there are many instances where roads have been so lightly constructed that they are entirely inadequate to withstand the heavy traffic which has been developed in recent years. The roads are now in need of extensive repairs, especially resurfacing. It will be good economy to make these repairs before the road surface is worn through and destroyed. I must strongly urge you, as a general policy, to hold and maintain all your existing roads before new construction is undertaken.

There should be rigid adherence to the policy of permanent construction culverts, bridges, etc., on permanent roads, and a very careful carrying out of the policy of thorough maintenance under the caminero system.

Your attention is invited to the great importance of completing certain roads of vital importance, in many of which gaps now exist which render them ineffective, although much money has been spent on the project. An example is the San Jose-Santa Fe road connecting central Luzon with the Cagayan Valley. This road is of great importance to the sections of the country which it traverses. It will open up and furnish a much-needed outlet for the great Cagayan Valley area.

It is very important to complete the construction of the section of railroad which connects the railroad from Tayabas with that of the Bicol Provinces. Completion of this will not only aid commerce and agriculture but will result in greatly increased revenues for the railroad.

There exists an urgent necessity to finish partially completed public projects on which a great amount of labor and money have been spent. These projects—be they roads, buildings, or port works—will be useless unless they are brought to completion and should receive your most careful consideration after the maintenance of existing public works has received your proper attention.

I also invite your attention to the importance and desirability of pushing forward, as rapidly as funds will permit, the irrigation projects now under consideration and those which have been approved. These irrigation projects are of great importance to the development of agriculture, upon which depends, in large part, the prosperity of the people of the islands. The soil of the Philippines is among the richest in the world. The possibilities of agricultural

development are very great, and as a general rule the islands should be exporters of foodstuffs and not importers.

I also wish to invite your attention to the urgent necessity of expediting completion of the cadastral survey and the establishment of agencies through which applicants for titles and holders of land may be able to procure promptly titles to the same. The Filipino loves to own his land. Nothing will be more conducive to good order and stability than to have as many people as possible living on land which they own.

The abolition of the court of land registration and the transfer of its duties to courts of first instance, already overloaded with work and with a personnel more or less inexpert in these cases, was, in my opinion, an error of judgment. It should be corrected by the reestablishment of the court of land registration, with an adequate personnel.

I feel very strongly that as a general policy the government should get out and keep out of business, especially all business which involves competition with and discouragement of legitimate private enterprise, and that legislation tending to discourage private enterprise should be considered as prejudicial to public interests.

There is another matter to which I wish to invite your serious attention—the maintenance of a proper separation between the executive, legislative, and judicial branches of the government. In my opinion, it is most important—indeed, vital—to well-balanced government that each of these great departments should function within its own limits.

I also invite your attention and consideration to the desirability of placing the bureau of non-Christian tribes under the department of public instruction, in order to facilitate the preparation of these groups to undertake more fully the responsibilities of citizenship. I believe that the transfer will be for the best interests of the government and of all concerned, and recommend that it be made.

The interest and enthusiasm of the Filipino people to provide an adequate system of public instruction, free to all, is beyond praise. Great results have been accomplished, results which speak volumes for the intelligence and capacity of the people. In our enthusiasm to provide means for higher education through the establishment of intermediate and high schools we must not overlook the vital importance of thorough training in the elementary schools. It is estimated that the majority of children leave school between the third and fourth school year.

The University of the Philippines is full of promise. Its administration should be put upon a sound business basis and steps taken to provide the best possible teaching force.

The agricultural schools should be amplified and every effort made to induce students to prepare themselves thoroughly for agricultural work.

The control of public health is rapidly developing into a science, and an adequately trained personnel is essential to successfully combat the causes of disease. Steps should be taken in connection with the University of the Philippines to establish a school of hygiene and public health, to provide this necessary training. Funds should be made available for the maintenance, upon an efficient basis, of the bureau of science. It is one of the most important and valuable institutions of the insular government. Formerly it was the center of advanced research work in the east, and did work of inestimable value not only to the people of the islands but to the world at large.

No efforts should be spared to push forward the teaching of English, for the possession of a common language will do much to strengthen the spirit of solidarity and facilitate the building up of a widely circulating press and an instructed public opinion. To this end it is important that a sufficient number of thoroughly trained American teachers be provided.

Both agriculture and commerce are seriously hampered by lack of adequate coastwise communications. It is very important that the legislature should give this matter serious attention. Present facilities are generally unsatisfactory.

In conclusion I wish to invite your attention to the cordial hospitality which has been extended to the special mission to the Philippine Islands by the people throughout the islands. Nothing could have been more cordial. Their ready and cheerful cooperation in the investigations of the mission were of the greatest assistance and made the satisfactory conduct of its work possible.

I know that I speak for all the members of the mission in expressing to you, the duly elected representatives of the people, our appreciation of their courtesy, their hospitality, and their cooperation.

REPORT OF THE SECRETARY OF THE INTERIOR.

JANUARY 1 TO DECEMBER 31, 1921.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS,
DEPARTMENT OF THE INTERIOR,
Manila, April 25, 1922.

SIR: I have the honor to submit the following report of the Department of the Interior for the year 1921:

General statement.—The year 1921 is significant in Philippine history by reason of the transfer of administration from the Democratic to the Republican Party and of the arrival of the special mission sent by President Harding to study and report on Philippine conditions. The Filipino people received the new administration with fears that it would pursue a reactionary policy in the Philippine Islands. Their fears were based on the fact that the Republican Party has many a time advocated the indefinite retention of the islands. Such is but natural for the Filipinos to feel after they have enjoyed almost eight years of complete autonomy under the Democratic administration. However, they entertain high hopes from the new administration on account of the traditional ideals and altruistic purposes which have always guided the American people in their treatment of the smaller nationalities.

The mission, as it reports, visited all the Provinces except one and has been in 449 cities and towns of the archipelago. Everywhere the Filipinos received the special mission with appropriate courtesies and without fear of submitting their home situation to the detailed scrutiny of its members. By some they were regarded as a biased judge incapable of rendering a true and just verdict on the Philippine independence question; by others, as impartial jurors who have come to devise a formula to guide the new administration in the disposition of the case left by the Wilson administration. Those who did not sympathize with the past administration took this opportunity to denounce to the mission what to them seemed reprehensible conduct of the Filipino local and provincial officials. The complaints found to deserve action were duly investigated and appropriate penalties as provided for by law were inflicted upon officials found guilty of the charge. As a whole, the conduct of Filipino local and provincial officials is laudable in patriotism and honesty and as such can favorably compare with the conduct of similar officials in foreign countries.

Progress along municipal and provincial administration during the past régime has been noteworthy. Notwithstanding the economic crisis of 1921, the Provinces and municipalities have continued to construct bridges, roads, school buildings, markets, artesian wells, and other public improvements of more or less importance. They have done these either with their own funds or with local funds combined with the aid from the central government.

Municipal autonomy.—Local autonomy, as we understand it, is not as yet an established fact in the municipalities and Provinces. The present system of legislation tends toward centralization. Questions relating to assessment, issuance of bonds for public improvements by Provinces and municipalities, and other important undertakings require action of one sort or another from the central government. Local autonomy as regards control and supervision over the conduct of provincial and municipal officials has also suffered much on account, principally, of the practice of private citizens of filing their complaints against those officials, even for a minor dereliction of duty, directly in this department or in the office of the Governor General. If this practice is not checked in time, the Provinces and municipalities would, sooner or later, be absorbed by the central government. It is believed that local autonomy

should be respected and encouraged. The people of the municipalities should be made to understand that they constitute a separate and distinct entity for the growth of which they alone are responsible to themselves. Home-rule charters, similar to those obtaining in a few cities of the United States, should be adopted in the Philippine Islands to encourage local pride and patriotism.

Political parties.—Party government has been established in the Provinces and municipalities. Of the 39 elective governors, 36 belong to the Nacionalista Party and three to the minority, the Democrata Party. Provincial and municipal officials are elected in many instances in accordance with their political affiliations. But politics should not be allowed to play an important rôle in Philippine municipal affairs. It is said that the failure of American cities and towns in municipal administration is due primarily to excessive local politics. To maintain an efficient and clean city government, it is necessary to rid the locality of politics. More business and less politics in the affairs of the city is the common slogan nowadays of modern students of municipal administration. To attain this, or rather to minimize politics in local affairs, the nonpartisan ticket in the election of local officials, such as those in vogue in cities in the United States under the commission and manager plan, should be introduced.

As the year was about to close, a split in the Grand Nacionalista Party, which has been in power in the assembly since 1907 and in the legislature since 1916, took place, resulting in the division of the party into two. The split came as the result of the disagreement over the leadership question. One faction stood for the so-called "unipersonal leadership," which involves centralization and unity of responsibility, and the other for the so-called "collective leadership," which puts responsibility in each branch of the government. In other words, the "unipersonalists" supported the introduction of parliamentary form of government in the Philippine Islands and the "collectivists" the presidential form. While this split would naturally result in the complication of the Philippine political situation, still it would prove beneficial to the people in that a strong responsible minority will be on the constant watch over the administration.

Civil government in the non-Christian Provinces.—In the non-Christian Provinces under the bureau of non-Christian tribes there has been noted a remarkable progress in the political, social, and economic development of the people. Civil government in these Provinces is now, more than ever, on a firmer basis. The Moros are accepting the cooperation of their more advanced brothers. They not only obey the constituted government but also participate in its administration and allow no organized band to defy the constituted authorities. These people are now peaceful and law-abiding, prosperous, and receptive of modern civilization. Filipinization in these Provinces has continued with great success. With the exception of the Province of Sulu, in which the provincial governor is an American, all the officers of these non-Christian Provinces are Filipinos, from president to governor. These officials have credited themselves with great efficiency in the administration of their Provinces. They run the government of these Provinces in much the same way as the regular Provinces. It is believed that the time is fast coming when the control and supervision over these non-Christian Provinces may be properly transferred to the executive bureau. They have the same needs, the same problems, and the same aspiration as the rest of the Provinces of the archipelago. They need schools, roads, bridges, and sanitation in the same way that regular Provinces demand these modern conveniences of community life. They should no longer be called non-Christian tribes but non-Christian Filipinos, if at all the word "non-Christian" should prefix or should qualify their origin. In point of economy and simplicity of administration, the transfer of these non-Christian Provinces to the executive bureau is most desirable, for then the bureau of non-Christian tribes can be abolished and its functions transferred to the executive bureau, where a division may be created with less personnel and therefore at less expense to the government. As it is the policy of this Government to assimilate the non-Christians in the shortest possible time and to put them on the same basis of organization as the regular Provinces and municipalities, action should be taken in the immediate future to put these non-Christian Provinces under the control and supervision of the executive bureau.

Public order.—Conditions of peace and public order were most satisfactory, notwithstanding the economic crisis which was felt throughout the islands during the year. In the Christian Provinces no uprising or disorder of any kind has been registered. Robberies, however, have been rather frequent in the

Provinces of Cavite, Nueva Ecija, and Samar, but they were of ordinary character and did not menace public order. In the non-Christian Provinces under the Bureau of Non-Christian Tribes peace and order continued to be satisfactory. Sporadic disturbances occurred in Mindanao and Sulu, but having been committed by few persons led by ignorant datus who had no aims and whose whole purpose was to display their valor, they were not regarded as serious. Accounts of these occurrences in Mindanao and Sulu are given more fully under the activities of the Bureau of Non-Christian Tribes. The Moros, as has heretofore been said, have now accepted the constituted government and are supporting and participating in the administration of local and provincial governments. The relation of Christians and non-Christians continued to be harmonious and encouraging. Tribal differences among them have disappeared and community sentiment is fast developing.

Organization and personnel.—There has been no change in the important personnel of this department. Mr. Vicente del Rosario, a 1915 graduate of the University of the Philippines, was sent by this department to the United States in July, 1920, as a pensionado to specialize in municipal government and municipal administration. He pursued this course in municipal science in the University of Michigan, where he was graduated with the degree of master of laws on June 30, 1921. Mr. Del Rosario resumed his duties as technical assistant and chief clerk of this department upon his arrival on November 7, 1921, from England and Europe, where he spent a short time to gain a general idea of municipal administration in English and European cities.

Dr. Gaudencio Garcia, also a 1915 graduate of the University of the Philippines, who was sent as a government pensionado from the executive bureau in 1919, returned to the islands about the middle of the year and was immediately detailed in the office of the undersigned. Doctor Garcia was in the States for two years, during which time he specialized in political science in Columbia University and the University of New York. From the latter institution he was graduated with the degree of doctor in juridical science in June, 1921.

During the year, the public welfare board and the bureau of dependent children were abolished and the work thereof given to the public welfare commissioner, which office was created by Act No. 2988. At the end of the year, therefore, the department has supervision over the following bureaus and offices:

1. Executive bureau.
2. Philippine Constabulary.
3. Bureau of non-Christian tribes.
4. Office of the public welfare commissioner.
5. Philippine General Hospital.
6. Board of pharmaceutical examiners and inspectors.
7. Board of medical examiners.
8. Board of optical examiners.
9. Board of dental examiners.
10. Board of examiners for nurses.
11. City of Manila.
12. City of Baguio.
13. Metropolitan water district.

In addition to the supervision and control of the secretary of the interior over the bureaus and offices above mentioned, he is also ex-officio chairman of the militia commission and of the pensionado committee, and member of the board of regents of the University of the Philippines. The secretary of the interior is made by law the custodian of copies of the naturalization papers of persons who become citizens of the Philippine Islands by virtue of the provisions of Act No. 2927, known as the "naturalization law." This law became effective on March 26, 1920. The secretary is also in charge of the invalids of the Philippine revolutions who have been declared as such under the provisions of Act No. 2756 of the Philippine Legislature.

EXECUTIVE BUREAU.

Upon the appointment of Hon. Antonio de las Alas as undersecretary of this department, Mr. Pedro J. Rich, assistant chief of the executive bureau, acted as chief thereof from August 16, 1920, until the appointment of Gov. Honorio Ventura, of Pampanga, as chief on February 14, 1921. The two pensionados of this bureau, namely, Messrs. Gaudencio Garcia and Conrado Paras, returned to the islands during the year and immediately reported for

duty in their respective positions. The personnel of this bureau continued to be the same in number as in previous years in spite of the fact that the volume of work has increased many times. On account of this insufficiency of personnel, the officials and employees of the bureau have to work overtime every day to expedite the dispatch of official and business transactions. Frequent changes, either by transfer or resignation, have also occurred in the technical and clerical positions of this bureau, due to the fact that the salaries authorized for their positions are not commensurate with the quantity and importance of the work assigned to them. These changes have caused hardships to the bureau, for the substitutes of the outgoing employees had to undergo training for some time before they could become of real value and service to the office. Until an adequate personnel with commensurate salaries can be provided for this bureau it is believed that the energy of the officials and employees thereof will always be overtaxed.

Territorial jurisdiction.—Masbate was separated from the Province of Sorsogon and organized into a new Province by Executive Order No. 3, promulgated January 19, 1921, in pursuance of Act No. 2934 of the Philippine Legislature. With the organization of this new Province, the executive bureau now exercises jurisdiction over 39 Provinces, 37 of which are regular and two (Batanes and Palawan) special. These Provinces are classified according to the revenues that accrue to them annually. They are as follows:

First class—Income, ₱300,000 or more.

- | | | |
|------------|-----------------------|----------------|
| 1. Albay. | 4. Leyte. | 6. Pangasinan. |
| 2. Cebu. | 5. Occidental Negros. | 7. Tayabas. |
| 3. Iloilo. | | |

Second class—Income, ₱200,000 to ₱300,000.

- | | | |
|--------------|-----------------|--------------|
| 1. Batangas. | 4. Laguna. | 7. Pampanga. |
| 2. Bohol. | 5. Ilocos Sur. | 8. Rizal. |
| 3. Bulacan. | 6. Nueva Ecija. | 9. Samar. |

Third class—Income, ₱150,000 to ₱200,000.

- | | | |
|-------------------|---------------------|--------------|
| 1. Cagayan. | 4. Ilocos Norte. | 7. Sorsogon. |
| 2. Camarines Sur. | 5. Misamis. | 8. Tarlac. |
| 3. Capiz. | 6. Oriental Negros. | |

Fourth class—Income, ₱100,000.

- | | | |
|-------------|--------------|-------------|
| 1. Antique. | 3. Isabela. | 5. Surigao. |
| 2. Cavite. | 4. La Union. | |

Fifth class—Income, less than ₱100,000.

- | | | |
|------------|-------------|--------------|
| 1. Bataan. | 2. Mindoro. | 3. Zambales. |
|------------|-------------|--------------|

Sixth class—Income excessively below ₱100,000.

- | | | |
|---------------------|----------------|-------------|
| 1. Abra. | 3. Marinduque. | 5. Romblon. |
| 2. Camarines Norte. | 4. Masbate. | |

During the year, 47 petitions were received for the organization of new municipalities, six of which were favorably recommended to the Governor General, under section 68 of the Administrative Code of 1917. The year ended without these petitions having been considered by the Governor General, so that the number of municipalities this year is the same as that of last year—859 municipalities, classified as follows: First class, 16 (not less than 25,000 inhabitants); second class, 45 (18,000 inhabitants and less than 25,000 inhabitants); third class, 209 (10,000 inhabitants and less than 18,000 inhabitants); fourth class, 589 (less than 10,000 inhabitants).

The classification of municipalities is based upon the number of inhabitants in each municipality. It is believed that this mode of classification should be changed because there are municipalities which, although second class in

population, have greater income than first class municipalities. This shows the necessity of making the amount of annual revenues of municipalities the basis of their classification.

The organization of the following barrios was approved by the Governor General upon recommendation of this bureau, effective January 1, 1922:

Name of barrio.	Municipality.	Province.	Executive Order No., series of 1921.
1. Ilihan.....	Inabanga.....	Bohol.....	51
2. La Hacienda.....	Mabini.....	do.....	51
3. Cantaub.....	Sierra-Bullones.....	do.....	56
4. Agahay.....	Maribojoc.....	do.....	46
5. Tambo.....	Mabini.....	do.....	39
6. Centro Canmaya.....	Clarín.....	do.....	39
7. Canmayang Diot.....	do.....	do.....	39
8. Canmano.....	do.....	do.....	39
9. Sagbayan.....	do.....	do.....	39
10. Pondol.....	do.....	do.....	39
11. Centro Nahawan.....	do.....	do.....	39
12. Caboy.....	do.....	do.....	39
13. Mataob.....	do.....	do.....	39
14. Poblacion Clarin.....	do.....	do.....	39
15. Candahik.....	do.....	do.....	39
16. Centro Lajog.....	do.....	do.....	39
17. Buacao.....	do.....	do.....	39
18. Mataasna Kahoy.....	Cabanatuan.....	Nueva Ecija.....	43
19. Pambujan.....	Alabat.....	Tayabas.....	47
20. Cagus-an.....	Guimbal.....	Iloilo.....	45
21. Morcillas.....	do.....	do.....	45
22. San Mateo.....	Norzagaray.....	Bulacan.....	61

The policy of this bureau is to organize sitios or places into barrios when a sufficient number of inhabitants are found in those sitios. The idea is to foster community spirit and to insure mutual protection and to facilitate as well the administration over them by the municipalities. The organization of new barrios does not entail any extra expense to the municipality.

Boundary disputes.—There have been a number of boundary disputes between Provinces. Those registered during the year are the following:

(1) Pampanga *v.* Nueva Ecija: Upon the recommendation of this office, this dispute was finally settled by the provincial boards concerned by adopting the line recommended by the director of lands.

(2) Misamis *v.* Zamboanga: The boundary line between these two Provinces, as fixed and defined in section 52 of the Administrative Code of 1917, has already been surveyed by the bureau of lands; but no final action on this dispute has as yet been taken by the proper authorities for the reason that the report on the result of the check survey now being undertaken by the bureau of lands has not been received.

(3) Camarines Norte *v.* Tayabas: This dispute, which dates as far back as 1919, has not been settled yet pending the receipt of the necessary data requested from the Philippine library and museum, which will serve as basis for the proper determination thereof.

(4) Mountain Province *v.* Cagayan: This dispute has not yet been settled finally in view of the fact that survey of the disputed places is necessary. The interested parties have already appropriated money for the purpose, and the director of lands has been so advised.

(5) Ilocos Norte *v.* Cagayan: Efforts are being made by this bureau to settle this matter in an amicable manner. A sketch of the territory in dispute is now being prepared and the matter will be considered upon receipt of the necessary papers.

(6) Bataan *v.* Pampanga: A survey of the controverted territory is also necessary in this case for the proper solution of the matter, the execution of which has to be delayed on account of lack of funds. However, the two contending Provinces have already applied for insular loans for this purpose and their applications are still pending final approval.

(7) Oriental Negros *v.* Occidental Negros: Following the suggestion of this office, this dispute has been settled in an amicable manner, and the director of lands has been advised thereof so that the monumenting of the line agreed upon by the provincial boards of these Provinces may be made.

(8) Surigao *v.* Davao: The provincial board of Surigao was requested by this office to instruct the municipal authorities of Lingig to respect the juris-

diction of Cateel, Davao, over the places in dispute. The order was obeyed by the municipal authorities and the dispute may, therefore, be considered as settled.

(9) *Abra v. Ilocos Sur*: This dispute has not yet been settled and the provincial governors concerned were requested to meet each other at such time and place as may be most convenient to them with a view to settling this dispute amicably. As soon as we receive the reports of the governors of these two Provinces the dispute will be decided.

(10) *Iloilo v. Capiz*: At the suggestion of this office, the provincial boards of these Provinces have already settled this dispute amicably and the director of lands has been advised accordingly.

Standardization of salaries.—In the consideration and approval of provincial plantillas efforts have been made to establish a satisfactory standard of salaries for the most important positions in the provincial service. The following schedule of salaries has been adopted for the different offices in the Provinces under the jurisdiction of this bureau:

Positions.	For regular Provinces.						For special Provinces (Batanes and Palawan)
	First class.	Second class.	Third class.	Fourth class.	Fifth class.	Sixth class.	
Office of the provincial treasurer:							
Chief clerk.....	P2,800	P2,400	P2,000	P1,800	P1,200	P1,200	P1,800
Administrative deputy.....	1,800	1,640	1,500	1,200	960	840	1,200
Bookkeeper.....	1,800	1,560	1,400	1,140	660	780	1,200
Cashier.....	1,800	1,500	1,380	1,080	840	780	1,080
Property clerk.....	1,800	1,200	960	840	600	600	720
Deputy assessor.....	1,500	1,440	1,320	1,200	600	600	1,200
Land tax clerk.....	1,188	1,080	960	720	480	480	480
Internal revenue clerk.....	1,188	960	840	780	600	600	960
Correspondence and record clerk.....		960	840	540	480	480	480
Traveling deputy.....	1,320	1,440	960	840	720	720	1,080
Office of the provincial governor:							
Secretary provincial board.....	2,400	1,800	1,500	1,440	1,320	1,080	1,440
Office of the district auditor:							
Deputy district auditor.....	2,520	2,160	1,920	1,680	1,200	1,200	1,680
Office of the district engineer:							
Chief clerk.....	2,160	1,800	1,500	1,320	1,200	840	1,020
Property clerk.....	1,500	1,200	1,080	960	840	720	720
Record clerk.....	1,200	960	840	660	600	360	.....

The bureau has also undertaken to establish uniformity in the number and rates of salaries of municipal employees, taking as basis for each municipality the average number and rates of salaries of similar employees in municipalities of the same size, importance, and financial ability, not disregarding, of course, the actual needs of the municipal governments concerned. The following schedule of the number and salaries of clerks and policemen in the different municipalities, classified according to their gross income, was recommended for adoption to all provincial governors and provincial treasurers in a circular letter dated December 28, 1921:

	Maximum number of clerks.	Maximum monthly salary of each clerk.	Maximum number of policemen.	Maximum monthly salary of each policeman.
Gross revenue of municipality:				
Below P6,000.....	1	P20	3	P16
P6,000 to P9,000.....	2	22	4	18
P9,000 to P12,000.....	3	24	5	20
P12,000 to P20,000.....	4	25	6	21
P20,000 to P30,000.....	5	28	7	23
P30,000 to P40,000.....	6	30	10	25
P40,000 to P60,000.....	7	30	12	26
P60,000 to P80,000.....	8	32	14	28
P80,000 to P100,000.....	9	34	16	30
San Pablo.....	9	35	20	30
Iloilo.....	18	45	80	35
Cebu.....	24	45	90	35

The action of the executive bureau in this connection has merited the approval of some and the disapproval or unfavorable criticisms of others; but the bureau is fully convinced that the schedules recommended are reasonable, and, if adopted, would not in any way lessen the efficiency of the service. On the contrary it would serve to improve at least the economic administration of municipal governments.

Assessment.—The revision of property assessment continued during the year. At the close of the year there were 780 municipalities which completed the second revision of assessment. The total value of all taxable property, according to revised assessments undertaken and completed to December 31, 1921, was ₱1,217,209,990 as compared with ₱1,143,332,440 in 1920, representing an increase of ₱73,817,550, or about 6 per cent over the value assessed in 1920.

Act No. 2974, passed by the Philippine Legislature, authorizes the secretary of the interior to suspend the effects of the second general revision of assessment. This measure was found necessary in view of the economic depression which prevailed in most of the Provinces of the islands and which affected the income of the people. Three hundred fifty-nine municipalities in 33 Provinces, availing themselves of the provisions of this law, requested the secretary of the interior to suspend the effects of the second general revision of assessment in their respective localities. Of these requests 211 were disapproved either by the provincial boards concerned or by this bureau for very strong and justifiable reasons, while the rest were granted by the secretary of the interior. As a result of these suspensions and the consequent decrease in the revenues, some Provinces were unable to carry out their public-improvement program during the year.

Revision of municipal tax rate.—The municipalities have been requested by this bureau to revise the rates of municipal taxes and other revenues for the purpose of increasing the income of municipalities. In accordance therewith, the Provinces and municipalities began to increase the rates of licenses within their respective jurisdictions.

Upon instruction of this bureau, a vigorous campaign has been instituted by the provincial treasurers to insure that all the taxes due the government are collected. Although the amount of insular taxes collected during the year is less than that collected in 1920, the total of provincial and municipal revenues collected during the year 1921 exceeded those of 1920, notwithstanding the economic depression which was prevalent in the municipalities. The collections up to December 31, 1921, are shown in the following table:

Insular revenues:

1920 -----	₱10, 885, 255. 34
1921 -----	8, 491, 349. 73
Decrease -----	2, 393, 905. 61

Provincial and municipal revenues:

1921 -----	22, 514, 646. 32
1920 -----	20, 870, 294. 09
Increase -----	1, 644, 352. 23

It is apparent from the above figures that of the total collections by provincial treasurers only a little over 20 per cent accrue to the central government and the rest to the Provinces and municipalities. It is for this reason that provincial treasurers are paid from provincial funds and the control and supervision over them exercised by the executive bureau.

Loans for public improvements.—Loans have been granted to Provinces and municipalities to encourage them in the construction of important and necessary public improvements. The following table shows the number, kinds, and status of loan applications at the close of the year 1921.

Insular and provincial loans.

Kind.	Pending.		Granted.		Denied.		Total.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
INSULAR LOANS TO PROVINCES.								
Schools.....	2	P170,000	4	P173,500	1	P130,000	7	P473,500
Capitals.....	3	830,000					3	830,000
Telephone system.....			1	25,000			1	25,000
Hospital.....			1	40,000			1	40,000
Quarry plant.....	1	60,000					1	60,000
Bridge.....	1	70,000	2	40,000			3	110,000
Agricultural colony.....					1	50,000	1	50,000
Survey of boundaries.....	1	15,000					1	15,000
To be loaned to farmers.....					1	1,000,000	1	1,000,000
Administrative expenses.....	1	30,000					1	30,000
Total.....	9	1,175,000	8	278,500	3	1,180,000	20	2,633,500
INSULAR LOANS TO MUNICIPALITIES.								
School building.....	30	494,000	23	371,700	23	330,000	76	1,196,200
Presidencia.....	24	393,500	6	75,000	16	211,000	46	679,500
Market.....	23	526,000	8	174,000	8	131,500	39	831,500
Water system.....	8	135,500	8	98,500	4	50,000	20	284,000
Bridge.....			2	40,000	1	2,000	3	42,000
Artesian wells.....	1	5,000	1	5,000	2	13,000	4	23,000
Electric.....	2	65,000			2	48,000	4	113,000
River widening.....	1	7,000					1	7,000
Irrigation.....					1	15,000	1	15,000
Ports.....					1	6,000	1	6,000
Street.....					1	30,000	1	30,000
Salary.....					1	2,000	1	2,000
Public works and improvements.....	2	165,500			1	60,000	3	225,500
Total.....	91	1,792,300	48	764,200	61	898,500	200	3,455,000
PROVINCIAL LOANS TO MUNICIPALITIES.								
School buildings.....	2	14,000	3	6,500			5	28,500
Municipal buildings.....	1	2,000					1	2,000
Market buildings.....			2	7,000			2	7,000
Waterworks.....			1	1,000			1	1,000
Administrative expenses.....			2	4,000			2	4,000
Total.....	3	16,000	8	18,500			11	34,500

These show that the Provinces and municipalities have now awakened to the necessity of providing themselves with the improvements necessary in modern life.

This awakening of the Provinces and municipalities is further shown in the following 10-year program of public works and permanent improvements which has been submitted at the request of this bureau.

Ten-year program of public works and permanent improvements of 12 Provinces under the jurisdiction of the executive bureau.

Public improvements projects.	Number.	Estimated costs.
Provincial capitals.....	6	P1,245,000
Repairs of provincial capitols.....	2	70,000
School buildings.....	9	432,000
Repairs of school buildings.....	2	140,000
Provincial courthouse and jail.....	1	40,000
Repairs of courthouses and jails.....	4	181,000
Hospitals.....	5	185,000
Libraries.....	2	40,000
Bridges.....	13	1,614,000
Telephone systems.....	2	70,000

Ten-year program of public works and permanent improvements, etc.—Contd.

Public improvements projects.	Number.	Estimated costs.
Roads and trails	43	P3,741,716
Parks and playgrounds	3	54,000
Airplane station	1	1,000
Electric plants	2	155,000
Laboratory	1	.....
Provincial governor residence	1	20,000
Water systems	2	10,000
Provincial garage	1	5,000
Monument	1	15,000
Agricultural colony	1	30,000
Bathhouses	2	35,000
Launch	1	20,000
Canal	1	150,000
Pier	1	25,000
Total	110	8,178,716

Ten-year program of public works and permanent improvements in the municipalities of 15 Provinces under the jurisdiction of the executive bureau.

Name of project.	Number of projects.	Estimated cost.
Municipal buildings	93	P1,038,658.00
Repairs of municipal buildings	18	115,891.44
School buildings	201	2,672,360.26
Repairs of school buildings	11	33,000.00
Sites	9	9,600.00
Markets and slaughterhouses	97	818,428.44
Improvements on markets and slaughterhouses	12	131,500.00
Midden sheds	8	12,550.00
Plazas, parks, and playgrounds	25	94,950.00
Monuments	10	14,000.00
Cemeteries	16	78,475.00
Water systems	37	943,600.00
Sewer systems	4	41,500.00
Artesian wells	46	53,300.00
Electric plants	5	235,000.00
Irrigation systems	19	386,000.00
Hospitals	5	76,000.00
Telephone systems	2	5,000.00
Ports, dikes, and piers	7	105,000.00
Courthouses and jails	3	74,529.54
Bridges and culverts	23	79,500.00
Roads and streets	53	279,950.00
Bathhouses	6	15,300.00
Police barracks	1	30,000.00
Street lamp-posts	2	.....
Agricultural nursery	1	.....
Library	1	.....
Observatory house	1	2,500.00
Municipal pound	1	200.00
Wharves	9	52,000.00
Gasoline tank	1	4,000.00
Canals	2	14,000.00
Sanitary model house	1	4,000.00
"Plano Arellano"	1	200,000.00
Municipal warehouse	1	1,000.00
Public corral	1	500.00
Public crematory	1	1,500.00
Total	734	7,624,192.68

The fact that in the foregoing program there are more projects for the construction of provincial roads and bridges, municipal school and market buildings, is clear evidence that the Provinces and municipalities are conscious of the real needs of our country.

Administrative cases.—The total number of administrative cases formally submitted was 222, 4 of which were against provincial governors, 9 against

provincial treasurers, 24 against municipal councilors, 143 against municipal treasurers, and 1 against a chief of police. Cases still pending final action by this office are included in the above total.

No provincial official was removed from office. Of the four provincial governors proceeded against administratively, three were reprimanded and one was made to comply with an agreement to satisfy the offended parties. Of the nine provincial treasurers against whom charges were brought, one was fined and five were exonerated. Action was pending in three cases at the close of the year.

Of the 143 cases submitted against municipal treasurers, 77 were found guilty, 36 of whom were removed from office. Of the charges against the municipal treasurers, 27 were for shortage in accounts and malversation of public funds, 17 for irregularities in office, 1 for falsification of public document, 5 for violation of rules and regulation, 3 for abuse of office, 13 for neglect of duty, 5 for gambling, 4 for unsatisfactory service, and 1 for illegal use of government property.

Gambling and prostitution.—As in the past, the campaign against gambling, prostitution, dance halls, and other vices was conducted with unabated vigor. Reports from provincial officials show that gambling and other vices have decreased through the cooperation of the local and provincial officials. It should be noted that gambling, prostitution and other vices in the Philippine Islands are not so alarming in number as in other countries. Dance halls are being tolerated in certain municipalities like Cavite and Olongapo only to afford means of recreation to the members of the American Army and Navy. As in the past, provincial and municipal officials who are found negligent in the performance of their duties as regards the suppression of vices are severely punished.

Red Cross collections and contributions for relief of European children.—The 1921 annual Red Cross membership drive took place in all the Provinces of the Philippine Islands from November 11 to December 31, 1921. The executive bureau was instrumental, as in previous years, in securing a large amount of contributions from Provinces and municipalities for the Red Cross. Judging from the reports received so far, about ₱100,000 were obtained for the Red Cross, including, not only membership fees, but also donations which are kept in the respective branches of the Red Cross in the Provinces to meet local expenses of the Red Cross.

This bureau also secured voluntary contributions from Provinces and municipalities for the relief of European children. During the year a total of over ₱29,000 was voluntarily contributed by the inhabitants of the Provinces and municipalities. This amount was turned over to the Red Cross for disposition in accordance with the arrangement with the corresponding relief committee.

BUREAU OF NON-CHRISTIAN TRIBES.

Territorial jurisdiction and its organization.—As heretofore, the bureau of non-Christian tribes has jurisdiction and control over the nine specially organized Provinces of Agusan, Bukidnon, Cotabato, Davao, Lanao, Sulu, Zamboanga of Mindanao-Sulu and the Mountain Province, and Nueva Vizcaya of Northern Luzon. The area of each of the above named Provinces in square kilometers may be seen in the following table:

Agusan	11, 121
Bukidnon	10, 026
Cotabato	24, 916
Davao	19, 389
Lanao	6, 317
Mountain Province	13, 971
Nueva Vizcaya	9, 143
Sulu	2, 802
Zamboanga	16, 532
Total	114, 217

Act No. 2968, approved February 21, 1922, changes the boundaries of Agusan and Bukidnon by segregating from these two Provinces a small portion of their territory and annexing the segregated area to the Province of Misamis. The area of the segregated territory is not as yet known for the delimitation of

the boundary line as established by this act has not as yet been commenced. The area of the Mountain Province was reduced from 16,649 to 13,971 square kilometers by Act No. 2877. With these changes, the territory now under the jurisdiction of the bureau of non-Christian tribes has been reduced to 114,217 square kilometers.

The government of each of the nine specially organized Provinces under this bureau is vested in a provincial governor, a secretary-treasurer, and a third member. The provincial governor and the secretary-treasurer are appointed by the Governor General, subject to confirmation by the Senate, and the third member is elected by the votes of the councilors and vice presidents of municipalities and municipal districts of the Province concerned. However, the provincial governors of Nueva Vizcaya, Zamboanga, Davao, and Agusan will be elected by popular vote in June, 1922, as in the regular Provinces, pursuant to Executive Order No. 29, series of 1920, which was promulgated under the provisions of section 5 of Act No. 2878.

Act No. 2949 amends section 2605 of the Administrative Code of 1917 by separating the offices of provincial secretary and treasurer. Act No. 2942 provides a provincial fiscal for each of the Provinces of Mindanao-Sulu.

Under the provincial governors, a number of deputy governors are appointed. Formerly the practice was to appoint constabulary officers as deputy governors, but this practice is being discontinued and private citizens are being appointed in their stead. However, some constabulary officers have been retained as deputy governors, for they have proved to be an efficient arm in the administration of the regions distant from the centers of government. These deputy governors in many instances have also been appointed justices of the peace with the power to try petty cases arising among the Moros and other non-Christians. The policy is to accustom the people to submit their cases and differences to the proper courts of justice of the government instead of submitting them to their datu and other recognized chiefs, as was the practice formerly.

No efforts have been spared by the respective provincial executives to induce the people living in the interior without any governmental organization to live together and organize themselves into settlements. For such settlements, agricultural lands of appropriate localities have been invariably selected. At the head of these settlements are appointed headmen from among the non-Christians who are made responsible to the government for the preservation of peace and public order within their respective jurisdictions.

A number of settlements were organized into municipal districts, the policy being to convert them, as soon as existing conditions warrant, into municipal districts and these into regular municipalities similar to those of the regular Provinces. Each municipal district has a council, the members of which are charged with the carrying out of the orders of the provincial officials. They are in no way similar to the council of the regular municipalities, for they do not hold regular meetings and have no power to adopt rules and regulations or pass ordinances for the government of their respective districts.

The following table shows the existing municipalities and municipal districts in the Provinces under the jurisdiction of the bureau of non-Christian tribes:

AGUSAN.

Municipalities.

- | | | |
|----------------|---------------|-------------|
| 1. Butuan. | 3. Talacogon. | 4. Jabonga. |
| 2. Cabadbaran. | | |

Municipal districts.

- | | | |
|-----------------|----------------|-------------------|
| 1. Amparo. | 11. Concordia. | 21. Las Nieves. |
| 2. Aspitia. | 12. Corinto. | 22. Libertad. |
| 3. Babbah. | 13. Cuevas. | 23. Loreto. |
| 4. Baquingqing. | 14. Ebro. | 24. Los Arcos. |
| 5. Balete. | 15. Esperanza. | 25. Los Martires. |
| 6. Basa. | 16. Gracia. | 26. Maasin. |
| 7. Baylo. | 17. Guadalupe. | 27. Mambalili. |
| 8. Borbon. | 18. Halapitan. | 28. Mampinsahan. |
| 9. Bunaguít. | 19. Langasian. | 29. Manila. |
| 10. Bunawan. | 20. La Paz. | 30. Maygatasan. |

31. Milagros.	39. Sagunto.	47. San Vicente.
32. Novele.	40. Salvacion.	48. Santo Tomas.
33. Nuevo Sibagat.	41. San Ignacio.	49. Trento.
34. Nueva Trabajo.	42. San Luis.	50. Tudela.
35. Prosperidad.	43. San Ysidro.	51. Verdu.
36. Prosperidad.	44. San Mateo.	52. Veruela.
37. Remedios.	45. Santa Ines.	53. Violanta
38. Rosario.	46. Santa Josefa.	54. Waloe.

BUKIDNON.

Municipalities.

1. Impasugong.	3. Maluko.	4. Talakag.
2. Malaybalay.		

Municipal districts.

1. Baungon.	3. Malitbog.	4. Maramag.
2. Libona.		

COTABATO.

Municipality.

1. Cotabato.

Municipal districts.

1. Awang.	14. Liguasan.	27. Libungan.
2. Dinaig.	15. Parang.	28. Gambar.
3. Tumbao.	16. Barira.	29. Maganuy.
4. Glan.	17. Balut.	30. Daguma.
5. Buayan.	18. Bugasan.	31. Isulan.
6. Kling.	19. Buldun.	32. Talayan.
7. Kiamba.	20. Kitubud.	33. Reyna Regente.
8. Kabakan.	21. Banasilan.	34. Dulawan.
9. Kidapawan.	22. Carmen.	35. Nuling.
10. Balatikan.	23. Pikit-Pagalungan.	36. Kalanganan.
11. Buluan.	24. Silik.	37. Subpangan.
12. Koronadal.	25. Lebak.	
13. Sebu.	26. Salaman.	

DAVAO.

Municipalities.

1. Baganga.	3. Davao.	5. Mati.
2. Caraga.	4. Manay.	6. Santa Cruz.

Municipal districts.

1. Batulaki.	6. Tagum.	11. Pantukan.
2. Caburan.	7. Gamanza.	12. Lupon.
3. Malita.	8. Saug.	13. Surup.
4. Guianga.	9. Moncayo.	14. Sigaboy.
5. Kapalong.	10. Compostela.	15. Samal.

LANAO.

Municipalities.

1. Dansalan.	3. Malabang.	4. Kolambugan.
2. Iligan.		

Municipal districts.

- | | | |
|----------------|---------------|-------------------|
| 1. Bakulud. | 13. Lumbatan. | 25. Pantaw-ragat. |
| 2. Belut. | 14. Madalum. | 26. Pualas. |
| 3. Bayang. | 15. Madamba. | 27. Baguiaran. |
| 4. Binidayan. | 16. Maging. | 28. Sungud. |
| 5. Bubung. | 17. Mandulog. | 29. Tamparan. |
| 6. Buru-un. | 18. Marantau. | 30. Taraka. |
| 7. Butig. | 19. Masiu. | 31. Tatarikan. |
| 8. Ditsaan. | 20. Malundu. | 32. Tubaran. |
| 9. Ganassi. | 21. Momungan. | 33. Tugayu. |
| 10. Gata. | 22. Munai. | 34. Uatu. |
| 11. Kapai. | 23. Nunungan. | |
| 12. Kapatagan. | 24. Pantar. | |

MOUNTAIN PROVINCE.

Municipal districts.

- | | | |
|-----------------|----------------|-----------------|
| 1. Cabugao. | 14. Bontoc. | 27. Ampusungan. |
| 2. Conner. | 15. Talubin. | 28. Bauko. |
| 3. Bayag. | 16. Natonin. | 29. Kiangán. |
| 4. Taut. | 17. Calao. | 30. Banaue. |
| 5. Namaltugan. | 18. Tinglayan. | 31. Burnay. |
| 6. La Trinidad. | 19. Sadanga. | 32. Hunduan. |
| 7. Atok. | 20. Sagada. | 33. Mayoyao. |
| 8. Buguias. | 21. Besao. | 34. Lubuagan. |
| 9. Itogon. | 22. Sabangan. | 35. Balbalan. |
| 10. Kabayan. | 23. Banaso. | 36. Pinukpuk. |
| 11. Kubungan. | 24. Mankayan. | 37. Tabuk. |
| 12. Tuba. | 25. Kayan. | 38. Bokod. |
| 13. Tublay. | 26. Bakun. | 39. Kapangan. |

NUEVA VIZCAYA.

Municipalities.

- | | | |
|---------------|-------------|------------|
| 1. Bayombong. | 3. Bambang. | 5. Solano. |
| 2. Bagabag. | 4. Dupax. | 6. Aritao. |

Municipal districts.

- | | | |
|------------|------------|--------------|
| 1. Imugan. | 2. Kayapa. | 3. Pingkian. |
|------------|------------|--------------|

SULU.

Municipality.

1. Jolo.

Municipal districts.

- | | | |
|--------------|------------------|----------------------|
| 1. Tongkil. | 10. Silangkan. | 19. Banaran. |
| 2. Tandú. | 11. Parang. | 20. Simumul. |
| 3. Lu'uk. | 12. Pangutaran. | 21. Sitangkai. |
| 4. Panaman. | 13. Gitung. | 22. Bongao. |
| 5. Lati. | 14. Tapul. | 23. Laparan. |
| 6. Patikul. | 15. Pata. | 24. Cagayan de Sulu. |
| 7. Talipao. | 16. Siasi. | 25. Marungas. |
| 8. Pansul. | 17. South Ubian. | 26. Balimbing. |
| 9. Maimbung. | 18. Tandubas. | |

ZAMBOANGA.

Municipalities.

- | | | |
|-------------|--------------|---------------|
| 1. Dapitan. | 3. Isabela. | 5. Zamboanga. |
| 2. Dipolog. | 4. Lubungan. | |

Municipal districts.

- | | | |
|----------------|------------------|------------------|
| 1. Bangaan. | 6. Lamitan. | 11. Sindagan. |
| 2. Dinas. | 7. Malusu. | 12. Sirawai. |
| 3. Kabasalan. | 8. Margosatubig. | 13. Taluksangay. |
| 4. Kumalarang. | 9. Panganuran. | |
| 5. Labangan. | 10. Sibuko. | |

Population.—Approximately, the population of the nine Provinces comprised within the territorial jurisdiction of this bureau is:

Province.	Christian.	Mohammedan.	Pagan.	Total.	Percentage of non-Christian.
Agusan.....	41,592	.....	7,446	49,038	15.19
Bukidnon.....	1,200	4,807	33,700	41,707	97.12
Cotabato.....	21,391	136,414	11,386	179,191	87.36
Davao.....	68,979	5,000	43,325	119,304	42.18
Lanao.....	7,238	87,000	600	94,838	92.37
Mountain Province.....	5,976	.....	166,038	172,014	96.53
Nueva Vizcaya.....	40,208	.....	7,608	47,816	15.91
Sulu.....	29,476	146,897	.....	176,373	83.29
Zamboanga.....	81,860	39,680	26,451	147,991	44.68
Total.....	297,920	419,798	300,554	1,018,272	.....

Since 1918, when the census was taken, there has been a steady increase in population in the Provinces of Agusan, Cotabato, Nueva Vizcaya, Sulu, and Zamboanga, although the exact number can not be ascertained at this time. This is principally due to the increasing number of Christian immigrants from the densely populated regions of Luzon and the Visayas to those Provinces. The population of the Province of Bukidnon was decreased by reason of the annexation of the municipal districts of Napaliran, Claveria, and Lourdez to the Province of Misamis, in pursuance of the provisions of act No. 2968. In the Province of Davao the population has remained steady without increase for three years on account of the abrupt fall of the price of hemp, the cultivation of which has contributed largely to the immigration of laborers and home seekers to that Province. The population of the Mountain Province decreased during the year due to the segregation and transfer of the municipalities of Tagudin and Cervantes and the seven municipal districts of Lepanto-Amburayan to the Province of Ilocos Sur and the six municipal districts of Benguet-Amburayan to the Province of La Union, in pursuance of the memorandum agreement entered into by the provincial boards of the three Provinces concerned as authorized under the provisions of act No. 2877. Several other factors contributed to the decrease of population in this Province, among others being the appalling infant mortality, especially in the outlying districts, which are seldom visited by the health authorities due to their isolation and lack of transportation facilities and the immigration of Christians and non-Christians to the neighboring Provinces in search of better locations.

Relation between Christians and non-Christians.—The relation between Christians and non-Christians in all the Provinces under the jurisdiction of this bureau continues to be excellent. The Christian colonies in Cotabato stand as the most eloquent proof that Christians, Mohammedans, and pagans can live side by side in perfect harmony. These colonies are located in the interior of Cotabato, and one of them is composed of mixed Christians and non-Christians. The colonists do not indulge in regionalistic controversies, for their time and attention are engrossed in the development of their respective homestead holdings. The Christians are not molested; on the contrary, they are welcomed by the native inhabitants.

It is significant to mention in this connection, as proof of the increasing friendship and harmony between Mohammedans and Christians, the fact that in the first election of municipal president in Jolo, Province of Sulu, there was no Moro candidate for the position, but the majority of the Mohammedan voters supported the candidacy of a Christian, who was elected.

Another important factor which has helped to foster the relation among Christians and non-Christians is the employment of Mohammedan men and

women as teachers. These teachers, who are products of the public schools, are assigned to different stations in Mohammedan and pagan communities. Capable Mohammedans and pagans are also employed in civil positions in the government—such as deputy governors, deputy treasurers, clerks, and practically in all classes of employment wherein they may show their ability and fitness. This participation of the non-Christians in the civil administration of the government serves to impress upon their minds that the doors of the government are open to Christians and non-Christians alike, irrespective of their religious creeds.

Of late there has been noted a considerable improvement in the relation between Christians and Igorots in the Mountain Province and Nueva Vizcaya. The existence of roads and trails is in a great measure responsible for the rapid assimilation of the Igorots. These people are possessed of great power to assimilate the customs and habits of their more advanced brothers. The people are anxious to buy cloth whenever their means permit. They frequently visit neighboring Provinces, and, from their frequent contact with the Christians in the lowlands, they begin to realize the benefits and conveniences of civilized life. Thus their social and moral standards are being gradually lifted and time is not far distant when no longer will they be regarded the inferiors of their Christian brothers.

Policy.—There has been no change in the policy of the government to promote the economic, social, and political development of the inhabitants of the specially organized Provinces under this bureau. To attain this end, the Department of the Interior and this bureau are doing everything to foster mutual and permanent understanding among the Christians and non-Christians. As a result, tribal differences are rapidly disappearing and community sentiment is fast developing instead. To further the success in this regard, Mohammedans and pagans are being given responsible positions in provincial and municipal governments as fast as they qualify. Experience has shown, however, that this policy should be followed moderately and only persons who have had some education and proper training and have developed in them a sense of responsibility should be utilized. As to social activities, the same policy of attraction has been continued, employing compulsory measures wherever necessary to insure attendance in schools. This, however, is resorted to with tact and consideration as regards girls. While opposition has been launched against this measure, yet it is not significant enough to warrant the repeal of the compulsory education law. The natives, especially the datus and headmen, are cooperating with the government in this activity, and the success so far attained is principally due to their sincere cooperation.

As to economic development, no effort has been spared toward fostering agriculture. The success of the government in the establishment of provincial cattle ranches is attracting private capitalists to engage in this important industry in the Philippine Islands. This is especially true in the Provinces of Bukidnon, Cotabato, and Zamboanga, where the soil is specially fitted for grazing.

For the purpose of establishing and promoting amicable relations among the non-Christians of the islands and to develop their agricultural, industrial, and social activities, the sum of ₱25,000 was appropriated for the year by the legislature. This amount has been spent principally in the organization of reservations for the negritos of Tayabas, Zambales, and Pampanga, for the remontados of Rizal and the backward people of Surigao. Another sum of ₱15,000 was appropriated for special scholarship under which 17 students were maintained during the year. The government has also appropriated the sum of ₱15,000 to be spent by the Secretary of the Interior when public order in the nine special Provinces is menaced.

Public order.—During the year conditions of peace were most satisfactory. With the exception of four organized bands of outlaws in the Province of Sulu, there have been no organized forces directed against the government. Due perhaps to the existing economic crisis, robberies have been frequent. However, upon the revival of economic activities during the latter part of the year there has been noted a decrease in the number of crimes committed. The following events may be mentioned as of importance:

In Davao, especially in districts where Japanese and Filipinos are acquiring public lands, there have been registered murders committed by Bagobos. These were not due to racial antipathy but rather to the vengeance of the Bagobos

in the belief that the Japanese and Filipinos are encroaching upon their rights over the lands which from time immemorial they have always considered theirs by inheritance from their ancestors.

On August 13, a bloody encounter took place in Bubung Hill, Lanao, between the constabulary under Lieutenant Nunag and a band of outlaws headed by Datu Amal Binaning. Binaning and his men fortified themselves in a "cotta" (trench), from which they defied the constituted authorities. Seeing this attitude toward the government, the constabulary was forced to engage the rebels, who were all killed in the fight.

On August 30 Maharajah Mahang, of Bacorsan, district of Parang, Sulu, a notorious cattle thief and robber, and his band were met by a detachment of constabulary under the command of Lieut. Tiburcio Ballesteros. In the fight that ensued four of the leaders were killed and various others wounded. Maharajah Mahang and his men were placed on trial for brigandage in October and although sentence has not been rendered it is certain that most, if not all, will receive long terms of imprisonment.

Appi, of Kulay-Kulay, Sulu, an insane religious fanatic, created considerable disturbance in the district of Lu'uk during the entire year 1921. Due to the fact that apparently no steps had been taken to curtail his operations, his followers continued to increase. With the assistance of Panglima Agga, a conference was arranged between Appi and the provincial governor of Sulu for September 27. Encouraged by the unfortunate occurrences at Parang on September 26, in which Lieutenant Tigno was killed, Appi postponed the meeting to October 3 at Kulay-Kulay. This conference ended in a fight in which Appi and eight of his followers were killed, thus eliminating this thief who had been a source of much trouble to the people.

Siu, who was wanted on a warrant of arrest issued under date of October 25, 1920, formed a band of restless individuals in Lu'uk and began to commit depredations in the district of Camp Andres. The band was investigated thoroughly by the provincial governor and steps were taken through the influence of Panglima Bandahala to induce this man to meet the provincial governor in a conference. The conference was arranged for July 30. The band surrendered and those not wanted by the authorities, including Siu and most of his followers, returned to their homes and have remained ever since peaceful and law-abiding citizens.

Besides the foregoing events, some cases of murder, homicide, physical injuries, robberies, etc., have been committed, but all of them are of ordinary character and do not affect public order.

Finance—Insular aid.—The nine specially organized Provinces are still dependent to a great extent upon aid granted by the central government. The insular allotments provided in the year 1921 appropriation act were:

Agusan	₱55,000
Bukidnon	55,000
Cotabato	90,000
Davao	70,000
Lanao	64,400
Mountain Province	100,000
Nueva Vizcaya	45,000
Sulu	70,000
Zamboanga	25,960

In the majority of these specially organized Provinces the expenses for the regular administration have been always more than the revenues derived from local taxation and that is the reason why the insular government grants them special appropriations. This aid will continue for some more years to come, except as regards Davao, Nueva Vizcaya, and Zamboanga, which may become self-supporting in the next two years.

The two principal sources of municipal and provincial revenues are the same as those of the regular Provinces, namely, taxation and the cedula tax. The rate of land tax in all the special Provinces, with the exception of the Mountain Province, is 1½ per cent of the real value of the property, while the regular cedula tax is ₱2. In the Mountain Province the rate of land tax is one-half of 1 per cent and the cedula tax is ₱1, with an additional ₱2 for road tax. There has been an agitation and finally a formal request from the provincial board of the Mountain Province to substitute the regular tax of ₱2 for the road tax, thereby relieving the inhabitants of the Mountain Province from the payment of ₱1

extra tax. This request is still pending consideration in the bureau of non-Christian tribes, final approval of which lies with the secretary of the interior by virtue of the provisions of act No. 2913.

Sources of revenues.—Below in tabulated form may be seen the amounts received by both the Provinces and the municipalities from the land and the cedula taxes during the years 1920 and 1921. It also shows data on the total amounts of revenues which accrued in 1920 and 1921:

CEDULAS.

Province.	1921	1920	Increase or decrease for 1921.
Agusan (November figures).....	P24,525.00	P27,221.00	¹ P2,696.00
Bukidnon.....	12,627.00	19,641.00	¹ 7,014.00
Cotabato.....	39,136.00	42,372.00	¹ 3,236.00
Davao.....	74,409.00	79,807.00	¹ 5,398.00
Lanao.....	48,636.00	47,986.00	¹ 650.00
Mountain Province (includes road tax).....	114,686.75	123,020.00	¹ 8,334.00
Nueva Vizcaya.....	17,513.50	15,844.00	¹ 1,669.50
Sulu.....	56,390.00	66,201.00	¹ 9,811.00
Zamboanga.....	74,344.00	82,119.00	¹ 7,775.00

¹ Decrease.

REAL PROPERTY TAX.

Agusan (November figures).....	P27,139.59	P30,598.58	¹ P3,458.99
Bukidnon.....	11,072.54	23,235.52	¹ 12,162.98
Cotabato.....	11,120.80	12,974.34	¹ 1,853.54
Davao.....	98,380.09	126,021.02	¹ 27,636.93
Lanao.....	7,603.60	6,179.27	¹ 1,424.33
Mountain Province.....	25,831.50	25,429.92	¹ 3,402.58
Nueva Vizcaya.....	42,694.47	38,865.47	¹ 3,829.00
Sulu.....	12,807.96	10,758.71	¹ 2,049.25
Zamboanga.....	106,463.26	109,234.92	¹ 2,771.65

¹ Decrease.

MARKET AND SLAUGHTERHOUSE COLLECTIONS.

Agusan (November figures).....	P2,609.17	P2,641.60	¹ P32.43
Bukidnon.....	104.40	101.05	¹ 3.35
Cotabato.....	10,548.35	8,618.16	¹ 1,930.16
Davao.....	11,436.01	9,800.21	¹ 1,635.80
Lanao.....	7,508.83	7,843.26	¹ 344.43
Mountain Province.....	1,558.84	1,223.21	¹ 335.63
Nueva Vizcaya.....	1,638.93	1,501.18	¹ 137.75
Sulu.....	29,696.79	36,927.22	¹ 7,230.43
Zamboanga.....	36,628.13	29,713.71	¹ 6,914.42

¹ Decrease.

MUNICIPAL LICENSES.

Agusan (November figures).....	P12,835.04	P15,212.20	¹ P2,377.16
Bukidnon.....	357.00	697.89	¹ 340.89
Cotabato.....	5,298.45	4,462.55	¹ 825.90
Davao.....	44,138.75	56,954.92	¹ 12,816.17
Lanao.....	6,836.41	6,673.70	¹ 162.71
Mountain Province.....	59.90	136.60	¹ 76.70
Nueva Vizcaya.....	2,233.25	1,388.30	¹ 845.05
Sulu.....	15,769.20	16,158.00	¹ 388.80
Zamboanga.....	45,257.65	48,088.77	¹ 2,831.12

¹ Decrease.

PROVINCIAL REVENUES.

Province.	1921.	1920.	Increase or decrease for 1921.
Agusan (November figures).....	P124,709.38	P170,241.01	¹ P 45,531.63
Bukidnon.....	133,962.29	173,583.78	139,621.49
Cotabato.....	227,494.69	347,050.29	189,855.60
Davao.....	373,925.64	510,310.92	136,385.28
Lanao.....	290,738.19	401,371.53	110,633.34
Mountain Province.....	588,584.91	787,253.34	198,668.43
Nueva Vizcaya.....	229,539.87	316,810.47	12,729.40
Sulu.....	425,719.26	386,268.51	39,450.75
Zamboanga.....	909,184.10	141,283.13	157,900.97

¹ Decrease.

MUNICIPAL REVENUES.

Province.	1921.	1920.	1919.
Agusan (November figures).....	P111,491.81	P70,836.62	P40,655.90
Bukidnon.....	103,187.02	66,816.89	36,370.13
Cotabato.....	38,413.43	38,387.05	26.38
Davao.....	175,424.32	221,913.72	146,489.40
Lanao.....	63,310.02	58,805.89	4,504.13
Mountain Province.....	348,132.35	275,476.34	72,656.01
Nueva Vizcaya.....	83,734.50	52,703.60	31,050.90
Sulu.....	99,473.30	136,601.73	137,128.43
Zamboanga.....	254,709.52	251,365.65	3,343.87

¹ Decrease.

As may be noted, in almost all the items in the foregoing tables there are marked decreases. The cause may be attributed still to the world-wide financial crisis, which has worked great hardship among the inhabitants of these Provinces. In view of the present crisis the period of payment of land taxes without penalty was extended in all the Provinces that requested such extension. The Provinces of Bukidnon and Lanao, however, did not make such request. Upon the request of the residents of Davao in December, 1921, the 20 per cent penalty on all land taxes then unpaid in the Province of Davao was remitted upon condition that the regular taxes for the year 1921 were paid on or before January 31, 1922. The remission was necessary because no further extension of the period of payment without penalty could be made under the law. In the municipality of Zamboanga the effects of the second general revision of assessment were suspended during 1921 for the same reason.

Assessment.—Due to the attitude both of the people and of the last legislature toward the result of the second general revision of assessment in the regularly organized Provinces, no effort has been made to push forward the second general revision of assessment. However, the Provinces of Nueva Vizcaya, Sulu, and Zamboanga proceeded upon their own initiative to revise the assessed values of their lands. But the revised schedule of realty values has never been enforced in view of the attitude of the legislature above mentioned.

There are shown below the assessed values of properties in the Provinces under this jurisdiction as of December 31, 1921:

Existing values on December 31, 1921, of real property assessments in the nine Provinces under the jurisdiction of the bureau of non-Christian tribes.

Provinces.	Taxable.		Exempt.		Sq. km.	Popu-lation.	Taxable valuation.	
	Par-cels.	Valuation.	Par-cels.	Valuation.			Per unit area.	Per capita.
Agusan.....	12,466	P3,705,150	4,307	P530,790	11,121	44,740	Per ct. 333.17	Per ct. 80.58
Bukidnon.....	10,496	1,881,550	1,020	143,030	10,026	48,544	187.67	39.90
Cotabato.....	2,481	1,473,790	735	200,760	24,960	171,978	59.15	18.51
Davao.....	14,517	11,865,210	1,075	532,240	19,389	108,222	611.95	109.64
Lanao.....	2,279	828,140	258	103,430	6,317	91,459	131.10	9.05
Nueva Vizcaya.....	22,144	6,430,300	366	263,850	9,143	35,838	703.27	179.42
Sulu.....	4,984	2,277,630	325	95,914	2,802	172,776	812.87	13.18
Zamboanga.....	20,362	14,776,470	2,233	1,983,150	16,532	147,333	893.81	100.29
Total.....	89,729	43,238,260	10,319	3,853,290	100,246	820,850	431.32	52.67
Mountain Province.....		5,385,759		1,103,245	16,649	243,363	323.49	22.13

The figures regarding area and population in the above table are taken from the census of 1918. It is to be noted that Zamboanga, Sulu, and Nueva Vizcaya in the order named are in the lead as to value per unit area of taxable properties, while Nueva Vizcaya, Davao, and Zamboanga are leading as to per capita valuation.

The assessment law is not yet in force in the Mountain Province. The figures above for the Mountain Province are the result of the early assessment of properties made in pursuance of sections 2393, et seq. of the Administrative Code of 1917.

The figures for Nueva Vizcaya and to a certain extent those for Sulu and Zamboanga are the result of the second general revision. For the rest of the Provinces, the figures shown are those of the first revision of assessment. There are still in many outlying districts in every Province under this jurisdiction, properties as yet unassessed. The work of assessment is one that can not be pushed at will by the provincial authorities in view of the fact that the inhabitants, in many cases, still look with distrust upon the deputy assessors who come to determine the values of their lands. It has been therefore necessary that, along with this work of assessment, the officials and employees point to the people the real nature of the work and explain to them that assessment is not intended to deprive them of their lands.

Trading systems.—This year is a very unfortunate one for the trading systems. In all the Provinces the profits accumulated in previous years were only enough to cover the losses incurred in 1921. Below is a statement of assets, liabilities, etc., of all the trading systems of the Provinces under this jurisdiction:

Provinces.	Assets.	Liabilities.	Accumulated profit.	Cash advanced by Province as capital.	Losses during 1921.
Agusan.....	P52,448.73	P28,171.19	P24,277.54	P20,000.00	P7,490.90
Bukidnon.....	61,736.56	64,426.29	¹ 2,690.71	35,000.00	11,570.03
Cotabato.....	181,396.39	170,742.35	10,654.04	137,278.85	12,929.08
Davao.....	63,323.95	70,360.55	¹ 7,036.60	70,000.00	16,331.88
Lanao.....	72,199.55	71,159.60	1,038.95	43,745.15	7,057.12
Mountain Province.....	74,046.07	64,158.09	9,887.28	58,332.08	415.92
Nueva Vizcaya.....	50,347.33	51,164.53	¹ 817.20	39,217.64	6,757.74

¹ Loss.

The closing of the trading system in Sulu which was authorized in 1920 has not as yet been finished and for this reason no figures for that Province can be given. The report from Zamboanga has likewise not been received.

These trading systems have been established to foster the interchange of agricultural and industrial products in the Provinces and to prevent the exploitation of the people through unreasonable inflation of prices by the profiteers. In this regard, the mission of the systems has been fulfilled and had it not been for the actual crisis the systems could have made considerable profits in their operations.

Justice.—The administration of justice in the Provinces under the jurisdiction of this bureau is under the direct supervision of the judges of the courts of first instance of the second, fourth, twenty-fourth, and twenty-fifth judicial districts.

Act No. 2942 provides for the appointment of provincial fiscals for each of the Provinces under the jurisdiction of this bureau and, with the exception of Lanao and Bukidnon, which were placed under one fiscal in accordance with Executive Order No. 33, series of 1921, for the sake of economy, the rest of the Provinces have each a fiscal. Report of crimes committed up to the third quarter of 1921 showed a real justification for the appointment of a fiscal for each of these Provinces.

A careful study of the annual reports of the different provincial governors reveals the fact that of the cases, civil and criminal, filed in the courts of the justice of the peace and of first instance, about 81 per cent were disposed of during the year, which is about 10 per cent improvement over that of last year. This is due perhaps to the increase in the number of fiscals and also to a decline in the number of cases filed in some of the Provinces, as for

example, in Lanao, where only 421 cases were filed in 1920. It is gratifying to note that in Bukidnon all pending cases accumulated in previous years were disposed of during the year with the exception of one criminal case, which was postponed due to the absence of the principal witnesses.

The administration of justice in Lanao, Bukidnon, and Nueva Vizcaya has been very satisfactory, in spite of the fact that there is only one court session in these three Provinces. Had they been authorized to hold two court sessions a year, like the other Provinces, the result would have been more satisfactory.

It has been noted also that in Cotabato and Davao the number of cases disposed of during the year has not changed as compared with that of previous years. This is due, perhaps, to the large size of the twenty-fifth judicial district, which includes also the Provinces of Zamboanga and Sulu.

The appointment of constabulary officers as ex officio auxiliary justices of the peace in the distant districts of the Provinces was objected to on the ground that a constabulary officer as prosecutor should not at the same time be judge in his own district. As this is likely to result in the maladministration of justice, the practice has been discontinued and civilians are now being appointed in place of constabulary officers.

Public health.—Public health and sanitation throughout the Provinces under this bureau continue to be excellent. This is, indeed, primarily due to the vigorous campaign undertaken by the health authorities, with the active cooperation of the provincial and municipal officials. The campaign for sanitation would, undoubtedly, have achieved greater results had it not been for the lack of funds for this purpose. During the year the public hospital at Davao was completed and inaugurated on November 25, 1921. It is one of the modern hospitals in Mindanao and its completion, including the construction of the nurses' dormitory and dispensary, the doctors' quarter, the septic tank, and the park, has cost the Province approximately ₱142,868. In the Province of Lanao two new dispensaries and two subdispensaries were opened, so that at the close of the year there were 13 dispensaries in actual operation in Lanao and 1 in the Province of Zamboanga.

The most prevalent communicable disease that broke out in an epidemic form during the year was smallpox. The Provinces most affected were Bukidnon, Cotabato, and Lanao. The disease originated in the Province of Misamis and was introduced into the Province of Bukidnon by people coming from the coast towns. Quarantine posts in the different sections of the Province were installed and a vigorous campaign for vaccination was inaugurated. In the Province of Cotabato 2,649 persons were vaccinated, out of which 1,220 were found positive. Of the 8,888 persons vaccinated in Lanao, 2,814 resulted positive. Another common disease which exacted a high rate of mortality was malaria. With the distribution, however, of quinine tablets to the people of the districts affected the progress of the disease was considerably checked.

Infant mortality is one of the gravest problems that has been and still is confronting the health authorities of Mindanao-Sulu. The high infant mortality was rather due to the improper diet and care given to newly born children by their ignorant mothers. In Davao during the year 1920 the number of infant mortality reached as high as 188 per 1,000 births, whereas in the Province of Lanao it was 175 per 1,000 births. To check the progress of infant mortality, public hospitals with their highly trained physicians and licensed midwives and nurses were established for the purpose of instructing the people. The result was, indeed, gratifying in that the death rate of children decreased during the year 1921. Puericulture centers have also been established in certain Provinces, and these charitable institutions have greatly aided the government in its campaign to reduce infant mortality.

The progress of medical science among the non-Christians and pagans has been noteworthy. This has been accomplished through the establishment of hospitals and dispensaries in the outlying districts of the Provinces. These non-Christians and pagans, who formerly repudiated the use of modern medical relief and surgery, now voluntarily submit themselves for medical treatment. It might be stated here that public health education, like public instruction, has contributed much to the carrying out of the policy of attraction of the non-Christians and pagans. It has convinced them that the government has been established to bring them under the influence of modern civilization and not to wipe them out of existence, as was the belief formerly.

Public instruction.—The desire for education among the non-Christians and pagans continued to increase during the year. This is demonstrated by the fact that in many districts the non-Christians and pagans have been clamor-

ing for the establishment of more schools in their districts. They donate lands to the government for school sites and promise to construct schoolhouses with free labor. The government, in many instances, found itself incapable of meeting the petitions for lack of funds. In general, however, there has been noted a remarkable increase in the number of school buildings constructed and the consequent increase in school attendance as compared with previous years. This progress in education is due principally to the untiring efforts of the local representatives of the Bureau of Education, who find hearty support from provincial and municipal officials, the constabulary, and the people. The enforcement of the compulsory school attendance law has contributed also to the increase in school attendance. While there has been noted a marked opposition to this measure in certain localities, the people in general have realized the importance of such a law, and now influential datos are sending their children to schools and are cooperating with the government in its proeducational campaign. In the Province of Cotabato, the daughters of the principal datos, hadjis, and panditas are now regularly attending schools. The Moro girls' dormitory established in the municipality of Cotabato has now more than 40 Mohammedan and pagan girls, almost all of whom can read, write, and speak English. The result, therefore, so far obtained from the compulsory school attendance law has been, as a whole, very satisfactory and it is to this law that the school system owes its growth in Mindanao-Sulu.

While much has been accomplished along the line of public instruction, there remains a great deal more to be done. There is a great need for the establishment of more schools in the outlying districts of the Provinces, so as to satisfy the desire for education of the people who, for lack of funds, have been refused free elementary instruction. This is particularly true in Cotabato, Davao, and Zamboanga, where only few municipal districts and barrios have been provided with schools.

The following tables show the progress obtained in school activities in the nine Provinces of this bureau:

Number of schools.

	December.	
	1920	1921
Regular primary schools.....	476	516
Settlement farm schools, primary grades.....	264	301
Agricultural schools.....	7	7
Intermediate schools.....	41	52
Trade schools.....	1	1
Secondary schools.....	5	8
Total.....	794	885

Public instruction.

Provinces.	School population.	Enrollment.	Attendance.	Number of children not in school.
Agusan.....	9,500	8,462	6,957	1,038
Bukidnon.....		7,162	3,765	
Cotabato.....	28,187	9,667	7,441	18,520
Davao.....	14,448	7,820	5,748	6,628
Lanao.....	18,990	7,004	7,004	11,986
Mountain Province.....		14,147	12,553	
Nueva Vizcaya.....	7,163	5,640	4,594	1,523
Sulu.....	24,887	9,342	7,968	15,535
Zamboanga.....	28,000	11,730	9,530	16,270
Total.....	131,165	80,974	65,540	71,500

Prisons.—The bureau of prisons is by law intrusted with the general supervision and control of all prisoners confined in the provincial jails, while the provincial governors are charged with the duty of administering these jails. Municipal jails, which are under the control and supervision of the municipal presidents, are being maintained in practically all the municipalities and municipal districts under the supervision of the respective deputy governors.

The prisoners, besides performing the usual labor required of them for the various governmental activities, such as cleaning the streets, plazas, and markets, are also instructed in gardening, carpentry, furniture making, and other industries. This policy has proved equally advantageous to the government and the prisoners themselves. The prisoners are maintained at the rate ranging from 25 centavos to 50 centavos per day each. Prison guards generally receive monthly salary of from ₱20 to ₱35 each, excluding uniform allowances.

The San Ramon penal farm, located at Zamboanga, is a prison where all the prisoners classified as "insular" in the Provinces of Mindanao-Sulu are confined.

All the Provinces under this bureau, with the exception of Agusan, which has a concrete jail, and the Mountain Province, with its modern prison building, have their provincial jails located in the ground floor of the provincial building or in the old military guardhouses, which are not at all adequate to meet the requirements of a modern prison system. Nueva Vizcaya has its provincial prison located in the ground floor of the municipal building of Bayombong. The provincial prison of Sulu has been many a time the target of adverse criticism on the part of the judge of the twenty-sixth judicial district, who condemned it as inadequate for its purpose.

Agriculture.—The campaign for increased food production continued during the year. Provincial and municipal officials led this campaign, which resulted in the production of more rice, corn, vegetables, and other staple products. Some Provinces like Lanao and Cotabato suffered much from rinderpest in the early part of the year. However, efforts were exerted to plant important food crops so as to meet the requirements of local consumption. It has been noted that in the abaca and coconut producing Provinces, such as Agusan, Davao, Zamboanga, and Sulu, the planters and farmers directed their attention principally to the production of rice, corn, sugar, and other staple products. This change was precipitated by the sudden fall in the prices of hemp and copra, the production of which has practically been neglected now. In the Province of Bukidnon coffee, cacao, and oranges were harvested in considerable amount. In the Province of Lanao there was greater production of rice, corn, sugar, hemp, copra, sweet and Irish potatoes. During the year 4,750 cavanes of rice were exported. It is gratifying to mention here that the cultivation of Irish potatoes, which is now one of the principal products of the Province of Lanao, has greatly stimulated the interest of the native farmers. It is estimated that during the year about 1,800 bushels of Irish potatoes were exported to Manila, Cebu, Zamboanga, and other neighboring ports. In the Mountain Province and Nueva Vizcaya the condition of agriculture is also excellent. In the latter Province the cultivation of the upland palay was introduced, with the end in view of doubling the crop each year. Trial was also made of the Hawaiian sugar. The result was indeed gratifying. In the Province of Davao rural credit associations have been established in every regularly organized municipality, although considerable difficulty has been encountered in their organization, due to the opposition of several hacenderos. However, the small farmers have now realized the importance of this institution in relation to the development of their agriculture, so that rural credit associations will in time become regular banking institutions throughout the Provinces.

Another important agricultural activity is cattle raising. This is particularly true in the Province of Bukidnon, which, by reason of its topographical and climatic conditions, affords a suitable location for the breeding of cattle. To show the importance of this industry in the Province of Bukidnon, there are now about 20 corporations which are principally engaged in cattle raising and general agriculture, occupying not less than 100 hectares each. The Agusan Coconut Co. is the biggest corporation and the number of its cattle is estimated to be about 13,000 head. This corporation is also engaged in general agriculture. The Crescent Star Cattle Co., of Bukidnon, was dissolved by order of the director of the bureau of non-Christian tribes during the latter part of November, 1921, and a great number of the cattle were sold to private individuals.

Agricultural colonies.—There are seven agricultural colonies in the Province of Cotabato, one of which is located in Sarangani Bay, while the rest are

established in the heart of Cotabato Valley. These colonies have been organized with two primary objectives, namely, social and economic. With regard to the first it may be said that the success has been complete. The mixing of Christians and Mohammedans has practically erased the differences and prejudices which existed between them in the past and has brought them together to realize that they are one and the same people with a common ideal and a mother country to love. As to the economic objective, it may be stated that the agricultural colonies have failed. This is due to the frequency with which these colonies have been subjected to such calamities as locusts, droughts, and floods. In the seven colonies in Cotabato there are 1,019 families, of which 471 are Mohammedan and 548 Christian.

By reason of the inability of the insular governor to finance further the administration of these colonies, the provincial government of Cotabato, with the previous approval of higher authorities, has been advancing the necessary funds to the colonists. Due, however, to the reduction of the insular aid given to the Provinces for the year, it is necessary that funds from the insular government be provided for these colonies.

There is one colony in the Province of Zamboanga known as the Lamitan Agricultural Colony, and established in 1918 in the island of Basilan. During the year about 60 hectares of forest lands were cleared, and 4,450 coconut trees and 1,240 coffee trees planted. Rice and corn were planted and 368 cavanes of rice and 700 cavanes of corn were harvested during the year. While the colonists have not as yet been able to repay their debts to the provincial government of Zamboanga, which is financing the project, they are to a great degree self-supporting.

Mineral products.—In the Provinces under this bureau mineral products abound, of which gold, iron, petroleum, coal, copper, and platinum may be mentioned. Gold is found in Agusan Valley and other points of Mindanao, as well as in the Mountain Province and Nueva Vizcaya; iron along the boundary region between Surigao and Agusan and the Pacific coast; petroleum in the Pidatan section, between Lanao and Cotabato; copper along the coast and in the mountains of Tawi-Tawi group of the Sulu Archipelago; platinum in the northern part of Mindanao, especially in the region behind Dapitan and Dipolog; and coal in the region around Dumanquilas Bay, Zamboanga. Of these mineral resources, coal appears to be at present the most extensively developed and exploited. This is evidenced by the operations undertaken by the National Coal Co., established at Malangas for the exploitation of this valuable mineral. According to reports, the coal mined at Malangas is of high-grade quality and can favorably compare with the coal imported from North Borneo and Japan. Due to lack of funds, the progress of the work of the National Coal Co. has considerably been retarded to the detriment of the local market. Next in importance comes probably the development and exploitation of petroleum deposits. Sometime in 1920 American capitalists investigated these deposits with a view to their exploitation, but so far nothing has been done. In general, the other mineral resources of Mindanao-Sulu and of the Mountain Province and Nueva Vizcaya have not as yet been developed. This is, of course, due to lack of both domestic and foreign capital to undertake the enterprise. It is believed that the government should extend financial aid to private capitalists to induce them to apply their surplus capital in the development of the natural resources of the country, or that the National Development Co. should, as far as funds will permit, undertake the exploitation of our mineral wealth.

Marine products.—The waters of the southern islands abound in marine products. In them are found a great variety of edible fish, commercial sponges, pearls, pearl shells, trepangs, etc. In fact, fishing is the principal occupation of the people of the coast towns and districts and is the principal source of their income. As a concrete illustration, in the municipality of Cotabato alone the value of fish sold in the market during the year amounted to ₱30,940.81, and ₱20,544 in Agusan. In the Province of Zamboanga the value of marine products exported during the year amounted to ₱29,828. and Sitanki, Province of Sulu, has exported to Cotabato, Zamboanga, and Davao considerable quantity of dried salted fish.

The means so far employed in catching and preserving fish are very primitive, and this fact, coupled with the absence of organized capital, has retarded the growth of this industry.

The proper development and cultivation of sponge and pearl should be stimulated, and to this end private capitalists should be encouraged to invest their capital in the exploitation of this marine wealth.

Scientific survey should be made to determine the amount of marine wealth that the southern islands have. Legislation is likewise necessary for the proper protection of the marine resources of the islands.

Manufacture.—There are no manufactures of commercial importance in the nine special Provinces under this bureau. The native manufactures of commercial value consist chiefly of hat and mat making, basketry, and certain household furniture. In the Province of Bukidnon a factory of the National Starch Co. has been in operation since the early part of November, but the amount of starch manufactured was only enough for demonstration purposes. In Cotabato there are three sawmills in operation, and the Port Lebak Sawmill Co. alone has produced during the year 1,936,221 board feet of sawn lumber. In the Province of Davao weaving of cloth out of abaca by non-Christians constitutes a very important industry among those people. The manufacture of abaca-stripping machines is another industry of that Province which is gaining importance. Mr. B. A. Crumb, a local merchant and planter in that Province, has invented one small stripping machine and a considerable number is now being manufactured in his shop in the municipality of Davao for sale to the planters. In Lanao the only manufacturing establishment of importance is the sawmill of the Kolambugan Lumber Development Co., which is one of the largest of its kind in the Philippines. Mat making is another important industry in Lanao and the mats manufactured are more popular now than what they used to be in previous years.

Another industry of importance is brick-tile making, which has been established in the municipality of Zamboanga. It is capitalized by Filipino business men, and a tile factory has been established in the barrio of Santa Maria. Tile is being substituted for galvanized iron as roofing material. As the output of the tile factory is very limited, due to the small capital for its operation, there has been no export of this product to the neighboring Provinces. The production is sufficient only to meet local demands.

Industrial education in Mindanao and Sulu has also made rapid progress in the public schools. Pupils are taught in the various fields of industrial science. Lace and embroidery making are taught to the school girls, as well as the making of certain household furniture.

Personnel.—The Hon. Antonio de las Alas, undersecretary of the interior, was acting director of this bureau from November, 1920, until April 13, 1921, when Senator Teopisto Guingona was put in charge. Mr. Eutiquio Boyles, special agent of this bureau, was appointed assistant director thereof on February 12, 1921.

Mr. Escolastico Zapanta, special agent of the bureau of non-Christian tribes, and for some time acting provincial governor of Agusan, was transferred to Lanao as deputy provincial governor, and Mr. Emilio Pineda was appointed provincial governor of Agusan on March 14, 1921.

Gov. Manuel Fortich, of Bukidnon, resigned on February 20, 1921, and Mr. Silverio Batitang was appointed on February 21, 1921, to succeed him.

Governor Sales, of Davao, resigned on October 28, 1921. His successor having not been appointed during the year, the provincial secretary-treasurer, ipso facto, became the acting provincial governor.

Gov. P. D. Rogers, provincial governor of Sulu, resigned on April 1, 1921, and Mr. Carl M. Moore, department superintendent of schools for Mindanao-Sulu, was appointed acting provincial governor on July 14, 1921. Mr. Julius Schuck, third member of the provincial board of Sulu, was appointed member of the house of representatives, and Datu Tahil was appointed on January 12, 1921, to succeed Mr. Schuck as third member.

Mr. Braulio Roque, secretary-treasurer of the Mountain Province, was transferred to the bureau of audits, and Mr. Nicolas S. Vergara was appointed on January 17, 1921, to succeed him.

PHILIPPINE CONSTABULARY.

Organization.—On December 31, 1921, there were 372 officers and 5,670 enlisted men, as compared with 376 officers and 6,352 enlisted men in 1920. Of the officers, 361 are Filipinos and 15 are Americans. The chief of constabulary has 6 colonels and 5 lieutenant colonels to assist him.

Activities.—The provincial commanders report that peace and order reign throughout the islands despite the economic depression which was felt in all the Provinces during the year. Symptoms of restlessness have appeared, but they have been checked through the extensive patrolling and vigilance of the constabulary men. In the Provinces of Cagayan, Isabela, and Zambales small bands of wild negritos roam about the mountain interiors, indulging occasionally in the theft of cattle, but they have not been regarded as a serious menace to the security of the inhabitants of those Provinces. In Cavite the remnants of the band formerly led by Dionisio Viñas have been dispersed, and some of them are still hiding in Tayabas, Laguna, and Cavite. Although there have been 26 cases of murder and a number of robberies in Cotabato, peace and order in this Province have been undisturbed during the year. In Davao a small clan of Datu Cayanan has become rather wild, but they are not outlaws, and consequently are not considered dangerous.

A number of attacks upon the constabulary in Mindanao-Sulu was registered during the year, accounts of which are given in detail under the activities of the bureau of non-Christian tribes. These attacks on the constabulary authorities are not prompted by any political motives against the constituted government. They are rather the result of the ventures of turbulent and lawless men who instinctively believe that true valor lies in the ability to defy and disobey the constituted authorities of the land. As a matter of fact, a great bandit in Mindanao and Sulu is oftentimes accorded the courtesy and deference usually given a man of unusual courage.

Reports from Apayao, Benguet, Bontoc, Ifugao, and Kalinga are unanimous in describing peace conditions in these districts as exceptionally satisfactory. There has been no feudal activity and killings have been rather more frequent than in civilized areas. They have, as a rule, been due to motives of revenge or jealousy and not to any spirit of defiance against the government. A general improvement is noted in the relations between the rancherías of the non-Christians.

Services.—In addition to its regular duties of preventing and suppressing organized outlawry, investigating violent crimes, apprehending dangerous criminals, and inspecting municipal police, the constabulary has maintained a constant and extensive system of patrols throughout the islands. These patrols have been extended not only in the territories of settled civilization but also to regions almost unexplored. Among the backward tribes of the islands, the counsel and mediation of constabulary officers have been oftentimes sought in the settlement of tribal differences and family disputes. In many towns and villages of the Mountain Province the rudiments of hygiene and sanitation have been taught to the people.

Police duties.—Upon request of the respective provincial governors, the constabulary temporarily took over the police duties in the municipalities of Taal, Batangas (May), Ragay, Camarines Sur (January-May), Subic, Zambales, and Moron, Bataan (October). Outside the City of Manila, Baguio and Zamboanga, practically all grave crimes were, as usual, handled by the constabulary during the year. Escorts, guides, and various other kinds of service were rendered the Wood-Forbes mission. Both General Wood and Governor Forbes commended the Philippine Constabulary for its very useful and efficient service to the Philippine government.

Quarantine.—From June until the end of the year, extensive quarantine operations were maintained in Masbate to combat the rinderpest in that Province. Detachments were drawn from duty from a number of Provinces. In two months the situation was mastered and further spread of the disease was checked. Quarantine services were also rendered in the Province of Iloilo and Antique. Experience in this work indicates that rinderpest may be effectively checked and stamped out if the proper remedy is applied in time. Central control under experienced veterinarians and an adequate quarantine force, fully officered and properly equipped for field service, would prove very efficient to meet any emergency of this nature. The fol-

lowing table shows the kind and nature of services rendered by the constabulary to other bureaus and offices of the government:

Work for other bureaus.

Bureaus.	Days.	Nature of service.
Agriculture.....	152,892	Quarantine.
Health.....	15,855	Do.
Public Works.....	5,221	Escort to district engineers and guard.
Education.....	4,527	Enforce school attendance and escort.
Metropolitan water district.....	4,345	Guard.
Justice.....	4,268	Serving subpoenas and escort.
Manila Railroad Co.....	3,257	Guard.
Internal revenue.....	2,709	Escort to cedula collectors.
Prison.....	2,512	Guard.
Non-Christian tribes.....	6,183	Guard in Talim Island and Bosoboso Reservation.
Supply.....	1,164	Guard.
Lands.....	774	Escorting surveyors.
Treasury.....	247	Escorting treasurers and deputies.
Customs.....	276	Guarding customs harbor.
Escort.....	245	Provincial and municipal officials.
Posts.....	149	Investigating the cause of irregularities of telegraph lines.
Executive.....	147	Escort of provincial governors.
Secretary of the interior.....	50	Escort.
Forestry.....	15	Escort to forest agents.
Science.....	3	Escort to chemists.
Philippine National Bank.....	4	Escort.

Money accrued.....	₱174,700.33
Number of patrols.....	19,039
Kilometers covered.....	897,674

Opium.—Under the law, the Philippine Constabulary is specially charged with the enforcement of the opium law. During the year the constabulary made 221 opium raids, caught 325 persons in these raids, and seized opium worth ₱18,089.05.

Gambling.—The constabulary made 379 gambling raids and caught during the raids 3,362 persons and confiscated ₱17,422.93.

Firearm licenses.—On December 31, 1921, it appears that the chief of constabulary has issued licenses for 940 rifles, 5,117 revolvers, and 15,264 shotguns, as compared with 901 rifles, 4,238 revolvers, and 13,769 shotguns for the year 1920. At the end of the year the Provinces owned 87 rifles, 966 revolvers, and 465 shotguns, as compared with 110 shotguns, 809 revolvers, and 469 rifles in 1920.

Municipal police.—At the end of the year there were in all 9,365 municipal police holding 4,227 revolvers, 60 shotguns, and 19 carbines. Provincial commanders are unanimous in their statements that the municipal police throughout the islands are of poor type and render very inefficient service. As a whole they are underpaid, inadequately uniformed and equipped, and their moral and physical training is below the standard. They have had little or no training in the prevention of crimes and much less in the investigation and apprehension of criminals. Little improvement can be looked to until a higher rate of pay is provided for to induce men of quality and character to enter the service.

PHILIPPINE GENERAL HOSPITAL.

General statement.—According to present arrangements, the dean of the college of medicine and surgery is also the director of the Philippine General Hospital, receiving as such director an additional compensation of ₱2,400 per annum from the appropriations of the hospital. The director of the hospital, as such, is responsible directly to the secretary of the interior for the proper administration of the institution, but as dean of the college of medicine and surgery he is responsible to the board of regents of the University of the Philippines. The activities of the hospital are not confined to the treatment of patients alone. It trains medical students and nurses, and for the training of the latter the hospital has established the training school for nurses, which turns out a considerable number of graduates every year.

The Southern Islands Hospital, located at Cebu, is also under the supervision and control of the Philippine General Hospital.

Accomplishments.—During the year 71,687 patients were treated in the different departments of the hospital, which is 11,603 more than in 1920. They are classified as follows:

	1921	1920		1921	1920
Treated in the wards.....	9,489	9,658	Out-obstetrical service.....	2,813	278
Free dispensary.....	45,948	41,929	Physical therapy department.....	3,680	759
Emergency division.....	3,104	3,940			
Pay clinics.....	2,081	659	Total patients treated.....	71,697	60,084
Social service.....	3,572	3,861			

Of the 9,489 patients treated in the wards of the hospital, 9,135 were discharged, 28 transferred to other hospitals, 601 died, and 354 still remained in the hospital on January 1, 1922. The number of births was 1,283 in the hospital as against 1,137 in 1920. As in the previous year, the mortality was 6.33 per cent of the cases treated as against 6.38 per cent in 1919. The largest number of patients in the hospital on any one day was 429, on October 8, 1921.

In the free dispensary, 45,948 patients were registered and 125,762 visits were made, as against 41,929 patients and 112,601 visits in 1920.

In the emergency division, 2,738 patients were treated and discharged, as against 2,940 in 1920. This number does not include the patients who were admitted to the hospital after treatment. In the pay clinics, 459 patients with 2,081 visits were attended, as against 657 patients with 2,645 visits in 1920, showing a decrease of 108 patients and 564 visits.

The social-service section attended 3,572 persons and made 2,118 visits to the homes of the poor. Last year there were 3,851 patients attended to in this service.

In the receiving division, 2,727 patients were refused admission due to lack of beds as against 717 in 1920, showing the considerable increase of 2,010.

The following list and table represent the summary of work accomplished in the indoor and outdoor service of the hospital:

Patients:

Remaining Jan. 1, 1921.....	336
Admitted during the year.....	9,153
Total treated.....	9,489
Discharged during the year.....	9,135
Remaining Jan. 1, 1922.....	354
Births during the year.....	1,282
Deaths during the year.....	601
Total days of hospital treatment.....	142,381
Average number of patients in hospital daily.....	390
Total of hospital days of discharged patients.....	130,394
Average number of days each patient stayed in hospital.....	14
Average number of days each free patient stayed in hospital.....	16
Average number of days each pay patient stayed in hospital.....	19
Largest number of patients in hospital on any day of the year (Oct. 8, 1921).....	429

School of nursing.—At the end of the year, there were 386 graduate and pupil nurses, including the superintendent and other officers of the school of nursing. There were 302 students of nursing classified as follows:

Senior students.....	126
Intermediate students.....	95
First-year students.....	81
Total.....	302

Organization.—The curriculum of the school was revised by the faculty of the school. The aim of the revised curriculum is to make even as much as possible the theoretical and practical work. In the senior year, the theoretical

or classroom work is lessened, transferring much of the theory to the first and intermediate years. The purpose of this is to give the senior students more time for practical work and to train them as head nurses of the departments. It gives them opportunity to work in the departments where they desire to specialize.

The revised curriculum of the school is as follows:

FIRST YEAR.

First semester:	Hours.	Second semester:	Hours.
1. Nursing	85	1. Anatomy	34
2. Bacteriology	17	2. Physiology	34
3. Anatomy	17	3. Dietetics	34
4. Physiology	17	4. Bandaging	8
5. Housekeeping	8	5. General hygiene	17
6. Dietetics	17	6. History of nursing	9
7. Practical etiquette	12	7. English	17
8. Hygiene	17	8. Spanish	51
9. English	17	9. Bacteriology	17
10. Pharmacy	34		

SECOND YEAR.

First semester:	Hours.	Second semester:	Hours.
1. Applied chemistry	34	1. Gynecology and nursing	12
2. Nursing common diseases	17	2. Gynecology, urinary	8
3. Obstetrics	17	3. Medicine	17
4. Medicine	17	4. Massage	17
5. Surgery	17	5. Obstetrics	17
6. Dietetics	17	6. Materia medica	17
7. Spanish	51	7. English	17
8. English	17	8. Operating-room technique	17
9. Materia medica	17	9. Dietetics	17
		10. Child welfare and infant feeding	34

THIRD YEAR.

First semester:	Hours.	Second semester:	Hours.
1. Social service	9	1. Eye, ear, nose, and throat	17
2. Public health	8	2. Emergency surgery	17
3. Pediatrics	17	3. Nursing ethics	17
4. Eye, ear, nose, and throat	9	4. English	17
5. English	17	5. Obstetrics	17
6. Dermatology and syphilology	17	6. Anesthesia	8
7. Nervous diseases	17	7. General nursing	17
8. Obstetrics	17	8. Private nursing	10
9. Pathology	17	9. Elective subjects:	
		Obstetrics	10
		Dispensary nursing	10

Finance.—The total appropriation for the Philippine General Hospital for the year 1921 was ₱978,565. To this was added ₱24,000, which the city of Manila contributed to defray the expenses of sick persons from the city of Manila who apply for treatment in the hospital. The emergency board granted an additional amount of ₱71,768 to cover the deficits on items for subsistence of student nurses, miscellaneous service, rental of buildings and grounds, etc. However, in pursuance of the retrenchment policy of the government, the emergency board reduced the appropriation of the hospital so that there were only ₱1,071,989 available for its expenditures during the year.

The operating expenses for the year 1921 amounted to ₱922,287.14, as compared with ₱859,109.05 in 1920. The average daily gross cost for operating the hospital in 1921 was ₱2,526.84, and the average daily cost of each patient was ₱6.48 as compared with ₱6.07 in 1920.

The income of the hospital amounted to ₱181,745.39, as against ₱189,461.55 in 1920, thus showing a decrease of ₱7,716.65. Owing to the financial crisis

patients were obliged to apply for free accommodations in the charity section of the hospital, thereby increasing the number of charity and decreasing that of the pay patients.

Southern Island Hospital—Accomplishments.—The total number of patients admitted during the year was 1,766, as compared with 1,437 in 1920, an increase of 329, or about 23 per cent increase. At the same time there were 81 patients who were refused admission, due to lack of beds. Extra beds were put in to accommodate all those seeking and needing immediate hospital care, but even then the hospital was forced to refuse the above number. A part of the veranda was converted into private rooms by putting screens all around to accommodate persons willing to pay and needing immediate attention.

The total number of operations performed during the year was 908, as compared with 794 in 1920, an increase of more than 14 per cent. Of this number 117 were major operations, 791 minor, and 505 emergency cases. Laboratory examinations made during the year were 3,958, as compared with 1,484 in 1920, an increase of more than 232 per cent. The total number of dispensary cases was 33,965, which shows an increase of 1,084 over that of last year.

General statistics—Hospital cases.

Total number of admissions during the year	1,766
Total number of discharges during the year	1,598
Total number of deaths during the year	153
Total number of escapes during the year	4
Total number of births during the year	64
Daily average of patients attended during the year	63

SCHOOL OF NURSING.

There are at present 12 graduate nurses employed in the Southern Island Hospital, including the chief nurse and the dietitian. There were 17 intermediate and 20 junior students, or a total of 37 student nurses. The graduate nurses are assigned as follows: One in the operating department, 1 in the dispensary, 1 in the dormitory, 2 in the kitchen, and 6 in the wards. In each of the female wards of 10 to 15 patients there are 3 student nurses on duty in the morning, 1 in the afternoon, and 2 at night. In 44 male wards there are 4 students on duty in the morning, 3 in the afternoon, and 2 at night.

METROPOLITAN WATER DISTRICT.

Organization.—The corporate powers of the metropolitan water district are vested in the district board, which according to law consists of the mayor of the city of Manila as president, and as members the president of the municipal board, the provincial governor of Rizal, the director of public works, and three private citizens appointed by the Governor General, who are at present Messrs. Horace B. Pond, Felipe Buencamino, jr., and Vicente P. Genato. The affairs and current business of the district are conducted by a staff of executive officers consisting of Abraham Gideon, manager; Federico J. Muñoz, assistant manager; and Jose F. Ramos, secretary-treasurer. The manager and the assistant manager are appointed by the Governor General subject to confirmation by the senate. For administrative purposes, the district is at present divided into three departments:

1. The production department, under the direct charge of the manager, consists of the following divisions: (a) Waterworks, (b) sewers, (c) shops, (d) transportation.

2. The engineering department, under the assistant manager, consists of the following divisions: (a) Surveys, (b) designing and estimates, (c) construction.

3. The department of finance and administration, under the charge of the secretary-treasurer, consists of the following divisions: (a) Accounts, (b) administration, correspondence, and property, (c) collection and disbursements, (d) meter inspection.

Accomplishments.—During the year the district board held seven regular and one special meeting, approved 47 resolutions, and passed upon and disposed of about 85 miscellaneous administrative matters. The board, responding to the constant demand for water supply, approved 16 projects submitted by the manager. One of these projects is for the purpose of investigating and improving the Montalban Dam with a view to increasing its storage capacity. Fifteen

projects provided for the extension of about 6,000 meters of water mains and of over 1,000 meters of sanitary sewers in the improved districts of the city of Manila. This extension cost the district ₱102,830. Practically the whole town of Caloocan and most of the improved and thickly populated places of Pasay are now provided with water service, not only for domestic but also for sprinkling and fire-protection purposes.

Water services and meters.—The total number of services during the year was 12,513, as against 11,195 in 1920, or an increase of 1,380 during the year. This number constitutes so far the largest annual increase ever had in the water supply and is about three times as large as the average annual increase before the organization of the metropolitan water district.

Public hydrants.—During the year there were 350 public hydrants within the city limits, 15 in Caloocan, and none in Pasay. The construction of public hydrants has been restricted, and this materially increased the water installations in private houses and vastly improved the sanitary condition of the people. The 345 public hydrants now installed give a probable annual revenue of about ₱40,000, whereas if no public hydrants were installed it is estimated that about 13,000 additional private services could be installed, from which it is estimated that an annual income of ₱150,000 would be derived. This also would mean an economy of about ₱150,000 per annum to the people who get water from the public hydrants. The above estimates are based on the following assumption:

Number of hydrants, 345.

Two carriers from each hydrant or 690 carriers in all.

Average daily earning of each carrier, ₱1.20 per day.

Total earnings of carriers per annum is $365 \text{ (days)} \times 690 \text{ (carriers)} \times ₱1.20 \text{ (per day)} = ₱302,220 \text{ per annum.}$

Each carrier consumes 15 minutes per cargo and works 10 hours per day, or a total of 40 loads.

Total water carried per day is $690 \text{ (carriers)} \times 40 \text{ (loads)} = 27,600 \text{ loads, or } 276,000 \text{ gallons of water per day.}$

Average charge per cargo or load of 2 cans or 10 gallons, 3 centavos.

Total paid by the public to carriers or $27,600 \text{ (cargoes per day)} \times 3 \text{ (centavos)} \times 365 \text{ (days)} = ₱302,220 \text{ per annum.}$

Average consumption per family of six people when buying water from carriers, 2 cargoes or 20 gallons per day, for which they pay 6 centavos per day or ₱1.80 per month or ₱21 per annum.

Number supplied by carriers, 13,800 families, 20 gallons, or 276,000 gallons.

Minimum charge per service by the metropolitan water district for 15 cubic meters or very nearly 4,000 gallons per month, or 132 gallons per day, is 75 centavos per month or ₱9 per annum.

Total charge by the district if 13,800 families had house services is $13,800 \times 9 \text{ (pesos)} = ₱124,000 \text{ per annum.}$

The deduction from the above is that the people pay for the so-called free water over ₱300,000 per annum for water, and for a payment by them of ₱125,000 per annum direct to the district they could save ₱175,000 per annum and have six and a half times as much water. Besides, it would release 7,000 carriers for more useful work to the community.

Capacity.—The capacity of the district's system during the year was 21,500,000 gallons per day, 500,000 gallons less than in 1920. The average daily consumption was 20,900,000 gallons.

The average consumption per capita for a population of 300,000 people is 253 liters or 65.7 gallons per day, while the maximum consumption per capita is 327 liters or 86.3 gallons per day. The total amount of water consumed and distributed during the year was 27,398,554 cubic meters. Of this 10,147,981 cubic meters is waste water, which includes leakage from pipe lines, from service pipes in front of meters, from fire hydrants, water used for fire purposes under registration of meters, sprinkling public lawns, flushing streets, gutters, storm drains, sanitary sewers, and such other water used that can not be conveniently measured or estimated.

Sewerage system.—The sewer system functioned satisfactorily during the year and no trouble was experienced. There were on December 31, 1921, 1,891 sewerage connections with the general sewerage system, which represents an increase of 224 services for the year. The installations of the services cost the district ₱16,411.78, while the charge for the same amounted to ₱17,803.80, representing a gain of ₱1,392.02.

New construction.—A new 12-inch cast-iron water main was built across the Jones Bridge, thus reinforcing the south side water service. The Prim

Bridge pipe line was shifted to its new and permanent location. There were altogether 5,685 lineal meters of pipe built at a cost of ₱72,497.28. About 1,176.8 lineal meters of 8-inch sanitary sewers were built during the year at a cost of ₱15,547.23. The Santolan pumping station and the wall at the Mariquina River were repaired during the year, for which ₱27,022.78 were expended.

Finance.—The total gross receipts for 1921 amounted to ₱1,343,250.38, while the gross disbursements were ₱1,142,158.23, which means a net surplus of ₱201,092.15 for the year. The following table shows the income and expenditures of the metropolitan water district:

Year.	Income.	Expenditures.	Deficit.	Surplus.
1917.....	₱601,714.05	₱854,638.45	₱252,924.40	.....
1918.....	645,866.49	884,278.89	238,412.40	.....
1919 ¹	411,026.58	541,952.50	130,895.92	.....
1920 ²	1,172,289.17	355,711.31	.....	₱316,577.86
1921 ²	1,261,753.57	931,770.97	.....	329,981.60
1920 ³	1,263,614.91	1,000,703.23	.....	262,221.18
1921 ³	1,343,250.38	1,109,661.28	.....	333,589.10
1921 ⁴	1,343,250.38	1,142,158.23	.....	201,092.15

¹ Second half of year of 1919.

² Exclusive of reimbursable funds.

³ Includes reimbursable funds.

⁴ Includes ₱132,496.95 expenditures for the capital fund.

Bond issue funds.—There were available on January 1, 1921, ₱150,025.21 of the funds from bond issue of which ₱74,972.08 were expended during the year on new constructions, leaving a balance of ₱75,053.13. The above expenditure is, of course, not included in the expenditures shown elsewhere as it is an expenditure for capital account and is taken up as an increase of the value of the plant. It is believed that the balance of the bond issue funds will be expended during 1922 and thereafter all new construction will have to be provided for from the regular funds.

Interest on bond issue.—The district pays an annual interest of ₱420,000 on the total debt of ₱8,000,000 secured through the issue of bonds.

Sinking funds.—The sinking funds to pay the debt on account of the bond issue have not been promptly invested as they should have been. At one time during the year, there were available in the hands of the insular treasurer over ₱800,000 of sinking fund money which were lying idle in the insular treasury producing no interest to the sinking fund. The insular treasurer was requested to deposit the sinking funds in a bank where they would draw an income of about ₱40,000 interest per annum. At the end of 1921 there was a total of about ₱3,000,000 sinking funds. At the beginning of 1922 there would be available about ₱300,000, which should be deposited in a bank on interest pending permanent investments.

OFFICE OF PUBLIC WELFARE COMMISSIONER.

Organization and personnel.—Act No. 2988, enacted on February 24, 1921, created the office of the public welfare commissioner. In this new office were merged the former public welfare board and the bureau of dependent children. Its operation began on May 1, 1921.

It is the policy and purpose of this office (1) to train the people for community work, and to impart to them such scientific knowledge as may be necessary for the proper operation of puericulture centers and maternity houses, and for the care of the dependent, defective, and delinquent class, as well as for the protection of mothers and children; (2) to acquaint the people interested or actively engaged in child and general welfare work with the proper method of organization and operation of institutions for said purposes; (3) to keep under supervision and advice puericulture centers or any other organization for community service, once they are established; (4) to coordinate child welfare movements undertaken by constituted organizations, like the Philippine Health Service, Philippines Chapter of the American Red Cross, Federation of Women's Clubs, hospitals and dispensaries, Liga Nacional para la Proteccion de la Primera Infancia, Gota de Leche, etc.; and (5) to undertake surveys, investigations, and researches on any of the phases of public welfare activities, particularly on maternity and child welfare.

The office has four divisions, namely: The maternity and child welfare division; the division of dependent children; the general welfare division, and the administration division. On December 31, 1921, there were 116 employees on the roll of this office.

Campaign against infant mortality, and child welfare centers.—In Manila a maternity house was maintained during the year which had a capacity of 16 maternity beds and a pediatric ward of 10 beds. Besides accomplishing its main function, it is also the training place of physicians and nurses who are expected to become leaders in child welfare work. During the year 285 pregnant women were admitted, 212 of whom were delivered in the institution and the rest left before delivery. In the pediatric ward 128 children were admitted, 68 of whom were cured and discharged, 9 died, 43 improved, 2 transferred to other hospitals, and 6 left against advice. Five child-welfare centers were operated at the beginning of the year, which were later reduced to four. In these centers consultation services for pregnant mothers, babies, and older children were conducted. In the four centers 2,917 children and 400 mothers were admitted. Mothers and children were also visited in their own houses by the nurses. During these visits 1,475 children and 116 mothers were attended to in their own houses by the nurses of this office.

A demonstration work is being conducted in the whole Province of Bataan. As a result of the preliminary survey undertaken, 11,924 children, representing one-fifth of the population of this Province, have been examined.

In this demonstration temporary welfare associations which lent aid to this work were advised to establish themselves on a permanent basis and by the end of the year almost every town in that Province had a permanent puericulture center organized or was taking steps to organize permanent ones.

Puericulture centers.—Physicians and nurses were sent to puericulture centers in the Provinces receiving aid from the government for the purpose of reorganizing and making them conform with the new standard adopted by this office, which included amendment of by-laws, adoption of new records, and instruction of the technical personnel in charge. Other centers were organized in places where the people were desirous to establish and to support them financially or otherwise. To arouse public interest in the organization of these centers, literature on the subject was distributed and public conferences and interviews with provincial and municipal officials and private citizens were held. The result is a decided success in that from May 1 to the end of the year 56 centers were organized, as compared with 46 in the previous years.

In the work of reorganization of puericulture centers this office has directed special attention to two Provinces, Tayabas and Cebu. It is because the former had the biggest number of puericulture centers established prior to the enactment of act No. 2988, and the latter has six big towns of over 30,000 inhabitants each. In the establishment of puericulture centers preference is given to big centers of population so as to be able to reach and benefit as many people as possible.

Baby contest.—Baby contests have been indulged in as this is one of the strong mediums by which the people can be made to take interest in child-welfare work. Those who participate in the contests are encouraged and furnished technical and material help as regards the care of babies. A pamphlet on how to conduct baby contests properly was published and distributed extensively. The score cards which were adopted by the former public welfare board were found to be complicated for common use, so a simple one was devised, copies of which were furnished freely to those who asked for them.

Standardization and research.—The section of standardization and research is under the charge of a medical officer and other officers assigned thereto from time to time. Its main functions are to make uniform system and method in conducting centers; to furnish the centers with suitable tables of weights and measures; to supervise the recording and keeping up of charts; to conduct experiments for the determination of the right and proper diet for the average Filipino family and for children at various ages; and to do such other things as are essential in the pursuit of well-directed work in maternity and child welfare. During the year this section has accomplished and issued a table chart showing the provisional standard of weights, heights, hours of sleep, and mealtime for a Filipino child in order to help the physicians in conducting consultations and in comparing actual measurements with the normal standard. This section is still at work, gathering necessary data in order to issue in the near future a permanent standard of weights and heights of Filipino children. A

dietetic chart was worked out also, giving the required quantities of various common foods available in the Philippine market, their estimated cost (in Manila) and caloric values. It is accompanied with simple rules of how to make combinations in order to prepare a properly balanced diet for an average Filipino family of six, including a breast-fed infant. The section is also carrying on experiment work on food requirements of Filipino children in the government orphanage, with a view to applying the result obtained therefrom to school children or other children of different environments and conditions. These requirements will be prescribed as standards for the use of child welfare workers and mothers.

Administration, supervision, and control of child-caring institutions.—During the year 114 cases were investigated in response to applications made for admission to the government orphanage, 56 of whom were admitted and the rest rejected. Worthy cases who could not be admitted at once, due to lack of rooms, were put on a waiting list, but all emergency cases were admitted without loss of time.

On account of the precautions taken, the health of the children in the orphanage in Makati and in the Boys' Home at Agno, Manila, was successfully safe-guarded. In fact no epidemic of any kind has ever invaded these institutions. Were it not for the admission of infants in the orphanage there would not have been any record of death. In fact, only one death occurred during the year in this institution and this shows the efficiency with which the activities pertaining to the care and sanitation of the institution have been handled.

At the close of the year 1920–21 there were nine boys living in the Boys' Home at Agno who had finished the sixth grade in the city public schools. All of them, except one, were discharged. Of those discharged, four were taken by their mothers and others were employed.

Through judicious selection of suitable foster homes, seven orphans were placed with private families who promised to treat them as members of their household. They were placed on a guardianship basis. These orphans are supervised from time to time by the office and the fact that they continue to stay with the families that adopted them without protest is positive proof of the good treatment accorded them.

Various organizations.—The public welfare commissioner supervised during the year the following private organizations:

1. *Philippine Islands Antituberculosis Society.*—This society was organized for the purpose of combating tuberculosis by means of education, dispensary work, and isolation through the establishment of colonies.

The antituberculosis bulletin, formerly a quarterly publication, was entirely discontinued and in its place a series of practical talks on the causes, ravages, and means of prevention of tuberculosis was published every week, both in Spanish and Tagalog, in the local newspapers, *La Vanguardia* and *Taliba*. Besides these practical talks there were printed and distributed about 5,000 pamphlets and folders with the following titles: "Facts You Should Know," "The Fight Against Tuberculosis," etc. The pamphlets and folders were all translated in Spanish and some into Tagalog. About 365 questionnaires on the tuberculosis problem were sent to officials of the Philippine Health Service, to private physicians, and to a goodly number of prominent citizens. The work of the physicians pertaining to the section was carried on mostly in the field. These physicians have given a number of public lectures and conferences in seven municipalities, made quite a number of visits, and advised tuberculous families in 39 barrios all over the Province of Bataan.

At the beginning of the year there were three free dispensaries in Manila and eight in the Provinces operated by the society, but since the adoption of the new plan aiming to intensify the preventive work on tuberculosis through public-health education, these dispensaries were successively closed and in the month of October only one consultation office remained open in Manila. In round figures, the work of the dispensaries may be summarized as follows:

Individual patients attended.....	1,985
Visits made.....	9,330
Prescriptions given with medicines.....	27,886
Injections given.....	3,064

The colonies operated by the Philippine Islands Antituberculosis Society continued their activities as in 1920. No new building was erected during the year. The only change reported was the addition of one physician to the technical

staff of the institution. During the year 382 patients were admitted, and the total expenditure of the society was ₱139,265.37. To this the insular government contributed ₱60,000 through the office of the public welfare commissioner.

2. *Lucena Hospital*.—This private institution continued its activities as in 1920. The summary of services rendered by the hospital during 1921 is as follows:

Total number of—

Individual patients stayed in hospital.....	448
Out patients attendance.....	15,244
Prescriptions.....	9,323
Dressing and minor operations.....	5,186

The total expenditure of this hospital for the year was ₱9,449.74. To this the insular government contributed ₱6,000.

3. *Women's clubs*.—The provincial club extension office of the Women's Club of Manila during this year devoted most of its time to organizing new clubs and reorganizing those that were inactive. The executive secretary, Miss Trinidad Fernandez, is an employee of the office of the public welfare commissioner assigned to the club. Five provincial trips were made this year for the purpose of organizing new clubs and inspecting those that were already organized. Thirty-six new clubs were organized in different parts of the islands, bringing up the total number of active clubs, after eliminating those that existed only in name, to 342. Through the provincial club extension office the financial help given by the office of the public welfare commissioner and the opportunity offered by the infant mortality convention, the different women's clubs in the islands were able to hold a convention in Manila last December. The outcome of this convention was the transfer of the supervision of provincial clubs from the extension office of the Manila Women's Club to the National Federation of Women's Clubs of the Philippines. The federation and the provincial club extension office are connected and correlated through one secretary, who performs the work of both. These organizations were responsible for the success of the first celebration of Mother's Day in the islands, which took place December 5, 1921. The federation and the provincial club extension office took up also the matter of intensive publicity for the clubs in the islands during this year.

The expenses of operation of the office as well as the expenses incurred for the annual convention were all borne by the government through the office of the public welfare commissioner, which spent ₱5,038.54, ₱1,891.07 of which came from the general appropriation and the balance from other sources.

4. *Associated charities*.—This is a charity organization which received not only the services of Mrs. Josefa Jara Martinez of this office, who is the executive secretary, but also financial help of the government through the office of the public welfare commissioner. The main work undertaken by the social agent of this office consisted not only in continuing the relief work maintained by the association but also in trying to put its activities on a most scientific and effective basis.

According to the report presented by the secretary, the associated charities spent during the year ₱7,114.77. The insular government, through the office of the public welfare commissioner, contributed ₱250 for office rent, supplies, janitor services, besides the help of one of its social workers.

5. *The Balik-Balik Welfare Association*.—Besides the four institutions described above, some time in October a public welfare movement was started in the barrio of Balik-Balik, Manila, which resulted in the organization of what is now called Balik-Balik Welfare Association. To Mr. Irving Hart, a resident of that barrio, credit is due for this movement. The Balik-Balik Welfare Association has the privilege of being the first society of this kind organized in the city of Manila, if not in the whole Philippines, and undoubtedly, it will be one of the important factors in improving the living conditions of the people.

Gota de Leche.—This child caring institution furnishes fresh cow's milk, scientifically prepared, to children requiring this kind of feeding. It also holds consultations for mothers on the proper care of babies. During the year, a total of 303 babies were fed or otherwise attended to at this institution.

To have an adequate and proper supply of milk, it maintains a dairy farm at Pasay. For the proper preparation and preservation of milk, the society is equipped with scientific apparatus and implements.

Its fund is raised from membership fees, private donations and government contribution. During the year 1921, it spent ₱38,899.68. Of this, the insular government contributed ₱18,000.

Liga Nacional Para la Proteccion de la Primera Infancia.—This institution gives prenatal and postnatal instruction to mothers and treats babies in its dispensaries. During the year 1921, it spent ₱9,704.24, ₱7,000 of which was given as aid by the insular government through the public welfare commissioner.

The first national conference on infant mortality and public welfare.—About the latter part of October, the Governor General requested that a conference on infant mortality and public welfare be held in the city of Manila. The preparation and arrangements of the conference were intrusted to this office, by order of the secretary of the interior. Preliminary arrangements were therefore undertaken and announcement was made in the local papers. The time set for the conference was from December 6 to 10, 1921. Invitations were extended to 389 women's clubs, 77 puericulture centers, 48 provincial boards, 1,000 physicians, 400 nurses, 32 private social relief and charitable organizations and 250 private persons who were most likely to be interested in public welfare.

The secretary of the interior and the chief of the executive bureau were requested to send personal letters to provincial boards and provincial governors, urging them to send representatives to the conference.

The program was prepared according to the following considerations:

(a) The conference was intended to disseminate popular knowledge on how to combat infant mortality. Therefore the papers read were written in simple language without using technical terms.

(b) The majority of the members of the conference were representatives of women's clubs and the program was prepared so as to obtain suitable materials at their disposal which could be used as texts for public welfare workers.

(c) Exhibits were shown to emphasize practical demonstration work on infant mortality and public welfare. These were supplemented by visits in the afternoons to welfare institutions. In the program provision was made for the proper participation of high officials of the government and the church, and of the Philippine health service, the National Federation of Women's Clubs, the Red Cross chapter, the office of the public welfare commissioner and other social service organizations.

Through the kindness of Mr. Hashim, the conference was held at the opera house. The housing of the lady delegates and members was made possible through the generosity of the director of the Centro Escolar de Señoritas, Miss Avelino. In both instances, no expense was incurred by the government.

Judging from the attendance which was composed of people from the different parts of the Philippines, it may be safely stated that the conference was a great success. Forty-five Provinces, including Manila, were represented. The total number of the registered attendance was 1,280.

The interest manifested by the delegates in discussing local and general problems relating to the object of the conference was admirable. Suggestions and resolutions were presented, which were handled by a committee of five members appointed at the conference, which was to report to this office on the important points that required attention.

The papers read at the conference, together with the discussions pertinent thereto, are being compiled for publication. It is hoped that the proceedings of the conference when finally published may be used as a guide or reference for social workers and for those interested in welfare work.

The conference was but a preliminary step to the campaign against infant mortality. It aroused public consciousness to needed improvements in social and sanitary activities, and particularly to the great problem of high infant mortality in the Philippine Islands. It is hoped that the conference has paved the way to the solution of this mighty problem of the Filipino people.

BOARD OF PHARMACEUTICAL EXAMINERS AND INSPECTORS.

During the year 1921, 103 candidates for the practice of pharmacy in the Philippine Islands were examined, of whom 73 passed and 30 failed. There were also registered 275 apprentices in pharmacy and 46 pharmacy clerks. At the end of the year, therefore, there were 857 registered pharmacists, 164 apprentices in pharmacy, and 1,095 pharmacy clerks, as compared with 788 pharmacists and 1,051 pharmacy clerks in 1920. There were also at the end of the year 107 Chinese druggists and 62 Chinese drug clerks. Thirty-five new pharmacies and drug stores were opened by authority of the board, so that at the

end of the year there were 656 pharmacies and drug stores, 39 commercial firms importing drugs and medicines, 259 stores handling household remedies, and 100 Chinese drug stores.

As usual, the inspections of pharmacies were conducted and 377 pharmacies and drug stores were inspected in the different parts of the islands. Due to the frequent inspection "nominal regency" has been almost suppressed. Several administrative investigations were conducted by this board, resulting in the suspension from the practice of the pharmaceutical profession of one registered pharmacist and the closing of three pharmacies.

Pharmacy practice of students.—The regulations of this board provide that every student in pharmacy must practice at least 12 hours a week in a duly established pharmacy where drugs, medicines, and poisons are sold at retail and medical prescriptions are compounded. Judging from the results of the recent examination, those who devoted more time to the drug store practice obtained better grades than those who did not. This requirement insures the turning out of better qualified pharmacists. Time-record cards are given to apprentices in pharmacy wherein they record the number of hours they worked in a recognized drug store.

Drug inspection and advertisements.—According to the provisions of Act No. 2762, the board of pharmaceutical examiners and inspectors is also a board of drugs which pass upon questions arising in connection with the pure food and drugs act and regulations promulgated thereunder. This board of drugs holds monthly meetings in the office of the secretary-treasurer of the board of pharmaceutical examiners and inspectors for the purpose of examining imported and domestic drugs and medicines and their advertisements. About 341 samples of drugs and medicines, specifics, and other remedies were collected and submitted to the bureau of science for analysis; 253 samples were approved and 31 samples rejected. Twenty-seven of these samples were found misbranded and the labels of 30 of them were corrected. Twenty-five newspaper advertisements of patented medicines were submitted, of which 15 were approved and 10 rejected. A survey was made of all quinine and aspirin and they were found free from injurious substances. The other matters taken up by the board during the year were those which require that labels be made in English, that the manufacturers' and dealers' names be properly placed to locate responsibility for the accuracy of the drug; that capsules of quinine and aspirin should conform with the stated quantity; and that labels should not contain exaggerated statements. The chief of the drug and pharmacy division of this board was authorized to visit from time to time the appraiser division of the bureau of customs and inspect the drugs and medicines coming from abroad, in order to protect the public against the importation of misbranded and fraudulent drugs and medicines, the number of which is constantly increasing.

Finance.—The total appropriation for this board was ₱26,075. About the middle of the year this amount was reduced by the emergency board on account of the retrenchment policy adopted by the government. The revenues of the board during the year coming from the examination fees of candidates for registration as pharmacists, registration fees for pharmacy clerks, apprentices in pharmacy, Chinese drug clerks, Chinese druggists, and sellers of household remedies; from sales of daily time record cards for students in pharmacy, and from subleasing part of the building occupied by the board, amounted to ₱5,789.22.

BOARD OF EXAMINERS FOR NURSES.

Mrs. Belen del Rosario, whose term of office as member of this board expired on March 16, 1921, was succeeded by Mrs. F. C. Cepeda, so that the board during the year was constituted as follows: Dr. Juan B. Cabarrus, president; Mrs. Francisca C. Cepeda, member; Miss Anastacia Giron, secretary-treasurer.

Pursuant to the provisions of section 14 of the nursing law, Act No. 2808, the board held two examinations for the registration of nurses. Of the 100 candidates who took the examination in June and December, 90 passed successfully. At the end of the year, the nurses registered, including those who were exempt under the law from examination, numbered 135. At the end of the year, therefore, there was a total of 886 registered nurses in the Philippine Islands.

Activities.—During the year the board conducted investigations of the different training schools for nurses and inspected the conditions of the Mary J. Johnston Hospital, St. Paul's Hospital, St. Luke's Hospital, San Juan de Dios

Hospital, and the Philipp'ne Institute Training School for Nurses. As a result the training schools of the above-mentioned hospitals were recognized by the government, together with two other schools for nurses in the southern islands.

Complaints.—A number of complaints were filed against the board relative to the long delay in granting certificates of registration to the nurses. One of these complaints came from the American Nurses' Association, but the delay was explained to the complainants to their full satisfaction. This delay was due to the fact that the law permits only two examinations in a year, namely, the second Monday of June and the second Monday of December. Complaints were also filed by the sisters of the San Juan de Dios Hospital and those of St. Paul's Hospital, on account of the refusal of the board to issue certificates of registration to the sisters from those hospitals. Certificates of registration were refused the sisters of San Juan de Dios Hospital in the belief that they do not possess the necessary training to become registered nurses. The secretary of the interior, in concurrence with the opinion of the attorney general, ruled that the board should register those nurses, with the intimation that upon refusal of the board to obey the order the members thereof would be requested to hand in their resignations. The board, instead of carrying out the order of the secretary of the interior, appealed to the then Acting Governor General Charles E. Yeater, who decided that the case should be brought to the courts to compel the board to register the sisters of charity as registered nurses. Upon the coming of the new Governor General, the Hon. Leonard Wood, the dispute was amicably settled and the board was required by his excellency to grant certificates of registration to the sisters of charity of San Juan de Dios, subject to the condition that the sisters registered as nurses could practice as such nurses only within the limits of the San Juan de Dios Hospital. Pursuant to this decision, the board issued certificates of registration to the 21 sisters of charity of San Juan de Dios Hospital. The board refused to issue certificates of registration to three graduate nurses on account of their moral deficiency. This was done in order to maintain the dignity and high standard of the nursing profession.

Finance.—The collections of this board amounted to ₱1,330. In accordance with the nursing law, the members of the board are entitled to receive the sum of ₱3 each for each candidate examined, but in spite of this provision, the president and the secretary-treasurer did not receive their compensation for the year. This is due to the fact that they are employees in other branches of the government and as such could not be given extra remuneration without the approval of the presidents of both houses of the legislature, which approval has not as yet been granted.

BOARD OF MEDICAL EXAMINERS.

There has been no change in the organization and personnel of the board of medical examiners during the year. As usual, the board held quarterly examinations in which 145 candidates were admitted, 80 of whom were from Santo Tomas University, 21 from various Japanese colleges, 24 from the University of the Philippines, and 20 from various colleges in the United States and Europe. Of the total number who took the examination the following passed:

Universidad de Santo Tomas	52
University of the Philippines	24
United States and European universities	9
Japanese universities	3
Total	88

Examinations for midwives were also held and 46 holding diplomas from the school of midwifery and from the training school for nurses of the Philippine General Hospital were examined. Forty-one passed the examination and were registered.

The rules of the board regarding examination are rather strict in that they require an average of not less than 50 per cent for each group of subjects, and a general average of 70 per cent besides. The majority of the board adopted a resolution dropping the requirement of 50 per cent on each group of subjects. From this resolution of the board Member Doctor Villareal appealed to the

Governor General, who referred the controversy to Dr. Fernando Calderon, director of the Philippine General Hospital. Doctor Calderon sustained the appeal, so that the old rules requiring a general average of 70 per cent and an average of not less than 50 per cent on each group of subjects was maintained.

Finance.—The board during the year collected ₱8,140 representing administrative fees and fees from candidates. The total expenditure during the year amounted to ₱2,391, including the salaries and fees of the three members and two clerks of the board.

BOARD OF DENTAL EXAMINERS.

There has been no change in the organization of the board of dental examiners. As usual, the board held two examinations during the year for the practice of dentistry in the Philippines. Forty-nine candidates took the examination, of whom 34 successfully passed and were registered as dentists. With these newly registered dentists there are now in the Philippine Islands 343 dentists—1 dentist for every 30,000 inhabitants. The dental profession has not as yet taken foothold in the minds of students, and for that reason very few take this course. At present there are only three dental schools recognized by the government which turn out graduates in the dental profession. It is hoped that more students will take up this profession and that time will come when the number of dentists will be sufficient to attend to the needy inhabitants of the Philippines. The dental schools recognized by the government are the University of the Philippines Dental School and the Philippine Dental College.

During the year the board collected ₱2,112, of which ₱980 were fees for admission of candidates to the examination, ₱1,110 for certificates of registration, and ₱20 for renewal of certificates under sections 4 and 7 of Act No. 2462. The total expenditure of the board amounted to ₱850, which was spent for salaries of the members of the board.

The board investigated several persons who were practicing dentistry in violation of the dental law. Some of them were prosecuted and convicted in the courts of first instance of Manila and the Provinces. Until this board has been provided with sufficient appropriation for the purpose of inspection, nothing can be done to detect the persons in the Provinces who practice as dentists without being registered in accordance with the dental law.

BOARD OF OPTICAL EXAMINERS.

During the year no change occurred in the organization and personnel of the board of optical examiners. Two examinations were held on April 26 and October 25, 1921. Eighteen candidates were examined, of whom 16 successfully passed and were registered as optometrists. At the end of the year, therefore, there were 164 registered optometrists in the Philippine Islands. This board collected ₱570, of which ₱360 were fees from applications of candidates and ₱210 for registration of the candidates who successfully passed the examination.

INVALIDS OF THE PHILIPPINE REVOLUTIONS.

In pursuance of Act No. 2756 of the Philippine Legislature, which became effective on February 23, 1918, 363 persons filed applications with the joint committee of the legislature for the purpose of being declared invalids of the Philippine revolutions. Of this number, 84 were approved and the applicants concerned were declared invalids under the provisions of the law above mentioned. Gen. Emilio Aguinaldo, head of the Philippine revolutions, was given a life pension of ₱12,000 per annum under the provisions of Act No. 2922. With the exception of General Aguinaldo, each invalid receives a pension of ₱10 monthly if single, and ₱15 if married. In 1919, ₱13,348.74 were spent for the invalids; in 1920 the expenses amounted to ₱23,420.96; and in 1921, to ₱25,691.61. Every year the legislature sets aside a sufficient amount for the pension of these invalids.

An invalid of the Philippine revolutions is defined by the above-mentioned act as follows:

“For the purpose of this act an invalid of the Philippine revolutions shall only be he who, having fought loyally, bravely, and disinterestedly for the cause of his country in the past revolutions or wars and having conducted himself well during said revolutions or wars, has become physically or mentally disabled for any occupation, work, or employment through wound received or permanent

illness contracted in the service, and is without sufficient means to support himself and his family, and who has applied for registration in the record of invalids to the joint committee created by the concurrent resolution No. 8 of the Philippine Legislature, adopted on February 8, 1917."

The period for filing applications to be declared invalids of the revolutions expired on October 31, 1917, according to concurrent resolution No. 8 of the Philippine Legislature, approved February 8, 1917.

It is believed that the law should be amended by extending the time of filing applications, as there are many worthy cases which have not been filed within the period required by law.

CITY OF MANILA.

Organization.—The charter of the city of Manila was amended by Act No. 2991 of the Philippine Legislature by the creation of the department of finance and the department of assessment. With this amendment the government of the city of Manila is now divided into the following departments:

1. Police department.
2. Law department.
3. Department of engineering and public works.
4. Department of city schools.
5. Fire department.
6. Department of finance.
7. Department of assessment.

At the head of each department is a chief who is appointed by the Governor General, subject to confirmation by the senate. All the department chiefs are responsible to the mayor. Subject to the provisions of the civil service law, and with the approval of the secretary of the interior, the mayor appoints the rest of the officials and employees of the city, and also may suspend or remove them, unless otherwise specifically provided by law. Formerly the collection of revenues for the city of Manila and the assessment of properties therein were handled by the bureau of internal revenue, but after the passage of Act. No. 2991 the department of finance and the department of assessment, respectively, took charge of the functions and duties formerly assigned to the bureau of internal revenue.

Relation between the city and the metropolitan water district.—Act No. 2832 transferred the Manila water and sewerage system to the metropolitan water district created by that act. It is contended by the city that this transfer of its properties to the new corporation without compensating the city for the same is null and void. On the other hand, the attorney general holds that said transfer infringes no property right of the city and is therefore good and valid. Because of this controversy the city of Manila has deferred payment for the water furnished to it by the metropolitan water district. It is believed that this dispute between the city of Manila and the metropolitan water district should be remedied by proper legislation.

Public improvements.—The following public improvements were completed during the year:

1. General A. Francisco Elementary School on Calle T. Alonzo, completed at a cost of ₱255,451.05, its floor area being 4,323 square meters.
2. Addition to Solis School, completed in June, 1921, at a cost of ₱51,384.23, the total floor area being 880 square meters.
3. Gagalangin public lavatory (laundry and closet) on Calle Juan Luna, completed in June, 1921, at a cost of ₱19,844.08.
4. Addition to Paco Market, completed at a cost of ₱6,933.50.
5. Prim Bridge, over the estero de Magdalena, on Calle Azcarraga, completed on March 23, 1921, at a cost of ₱97,127.31.
6. Jones Bridge was opened to the public on August 22, 1921. Its cost to the city up to December 31, 1921, amounted to ₱2,159,683.76.

The city of Manila undertook also the repair of several of its buildings during the year. Very little construction of new streets was undertaken on account of lack of funds. Six artesian wells were bored during the year and they are located at Calle Bustos, Malate Market, Paco Market, Calle Antonio Rivera, Calle Maria Clara, Calle O'Donnel. The funds used for the above-mentioned public improvements were taken from the bond issue funds for public improvements.

Finance.—The finances of the city are not in a flourishing condition. The revenues collected were hardly sufficient to pay the ordinary expenses of ad-

ministration. The mayor reports the advisability of creating new sources of revenue for the city and of revising those already existing in view of the fact that the total expenditure of the four-year program submitted by the several heads of departments of the city government amounted to ₱21,090,434.17.

The total assessed value of real estate in the city of Manila in 1921 was ₱313,079,425 as compared with ₱240,673,290 of the previous year, representing an increase of about 30 per cent. Of this amount approximately one-third, or ₱101,157,050, is exempt from taxation under the provisions of section 2482 of the administrative code of 1917. The property exempt from taxation is that owned by the insular government, the United States Army, the city of Manila, and the various religious orders in the Philippine Islands.

The gross revenue accruing to the city on December 31, 1921, amounted to ₱10,896,530.19. Of this amount ₱4,041,858.19 were revenues from taxation. ₱2,857,300.53 were incidental revenues, ₱2,835,259.48 came from the bond issue fund, and the rest from miscellaneous sources. On January 1, 1921, there was an overdraft of ₱3,796,785.28, so that the total gross revenue of the city available for 1921 was ₱7,630,482.58, leaving an overdraft on December 31, 1921, of ₱530,737.67. Aside from this overdraft the city is indebted ₱5,500,000, being the amount secured through the issue of bonds for public improvements. This debt matures on December 31, 1950.

City schools.—It is reported that there are in Manila not less than 60,000 children of school age. Of this number about 41,000 attended school in 1921, leaving 19,000 children of school age without schools. The enrollment on December 31, 1921, in the day schools of the city was 41,584, as compared with 34,431 in December, 1920, or an increase of 7,153. In the night schools the enrollment was 4,977. During the year the city maintained 80 school buildings, of which 28 are owned by the city, 46 were rented from private citizens, and the rest from the insular government. Because of lack of buildings the city was compelled during the year to rent private buildings at high rates of rent.

A total of 992 teachers were employed by the city during the year, of whom 57 were Americans and the rest Filipinos. Of the latter, 61 are classified as insular and the rest municipal teachers.

Fires.—During the year 159 alarms were recorded, which was 32 less than in 1920 and 49 less than those of 1919. This includes 9 false alarms and 3 alarms coming from places outside the city limits. The total loss during this year was estimated at ₱2,810,000.81, representing a loss of ₱9.01 per capita.

The causes of the fires are classified as follows:

I. Carelessness:	
1. Gross negligence -----	33
2. Indifference -----	22
3. Ignorance -----	8
II. Accidental:	
1. Avoidable -----	34
2. Unavoidable -----	35
III. Intentional:	
1. Incendiary -----	2
2. Suspected incendiary -----	5
IV. False alarm:	
1. Malicious -----	4
2. Ignorance -----	3
3. Unknown -----	2
V. Unknown -----	11

It is believed that, in order to minimize the number of fires in the city, the strong material zone should be extended and heavy punishment should be imposed, not only for incendiarism, but also for carelessness resulting in fire.

Police.—There are two police stations in the city, one the Luneta and the other the Meisic. Each police station is divided into three platoons. At the head of each platoon is a desk sergeant who is assisted by a number of other sergeants and patrolmen. Each platoon is on duty eight hours a day. In addition, there are various squads detailed to look after special classes of work. The police department reports 4,321 arrests for violation of the gambling law as against 5,744 in 1920. The number of arrests for violation of the opium law was 228 as against 245 in 1920. Prostitution still exists in rather an alarming condition in the city. It is believed that the present law and ordinance regarding this vice are very deficient. During the year 170 arrests were made for violation of the law on prostitution as compared with 119 in 1920.

There is a secret service bureau under the police department, which is in charge of investigating crimes of a serious character.

Various activities.—The city continued to supervise the city boys' reformatory, which had 364 inmates during the year, the girls' reformatory with 47, and the city insane asylum with 220 inmates on December 31, 1921. Of the total 93 are males and 127 females.

CITY OF BAGUIO.

Organization.—The mayor of Baguio reports that Baguio has the best form of city government in the Orient. The position of mayor and that of city engineer are merged in one person—that is, the mayor is also the city engineer. In this way the city resembles in a way the city manager system which is prevalent in several cities in the United States. This arrangement proved to be a decided benefit to the city, not only because the mayor as city engineer receives no additional compensation from the city, but also because it enables the mayor to execute the important projects in a faster and more practical way.

Personnel.—The following constituted the personnel of the city of Baguio for 1921:

1. Mayor, E. J. Halsema.
2. Vice mayor, Walter L. Clark. (Resigned September 1, 1921, and succeeded by Col. E. F. Taggart, September 7, 1921.)
3. Councilors: Col. C. H. Bowers, P. C., succeeded by Capt. J. N. Evangelista, P. C., Pascual Pasis, and Martin Carreon.
4. City treasurer, S David. (Transferred May 31, 1921, and succeeded by A. V. Jacinto, June 1, 1921.)
5. City secretary, Regino Villanueva until February 8, 1921, and succeeded by Pedro C. Morales, August 20, 1921.
6. Health officer, Dr. Alfonso C. Concepcion until August 15, 1921. Dr. T. C. Arvisu from August 15, 1921, until the present time. Doctor Arvisu was sent to the United States as a government student to specialize in hospital management and returned to the islands in August, 1921.

General conditions.—From all points of view, conditions were very satisfactory in spite of the economic stringency during the year. In general, the people are peaceful and prosperous. The highlanders have learned to engage in marketing, and they come out daily from the mountains to trade with their handicrafts and other products in the city market. The city has been free from any epidemic except in the month of November, when sporadic cases of typhoid fever made their appearance. The Igorot advisory council is satisfied with the present administration of the city. Their only regret is the failure of their crops, which is attributed to the heavy rain in August.

Accomplishments.—The following shows the important accomplishments of the year:

1. Completion of the hydroelectric plant.
2. Installation of the street lighting system (90 per cent complete).
3. Construction of concrete poles from the power plant to the city market.
4. Extension of gravity water-supply system from Ambiong to Ambuclao.
5. Installation of a 100-horsepower electric pump at camp 8.
6. Transfer of the 20-horsepower pump from camp 8 to Indisan.
7. Installation of a new gravity water-supply system at teachers' camp.
8. Purchase of a telephone cable.
9. Completion of the Quezon Hill Road.
10. Grading of section C road to country club.
11. Reopening of Lucban and Sto. Tomas trails for dry-season auto traffic.
12. Extension of Pacdal trail.
13. Grading of the street in business section.

The city operates the following utilities: Electric light, water supply, telephone, and pail and garbage systems; ice and concrete pipe factories; rock quarry, and land transportation.

The pail and garbage system is a losing proposition, but the city can not afford to do away with it. In 1919 the city lost about ₱25,000 in the operation of the water-supply system; in 1920 the loss was reduced to ₱10,786.80; but in 1921 the city was able to realize from the same a profit amounting to ₱525.76. The expenses of operation amounted to ₱20,145.23, while the receipts reached ₱20,670.99. The reduction in expenditures was made possible through the saving of pumping expenses by the installation of the gravity system.

Perhaps the most important project ever accomplished in Baguio is the completion of the hydroelectric plant. The plant cost the city ₱107,400.09. It is estimated that four years hence the receipts will be enough to cover the cost. It is now the principal source from which the city derives its revenue. During the year ₱31,766.65 was expended for its operation, while the receipts reached ₱61,805.17, leaving a net profit to the city of ₱30,039.52. The hydroelectric plant began to operate on July 16, 1921, and since then the city ceased to get its current supply from Camp John Hay, except during the four days when the plant had to undergo slight repairs, due to damages caused by the typhoon in August.

About 41.2 kilometers of road were classified as first class during the year. Only 1.9 kilometers of road were built, due to the fact that more attention was paid to the maintenance of present first-class roads than to construction. For the maintenance of first-class roads alone the city expended ₱68,388.78. Baguio's roads are a source of pride and satisfaction to the government and compare favorably with any in the Orient.

Finance.—The city assessor levied an ad valorem tax of 1 per cent on the assessed value of all real estate in the city. A special assessment of 1 per cent on all land subject to taxation during the year 1921 was also levied. This was the same as in 1920. The assessment of property has not been increased except where improvements have been made on the property. The following is a statement of the finances of the city treasury on December 31, 1921:

Total funds received and handled belonging to the city.....	₱684,390.46
Total payments made of city of Baguio funds.....	592,967.34
Total estimated revenue.....	536,749.80
Total revenue actually collected.....	607,509.38
Expenditures in prosecuting the work:	
Assessor's office.....	56.95
Treasurer's office (collections).....	6,179.56
Operation of markets.....	13,120.97
Operation of slaughterhouse.....	2,023.43
Treasurer's office (administration).....	24,058.66

Administration of justice.—The administration of justice in the city is speedy. The city attorney handled 172 criminal cases and 2 civil cases, made 24 miscellaneous criminal investigations, rendered 3 opinions, and was consulted on a number of occasions.

The justice of the peace court is not clogged with pending cases. Out of 172 cases, only 1 was not disposed of during the year, and this was due to the fact that the accused could not be apprehended. During the same period, 49 civil cases were heard, and all but 1 were disposed of before the end of the year. The one case left undecided was filed on the last office day of December, 1921. The collections of the justice of the peace amounted to ₱1,744.58.

Police.—The police department made 397 arrests during the year, as compared with 455 in 1920. The persons arrested included 4 Americans, 181 Christian Filipinos, 190 Igorots, 18 Chinese, 3 Japanese, and 1 Turk. There were also impounded 240 animals—101 carabaos, 79 bulls, 47 horses, and 13 pigs. The fees for impounding these animals amounted to ₱568.80.

GOVERNMENT PENSIONADOS.

On December 31, 1921, there were 133 Filipino government students in the United States, classified as follows:

	Regular.	Partial.	Univer- sity fellows.	Mindanao and Sulu.	Coast and geodetic.	Total.
In United States Jan. 1, 1921.....	155	10	14	3	2	184
Sent during the year 1921.....	4	.....	5	.....	.....	9
Total in 1921.....	159	10	19	3	2	193
Returned during 1921.....	48	5	5	.....	2	60
In the United States Dec. 31, 1921.....	111	5	14	3	.....	133

The 1921 report of the Philippine educational agent states that out of 111 regular pensionados now in the United States, about 55 will return to Manila at the close of the school year 1921-22, so that there will remain after next June only about 56 regular pensionados. About 11 requests for extension of scholarship were received last year, some of which were granted by the pensionado committee, while others were denied.

The original appropriation for the pensionados for 1921 was ₱500,000. This amount was reduced by the emergency board in the middle of the year to ₱472,000 in pursuance of the retrenchment policy adopted by the council of state. The total expenditure during the year amounted to ₱472,000.

Average annual expenditures.—The average annual expenditure of each pensionado during the year amounted to ₱5,082.92, an increase of about ₱200 over that of 1920, notwithstanding the reduction of ₱100 on the clothing allowance of each pensionado. This increase was due principally to the large number of pensionados who completed courses in small institutions with low tuition fees in 1920 and then went to larger institutions in 1921 with increase in fees, ranging from ₱400 to ₱600 per annum. This average amount seems large when compared with the estimated expenses appearing in college catalogues. But the Philippine educational agent explains this discrepancy in that the college estimates are placed always in very low figures so as not to scare poor students. Moreover, they are based on 8 months of college work and thus cover only two-thirds of the expenses based upon 12 months which is the case of pensionados. In addition, the college estimates do not include clothing, dental bills, oculist charges, and medical treatment. It is believed that the total allowances now given to the Filipino students are about as satisfactory as can be arranged. In small towns these allowances are quite sufficient for the students, but in larger cities, where the cost of living is high, they are sometimes not sufficient and the pensionados in such cases get supplementary aid from home.

Washington office.—The Philippine educational agent maintains an office at Washington, consisting of one secretary, Mrs. G. R. Williams, and a clerk, Mr. F. Arca. Most of the time the agent is out visiting pensionados or interviewing teachers for the bureau of education in Manila. The bureau of insular affairs lends also every kind of assistance to the Philippine educational agent, such as those referring to making of appointments of new teachers for the Philippine Islands, preparation of warrants, and transportation orders for the pensionados, and various other services.

Scholarship.—With very few exceptions the scholarship of pensionados has been so far very satisfactory. A number have secured "A" marks in almost all the subjects. Thirteen are candidates for doctor's degrees this school year (1921-22). Several secured valuable scholarships because of their high academic standing. Three, however, were put on probation during the year on account of poor grades; one improved and is no longer on probation, while one is still on probation, and the other has been furnished return transportation on account of inability to keep up with the standard.

The following table shows the number of pensionados allotted to the several offices and departments of the government:

	Allotments.			Allotments.		
	1919	1920		1919	1920	
Office of the Governor General....	1	3	Department of commerce and communications.....	14	9	
Philippine senate.....		3		Department of justice.....	11	2
Department of the interior.....	16	4		Department of finance.....	15	4
Department of public instruction.....	41	11		University of the Philippines.....	10	6
Department of agriculture and natural resources.....	18	10		Total.....	126	52

On account of the retrenchment policy, only four pensionados were sent to the United States in 1921. As regards the pensionados who have returned to the islands, a separate report has been submitted to his excellency by the pensionado committee.

From the reports of the several department heads, it is noted that the returned pensionados have learned much during their stay abroad as shown by the quality of service they are now rendering their respective offices. As an insti-

tution, the sending of pensionados should be continued until such time as the Philippine Islands have produced such technical men as are necessary to cope with the technical problems of the various activities of the government. This is the only medium through which the country can secure experts, as there are not many students and young men who can afford to go abroad to further their studies along certain lines. Not only do we produce technical men through the pensionado system, but also get effective publicity of the capacity and civilization of the Filipino race in the United States and other countries.

NATURALIZATION.

Act No. 2927, which became effective on March 26, 1920, requires the clerks of courts of first instance to file with the secretary of the interior copies of the naturalization papers of persons who become citizens of the Philippine Islands by naturalization pursuant to the provisions of the above cited act. During 1920 and 1921, 27 persons were naturalized in the Philippine Islands. They belong to different nationalities, as follows:

Russian-----	3	Czechoslovakian-----	1
Danish-----	3	French-----	1
Chinese-Filipino mestizo-----	3	Filipino who lost his citizenship under the treaty of Paris-----	1
Spanish-----	7		
Turkish-----	5		
Rumanian-----	1	Total-----	27
English-----	2		

RECOMMENDATIONS.

In concluding, I desire to submit the following recommendations in addition to those contained in my last annual report:

(1) That another undersecretary of the interior be authorized. The reasons for this were given in my letter of March 6, 1922, containing our program for the next four years.

(2) That the relations of the members of the cabinet with the legislature be more clearly defined. In my opinion, there should be cooperation, or at least a better understanding, between the legislature on the one hand and the members of the cabinet on the other. How this cooperation or understanding may be arrived at should be the subject of thorough study. I venture to express the opinion that, in order that there be such cooperation and closer understanding, the members of the cabinet, whether members of the legislature or not, be assigned permanent seats in the senate and the house of representatives, where they may be subjected to interrogation at any time and on any question by any member of the legislature and where they may express their views at any time on matters of legislation affecting their departments. In this way, also, the views of the members of the cabinet on public questions will be known by the public.

(3) That congressional legislation be secured authorizing the Governor General to abolish the bureau of non-Christian tribes, and to transfer its functions, powers, and duties to the executive bureau of this department. This is deemed warranted by the fact that the government of these Provinces is now run in much the same way as the government of the regular Provinces. The action herein proposed would inevitably result in great economy to the central government in that the functions of the bureau of non-Christian tribes could be transferred to the executive bureau, where a division of special Provinces may be created with less personnel and consequently less expense to the government. It will also simplify the administration of the Provinces, as there will be but one central office, the executive bureau, which will deal directly with all the Provinces of the archipelago. To insure the rapid assimilation of the non-Christian Filipinos and to facilitate the bringing together of the whole Philippines under a uniform system of legislation the control and supervision over the non-Christian Provinces should be lodged in the same office that controls and supervises the regular Provinces, the executive bureau. Besides this, the inhabitants of these Provinces have now attained such degree of civilization and orderliness that they should no longer be called non-Christian tribes but non-Christian Filipinos, if at all the word "non-Christian" is desired to qualify this part of the Philippine population. The phrase "non-Christian tribes" is not an appropriate term to use, as it conveys a wrong impression of these people.

(4) That our provincial, city, and municipal laws be revised, as the present ones are rather out of date.

(5) That adequate means be provided to extend and carry through to successful completion our campaign against infant mortality.

(6) That more encouragement be given to facilitate immigration to Mindanao, as this will solve not only our so-called "non-Christian problem" but also many of our economic problems.

(7) That funds be provided to enlarge the Philippine General Hospital, as well as to establish a hospital in each Province.

Respectfully submitted.

TEODORO M. KALAW,
Secretary of the Interior.

The GOVERNOR GENERAL, *Manila.*

REPORT OF THE SECRETARY OF PUBLIC INSTRUCTION.

JANUARY 1 TO DECEMBER 31, 1921.

DEPARTMENT OF PUBLIC INSTRUCTION,
Manila, March 29, 1922.

SIR: In accordance with the provisions of law, I have the honor to submit the annual report of the department of public instruction for the fiscal and calendar year 1921.

The secretary of public instruction, who was on leave from July, 1920, returned to Manila on March 4, 1921, to assume the duties of the Governor General, who was leaving on the next day. He directed the undersigned to take charge of this department. He remained in this capacity until October 15, 1921, two days before his departure for the United States on account of his resignation. Upon your assumption of office, you authorized me to remain in charge of the department, which I have been doing up to the present.

Changes in personnel of bureaus under the department were the resignation of Mr. Camilo Osias from his position of assistant director of education on December 1, 1921, and the appointment of his successor, Mr. Gabriel R. Mañalac, a few days later.

BUREAU OF EDUCATION.

The year 1921 gave the bureau of education one of the most critical experiences during its existence. Insular appropriations were often insufficient to meet its needs. Local taxes for school purposes were collected with greater difficulty and in smaller amounts than anticipated early in the year. The new assessments of real estate made during 1919 and 1920 generally did not become effective, and the date for tax collection in towns and Provinces was twice postponed. These conditions, together with the general business depression in which the Philippine Islands had a corresponding share, affected considerably the work of the public schools. In spite of the unfavorable conditions which have largely interfered with the bureau's program during the year, progress was made and substantial results accomplished.

Expenditures.—The total expenditures for education—insular, provincial, municipal, and funds received as contributions during the fiscal year 1921—amounted to approximately ₱21,070,241.56. Of this amount ₱14,313,825.35 was from insular funds, ₱1,050,492.28 from provincial funds, ₱4,358,799.59 from municipal appropriations, and ₱1,347,124.34 from voluntary contributions. As in former years, it is impossible to secure reliable data relative to provincial and municipal expenditures for 1921 at this time. The above figures are, therefore, based upon 1920 records.

The suspension of the reassessment of land values caused a shortage of funds for the support of schools in several municipalities. In order to keep the schools open, to construct and repair school buildings, and to purchase sites and equipment, the municipal officials had to resort to voluntary contributions, which amounted to ₱1,347,124.34, as compared with ₱799,537.84 in 1920. These contributions have enabled many towns to meet the insular government halfway in its effort to provide facilities for the greatest possible number of school children. The bureau of education allowed this method of raising funds only for permanent improvements, but not for teachers' salaries and other recurring expenses.

While extension has not been so rapid as during the preceding year, the enrollment has considerably increased, as shown in the opening of more than 900 new schools.

Between March, 1920, and March, 1921, 945 new elementary schools were opened. The total annual enrollment in elementary schools as of March, 1921,

was 924,279, or an increase of 149,857 over the annual enrollment in 1920. During this same period the enrollment in secondary schools increased from 17,204 to 19,085.

Teachers' salaries.—During 1921 very little assistance was given by the insular government for increasing the salaries of teachers. Nevertheless most of the divisions could not overlook the demand for salary increases among municipal and provincial teachers, and this had to be done with local funds. The average increase for the islands is approximately 10 per cent. A few Provinces, however, show an actual decrease in the amount of salaries paid provincial and municipal teachers. Between March, 1920, and March, 1921, the average salary of insular teachers in the islands increased from ₱71.76 to ₱84.22, or approximately 17 per cent. Inasmuch as this increase is almost equivalent to the bonus that they had been receiving, the teachers' salaries were approximately the same as those a year ago.

Academic instruction.—Since the opening of the present school year the academic work of the bureau has been seriously handicapped by lack of funds. Insular appropriation for travel did not make it possible to give as effective supervision to schools as was done in previous years. Failure to collect taxes in several municipalities necessitated a reduction in the number of teachers, which resulted in a corresponding overcrowding of classes. The suspension of the building program called for the use of many rented classrooms generally not suitable for school use. In spite of these unfavorable conditions, school work has kept its progress. Enrollment in the normal courses has increased. More English has been spoken in public gatherings, and the demand for schools is greater than ever before. Statistics for the present year will not be available until reports are received at the close of school.

Industrial instruction.—No radical changes have been made in the industrial program of the bureau. The general drop in prices during 1921 practically eliminated all profits previously earned by the pupil, the school, and the industrial department. Lack of working capital made it difficult for the general sales department to function effectively, and credits already extended to Provinces had to be withdrawn. Notwithstanding these conditions, progress was made in all industrial lines. The enrollment, the quantity of production, and the total value of products have all increased.

Agricultural instruction.—During the past school year the bureau of education, in its various lines of agricultural activities, had 4,367 hectares (10,927 acres) under actual cultivation, exclusive of pastures, orchards, and wood lots. More than 198,228 boys and 17,636 girls received practical training in agriculture. Of this number 19,501 boys and 9,821 girls attended schools giving special courses in agriculture and requiring three to four hours of practical field work each day. One hundred and fifty-three thousand four hundred and sixty-four boys and five thousand four hundred and four girls maintained home projects under the supervision of teachers. The bureau of education operated 300 school farms varying in size from 10 hectares (25 acres) to 1,400 hectares (3,500 acres). Public-school pupils raised 172,000 chickens, 9,760 hogs, and 116 head of cattle, and distributed 8,110 Cantonese chickens and 265 Berkshire hogs to farmers for breeding purposes; 1,814 boys' and girls' agricultural clubs with an enrollment of 23,821 members were in operation. Club members own and care for 7,307 vegetable gardens; 2,207 are engaged in breeding hogs; 90,525 are engaged in chicken raising; 19,440 are engaged in growing fruit trees; 955 have corn plots; and 287 have experimental kitchens. Six hundred and twenty-nine thousand six hundred and sixteen fruit trees were planted by school pupils on an orchard area of not less than 4,000 hectares (10,000 acres). Public-school pupils produced as a part of their school work agricultural products valued at ₱1,696,417.50, of which amount ₱474,618.04 were produced at the farm and agricultural schools, ₱770,476.21 in the school and home gardens, and ₱441,323.29 in the boys' and girls' agricultural-club projects.

Exact figures for the past school year are not available at the present time.

Physical education.—The system followed in interscholastic meets has been one of the best factors in developing a feeling of national unity, and athletic competition has taught the students sportsmanship, teamwork, and self-control.

The results secured in physical education during 1921 were in most cases worthy of the past traditions of the bureau. The Filipino athletes who won the victory at the Far Eastern games held at Shanghai were almost without exception either students of the public schools or men who had formerly been trained in the public schools. At the recent interscholastic and open meets

held in connection with the 1922 carnival, a number of former track and field records were broken and the competition in all events was close. Owing to the shortage of American men teachers to coach the baseball teams, the quality of the baseball played by the school teams outside Manila is not up to the standard of a few years ago. Continued progress has been noted, however, in all other lines of athletics.

Education among non-Christians.—Reasonable progress can be reported in our endeavor to provide the remote people with the same educational advantages that are enjoyed by the Christian communities. While funds have been lacking with which to push the extension work, the enrollment has slightly increased, more girls are entering schools, religious opposition is gradually disappearing, and the enmity and jealousy of the headmen are becoming less pronounced.

The work in the non-Christian schools varies greatly from one community to another, depending upon the industrial pursuits of the people, the available material for industrial instruction, and the abundance of lands suitable for farming. The barrio type of school, in which some form of handicraft and gardening are taught, is by far the most common. Next in importance comes the settlement farm schools in which simple farming and horticulture are taught by actually growing the crops on small farms of from five to twenty hectares. Stock raising is given attention on a small scale and boys are taught methods that are considerably in advance of the crude methods used by their parents. In a few of the special schools, intermediate instruction, and in one or two instances, secondary instruction is being given. In such schools farming and stock raising are conducted on a much larger scale. Woodwork and ironwork are given some attention and courses in such other industries as may be profitable and helpful to the community are offered.

School libraries.—A school library in the Philippines is usually the only library existing in the community and must supply the reading needs of the general public as well as of teachers and pupils. For this reason, the purchase of additional books and library equipment has always been encouraged.

The bureau has sent out many books as a nucleus with which to begin school libraries. A certain per cent of the matriculation fees collected from pupils is set aside as a library fund. Many books are received as donations from public-spirited citizens and many of the schools hold special benefits and entertainments to raise funds with which to increase the size of the libraries. In spite of the financial depression in 1921, substantial increases have been reported from practically all libraries in the islands.

Textbooks.—While the textbooks that are being used in the primary schools have been written especially for the Philippines and are, therefore, adapted for use in our schools, the secondary textbooks have been prepared for English-speaking children and are not entirely suited for work in our schools. Since the number of secondary textbooks in use in the islands is not sufficiently large to make it profitable for an author to write special textbooks for the Philippines, this bureau has endeavored to overcome the disadvantage by preparing a number of bulletins and manuals to supplement the American texts.

During the past year an elaborate course of study in English was prepared and furnished the field. The manuscript of a new Manual in English Composition has been prepared and will be sent to the printer within a few days. The revision of our library bulletin has practically been completed.

Public-welfare work.—Due both to the need of the help of the schools in carrying out this work and to the pull of public opinion, the bureau has been forced to use its facilities considerably in promoting public-welfare work, which, although partly of an educational nature, properly belongs to other institutions.

Following are the most important results accomplished in this work:

1. The obtaining of practically 100 per cent membership in the Junior Red Cross, and collection of more than half of 1921 quota Red Cross campaign.

2. Teachers giving civico-educational lectures on important subjects direct to parents.

3. Garden-day celebrations, where the community gathers to see agricultural exhibitions, demonstrations of new foods and new recipes, and to hear lectures on better ways of cultivation, on health, economic, and other questions of social importance.

4. The designation of a special day for the celebration of Mothers' Day in many towns and the giving of appropriate programs in all schools.

5. The holding of better-baby contests in cooperation with the local health officials.

6. The employment of nurses and holding of clinics in many school divisions. A ruling of the auditor against the expenditure of the bureau funds for medicines has largely hampered work in this direction.

7. General improvement was brought about through night schools, public play grounds, school libraries, alumni organizations, reading and literary clubs, etc.

Buildings.—One of the standing problems of the bureau of education has been to get its construction and repair work closer to the fast-growing needs in this way, on account of the deterioration, steady increase in enrollment, the high cost of materials, and limited insular assistance.

The income of most municipalities is scarcely sufficient to pay the salaries of teachers and meet the other current expenses of operation. Unless municipal revenues are greatly increased the towns will never be able to construct the needed buildings. They will be obliged to either receive insular assistance, continue to rent and use buildings that are unsuitable for school purposes, or deny school advantages to the many in order that sanitary buildings may be provided for the few. This bureau will never be able to adopt and follow a permanent policy as long as the funds for this important phase of the work are dependent upon annual appropriations. It is strongly recommended that this subject be given serious attention by the legislature and the council of state, that a plan be adopted that will provide a fixed appropriation which will become available annually for a number of years and that the authority for the disbursement of these funds be vested in the secretary of public instruction.

While the inadequacy of the insular appropriations has made it impossible to equal the record in construction made in previous years, very creditable results have been accomplished with the funds available. Greater interest in the construction of school buildings has been manifested by the towns than ever before. A large number of new sites have been secured, many of them by donation, and the size of many of the old sites has been increased. The survey of sites has been facilitated by the creation of the survey section of the buildings division which employs a number of competent surveyors who have spent practically the entire year in the field. Approximately 200 mixed material buildings, and more than 600 temporary buildings have been constructed during the year.

The following standard strong material buildings have been completed during the year 1921:

The Manila North High School.

The Capiz High School building plan No. 20.

Three buildings, plan No. 10, in Camalig, Albay; Surigao, Surigao; and Balaoan, La Union.

Thirty other smaller standard concrete buildings.

Twenty standard wooden buildings.

Fourteen special buildings.

Two reconstruction projects.

The following buildings have been authorized and are still under construction:

The Zamboanga Normal School.

The Laoag Normal School.

The Iloilo Normal School.

The deaf and blind school in Pasay, Rizal.

Four plan No. 20 high school buildings at Bangued, Abra; at Tuguegarao, Cagayan; at Capiz, Capiz; and at Ilagan, Isabela.—

A normal school type building, Cabanatuan, Nueva, Ecija.

The girls' dormitory in Lucena, Tayabas.

A standard plan No. 20 in San Pablo, Laguna.

Three standard plan No. 10 buildings in Guindulman, Bohol; in Mandawe, Cebu; and in Carigara, Leyte.

The most urgent insular building projects recommended for consideration are as follows:

The training department of the Philippine Normal School.

The school of commerce in Manila.

The provincial normal school in Cebu.

The provincial normal school in Pangasinan.

The provincial normal school in Albay.

Increase in number of schools and enrollment and attendance of pupils since 1920.

Items.	Elementary.	Secondary.	Total.
Schools:			
1920	5,894	50	5,944
1921	6,839	65	6,904
Annual enrollment:			
1920	774,422	17,204	791,626
1921	924,279	19,085	943,364
Average monthly enrollment:			
1920	663,893	15,063	678,956
1921	819,294	16,987	836,281
Average daily attendance:			
1920	604,112	14,280	618,392
1921	758,646	16,236	774,882

Number of teachers.

Year.	American.	Filipino.	Total.
1920	341	17,234	17,575
1921	315	20,610	20,925

Comparison of promotions, school years 1919-20 and 1920-21.

Grade.	1919-20			1920-21			Increase or decrease in per cent of pupils promoted.
	Pupils examined.	Pupils promoted.	Per cent promoted.	Pupils examined.	Pupils promoted.	Per cent promoted.	
I.	250,314	153,332	61	313,529	200,903	64	+3
II.	126,711	97,974	77	162,023	128,423	79	+2
III.	88,366	67,709	77	106,259	83,677	79	+2
IV.	60,325	43,815	73	76,216	54,985	72	-1
V.	35,246	27,892	79	44,520	35,122	79	.....
VI.	22,577	19,447	86	27,949	23,848	85	-1
VII.	14,832	12,700	86	19,784	16,703	84	-2
First.	6,718	4,456	66	8,020	5,576	70	+4
Second.	3,499	2,745	78	3,662	2,968	81	+3
Third.	1,982	1,692	85	2,366	2,024	86	+1
Fourth.	1,497	1,334	89	1,672	1,538	92	+3
Total.	612,067	433,096	71	766,000	555,767	73	+2

Production of industrial articles.

Courses.	Enrollment.				Value of production.	
	1919-20		1920-21		1919-20	1920-21
	Elementary.	Secondary.	Elementary.	Secondary.		
Embroidery.....	56,263	641	76,305	639	P118,943.22	P187,249.12
Lace making.....	20,210	100	25,266	43	40,154.55	55,734.65
Basketry.....	82,742	183	79,051	278	121,136.44	166,637.21
Shop work.....	10,551	524	12,339	449	471,768.00	465,274.93
Plain sewing and miscellaneous work.....	316,534	966	376,542	701	560,305.07	789,844.73

PRIVATE SCHOOLS.

General statement.—Because of the prevailing financial crisis, the enrollment for 1921 in all the schools which charge tuition was not so large as that of the previous year but on the other hand, the number of recognized elementary schools has greatly increased and the total enrollment in the private schools is greater to-day than it has ever been.

Conditions in general are most encouraging. Each succeeding year finds the directors of these schools more impressed with the sense of the grave responsibility that rests on them and more imbued with the desire to bring their schools up to the highest standards and to keep pace with the times by improving their teaching staff and by increasing the equipment of their schools.

The organization and inauguration of the National University was an event of great significance in the annals of the private schools of the Philippine Islands, which now count two private universities—the one mentioned and the venerable Santo Tomas, established as far back as 1611.

The total number of schools and colleges under the supervision of this office is as follows:

Schools.	Number of schools.			Schools.	Number of schools.		
	1921	1920	In-crease.		1921	1920	In-crease.
Technical.....	12	10	2	Intermediate.....	113	104	9
Special.....	8	1	7	Primary.....	190	169	21
Colleges.....	19	19	—	Total.....	384	341	43
High schools.....	42	38	4				

Courses of study.—In all nonprofessional colleges the course is four years, effective July 1, 1921, and is practically the same as that given in the University of the Philippines. French, Spanish, instrumental and vocal music, drawing, and painting are offered as optional subjects.

The courses of study for the elementary and secondary schools remain unchanged, being the same as those of the public schools, with the addition of optional courses in Spanish, instrumental and vocal music, drawing, and painting.

In the night schools the course has been extended to five years, effective at the beginning of the school year 1921-22.

Academic instruction.—This office is putting forth every effort to improve the academic work of the private schools. The greatest drawback to improvement is the fact that there is no permanency in the teaching force of the private schools. Under present conditions little can be done toward forming a permanent corps of teachers.

The efforts of this office in this phase of the work have been—

1. To require all primary schools seeking government recognition to employ teachers having at least first-year high-school attainments.
2. To check all school programs and require them to conform to the prescribed courses of study as to subjects and time given to each.
3. To give written examinations in addition to the oral ones usually given at the time of inspection.
4. To give lessons to classes in the presence of teachers.
5. To hold teachers' meetings and conferences.
6. To require more general use of lesson plans, picture study, and story-telling.

Industrial instruction.—It must be admitted that industrial instruction in the private schools falls short of that given in the government schools with respect to proper grading and uniformity of courses. However, many schools are doing excellent industrial work.

Physical education.—It is gratifying to note that great interest continues to be taken in this important branch of the work. The authorities of the private schools all understand and appreciate the necessity of physical education.

Military instruction is being given at the National University, Liceo de Manila, Ateneo de Manila, Association Institute, La Salle College, Burgos Institute, Jaro Industrial School, and Silliman Institute.

Welfare work and other school activities.—Mothers' day was fittingly observed in most of the private schools. Arbor day received more attention than usual. Programs were rendered and quite a number of fruit and shade trees were planted.

The showing made by the private schools during the last Red Cross drive is very gratifying. The children now understand what the work of the Red Cross is and they show great interest in it.

Some of the pupils of the secondary schools helped in the drive for the Rizal Memorial Stadium.

Libraries.—This office continues to encourage the purchase of good books by the schools for the use of teachers and pupils. An examination on outside reading and library practice was recently given in all the girls' schools in Manila to bring home to the students the importance of earnest work along these lines.

Needs of the private schools.—In this respect what was said in the annual report last year may well be repeated: "The great need of the private schools is better teachers, teachers' institutes, more supervision by the principals, and a longer school year." This office is doing everything possible to bring about these improvements and hopes that with time better conditions will prevail.

PHILIPPINE HEALTH SERVICE.

The following report of the Philippine health service has been based upon the data furnished this office by the director of health. Although the information and statistics are not as complete and as comprehensive as this office would desire them to be, yet, on the whole, the statements submitted cover the main and essential undertakings of the bureau of health. The present report, therefore, is a fair survey of the activities of the Philippine health service in 1921. It is expected that the annual report of the director of health will be due in the near future, and as soon as it is available a copy thereof will be sent to the Governor General.

General statement.—It is gratifying to report that progress in public sanitation throughout the archipelago during the period covered by this report had been noticed in all the important activities of the health service. The general mortality rate was lower than that of the previous year; the number of sanitary divisions had been increased, so that all the regular Provinces have now uniform health organization; the modern therapy of leprosy with chaulmoogra oil derivatives had been more or less extensively employed, with certain promising results, in the San Lazaro Hospital and in the Culion leper colony; and, in fine, a general improvement in the health situation had been observed wherever the influence of the sanitary forces had made itself felt upon the community. It may be true that in certain inaccessible regions public sanitation had made little, if any, advancement due to the lack of facilities and personnel, but it may be remarked, without fear of contradiction, that in proportion as the forces of the Philippine health service are extended to the far-distant Provinces and isolated municipalities so much influence upon the health conditions will surely be exerted. This is being gradually accomplished through the frequent visits made by the officials of the service, the assignment of sanitary inspectors and physicians, and the wider distribution of medical and surgical supplies to the needy and out-of-the-way regions.

Sanitation in the city of Manila.—The general program of activities of the division of Manila sanitation was followed practically in every detail. The greatest efforts, of course, were directed to prevent the appearance of any epidemics. Thus, one of the most important measures in this direction was an intensive vaccination campaign. Other measures adopted were the protection of cooked foods in the markets, restaurants, and "tiendas," from flies, vermin, and dust by the use of a glass cover; the prohibition of the use of newspapers as wrappers of cooked foods for sale; the establishment of transparent counters in restaurants and "sarisari tiendas" to facilitate the daily inspection thereof; the use of bags containing oiled sawdusts for the destruction of mosquito larvæ in stagnant waters; and the filling in of lowlands.

No epidemic occurred in 1921. The diseases which had appeared in 1920 continued in 1921, among which were smallpox, cholera, typhoid fever, dysentery, and influenza. The virulence of these communicable diseases, with the exception of one or two, was, however, not so intense as that of the previous year, as will be evidenced by the following statements.

Smallpox.—Due to the intensive general vaccination undertaken against this dreadful disease, there was registered in 1921 only one case with no death.

as against five cases with three deaths in 1920. From an epidemic point of view, therefore, smallpox was of no account.

Cholera.—The development of this disease in 1921 was coincidental with the appearance of "peridinium" in Manila Bay. The rôle of this organism in producing a mechanical asphyxia by lodging in the air passages of certain edible fishes, leading to the latter's death and subsequent decomposition, had been studied in previous years by the chief of the division, who then believed that their consumption in the semidecomposed state might have been partly responsible for gastrointestinal disturbance, and perhaps the recrudescence of the then declining outbreak during December, 1916. Incidentally the patients during 1921 attributed their illness to their having consumed "hasahasa," a kind of fish caught in the bay. Whether or not this had any relation, directly or otherwise, to the existence of sporadic cholera cases in that year, remains to be more thoroughly investigated.

Typhoid fever.—An increase in the number of cases and deaths of this disease was noticed in 1921. Unlike other communicable diseases which have been brought under control, this water-borne disease seems to defy the attention and efforts of the members of the Philippine health service. The yearly prevalence of the disease has placed the sanitary personnel on their guard to check its march of destruction. The systematic antityphoid vaccination which is being carried on by the service is doubtless contributing much to the gradual disappearance of this malign disease.

Dysentery.—Although a slight decrease in the number of deaths from this ailment was reported in 1921, yet the situation in that year was not as encouraging as was expected in the earlier months. There prevails, it would appear, some doubt among medical authorities as to the exact sources of this sickness, and thus far the bureau has not yet determined the real causes of its spread. The potability of the public water supply has been carefully safeguarded and other adequate measures were adopted. Yet, like typhoid, the annual appearance of this disease can not very well be avoided. This is a field in which the Rockefeller Foundation will render an invaluable service, and it is sincerely hoped that the findings of this world-famous institution in this respect will bring to light the root of the evil, so that adequate and effective remedies may be applied for its ultimate eradication.

Sanitation in the Provinces.—Notwithstanding the fact that the reports of the different district health officers, the local representatives of the director of health, are as yet incomplete, there are, however, sufficient data and statistics on hand to warrant the statement that, as in Manila, the improvement in the general health conditions in the Provinces was mainly due to the systematic manner in which the activities of the service were effected. Vaccination parties were organized and each group was assigned to a certain sphere in which to work. District health officers and their subordinates were strictly enjoined to enforce the local health ordinances and regulations; provincial and municipal authorities were asked to lend their closest cooperation; and the people were taught the habits of clean and right living.

As in the capital, no epidemic occurred in the Provinces during 1921. Communicable diseases appeared in many Provinces, but they did not assume the proportions of an epidemic. Among the infectious diseases which were common throughout the Provinces may be mentioned smallpox, cholera, typhoid fever, dysentery, and influenza. Typhoid fever and dysentery appear to head the list, followed by cholera and smallpox.

The other activities of the provincial division in 1921 may be summarized as follows:

(1) The establishment of hospitals and dispensaries. The number of hospitals in the Provinces was increased by two, loans for the construction of the buildings having been granted to Romblon and Iloilo.

(2) The establishment of clinics for the treatment of yaws and other skin diseases. The appearance of yaws among the children in the public schools, especially in Rizal and the Ilocos Provinces, demanded the establishment of emergency clinics and the assignment of physicians and nurses to check the spread of the infection. Happily the situation was never serious and with the application of intravenous injections of neosalvarsan, the disease steadily disappeared.

(3) The establishment of more water-supply systems for pure water for drinking and house use and the proper maintenance of those already existing. About 150 new artesian wells were drilled during the year and about 25 other water works were established.

(4) The continuance of the campaign for the establishment of sanitary toilets. The Antipolo system is being extended throughout the Provinces.

(5) The active educational campaign through public conferences, lectures, demonstrations, pamphlets, and other measures. This propaganda work is being conducted through the service of the healthmobile. This machine is adequately equipped and the influence it is exerting upon the community can not be overestimated. The purchase of a number of healthmobiles for use in the Provinces is strongly advocated.

Sanitation in Mindanao and Sulu.—The sanitary organization in this division during 1921 did not materially differ from that of the previous year. The municipality of Zamboanga and the municipal district of Taluksaṅgay were organized into a sanitary division. The general plan of increasing the number of sanitary divisions and of public dispensaries was not successful, due to lack of funds and personnel. A training school for nurses was opened in the Zamboanga General Hospital, and this institution will undoubtedly remedy one of the most serious situations, that is, the supply of qualified nurses in Mindanao and Sulu. The vaccination campaign was carried on systematically and the people in general did not show any opposition thereto.

There were eight hospitals in operation in the division during 1921. From January 1 to the end of the year a total of 3,526 admissions was registered in all the hospitals, and the collection amounted to ₱45,350.29.

There were also in operation eight laboratories. Up to October 1, a total of 18,586 examinations had been made, Davao registering the greatest number.

Treatment of leprosy.—The modern treatment of leprosy, consisting of the administration of various esters of chaulmoogra, was placed in the hands of a committee on investigation. These chaulmoogric esters, as in the leprosy investigation stations at Honolulu, are being studied in the San Lazaro Hospital and the Culion leper colony, either individually or in combination with other compounds to determine their relative efficacy. The work is not yet complete; however, there seems to be the prevailing impression and observation that results so far obtained have been gratifying.

Culion leper colony.—The most salient feature of the activities during the year 1921 in the colony was the extension of the modern treatment which was applied to a selected number of 500 persons. This number was later increased. The 500 patients treated were distributed as follows: 300 on the ethyl ester; 100 on the Mercado mixture; and two other groups of 50 patients each on the sodium gynocardate and sodium morrhuate, respectively. After an observation of three months, it was discovered that the ethyl ester treatment was the most effective, as it produced quicker results.

In July an emergency hospital to accommodate those patients with violent reaction from the new treatment was established. There were admitted 263 patients. The number of wards of the general leper hospital remained unchanged. All of the six wards were filled to their capacity.

Besides the above the following clinics were in operation: The outpatient clinics, the field dispensaries, the Mercado clinic, the dental clinic, and the Balala dispensary for nonleper residents. The clinical and bacterioscopic laboratory to check the progress of the treatment had such an increased amount of work that in order to meet the actual requirements for the extension of the modern treatment to the greatest possible number of colonists it is essential to provide the laboratory with more equipment and facilities.

Miscellaneous.—The council of hygiene held, during the year 1921, 11 ordinary and 14 extraordinary meetings. Two public hearings were heard on the then much-discussed question regarding the reopening of the red-light district. No definite conclusions, however, were made on this particular subject.

Food inspection.—The board of food inspection held semimonthly meetings to pass upon questions arising in connection with the enforcement of the food and drugs act and to receive protests against any action taken in its administration. Owing to the increase in the number of typhoid fever cases, a campaign against the sale of "sorbete de leche," by peddlers in particular, was conducted, and as a result of the various scientific tests made by the bureau of science the sellers were given proper instructions in reference to the procedure in the manufacture of this refreshment. Fresh milk collected from the different dairies and milk peddlers was also examined by the bureau of science and generally found to be satisfactory.

Health center.—The main purpose of the health center is for the education of actual and expectant mothers along the lines of personal hygiene and sanitation. In addition, it engages in the physical examination of mothers, of expectant mothers, and of children under the age of 2 years. The expectant

mothers are made to understand that many accidents and dangerous complications can be avoided by submitting themselves under medical care from the early date of pregnancy. Vaccination against smallpox and registration of births are also among the activities of health centers.

BUREAU OF QUARANTINE SERVICE.

Quarantine work was conducted during the year in the same manner as in former years, the purpose being to prevent the entrance of quarantinable diseases into the Philippine Islands.

Administration.—The chief quarantine officer for the Philippine Islands is the director of the bureau. Under him are medical officers stationed at Manila, Cavite, Cebu, Iloilo, Jolo, Mariveles, Olongapo, and Zamboanga, at which places vessels from foreign ports are inspected, as are also interisland vessels, whenever necessary. These stations are maintained and equipped for the disinfection and detention of vessels, segregation and treatment of the sick, detention and observation of contacts, care and provisioning of crews and passengers of vessels under quarantine.

Quarantinable diseases in contiguous territory.—The presence or absence of quarantinable diseases in a contiguous territory is of vital importance to quarantine work. For this information we depend upon the American Consular Service, which furnishes the same without cost. The sanitary conditions of oriental ports have shown but little improvement according to service officers. This, together with the fact that some of the shipping ports on the China coast are within a sailing radius, which is less than the incubation period of some quarantinable disease, makes quarantine function a very responsible one.

Incoming quarantine.—As in previous years, inspection of vessels was made during daylight in order to insure a thorough performance of the work. It was necessary to carry out a most rigid inspection and use every precaution on vessels, most of which came from plague, smallpox, typhus, or anthrax infected ports. Fumigation and the wearing of rat guards are among the precautions taken. Stool specimens were taken of all passengers from cholera-infected ports, desiring to land here, in order to determine whether or not they were carriers of the disease. All steerage passengers were vaccinated before being allowed to land, and during the smallpox epidemic in Shanghai all persons arriving in the Philippines from there had to be vaccinated before landing.

Quarantinable diseases.—Plague, cholera, smallpox, typhus, yellow fever, leprosy, and anthrax are considered major quarantinable diseases with regard to maritime quarantine. Only four of these are of any great importance to the Philippine Islands, the first two being the most important. Plague is the only great menace to the Philippine Islands, particularly to the city of Manila. No serious menace from any of these diseases exists at present in view of the easy use of preventive measures well known against them.

Quarantine measures against the admission of plague.—Quarantine inspection of arriving ships, routine fumigation of ships, and the fending off of vessels from the dock at least 6 feet, and the wearing of rat guards on all lines leading from the ship to the dock.

Experience has shown, however, that in spite of these measures a rat may get ashore and may infect the rat population about the piers or breakwater. Only permanent rat proofing and the adoption of the best measures known and the use of every means in our power can give the best results. It is necessary to maintain the piers rat proof, filling with cement the spaces between the stones of the riprap to a point below the low-water line. The construction of piers in the future should be so provided. Considering the cost of plague eradication measures, it would always mean a great economy to use all known means for keeping rats away.

The minimum cost of antiplague work in any infected city, according to Surg. Gen. Rupert Blue, would approximate ₱100,000 a month. This does not include the loss to shipping interests, tourist trade, additional expense in fumigation, and inconveniences of quarantine, etc. It is recommended that the government consider the antirat measures suggested and if they are found feasible that immediate steps be taken to put them into effect.

Interisland quarantine.—The practice of permitting vessels to go from port to port in the Philippines without inspection was continued owing to the absence of any severe epidemic of quarantinable diseases during the year. However, the usual measures taken under ordinary conditions, such as the sanitary supervision of vessels, their periodical fumigation, and vaccination of the crews, were not neglected. Progress was made in training the crews to observe certain

sanitary measures while at sea. It has, however, been difficult to maintain interisland vessels in a desirable sanitary condition.

Detention and quarantine.—Very few vessels were sent to quarantine stations for detention and treatment. The usual inspection, disinfection, and fumigation, however, was done.

Immigration medical inspection.—This work is performed by officers of the bureau on all aliens arriving in the Philippines. These officers also act as members of boards of examination of cases for the determination of age, an alien's ability to make a living, or the possibility of his or her becoming a menace to the public health. During the year 8,302 immigrants arrived, as against 10,717 in 1920.

Examination for licenses.—Masters, pilots, and engineers are examined for licenses by officers of the bureau. Special examination was given to such masters, pilots, and engineers who had held papers for a number of years but had not been physically examined during that time. Complete physical examination was also given for the renewal of licenses, for positions in the Philippine civil service, and for entrance in the nautical school.

It will be seen, therefore, that the bureau of quarantine service has continued to be of great assistance to other departments and bureaus of the government. The physical examination of seamen, first-aid treatment to customs employees, disinfection of vessels used in the transportation of lepers or on account of diseased animals, maintenance of a lighthouse at Mariveles, are among the direct aids rendered to other bureaus.

Repairs to buildings.—For a number of years funds provided for repairs have been so meager that deterioration of the wooden buildings kept on practically unchecked. Supplies requested for repairs could not be furnished during the past year owing to lack of funds. This will cause the government a great expense in the end. Especially the launches of the service are in bad need of repair. Two or three of them will sometime be condemned for being unserviceable. It is earnestly hoped that the service be provided funds for the purchase of a launch for use at the port of Manila and as a supply vessel for the Mariveles Quarantine Station.

New construction.—At the Cebu Quarantine Station the building under construction for the past year has been completed.

Appropriations.—The sum of ₱154,192 was provided for the year's expenses of the quarantine bureau. This was reduced by ₱12,000 by the emergency board, which later provided for deficits of the preceding year and for special repair work the sum of ₱14,000.

The following financial statement shows in detail the monetary transactions of the bureau for the year:

Debits:

Appropriation for fiscal year 1921, Act No. 2935.....	₱154, 192. 00
Appropriation by emergency board.....	16, 000. 00
Construction of buildings, Act No. 2898.....	25, 000. 00
Total to be accounted for.....	<u>195. 192. 00</u>

Credits:

Expended during fiscal year, general expenses.....	154, 824. 91
Suspended by emergency board.....	7, 000. 00
Expended during the year, new building, Act No. 2898.....	23, 211. 29
Balance carried forward for building, Act No. 2898.....	1, 788. 71
Unexpended balance reverted to the insular treasury.....	8, 367. 09
Total.....	<u>195, 192. 00</u>

Collections.

Collections for the year 1921.....	277. 90
Deposited in the treasury to unappropriated surplus.....	277. 90

Transactions in incoming quarantine at several ports of entry.

Cavite:

Vessels inspected.....	57
Crew inspected.....	6, 121
Passengers inspected.....	376
Bills of health issued.....	54

Olongapo:	
Vessels inspected.....	3
Crew inspected.....	341
Passengers inspected.....	0
Bills of health issued.....	3
Cebu:	
Vessels inspected from United States ports.....	9
Vessels inspected from foreign ports.....	39
Vessels disinfected on account of diseases.....	2
Vessels fumigated.....	82
Crew inspected on arriving vessels.....	2, 626
Cabin passengers inspected on arriving vessels.....	16
Steerage passengers inspected on arriving vessels.....	35
Seamen examined for licenses.....	18
Bills of health issued for vessels for foreign ports.....	53
Bills of health issued to vessels for United States ports.....	82
Interisland vessels inspected in port.....	36
Iloilo:	
Vessels inspected.....	57
Vessels disinfected and fumigated.....	262
Vessels in quarantine.....	2
Crews inspected.....	3, 411
Passengers inspected, cabin.....	143
Passengers inspected, steerage.....	316
Persons bathed and effects disinfected.....	123
Cases of quarantinable diseases detected.....	3
Bills of health issued.....	137
Sanitary inspection interisland vessels.....	103
Seamen examined for licenses.....	55
Jolo:	
Vessels inspected.....	43
Crew inspected.....	2, 977
Passengers inspected, cabin.....	223
Passengers inspected, steerage.....	471
Bills of health issued.....	42
Manila:	
Vessels inspected from United States ports.....	198
Vessels inspected from foreign ports.....	563
Vessels disinfected and fumigated.....	160
Vessels given sanitary inspection in port.....	42
Crew inspected on arriving vessels.....	67, 295
Cabin passengers inspected on arriving vessels.....	17, 283
Steerage passengers inspected on arriving vessels.....	39, 808
Persons vaccinated at quarantine.....	17, 703
Applicants for marine licenses examined.....	377
Stool examinations made for hookworm or cholera.....	412
Bills of health issued for United States ports.....	334
Bills of health issued for foreign ports.....	537
Mariveles:	
Vessels at the station for treatment.....	5
Persons bathed and effects disinfected.....	328
Persons vaccinated.....	347
Number of pieces of baggage disinfected.....	3, 043
Vessels disinfected.....	5
Zamboanga:	
Vessels inspected.....	23
Crew inspected.....	2, 227
Passengers inspected, cabin.....	568
Passengers inspected, steerage.....	430
Bills of health issued.....	22

Respectfully submitted.

ALEJANDRO ALBERT,
Undersecretary of Public Instruction in Charge.

The GOVERNOR GENERAL,
Manila.

REPORT OF THE SECRETARY OF FINANCE.

JANUARY 1 TO DECEMBER 31, 1921.

DEPARTMENT OF FINANCE,
Manila, June 28, 1922.

SIR: 1921, the year most critical yet known in the history of the country, was marked by a general business stagnation. With the increased wages and high prices for materials and machinery which prevailed during the prosperous era, the cost of production was consequently greater than the market quotations during the year for rice, hemp, sugar, copra, and tobacco. Warehouses were filled with imported and domestic goods. There was the natural reluctance on the part of the merchants to mark down their inventories and on the part of the laborers to accept reduced wages, while consumers abstained from buying except the necessaries of life. Banks were besieged with requests for credit to help merchants in expectation of a reaction in the market, something which should not be nor could be done. Liquidation followed with the closing of factories or the curtailment of their output, the failure of various commercial and industrial enterprises, unemployment, reduction of wages, which caused some strikes, and, finally, the lowering of prices and other features usually accompanying an economic readjustment. Fortunately, acute as the crisis was, it did not assume the very severe characteristics felt in other countries. The aid extended by the national bank to certain local banking institutions, and the sympathetic treatment accorded, in general, by creditors to debtors in permitting the latter to liquidate their obligations gradually and helping them in the operation of their business, undoubtedly contributed to mitigate the hardships which otherwise would have been suffered.

Drafts remained in the bank unpaid; most loans became frozen, and many had to be charged to bad and doubtful debts. In general, banking institutions had invested in the erection or operation of sugar centrals and oil factories, and they were affected by the sudden decline of the prices for sugar and oil. The almost complete paralysis of the United States market for cigars was a blow to the prices paid for tobacco products and to the tobacco factories, thus increasing the financial embarrassment of the banks having interests in the tobacco industry.

The national bank, being the largest credit institution in the country, whose operations were more extensive than those of any other bank, was confronted with greater difficulties. Being the sole depository of the government and having invested the deposits in agricultural loans and in financing sugar centrals and oil factories, it found itself unable to return these deposits, thus placing the government in an embarrassing position. Notwithstanding this condition, and with the consent of the government, the national bank extended aid to some local banks, enabling them to weather the most stormy period of the crisis and to attain their present satisfactory condition.

Act No. 2924, approved on March 25, 1920, empowers the secretary of finance, with the approval of the council of state, to authorize the national bank to issue notes on bonds of the Government of the United States or of the Philippine Islands or on commercial papers supported by warehouse receipts of export products, the securities to be legally indorsed to and held by the insular treasurer. The operation thus authorized is similar to that provided for by the Federal reserve act for the issue of notes by the Federal reserve banks on commercial papers of member banks. The authority granted by act No. 2924 was resorted to in 1920 and 1921. From June to December, 1920, the Philippine National Bank issued notes on securities supported by warehouse receipts of sugar, hemp, tobacco, and oil, amounting to ₱3,442,200, which were redeemed

fully in the first semester of 1921. During the last year notes were issued with similar securities in the sum of ₱7,784,100, which were entirely redeemed at this writing. These transactions greatly facilitated the moving of crops.

The great importation, which began in the latter part of 1920, continued during the first 8 months of 1921, causing, in the 12 months from September, 1920, to August, 1921, an unfavorable trade balance to the islands of over ₱131,000,000. As a result, the rates of exchange on New York rose during the early part of 1921, reaching 16 per cent for telegraphic transfers in the month of March. Although during the last four months of the year exportations remained almost the same as for the corresponding period of the previous year, nevertheless importations decreased considerably. Exchange rates declined to 4 per cent in November for telegraphic transfers. A reaction set in and the rate went up again to 7 per cent in December coincident with the suspension of the sale of exchange by the Government made effective at the end of November.

The currency circulation decreased by almost ₱21,000,000 during the year under review. On December 31 it was ₱103,661,819.90, in comparison with ₱124,589,239.63 on the same date of the previous year, with ₱52,575,117.74 in 1914, and with Pfs.36,000,000 (Mexican and Spanish—Philippine pesos) in 1903, giving an average per capita circulation for the years indicated of ₱10.02, ₱12.04, ₱5.58, and Pfs.4.71, respectively.

From the highest mark of ₱601,124,276 in 1920 the volume of foreign trade declined to ₱407,907,793 in 1921. The exportation in the latter year was ₱176,230,645 and the importation ₱231,677,148, or a balance against the islands of ₱55,446,503, the greatest yet known since 1899. Prior to this time the largest unfavorable balance was that of 1910, which amounted to ₱18,181,796. The net balance of foreign trade from 1899 to 1921, a period of 23 years, is ₱80,947,791 in favor of the Philippines. The share of the United States in the foreign trade of the country in 1921 was 64.8 per cent of the imports and 57.65 per cent of the exports, or an average of 61.71 per cent of the total trade. In the order of importance of their participation in Philippine foreign trade, the six countries following the United States are Japan with 8.6 per cent, China with 5.94 per cent, United Kingdom with 4.38 per cent, Netherlands with 2.66 per cent, Hongkong with 2.44 per cent, and Spain with 2.34 per cent.

Among the imported articles iron and steel manufactures occupy first place, followed in their relative importance by foodstuffs, cotton manufactures, oils, cars and vehicles, coal, paper, instruments and apparatus, tobacco, silk, fibers, chemicals and drugs, cattle, books, and cement. In general, the quantities imported were smaller than those of the previous year. However, the importation of iron and steel manufactures was almost the same as that of 1919, when the largest quantity of these commodities was imported, the records of previous years being broken by oils, instruments and apparatus, tobacco, cattle, and books. It should be noted that in 1921 less than 60,000,000 kilos of rice at an average cost of 11.2 centavos per kilo were imported, as compared with 77,000,000 kilos for 1920 at 21.1 centavos.

The prices prevailing during the year for export products are unmistakable signs of the economic depression of the country. While the quantities of sugar, coconut oil, copra, copra meal, and leaf tobacco exported were greater than in 1920, yet they brought in smaller sums because of the extremely low prices paid for them. The exportation of coconut oil was 90,000,000 kilos at 35.5 centavos per kilo instead of 77,000,000 of the previous year at 60 centavos. Similarly the other products mentioned suffered greatly reduced prices, the most notable being sugar, of which 290,000,000 kilos were exported at 18 centavos per kilo in comparison with 180,000,000 kilos of the previous year at 55 centavos per kilo. Copra exports show a tremendous increase from 25,800,000 kilos in 1920 to 150,000,000 kilos in 1921, and notwithstanding the low price obtained of 17.4 centavos per kilo compared with 28.8 centavos in 1920, the amount of ₱26,000,000 was realized, exceeding that received in any other year subsequent to 1912. The exportation of hemp, cigars, and cigarettes declined considerably, only 34,500,000 kilos of hemp having been exported, a quantity practically one-half of that for the previous year, at an average price of 31.6 centavos per kilo as against 61.5 centavos per kilo in 1920. The stagnation of the United States market accounts for the heavy decline of cigar exportation from 421,000,000 in 1920 to 155,000,000 cigars in 1921, with a reduction in the average price per thousand cigars of from ₱60.35 to ₱41.68. From 124,000,000 in 1920 cigarette exports were reduced to 39,000,000 for the year under considera-

tion because some of the greatest markets for this product, the United States, China, the British and French East Indies, Honkong, and Japan ceased to make their accustomed demand. The gold bullion exported was valued at ₱2,610,292, slightly more than in 1920, but less than the maximum exportation of this metal in 1916 which was worth ₱2,986,868.

The British merchant marine, which immediately after the armistice began to regain its predominance lost during the war in the tonnage of high-seas shipping registered in Philippine ports, has resumed its former prominence. There were registered during the year 126 British vessels with a net tonnage of 448,971 tons, 91 American vessels with 405,273 tons, 80 Japanese vessels with 274,812 tons, 30 Dutch vessels with 99,426 tons, 15 Philippine vessels with 18,962 tons, and 12 of other nationalities with a total of 25,343 tons. Of the total trade of the year, 41.6 per cent was carried by British vessels, 34.1 per cent by American, 12.2 per cent by Japanese, 4.8 per cent by Dutch, 1.6 per cent by Spanish, 1 per cent by Filipinos, 1.1 per cent by other nationalities, and 3.6 per cent were conveyed by mail, the nationality of carriers not being classified.

By the operation of act No. 2991, the collector of internal revenue ceased to be ex-officio assessor and collector for the city of Manila on May 4, 1921, when his activities in that capacity, as well as the collection of all taxes and charges imposed by the Philippine Legislature on things and persons in Manila (excise, business, income, inheritance, and other taxes) were transferred to the newly created departments of assessment and of finance of the city. Accordingly the work of the bureau of internal revenue is limited now to the direction and supervision of strictly internal revenue matters. Internal revenue taxes outside of the city of Manila have always been collected by provincial and municipal treasurers. With the new arrangement the direct control over tax collection, except that made by the bureau of customs, has been completely withdrawn from the department of finance.

The failure of many business concerns during the year compelled the exercise of greater vigilance and entailed a greater amount of work, not only on the part of the members of the field force but also of the office personnel of the bureau of internal revenue, in order to verify promptly the tax liability of persons on the eve of bankruptcy and before their departure from the country for the collection of the taxes due. In this way the loss of the government was reduced to a minimum.

Act No. 2935 empowers the council of state to effect the transfer of the mint as a dependency of the insular treasury. The transfer was brought about on November 1, thus making possible a substantial reduction in the overhead expenses of the mint.

The income and expenditures of the insular government during the last 10 years are shown by the following statement:

Year.	Balances.	Income.	Expenditures.
1912.....	₱17,180,112.94	₱31,247,673.39	₱31,456,746.81
1913.....	16,966,039.52	26,979,400.64	29,553,342.34
1913 ¹	14,392,097.82	11,567,878.28	15,790,776.12
1914.....	10,169,199.98	23,706,500.86	25,316,472.49
1915.....	8,559,228.35	29,558,626.45	27,883,738.03
1916.....	10,234,116.77	45,704,855.69	40,906,813.13
1917.....	15,034,159.33	54,781,241.44	45,408,717.74
1918.....	24,404,683.03	68,690,105.13	57,496,043.63
1919.....	35,598,744.53	79,686,923.20	86,742,589.38
1920.....	28,543,078.35	90,905,779.72	75,511,145.73
1921.....	43,937,712.34	130,199,714.27	118,194,210.62

¹ Period of 6 months only from July 1 to Dec. 31, due to the change of fiscal year.

The current surplus at the end of 1921 was ₱55,943,215.99, made up as follows:

Manila port works bond fund.....	₱12,146,143.53
Irrigation works bond fund.....	19,123,906.27
General fund:	
Appropriated.....	₱10,007,146.89
Unappropriated.....	14,666,019.30
	24,673,166.19
Total.....	55,943,215.99

The receipts for the year 1922 were estimated in the budget at ₱63,051,435 and the expenditures at ₱72,538,593. The apparent excess of expenditures over the receipts for 1919 was due to the investment of unexpended balance for 1918 in permanent public improvements and in capitalizing government commercial and industrial enterprises.

The receipts and expenditures for 1921, as compared with those of 1920, are shown in the following table:

Income and expenditures for 1921 and 1920.

Items.	Fiscal year 1921.	Fiscal year 1920.
Income:		
Revenue from taxation.....	₱45,445,451.45	₱53,146,524.72
Import duties.....	12,778,790.71	13,786,251.53
Excise tax.....	13,327,843.02	14,479,591.53
Licenses and business tax.....	14,246,439.97	20,768,074.66
Wharfage tax.....	1,473,627.13	1,059,388.79
Franchise tax.....	243,617.77	254,692.41
Documentary stamp tax (internal revenue).....	496,431.27	635,675.16
Documentary stamp tax (customs revenue).....	455,378.20	429,107.23
Income tax.....	4,880,370.25	4,212,291.02
Immigration tax.....	237,040.00	238,992.00
Tonnage dues.....	254,515.27	256,725.75
Inheritance tax.....	210,303.49	187,800.19
Others.....	5,177.92	2,018.00
Apportionment of internal revenue to local governments.....	(3,164,083.55)	(3,164,083.55)
Incidental revenue.....	2,435,107.26	5,052,875.72
Revenue from public forests.....	923,215.66	917,323.88
United States internal revenue.....	756,443.74	3,177,068.17
Fines and forfeitures.....	663,414.57	811,826.27
Sales of public domain.....	22,109.79	49,353.28
Other.....	69,923.50	97,304.12
Earnings and other credits.....	81,036,608.85	32,246,406.48
Operating income of commercial and industrial units.....	12,771,068.11	13,294,495.39
Other income of operating units.....	263,356.65	207,446.31
Dividends on bank stock.....	463,373.20	879,798.40
Income incidental to functional activities.....	3,804,389.63	3,694,578.14
Sales of fixed property.....	47,463.32	52,061.85
Sales of Friar Lands real estate.....	654,543.54	1,061,366.28
Sales of San Lazaro real estate.....	128,638.45	167,857.75
Sales of mortgaged property and collection of agricultural bank loans.....	46,267.85	127,420.57
Repayment of loans.....	465,280.00	.....
Interest repayments, railway companies.....	192,716.11	423,981.79
Proceeds of loan from the postal savings bank fund.....	.....	185,000.00
Proceeds of sales of bonds.....	19,123,906.27	12,152,400.00
Surplus transferred from the currency reserve fund.....	43,075,605.72	.....
Credit adjustments—prior year.....	1,282,546.71	459,972.80
Accounts payable adjustments.....	1,124,851.98	406,217.78
Inventory adjustments (sales stock and supplies and materials).....	146,830.03	50,421.18
Expired money orders (sec. 1973, Administrative Code).....	10,864.70	3,333.84
Total income.....	130,199,714.27	90,905,779.72
Expenditures:		
Revenue service.....	11,275,496.70	12,967,336.58
Expense of revenue collection.....	1,652,268.94	1,622,744.82
Operating expense of commercial and industrial units.....	9,623,227.76	11,344,591.76
Debt service.....	3,811,265.46	2,525,007.47
Interest on public debt.....	2,337,096.45	1,496,697.26
Payments to sinking funds.....	1,216,669.01	948,310.21
Payments of loans.....	257,500.00	80,000.00
General welfare service.....	49,105,215.35	46,928,178.95
General administration—		
Legislation.....	1,413,540.95	1,264,726.81
Executive direction and control.....	2,046,645.56	1,914,192.13
Adjudication.....	1,891,080.00	1,896,817.94

Income and expenditures for 1921 and 1920—Continued.

Items.	Fiscal year 1921.	Fiscal year 1920.
Expenditures—Continued.		
General welfare service—Continued.		
Protective service—		
National defense.....	₱133,719.43	₱112,892.00
Law and order.....	5,244,535.00	5,209,738.07
Public health.....	3,869,256.89	3,920,248.40
Protection against forces majeures.....	248,079.82	224,574.72
Regulation of public utilities.....	43,125.73	45,811.66
Other protective service.....	157,569.77	151,850.47
Social improvement—		
Public education.....	7,678,494.98	7,249,208.60
Public corrections.....	1,079,594.85	1,233,276.65
Public charities.....	457,335.42	505,143.64
Other social improvement.....		2,901.00
Economic development—		
Conservation of natural resources.....	521,262.79	522,021.73
Development of commerce.....	3,829,170.53	3,422,016.93
Development of agriculture.....	4,160,614.37	3,751,374.00
Philippine publicity.....	526,030.50	351,111.03
Development of industrial arts and sciences.....	524,787.80	455,095.59
Other economic development.....	975,103.67	1,161,769.18
Aid to local governments.....	14,305,267.29	13,473,408.40
Outlays and investments.....	45,296,792.33	12,408,024.20
Purchase and construction of public works.....	7,904,200.84	5,472,543.91
Purchase and construction of equipment.....	2,305,336.56	1,823,269.01
Corporate investments.....	26,989,672.83	3,646,267.54
Advances to railway companies under guaranty contracts.....	781,365.60	1,320,858.72
Loan to Mindanao and Sulu Filipino colonies.....		135,000.00
Advance payment of interest on municipal bonds.....	6,842.50	10,084.72
Loans to government branches and Manila city bonds.....	7,309,314.00	
Extraordinary charges, pensions and retirement gratuities.....	533,226.41	682,598.53
Transfer to the currency reserve fund.....	8,147,021.24	
Debit adjustments, prior year, accounts receivable written off.....	18,936.66	
Total expenditures.....	118,194,210.62	75,511,145.73
Increase in current surplus for the year.....	12,005,503.65	15,394,633.99
Add current surplus at the beginning of the year.....	43,937,712.34	28,543,078.35
Current surplus at the end of the year.....	55,943,215.99	43,937,712.34

While in 1920 there were two extraordinary items of income, totaling ₱12,337,400, the proceeds from the sale of Manila port works bonds and of the loan from the postal savings banks for the improvement of that port, in 1921 there was also the extraordinary income of ₱19,123,906.27 as proceeds from the sale of irrigation bonds and of ₱43,075,605.72 transferred to the general fund from the currency reserve as excess over the minimum prescribed for the said reserve by act No. 2939. By deducting the extraordinary items above mentioned, the total income for 1920 is reduced to ₱78,568,379.72 and that for 1921 to ₱68,000,202.28, thus showing a decrease of a little over ₱10,000,000 instead of the apparent increase of approximately ₱40,000,000. Considerable decreases are shown by import duties, by excise taxes, because of the reduced production of distilled spirits and cigarettes, by license and business taxes on account of the great decrease in the percentage tax on merchants' sales, and by the United States internal revenue due to the almost complete paralysis of the cigar-export trade with the United States. However, the income tax collected in 1921 was the greatest yet recorded in the islands, notwithstanding the effects of the economic depression which began to be felt in the second part of 1920. Various causes contributed to this increased collection, the most salient among which is the passage of act No. 2926, reducing the personal exemption from ₱6,000 and ₱8,000 to ₱4,000 and ₱6,000, respectively, according to whether the taxpayer is single or married, increasing the rate of normal tax from 2 to 3 per cent, and lowering the level of income subject to additional tax from ₱29,000 to ₱10,000. Moreover, the excellent work accomplished by the field force of the bureau of internal revenue resulted in the detection of underdeclared incomes and in the disallowance of nondeductible expenses claimed by the taxpayers. It may be added that the gradual acquaintance of the taxpaying public with the income-tax law contributed to the results obtained.

The total of expenditures authorized by the different appropriation acts of 1921, including outstanding appropriations of prior years, amounted to more than ₱153,000,000. In view of the alarming decrease in revenue during the year, the department of finance immediately adopted the necessary measures to meet the existing conditions. The law provides that in such cases the secretary of finance shall immediately call a meeting of the emergency board and propose adequate measures to reduce the expenditures. The proposition of the board has the effect of law as soon as approved by the presiding officers of both houses and concurred in by the governor general. During the second quarter the emergency board revised the appropriations for the current year and those outstanding of previous years, conferred with chiefs of bureaus, sensed the opinion of the council of state in matters affecting general policy, and, after six weeks of exacting and continuous work, submitted its final recommendations. These were approved by the presiding officers of both houses of the legislature and concurred in by the governor general, and they involved the reduction of the rates of bonuses, with their ultimate abolition in view, the restrictions on promotions and new appointments, the suppression of certain secondary activities, the limitation of the use of automobiles, economy in the consumption of supplies and materials, and the suspension of some public works. The reductions thus made gave a total of more than ₱13,000,000, of which ₱11,100,000 belonged to the appropriation for 1921 and ₱2,200,000 to outstanding appropriations of former years.

Section 4 of act No. 2939, which became effective January 28, 1921, and was amendatory to section 1624 of the Administrative Code, fixes the minimum of the currency reserve fund at "60 per cent of the nominal value of the treasury certificates in circulation up to a total circulation of ₱120,000,000, and 100 per cent of such circulation in excess of ₱120,000,000, increased by the proceeds of such certificates of indebtedness as may be sold." Said section provides also that "any surplus in the currency reserve fund above the minimum established, including all investments of the same, is hereby transferred to the general fund in the treasury." Pursuant to this provision, the sum of ₱43,075,605.72 was transferred, as previously mentioned, from the reserve fund to the general fund. This sum consists in ₱7,309,314, representing loans to various government branches and city of Manila bonds, which appeared as expenditures during the year, and in ₱35,766,291.72, the amount of gold deposits with the Philippine National Bank. Of this last sum, ₱22,915,960 were used to pay for stocks of the said bank. ₱2,000,000 for stocks of the Manila Railroad Co., ₱2,050,000 for stocks of the National Development Co., and ₱23,712.30 to redeem from the national bank certain securities of the old agricultural bank, or a total of ₱26,989,672.83, which appear in the expenditures of 1921 as corporate investments. Further operations of the reserve fund reduced it to less than the legally prescribed minimum, and it was replenished by retransferring from the general fund the sum of ₱8,147,021.24, which appears also as an expenditure for 1921. Deducting these three important items caused by the transactions made with the currency reserve fund, the total net expenditures for 1921 are reduced to ₱75,748,203.38, a sum slightly larger than the total expenditures for 1920.

In general terms, substantial economy has been effected in the expenditures of government offices, but it has been necessary to meet indispensable expenses, such as the increase in the interest and sinking funds for the new irrigation bonds, the foggy for constabulary officers, the extension of educational facilities, the construction and maintenance of piers, port works, irrigation systems, public buildings, and telegraph lines, the purchase of equipment for public works, for wireless telegraphy, and for the bureau of posts, the University of the Philippines, Malacañang, the senate, and the bureau of science. Considering the expenditures for educational and health purposes included in the items of aid to the local governments, purchase and construction of public works, and purchase and construction of equipment, the total amount spent by the insular government in 1921 for public education reached ₱18,415,934.71 as compared with ₱16,295,631.34 in 1920, being 40.5 per cent of the total revenue from taxation. Likewise, the total expenditures for the health service in 1921 were ₱5,508,181.84, somewhat less than those for 1920, which amounted to ₱5,785,932.42, on account of the economy effected in the consumption of supplies.

More detailed information is furnished below of the transactions made by the four bureaus under the jurisdiction of the department of finance.

BUREAU OF THE TREASURY.

GENERAL TREASURY CASH ACCOUNT.

The following statement shows the movement of funds in the insular treasury during the fiscal year 1921:

General treasury fund:			
Balance on hand Dec. 31, 1920	-----	₱10,876,336.19	
Receipts, cash deposits	-----	307,325,027.31	
Total	-----		₱318,201,363.50
Expenditures, cash withdrawals	-----		293,845,661.33
Balance on hand Dec. 31, 1921	-----		₱24,355,702.17
City of Manila fund:			
Balance on hand Dec. 31, 1920 (overdrawn)	-----	(₱1,918,211.09)	
Deposits, cash deposits	-----	6,582,820.27	
Total	-----		4,664,609.18
Withdrawals, cash	-----		4,662,011.98
Balance on hand Dec. 31, 1921	-----		2,597.20
Depository fund:			
Balance on hand Dec. 31, 1920	-----	₱3,231,769.35	
Deposits—			
Treasurer of United States and United States disbursing officers	-----	77,390,975.12	
Insular disbursing officers	-----	37,361,894.03	
Total	-----		117,984,638.50
Withdrawals—			
Treasurer of United States and United States disbursing officers	-----	65,757,208.68	
Insular disbursing officers	-----	39,424,107.37	
Total	-----		105,181,316.05
Balance on hand Dec. 31, 1921	-----		12,803,322.45
Currency reserve fund:			
Balance on hand Dec. 31, 1920	-----	103,235,964.19	
Receipts—			
Cash deposits	-----	99,714,419.41	
Certificates issued	-----	23,726,300.00	
Currency exchanges	-----	127,481,868.73	
Total	-----		354,158,552.33
Expenditures—			
Cash withdrawals	-----	129,215,107.82	
Certificates retired	-----	51,378,600.00	
Currency exchanges	-----	127,481,868.73	
Total	-----		308,075,576.55
Balance on hand Dec. 31, 1921	-----		46,082,975.78
Total funds for which the insular treasurer was accountable on Dec. 31, 1921	-----		83,244,597.60

This balance of ₱83,244,597.60 was distributed as follows:

Distribution of funds.

	United States currency.	Philippine currency.	Total Philippine currency.
In treasury vaults	\$990,479.17	₱18,258,279.49	₱20,239,237.83
On deposit with local banks:			
On open account		1,623,071.08	1,623,071.08
On time deposit		3,918,791.47	3,918,791.47
On deposit with banks in United States	28,731,748.61		57,463,497.22
Total	29,722,227.78	23,800,142.04	83,244,597.60

The general treasury fund balance of ₱24,355,702.17 is made up by the cash balances of the following accounts:

General fund-----	₱ 22, 294, 561. 23
Sinking funds:	
Friar lands bonds sinking fund, acts Nos. 1749, 2550, and 2592-----	548, 448. 45
Public works bonds sinking fund, acts Nos. 1729 and 2425-----	252, 657. 15
Manila railroad purchase bonds sinking fund, act No. 2625-----	513, 970. 41
Manila sewer and waterworks bonds sinking fund, act No. 1323-----	162, 819. 75
Cebu waterworks bonds sinking fund, act No. 2009-----	33, 222. 50
Santa Cruz, Laguna waterworks bonds sinking fund, act No. 2773-----	3, 486. 84
Majayjay, Laguna waterworks bonds sinking fund, act No. 2773-----	1, 549. 70
Manila port works and improvement bonds sinking fund, act No. 2940-----	235, 167. 95
Special funds:	
Property insurance fund, act No. 2711-----	75, 999. 92
Fidelity insurance fund, acts Nos. 1739 and 2711-----	53, 752. 92
Land title assurance fund, act No. 496-----	180, 065. 35
Total-----	24, 355, 702. 17

The following statement shows the cash balance on hand, December 31, 1921, of accounts composing the depository fund balance of ₱12,803,322.45:

Antituberculosis Society-----	₱ 8, 000. 46
Austin memorial fund-----	279. 00
Burnham memorial fund-----	780. 00
Cavite light franchise section 2, act No. 667-----	1, 000. 00
Coast and Geodetic Survey disbursing officers-----	4, 886. 72
Fourth of July celebration fund-----	5, 484. 85
Gomez memorial trust fund-----	591. 50
Insular disbursing officers-----	297, 884. 55
Manila Railroad Co., contract No. 4-----	20. 00
Philippine National Bank 5 per cent interest on circulating notes, act No. 2924-----	49, 325. 00
Philippine National Bank redemption fund, act No. 2938-----	58, 025. 17
Rizal Day 1917 fund-----	11. 20
Treasurer Philippine Islands overage account-----	108. 48
Trust fund, section 1, act No. 1592, Manila Railroad Co. condemnation proceedings-----	33, 157. 34
Trust fund, section 2, act No. 1510, Manila Railroad Co.-----	179, 078. 06
Trust fund, act No. 2393, Silay Electric & Ice Plant Co.-----	1, 000. 00
United States Treasurer and United States disbursing officers-----	12, 163, 690. 12
Total-----	12, 803, 322. 45

The balance of ₱46,082,975.78 in the currency reserve fund is made up of \$990,479.17, United States currency, and ₱12,511,328.99, Philippine currency, held in the treasury vaults, and \$15,795,344.22½, United States currency, deposited with banks in the United States. Of the \$15,795,344.22½ aforesaid, \$1,000,000 draw interest at the rate of 3½ per cent and \$14,795,344.22½ at 2½ per cent.

The sum of ₱1,623,071.08 shown above under the heading "Distribution of funds" as on open account with local banks represents the balance of current account with the Philippine National Bank and draws interest at the rate of 1 per cent per annum on daily balances.

The following statement shows the accounts to which the time deposits of ₱3,918,791.47 pertain and the banks that hold them, together with the rate of interest paid therefor:

Name of fund.	Name of bank.	Interest per annum.	Amount of deposits.
General fund.....	Philippine National Bank.....	<i>Per cent.</i> 3½	₱3,700,000.00
Franchise deposits.....	do.....	5½	1,071.22
Depository funds:			
Fourth of July celebration fund.....	do.....	5½	5,484.85
Manila Railroad Co. trust fund, act No. 1592.....	do.....	5½	33,157.34
Manila Railroad Co. trust fund, act No. 1510.....	do.....	5½	179,078.06
Total.....	.....	.....	3,918,791.47

The sum of \$28,731,748.61 mentioned above as being on deposit with banks in the United States on December 31, 1921, and of which \$12,936,404.88½ pertain to the general fund and \$15,795,344.22½ to the currency reserve fund, is distributed as follows:

Chase National Bank, New York City.....	\$5,462,239.38
Gold deposit with the Philippine National Bank.....	23,269,509.23
Total.....	28,731,748.61

SPECIAL FUNDS.

Land title assurance fund.—The purpose of this fund created by Act No. 496, known as the land registration act, is to reimburse any one who may lose title to property registered under the act. The net income during the year amounted to ₱15,053.19, derived from percentage fees on lands registered and from interest and dividends from investments. No claims against the fund have yet been paid since the passage of the act. The amount of the fund at the close of the year was ₱262,874.48.

Property insurance fund.—Under the provisions of Act No. 2711, known as Administrative Code, this fund was established for the insurance of government vessels and crafts, government machinery, permanent public buildings, government property therein and government property in rented buildings, against destruction or damage resulting from fire, earthquake, storm, or other casualty.

The property of the insular government is deemed to be so insured solely by virtue of the law, without any formality and free of charge.

The property of a Province, city, municipality, or other local political division is insured only with the approval of the secretary of finance, and the premium for insurance is fixed with his approval.

The income of the fund during the year was ₱118,757.38 and derived from premium on insurance, profit from investment and a continuing annual appropriation, while the losses paid amounted to ₱42,757.46, or a net increase to the fund of ₱75,999.92.

The following are the more important losses paid during the year:

Bureau of customs, repairs to motor launch <i>C. S. S. No. 3</i>	₱10,000.00
Bureau of customs, repairs to customs launch of the Jolo customs house.....	900.00
Bureau of printing machinery, damaged in carnival fire.....	12,357.85
Bureau of the treasury, replacing equipment and repairs, Intendencia Building fire.....	4,467.25
Province of Romblon, cost of steamer <i>Moleño</i> lost Aug., 1920, typhoon.....	13,000.00

Fidelity bond premium fund.—This fund was created for the insurance of the fidelity of officers and employees of the government and certain semi-governmental institutions. The rate of premium for the insurance in this fund was one-half of 1 per cent per annum prior to July 1, 1919, the date when it was reduced to one-fourth of 1 per cent. Of this premium, one-third is borne by the officer or employee and two-thirds by the office to which the bonded position pertains. The income of the fund during the year was ₱63,121.84, and derived from premium and interest on investment and sums

recovered from defaulters, while the expenses amounted to ₱71,263.62 or a net decrease to the fund of ₱8,141.78, which was covered by an appropriation from the general fund in pursuance of section 326 of Act No. 2711.

The total amount of outstanding bonds on December 31, 1921, was ₱25,564.450. The losses paid during the year were ₱68,015.12. Of this amount ₱50,282.50 pertain to 21 provincial and municipal employees; ₱16,031.40 to 5 insular employees, and ₱1,701.22 to 3 employees of national companies.

CURRENCY RESERVE FUND.

The functions of maintaining the parity of the Philippine silver peso with the theoretical gold peso and of redeeming the treasury certificates issued devolved upon this fund since the passage of Act No. 2776 on August 16, 1918, which was amended by Act No. 2939, approved January 28, 1921, and proclaimed by the Governor General on February 3, of the same year.

For the purpose of redeeming at maturity the \$10,000,000 temporary certificates of indebtedness issued on August 2, 1920, new certificates of indebtedness in the same sum were floated in the United States on the 2d of August, 1921. This was made possible by an act of Congress, approved July 21, 1921, amending the Jones law in the sense that the government of the Philippine Islands is authorized to issue temporary certificates of indebtedness in the amount of \$20,000,000 instead of \$10,000,000.

The receipts of the fund during the year 1921, derived from interest on bank deposits, premium on exchange, seigniorage, and other miscellaneous items, were ₱4,703,211.66, or ₱2,643,399.55 less than the receipts for the previous year, which amounted to ₱7,346,611.21. This difference is largely due to the transfer to the general fund of the surplus of the currency reserve fund above the minimum established, including all investments of the same made pursuant to the provisions of act No. 2939, thereby depriving this fund of the interest on the amount so transferred, consisting of bank deposits, loans, and bonds.

The premiums on exchange have also decreased from ₱4,719,959.40 in 1920 to ₱3,369,723.49 in 1921. Despite the high rate charged on exchange on New York during the first half of the year, and of the suspension of its sale to the public for an appreciable portion of the year, exchange was sold to the amount of \$19,418,290.06, as compared with \$32,477,708 in 1920, \$11,810,799.20 in 1919, \$1,100,074.44 in 1918, \$729,840.58 in 1917, and \$8,887,930.70 in 1916.

The funds received during the year from the Treasurer of the United States to meet the expenses of the United States Government in the Philippine Islands amounted to ₱19,500,000. This amount includes the sum of ₱15,500,000, which was carried in a special account to the credit of the Treasurer of the United States, earning an interest of 7 per cent per annum.

The total expenses from the fund amounted to ₱2,279,744.78, as compared with ₱1,560,223.90 for the previous year. The increase of ₱719,520.88 is largely accounted for by interest paid on the certificates of indebtedness and the discount suffered on account of the sale of the same below par.

Under the provisions of act No. 2939 any surplus in the currency reserve fund above the minimum established therein, including all investments of the same existing at the time this act took effect, shall be transferred to the general fund in the treasury. Accordingly, ₱43,075,605.72 have been transferred to the general fund, which amount was made up of the following:

Investments:

Provincial and municipal loans-----	₱1,399,314.00
Central government loan-----	410,000.00
City of Manila bonds-----	5,500,000.00
Accrued interest-----	2,563.59
Cash due from the general fund on deposit with the Philippine National Bank, Manila, and part of gold deposit with the Philippine National Bank payable in New York City in United States currency-----	35,763,728.13
Total-----	43,075,605.72

The law also provides that if at any time and for whatever reason the currency reserve fund shall fall below the minimum required, the amount necessary to bring it up to the said minimum shall be considered automatically appropriated out of any funds in the insular treasury or thereafter paid in not otherwise appropriated to meet the payment of the interest, sinking fund, and

principal of the public debt; and the amounts thus automatically appropriated shall be transferred forthwith by the insular treasurer to the currency reserve fund. In accordance with the above provision, the amounts given below, aggregating ₱8,147,021.24, were appropriated during the year from the general fund and transferred to the currency reserve fund:

1921—

May	₱3, 265, 662. 40
June	502, 731. 82
July	684, 602. 26
August	2, 317, 308. 92
September	123, 796. 19
November	1, 252, 919. 65
Total	8, 147, 021. 24

With this restoration to the currency reserve fund the original amount transferred to the general fund shown above was reduced to ₱34,928,534.48 on December 31, 1921.

The minimum of the currency reserve fund established by act No. 2939 is 60 per cent of the nominal value of the treasury certificates in circulation up to a total circulation of ₱120,000,000, and 100 per cent of such circulation in excess of ₱120,000,000, increased by the proceeds of the outstanding certificates of indebtedness in the manner provided by said act.

The minimum of the currency reserve fund on December 31, 1921, should, therefore, be as follows:

60 per cent of net amount in treasury certificates in circulation as follows:

Issued	₱39, 881, 019. 00	
Amount in treasury vaults	269, 402. 70	
Net	39, 611, 616. 30	₱23, 766, 969. 78
Outstanding certificates of indebtedness		20, 000, 000. 00
Total minimum of the fund		43, 766, 969. 78

This minimum is kept as follows:

Cash in treasury vaults	₱14, 492, 287. 33	
Less treasury certificates in vaults	269, 402. 70	
		₱14, 222, 884. 63
On deposit with banks in United States:		
Chase National Bank, New York City		10, 924, 478. 76
Gold deposit with Philippine National Bank, payable in New York in United States currency		18, 619, 606. 39
Total		43, 766, 969. 78

The gold deposit with the Philippine National Bank represents balances of amounts delivered to the New York agency of the bank and is payable by said bank in New York and in the same currency on demand.

The condition of the fund as of December 31, 1921, is as follows:

Balances, Dec. 31, 1921:

Current assets—		
Accrued interest receivable, bank deposits		₱134, 765. 21
Accounts receivable, service income		458. 15
Cash in treasury vaults and on deposit with banks in the United States	₱46, 082, 975. 78	
Less outstanding warrants	44, 053. 63	
		46, 038, 922. 15
Total assets		46, 174, 145. 51
Current liabilities—		
Certificates of indebtedness	\$20, 000, 000. 00	
Accrued interest payable	1, 931, 150. 68	
Total liabilities		21, 931, 150. 68
Balance		24, 242, 994. 83

CIRCULATION.

The circulation of the islands on December 31, 1921, consisted of the following:

Treasury certificates	₱39,611,616.30
Silver and minor coinage	21,812,451.85
Notes, Bank of the Philippine Islands	8,906,972.50
Notes, Philippine National Bank	33,330,779.25

Total 103,661,819.90

Based on the population of the Philippine Islands of 10,350,640 as per census of 1918, the per capita circulation on December 31, 1921, would be ₱10.02.

BONDED INDEBTEDNESS.

The bonded indebtedness of the government of the Philippine Islands is as follows:

Issue.	Date of maturity.	Amount.	Rate.
Friar-lands bonds	Feb. 1, 1934	₱14,000,000	<i>Per cent.</i> 4
Public-works bonds:			
First issue	Mar. 1, 1935	5,000,000	4
Second issue	Feb. 1, 1936	2,000,000	4
Third issue	Aug. 31, 1939	3,000,000	4
Manila sewer and waterworks bonds:			
First issue	June 1, 1935	2,000,000	4
Second issue	Jan. 2, 1937	4,000,000	4
Third issue	Jan. 2, 1938	2,000,000	4
Cebu waterworks bonds	Jan. 1, 1941	250,000	4
Manila Railroad purchase bonds	Dec. 1, 1946	8,000,000	4
Santa Cruz, Laguna waterworks bonds	Jan. 1, 1949	90,000	5
Majayjay, Laguna waterworks bonds	do	40,000	5
Bangued, Abra waterworks bonds	do	40,000	5
Manila port works and improvement bonds	Sept. 1, 1950	12,000,000	5½
City of Manila bonds, issue of 1920	Dec. 1, 1950	5,500,000	5½
Irrigation and public-works bonds	Aug. 1, 1941	20,000,000	5½
Total		77,920,000	

Adequate legislation provides for sinking funds to redeem these bonds at maturity. The accretions of the sinking funds consist of the interest derived from investment and of the annual allotments from the insular government and the cities of Manila and Cebu and the municipalities of Santa Cruz and Majayjay, Laguna Province, and Bangued, Abra Province, as the case may be. Excepting the cases of Manila sewer and waterworks and Cebu waterworks, these sinking funds are adjusted annually, so that the amount thereof at each annual due date of the bond issues shall be equal to the total annuity of such a sum, for each million pesos of bonds outstanding, as with interest at the rate of 3½ per cent per annum shall be sufficient to retire the bonds at maturity.

The balances of the bond sinking funds at the close of the year were as follows:

Friar lands bonds sinking fund	₱6,355,124.27
Public works bonds sinking fund	3,722,930.30
Railroad purchase bonds sinking fund	833,448.59
Manila sewer and waterworks bonds sinking fund	2,915,534.03
Manila port works and improvement bonds sinking fund	235,167.95
Cebu waterworks bonds sinking fund	47,267.61
Santa Cruz, Laguna, waterworks bonds sinking fund	3,486.84
Majayjay, Laguna, waterworks bonds sinking fund	1,549.70
Total	14,114,509.29

GUARANTY OF INTEREST ON BOND ISSUES OF RAILWAY CORPORATIONS.

Under the authority of an act of Congress approved February 6, 1905, the insular government guarantees 4 per cent interest for a period not to exceed

30 years on the first-lien bonds issued by the Philippine Railway Co. for the construction of certain lines in the islands of Panay and Cebu and by the Manila Railroad Co. for the construction of the southern lines in the island of Luzon.

On December 31, 1921, the combined issues of both companies outstanding totaled \$22,452,000 United States currency, and the net balance of the sums advanced by the government under the above guaranty was ₱7,481,723.22.

INVESTMENTS.

The following statement shows the status of investments on December 31, 1921, made from different funds under the control of the insular treasurer:

Title of funds:

General fund.....	₱58,197,673.69
Manila sewer and waterworks bonds sinking fund, act No. 1323.....	2,731,072.50
Public works bonds sinking fund, act No. 2425.....	3,453,580.00
Friar lands bonds sinking fund, acts Nos. 1749, 2550, and 2592.....	5,755,484.45
Cebu waterworks bonds sinking fund, act No. 2009.....	14,000.00
Manila Railroad purchase bonds sinking fund, act No. 2675.....	317,748.40
Manila Railroad southern lines bonds sinking fund.....	18,705.54
Land title assurance fund, act No. 496.....	82,084.04
Fidelity bond premium fund, sections 313 to 335, act No. 2711.....	45,000.00
Purchase of the Manila Railroad Co. stock, act No. 2574.....	8,000,000.00
Total.....	78,615,348.62

Title of accounts:

Philippine National Bank stock.....	32,420,000.00
Bank of the Philippine Islands stock.....	116,550.00
Manila Railroad Co. stock.....	22,127,000.00
National Coal Co. stock.....	2,960,900.00
National Development Co. stock.....	3,600,000.00
Fixed bank deposits.....	945,810.54
Friar lands bonds.....	410,000.00
Public works bonds.....	468,000.00
Manila sewer and waterworks bonds.....	796,000.00
Philippine Railway Co. first mortgage bonds.....	1,793,300.00
Manila Railroad Co. first mortgage bonds.....	58,131.50
Manila Hotel Co. bonds.....	600,000.00
City of Manila bonds.....	5,500,000.00
Liberty loan bonds.....	51,618.44
Provincial and municipal loans.....	6,603,198.45
Unconverted agricultural bank loans.....	164,839.69
Total.....	78,615,348.62

REJECTED AGRICULTURAL BANK LOANS.

The outstanding loans on December 31, 1921, aggregate ₱164,839.69 and represent loans rejected by the Philippine National Bank at the time said bank took over the assets and liabilities of the late agricultural bank in accordance with the provisions of section 6 of Act No. 2747, and those that have been subsequently returned by said bank as uncollectible, pursuant to section 7 of the above-mentioned act.

The total amount of loans returned by the Philippine National Bank during the year as uncollectible is ₱18,470, while collections were made to the amount of ₱40,241.

MINT DIVISION.

The Philippine mint became a division of the bureau of the treasury on November 1, 1921, by a resolution of the council of state of October 21, 1921,

in pursuance of the provisions of Act No. 2935. Due to this merger, the chief of the cash division, bureau of the treasury, has been designated superintendent of the mint without extra compensation.

Out of 59 employees, which the mint had on November 1, 1921, only 35 remained at the close of the year, 24 having been dropped during the last two months. Further reduction in personnel is now being considered, and, in fact, at the present writing the personnel of the mint division has been reduced to 11 employees only.

From the beginning of the year, up to November 30, the mint was operated at full capacity, and during December at half capacity only.

The total coinage for the year 1921 is as follows:

Denomination.	Number of pieces coined.	Face value of pieces coined.
50 centavos.....	2, 183, 539	₱1, 091, 769. 50
20 centavos.....	1, 842, 822	368, 564. 40
10 centavos.....	4, 383, 306	438, 330. 60
5 centavos.....	2, 131, 529	106, 576. 45
1 centavo.....	7, 282, 673	72, 826. 73
Total.....	17, 823, 869	2, 078, 067. 68

In addition to this 200 bronze medals were struck for the officers and crew of the U. S. S. *Helena*, in September, under authority of the secretary of finance.

During the year a total of ₱2,236,710.20 was transferred from the cash division for recoinage, as follows:

New issue, pesos.....	₱2, 200, 000. 00
New issue, subsidiary, mutilated.....	244. 92
Old issue, pesos and subsidiary.....	13, 045. 20
Spanish and Mexican silver coins.....	20, 110. 51
Nickel.....	9. 71
Copper, Philippine.....	17. 78
Copper, Spanish.....	3, 282. 08
Total.....	2, 236, 710. 20

The greater part of the machinery and other equipment ordered for the gold refinery and assay office has been received and it is believed that installation can be started within the current year if it is found that such installation is necessary.

Expenses, operation returns, and income of the mint.—The total expenses during the year were ₱169,296.64, and the receipts for coinage charges, sales of bronze and silver commemorative medals, sales of sacks and other miscellaneous receipts amounted to ₱289,039.90. To the latter amount there should be added a credit adjustment for prior year expense in the amount of ₱2,056.07, making a total of ₱291,095.97. It will therefore be noted from the above that a net gain of ₱121,799.33, including the credit adjustment mentioned, was made during the year.

BANKS AND BANKING.

Pursuant to the provisions of the Administrative Code, act No. 2711, the supervision and examination of all banks and building and loan associations doing business in the Philippine Islands is vested in the insular treasurer.

Following is the list of banks and building and loan associations engaged in business during the year:

DOMESTIC.

- Philippine National Bank, Manila, with branches at Aparri, Cabanatuan, Dagupan, Davao, Iloilo, Legaspi, Lucena, Naga, and Vigan, P. I.
- Bank of the Philippine Islands, Manila, with branches at Iloilo and Zamboanga.
- China Banking Corporation, Manila.
- Monte de Piedad & Savings Bank, Manila.
- The Philippine Trust Co., Manila.
- Postal Savings Bank, Manila.

El Hogar Filipino, Manila.
 Manila Building & Loan Association, Manila.
 Zamboanga Building & Loan Association, Zamboanga.

FOREIGN.

International Banking Corporation, branch in Manila, with subagency at Cebu.

Hongkong and Shanghai Banking Corporation, branch in Manila, with subagency at Iloilo.

Chartered Bank of India, Australia, and China, branch in Manila, with sub-agencies at Cebu and Iloilo.

The Yokohama Specie Bank (Ltd.), branch in Manila.

Asia Banking Corporation, branch in Manila.

The Chinese American Bank of Commerce, formerly the Foreign Banking Corporation, branch in Manila.

A comparative consolidated statement of the resources and the liabilities of all banks and trust companies engaged in business in the islands at the close of business on December 31 for the years 1920 and 1921 is inserted below:

	Dec. 31—		Increase (+) or decrease (-).
	1920	1921	
RESOURCES.			
Loans and discounts.....	₱116,023,840.77	₱131,507,519.23	+ ₱15,483,678.46
Overdrafts.....	103,547,008.63	70,753,659.00	-32,793,349.63
Due from other banks, head office, branches, and agents.....	86,081,849.31	70,512,321.39	-15,569,527.92
Cash on hand and other cash items.....	13,825,965.39	16,927,172.30	+3,101,206.91
Other resources.....	111,926,412.90	90,801,978.22	21,124,434.68
Total.....	431,405,077.00	380,502,650.14	-50,902,426.86
LIABILITIES.			
Capital stock.....	23,093,289.58	49,393,814.02	+26,300,524.44
Reserve fund.....	12,151,752.87	12,007,372.80	-144,380.07
Bank notes in circulation.....	33,368,941.95	42,237,751.75	+8,868,809.80
Deposits.....	197,985,583.67	144,197,579.38	-53,788,004.29
Due to other banks, head office, branches, and correspondents.....	117,991,741.21	98,020,833.99	-19,970,907.22
Other liabilities.....	46,813,767.72	34,645,298.20	-12,168,469.52
Total.....	431,405,077.00	380,502,650.14	-50,902,426.86

The above statement shows that the total resources of the present year have suffered a substantial decrease as compared with that of last year.

While the loans and discounts of this year registered an increase over those of last year, the overdrafts have decreased. This fact can be explained partly by the new policy followed by some banks of converting overdrafts into promissory notes.

The combined capital stock of all banks have more than doubled the amount last year due to the capital stock of the Philippine National Bank having been increased.

The deposits have decreased. One reason for this decrease is, it is believed, the fact that the interest rate paid by the banks being far below the rate paid outside, the funds are withdrawn from the banks and invested or loaned outside.

INSURANCE.

On December 31, 1921, there were 17 fire, 4 marine, 5 life, 21 fire and marine, and 21 miscellaneous insurance companies engaged in business in the Philippine Islands. The business done by said companies in the Philippine Islands except those writing life insurance as per statements filed with this office is as follows:

Fire insurance.

Net risk written.....	₱317,294,167.44
Net premiums received.....	3,775,692.59
Net losses incurred.....	2,794,198.34
Net losses paid.....	3,006,999.72
Ratio of losses incurred to premiums collected (per cent).....	74

Marine insurance.

Net risk written.....	₱233,052,220.04
Net premiums received.....	1,061,214.13
Net losses incurred.....	301,326.43
Net losses paid.....	756,631.36
Ratio of losses incurred to premiums collected (per cent)....	28.39

Miscellaneous insurance.

	Accident.	Motor car.	Fidelity and surety.	Plate glass.	Typhoon, flood, and earthquake.
Net risk written.....	₱1,088,700.00	₱2,009,176.00	₱16,550,895.49	.....	₱5,584,150.00
Net premiums received.....	15,129.65	75,210.85	199,861.80	₱671.57	34,683.77
Net losses incurred.....	8,654.04	32,839.98	57,684.65	281.00	.....
Net losses paid.....	8,654.04	51,740.44	96,449.08	281.00	.....
Ratio of losses incurred to premiums collected.....	1 57.19	1 43.66	1 28.86	1 41.84	.....

¹ Per cent.

NOTE.—The above amounts were taken from the reports of 13 miscellaneous insurance companies so far received.

BUREAU OF CUSTOMS.

CUSTOMS COLLECTIONS.

The amount of customs revenue collected by this bureau during the year 1921 was ₱16,863,064.14, as against ₱17,757,865.34 for 1920, or a decrease of 5.03 per cent. The decrease is due to the fact that a large portion of the total importations were cleared free of duty and to the dullness in the local market resulting in decreased importations of dutiable goods. The cost of collection averaged ₱0.089 for every peso collected.

The principal sources of collections for 1921 are specified in the following statement:

Sources.	1921	1920	Increase (+) or decrease (-).
Import duties.....	₱13,279,692.20	₱14,490,186.55	- ₱1,210,494.35
Wharfage dues.....	1,476,229.41	1,061,608.95	+414,620.46
Immigration dues.....	246,736.00	251,280.00	-4,544.00
Tonnage dues.....	255,617.86	257,757.86	-2,140.00
Customs stamps.....	455,574.20	429,235.23	+26,338.97
Fines, penalties and forfeitures.....	34,005.87	111,288.98	-77,283.11
Storage.....	181,627.51	181,590.66	+36.85
Surplus, auction sales.....	53,436.08	31,883.30	+21,552.78
Arrastre collections.....	493,086.46	429,485.65	+63,600.81
Government pier collections.....	112,825.99	91,470.06	+21,355.93
Various other sources.....	274,232.56	422,078.10	-147,845.54
Total.....	16,863,064.14	17,757,865.34	-894,801.20

Besides the total collections shown above, the bureau of customs collected during the year internal revenue taxes on imported merchandise amounting to ₱3,712,326.72. As compared with the collections in 1920, those of the year under review showed an increase of 11.83 per cent. The increase is accountable for the fact that goods subject to this tax originating in the United States are not upon entry exempted from the payment of such tax, as well as to increased importations of commodities subject to the said tax.

FOREIGN COMMERCE OF THE PHILIPPINE ISLANDS.

While the year 1921 closed with a balance of trade against the islands, the value of importations being ₱231,677.148 and the exportations ₱176,230.645, as compared with ₱298,876,565 and ₱302,247,711, respectively, for the preceding year, still the year under review presents substantial commercial returns for the Philippines greater than any of the previous years since the American

occupation, with the only exception of the years 1918, 1919, 1920, during which period the foreign commerce of the country had reached a stage of unprecedented development, caused by postarmistice events, resulting in the increased values of our principal export products, especially sugar.

The following table shows the values of imports, exports, total trade, and trade balance from the year 1899 to 1921:

Year ended Dec. 31.	Imports.	Exports.	Total trade.	Balance of trade.	
				In favor of islands.	Against islands.
1899	₱38,385,792	₱29,693,164	₱68,079,136		₱8,692,808
1900	49,727,558	45,980,746	95,708,304		3,746,812
1901	60,324,942	49,006,706	109,331,648		11,318,236
1902	66,684,332	57,343,808	124,028,140		9,340,524
1903	67,622,768	64,793,492	132,416,260		2,829,276
1904	59,155,462	58,299,000	117,454,462		856,462
1905	60,101,100	66,909,548	127,010,648	₱6,808,448	
1906	52,807,536	65,285,784	118,093,320	12,478,248	
1907	60,907,620	66,195,734	127,103,354	5,288,114	
1908	58,372,240	65,202,144	123,574,384	6,829,904	
1909	62,168,838	69,848,674	132,017,512	7,679,836	
1910	99,438,722	81,256,926	180,695,648		18,181,796
1911	96,048,814	89,674,254	185,723,068		6,374,560
1912	123,335,802	109,846,600	233,182,402		13,489,202
1913	106,625,572	95,545,912	202,171,484		11,079,660
1914	97,177,306	97,379,268	194,556,574	201,962	
1915	98,624,367	107,626,008	206,250,375	9,001,641	
1916	90,992,675	139,874,365	230,867,040	48,881,690	
1917	131,594,061	191,208,613	322,802,674	59,614,552	
1918	197,198,423	270,388,964	467,587,387	73,190,541	
1919	237,278,104	226,235,652	463,513,756		11,042,452
1920	298,876,565	302,247,711	601,124,276	3,371,146	
1921	231,677,148	176,230,645	407,907,793		55,446,503

TRADE BY COUNTRIES.

The United States, as usual, was by far the leading figure in the foreign trade of the islands in 1921. As compared with 1920 figures, the total trade with the United States during the year showed a notable decrease of 36.8 per cent. The decrease was due to a great extent to an appreciable curtailment of our exportations to that country from ₱210,432,525 in 1920 to ₱100,713,586 in 1921. Our importations, on the other hand, registered a slight decrease of ₱36,319,526 as compared with the preceding year. The apprehension, however, that the foreign commerce of the islands is gradually being captured by foreign countries, such as Japan, China, and the Netherlands, due to the decrease in the percentage of total foreign trade carried on with the United States, is only apparent rather than real, considering the total volume of trade and the export value carried on with the aforementioned countries.

The following table shows the distribution of trade among the countries doing business with the islands for the year 1921:

Countries.	Imports.		Exports.		Total trade.	
	Value.	Per-centage.	Value.	Per-centage.	Value.	Per-centage.
United States	₱148,260,030	64.00	₱100,713,586	57.15	₱248,973,616	61.04
Hawaii	1,853,003	.80	551,758	.31	2,404,761	.59
Guam	2,446		341,765	.19	344,211	.08
Japan	21,269,531	9.18	13,825,435	7.85	35,094,966	8.60
China	19,096,018	8.24	5,150,260	2.92	24,246,278	5.94
United Kingdom	8,596,964	3.71	9,295,584	5.28	17,892,548	4.38
Netherlands	406,152	.18	10,453,723	5.93	10,859,875	2.66
Hongkong	1,046,240	.45	8,907,867	5.05	9,954,107	2.44
Spain	1,311,480	.57	8,236,945	4.67	9,548,425	2.34
France	2,465,362	1.06	5,346,896	3.03	7,812,258	1.92
Germany	1,250,200	.54	6,178,925	3.51	7,429,125	1.82
French East Indies	6,318,686	2.73	198,212	.11	6,516,898	1.60
Australasia	4,462,068	1.93	1,373,887	.78	5,835,955	1.43

Countries.	Imports.		Exports.		Total trade.	
	Value.	Per-centage.	Value.	Per-centage.	Value.	Per-centage.
Dutch East Indies.....	₱5,403,261	2.33	₱410,176	0.23	₱5,813,437	1.43
British East Indies.....	2,585,131	1.12	2,788,552	1.58	5,373,683	1.31
Siam.....	4,120,086	1.78	76,512	.04	4,196,598	1.03
Switzerland.....	1,815,036	.78	60,367	.03	1,875,403	.46
Canada.....	652,304	.28	583,775	.33	1,236,079	.30
Belgium.....	102,705	.04	616,384	.35	719,089	.18
Italy.....	157,803	.07	312,001	.18	469,804	.12
Austria.....	26,238	.01	327,432	.19	353,670	.09
Japanese-China.....	241,779	.10	75,599	.04	317,378	.08
Denmark.....	86,745	.04	.....	.....	86,745	.02
British Africa.....	.....	.....	50,936	.03	50,936	.01
Norway.....	39,105	.02	.....	.....	39,105	.01
Sweden.....	32,616	.01	120	.....	32,736	.01
Other countries.....	76,159	.03	353,948	.20	430,107	.11
Total.....	231,677,148	100.00	176,230,645	100.00	407,907,793	100.00

FOREIGN CARRYING TRADE.

The lead of American vessels in carrying the major portion of the islands' foreign trade during 1920 was replaced by British bottoms in 1921. During the year British ships carried products to the value of ₱169,723,340, against ₱139,015,672 for American registry and ₱49,916,812 for Japanese carriers. However, American vessels held the supremacy on Philippine exports, while British steamers transported most of the imports, and Japanese come third in both imports and exports.

The following table shows the values of imports and exports and total trade distributed according to nationality of carrying vessels for the year 1921:

Nationality of vessels.	Imports.	Exports.	Total trade.
British.....	₱109,387,341	₱60,335,999	₱169,723,340
American.....	74,809,502	64,206,170	139,015,672
Japanese.....	29,169,887	20,746,925	49,916,812
Dutch.....	6,314,435	13,203,344	19,517,779
Spanish.....	1,304,940	5,011,874	6,316,814
Philippine.....	3,379,522	484,817	3,864,339
Swedish.....	17	1,788,182	1,788,199
Norwegian.....	1,637,253	.....	1,637,253
Chinese.....	499,454	325,625	825,079
French.....	482,434	.....	482,434
Danish.....	.....	1,750	1,750
Mail.....	4,692,363	10,125,959	14,818,322
Total.....	231,677,148	176,230,645	407,907,793

The merchandise brought in and sent abroad, by mail, valued at ₱14,818,322 was reported separately regardless of the nationality of carriers.

American vessels, 91 in number, with a total net tonnage of 405,273, were reported as making 163 entrances and 173 clearances at all entry ports of the Philippine Islands during 1921, as compared with 158 vessels, with an aggregate net tonnage of 579,164, recording 238 entrances and 240 clearances during 1920. British vessels, 126 in number, aggregating 448,971 of net tonnage, registered 369 entrances and 371 clearances. Japanese, 80, net tonnage 274,802, made 157 entrances and 162 clearances. Fifteen ships of Philippine registry engaged in the foreign trade, with a total net tonnage of 18,962, reported 85 entrances and 85 clearances during the year.

The following table shows the actual number of vessels of different nationalities, together with the total net tonnage thereof, which traded with the islands during the year ending December, 1921, and the number of entrances and clearances, with their aggregate net tonnage:

Nationality.	Number of vessels.	Total net tonnage.	Entered.		Cleared.	
			Number.	Tonnage.	Number.	Tonnage.
British.....	126	448,971	369	1,012,505	371	1,028,549
American.....	91	405,273	163	737,951	173	778,979
Japanese.....	80	274,802	157	578,591	162	599,464
Dutch.....	30	99,426	47	147,357	47	150,602
Philippine.....	15	18,962	85	106,648	85	104,813
Chinese.....	4	4,702	21	23,885	19	22,158
Norwegian.....	2	1,889	15	13,611	15	13,611
Spanish.....	2	4,652	6	13,956	7	16,521
Swedish.....	2	5,596	3	8,117	3	8,117
French.....	1	7,777	4	3,106	4	3,109
Danish.....	1	727	1	728	2	1,456
Total.....	354	1,272,777	871	2,646,455	888	2,727,379

IMPORTS.

Except when compared with those for 1919 and 1920, importations of the islands during 1921 were the largest since 1899. The 10 leading articles that were contributory to the growing volume of the importations of the country were, in the order of their importance as to value, iron and steel and their manufactures, cotton and manufactures thereof, mineral oils, meat, and dairy products, automobiles and parts and tires, wheat flour, coal, rice, paper, and its manufactures, and tobacco and tobacco products.

Iron and steel.—The iron and steel trade of the islands during 1921 is of first importance in point of value, amounting to ₪44,109,809, or 19 per cent of the total value of imports. The United States furnished the islands with ₪38,184,258 worth of these products, this sum being 86 per cent of the total value of these imports. The other nationalities that supplied the country with iron and steel, in the order of their importance, are United Kingdom (₪2,351,724), Hawaii (₪1,463,477), Japan (₪896,579), Dutch East Indies (₪353,546), Germany (₪337,814), France (₪181,083), and China (₪127,613). Other countries, like Australasia, Norway, Switzerland, Italy, Sweden, Hongkong, Czechoslovakia, and Belgium furnished the balance of iron and steel imports of the islands.

Cotton and manufactures.—Importation of cotton goods during the year, representing 16 per cent of the total imports, showed a large decrease compared with the previous year, the respective values being ₪37,648,201 and ₪68,795,756. The principal source of the islands' supply of these products was, as usual, the United States which exported to the Philippines during the year ₪18,860,315 worth of these articles, the amount being slightly over 50 per cent of the total importation of these commodities. Japan comes next with ₪7,944,771 which is 21 per cent of the total importation of cotton and its manufactures, while China, the United Kingdom, and Switzerland supplied the country with a good portion of these commodities to the respective amounts of ₪5,503,414, ₪3,282,344, and ₪1,410,106. Minor importations from Germany, France, the Netherlands, British East Indies, Spain, Italy, Hawaii, Dutch East Indies, French East Indies, and Malta were also recorded.

Mineral oils.—Crude petroleum, naphthas, kerosene, and lubricants constitute the different classes of mineral oils reported under this heading, whereof the value of importation during the year amounted to the sum of ₪22,801,533 as compared with ₪18,769,463 in 1920, showing an increase of 21 per cent. The United States and the Dutch East Indies were the two principal countries from which mineral oils were imported.

Meat and dairy products.—Of the total imports of the Philippines in 1921, 4½ per cent was made up of meat and dairy products valued at ₪10,581,020, there being a decrease of 9 per cent compared with the importation of 1920 which reached the amount of ₪11,603,753. The United States with ₪5,332,835, China with ₪3,074,817, and Australia with ₪1,746,650 were the chief contributors of meat and dairy products consumed in the islands during the year under review. Small importations have also been registered from the Netherlands, Denmark, Spain, Switzerland, United Kingdom, British East Indies, France, Norway, Japan, Argentina, French East Indies, Italy, Egypt, and Belgium.

Automobiles, automobile parts and tires.—The value of automobiles, automobile parts and tires imported during the year reached the amount of ₱9,645,260, which, compared with the value of similar importations during the preceding year which was ₱14,921,366, shows a decrease of 35 per cent. The United States furnished the islands with ₱5,430,419 worth of automobiles representing 97 per cent of the value of this kind of importation. France with ₱97,612, United Kingdom with ₱23,417, Italy with ₱11,333, and Germany with ₱3,866 were the other automobile exporting countries during the year under review.

Wheat flour.—This commodity stood sixth in rank among the 10 largest import products of the Philippines in the year 1921, its value being ₱7,017,174. This amount, compared with the preceding year, shows a decrease of 26 per cent. While there has been registered a substantial decrease in the value of wheat flour importation during the year under review, the American flour, on the other hand, gained a still greater foothold in the local market by furnishing ₱4,553,958. As compared with the American importation of this article in 1920 amounting to ₱3,637,241, we note an increase of 25 per cent. Australasia with ₱1,150,771, China with ₱1,249,933, Japan with ₱55,277, Canada with ₱6,064, and British East Indies with ₱1,171 were the other countries that furnished this commodity for Philippine consumption.

Coal.—The importation of coal in 1921 reached the amount of ₱6,987,004, as against ₱10,792,077 in 1920, showing a decrease of 35 per cent. Japan, as in 1920, supplied the major portion of this commodity valued at ₱4,721,334. Australasia ranked second in importance in supplying the Islands with coal costing ₱1,089,802. Other countries that supplied the country with this commodity, in the order of their importance, are: The United States, ₱403,939; China, ₱350,116; Japanese-China, ₱241,779; British East Indies, ₱175,318, and Dutch East Indies, ₱4,714.

Rice.—A notable decrease of 59 per cent in the value of rice imported, from ₱16,329,770 in 1920 to ₱6,649,395 in 1921, was recorded. The principal sources of this cereal were, as usual, Siam, which furnished the country with ₱4,093,274, and French East Indies, ₱2,534,293. The United States, Japan, British East Indies, Spain, and Hawaii were the other countries from which minor importations of rice were effected.

Paper and its manufactures.—During the year under review the islands' importations of these articles totaled ₱6,066,030, as against ₱4,964,112 in 1920, or an increase of 22 per cent. The largest portion of these imports was furnished by the United States in the value of ₱4,698,839, which amount constitutes 77 per cent of the total value of paper imports. With the possible exception of the United States and France, other countries, like Japan, Spain, and China, which also supplied the country with these articles to an appreciable extent, suffered a respectable decrease in the value of their exports to this country during the year.

Tobacco products.—The value of imported tobacco products during the year 1921 reached the sum of ₱4,301,769, which constitutes an increase of 15 per cent compared with the amount of the year previous. Of the total importation of these articles, the United States supplied ₱3,704,447 worth of tobacco products. Minor imports were also recorded from Dutch East Indies, China, United Kingdom, Cuba, British East Indies, and Siam. Cigarettes were the most important in respect to value amongst imports of tobacco products, they having been imported from the United States in the amount of ₱2,175,269.

Other imports.—Besides those articles mentioned in the foregoing paragraphs, there were others of minor importance that should be reported, their value having reached one million pesos or over. They are the following: Books and other printed matter, ₱3,013,988; breadstuffs other than wheat flour, ₱1,358,513; cement, ₱2,005,264; chemicals, drugs, dyes, and medicines, ₱3,349,384; eggs, ₱1,695,605; explosives, ₱1,619,795; fibers, vegetable, and manufactures of, ₱3,507,000; fish and fish products, ₱2,965,912; fruits and nuts ₱2,115,644; glass and glassware, ₱1,812,285; India rubber manufactures except automobile tires, ₱1,325,864; instruments and apparatus, ₱5,255,390; leather, and manufactures of, ₱1,786,461; perfumery, ₱1,530,011; silk, and manufactures of, ₱3,721,538; spirits, wines, and malt liquors, ₱1,564,629; wood and manufactures, ₱1,731,758; and wool and manufactures, ₱1,645,701.

EXPORTS.

The total exportation of the islands during the year under review amounted to ₱176,230,645, the lowest figure since 1917. Compared with the preceding

year, the 1921 export trade of the country shows a decline of 42 per cent. This decrease is due to the falling off in the price of the principal export staples of the country.

The United States absorbed 57 per cent of the total export trade of the islands, the remaining 43 per cent having been distributed among other countries. In general, the export trade of the Philippines with all countries, including the United States, languished a little during the year. However, with the Netherlands, Germany, France, China, Guam, and Austria, an appreciable increase in our export was recorded.

Sugar, coconut oil, copra, hemp, tobacco products, and embroideries were the chief products exported from the islands in 1921.

Sugar.—As in 1920, sugar constituted the product of first importance for export trade in 1921. The decrease registered in point of value of this commodity was due principally to the enormous decline of its average price from ₱0.55 per kilo paid in 1920 to ₱0.18 in 1921. As a matter of fact, the quantity exported during the year was 109,535,488 kilos greater than the preceding year, although its value was estimated at ₱51,037,454, which, compared with that paid in 1920, amounting to ₱99,238,520, renders a decrease of 49 per cent. The United States consumed ₱33,752,357 worth of Philippine sugar, being 66 per cent of the total amount of sugar exports; Japan received a smaller portion of this product, valued at ₱7,360,540, while Hongkong bought some quantities at a total cost of ₱6,748,125, and China at ₱3,151,292; the balance was distributed among British East Indies, Guam, Spain, and Germany.

Coconut oil.—This commodity ranked second in importance of the export products of the islands in 1921, the export value being ₱32,103,036, or 18 per cent of the total value of the exportation of the country.

Notwithstanding the falling off in the price of coconut oil in foreign markets, the volume of export trade of this commodity to all countries showed an increase, with the exception of Spain and Belgium, which countries imported from the islands no coconut oil when they made an appreciable demand of this article the year before.

The United States consumed 86 per cent of this product and paid therefor the sum of ₱27,907,379. The Netherlands received ₱3,527,973 worth of coconut oil, while the balance, amounting to ₱667,684, was distributed among the United Kingdom, Japan, China, Hongkong, Australasia, Japanese China, and France.

Copra.—The 1921 export value of this commodity, totaling ₱26,146,913, shows a revival greater in magnitude than any of our exportations since 1917, and compared with the preceding year, amounting to ₱7,433,741, we note an increase of 252 per cent. The United States, which in 1920 occupied the least position in the consumption of this article, came back in 1921 as the country of chief importance, her importation totaling ₱8,665,554, or 33 per cent of the total value of copra exported during the year. The Netherlands with ₱5,969,113, Germany with ₱5,295,455, France with ₱3,803,987, and the United Kingdom with ₱1,047,325 were, besides the United States, the chief importing countries of our copra. Minor importations were also made by British East Indies, Spain, Italy, Hongkong, and Australasia, the total of which amounted to ₱1,365,479.

Hemp.—The quantity of hemp exports during the year amounted to 100,401,940 kilos, valued at ₱25,969,385, as against 141,485,785 kilos in 1920, valued at ₱71,724,000, or a decrease in value of 64 per cent. This decrease was due to the heavy decline of the average price of this commodity which reached the figure of nearly 50 per cent. The percentage of total hemp consumed by the United States during the year amounting to ₱10,914,117 is the lowest figure ever imported by that country since 1902. The United Kingdom follows in the list of principal customers of the Philippines in her hemp trade by the purchase of ₱6,652,586 of such commodity, this being 25 per cent of the total exportation of this product in 1921, while in 1920 a still greater amount, reaching the figure of ₱21,281,326, was exported to said country, Japan with ₱4,612,644, Australasia with ₱848,635, Canada with ₱531,869, British East Indies with ₱417,700, Belgium with ₱414,610, the Netherlands with ₱368,684, Germany with ₱362,286, and Hongkong with ₱345,755 were the other countries that imported a considerable volume of the hemp trade of the islands, while the balance was absorbed by France, Italy, Spain, China, and Dutch East Indies.

Tobacco products.—Of the total value of tobacco products exported during the year 1921, which amounted to ₱16,393,881, ₱6,454,886 was the value of

154,879,488 cigars, ₱87,530 was that of 39,837,008 cigarettes, ₱9,522,812 of 21,931,898 kilos of unmanufactured tobacco, and ₱328,853 was the value of 552,227 kilos of smoking cut tobacco.

The export trade of cigars showed a large decrease of from ₱25,442,276 in 1920 to ₱6,454,886 in 1921. The United States was, as in former years, our largest consumer of this commodity, having paid for 1921 the amount of ₱3,960,503, as against ₱21,092,607 in 1920. Large numbers of cigars were also sent to the markets of China, Hawaii and British East Indies, to the amounts of ₱608,089, ₱461,079, ₱450,031, and ₱193,556, respectively, the balance of cigar export having been sent to numerous other countries.

Of the total of cigarettes exported ₱23,742 was credited to Hongkong; ₱18,717 to China; ₱8,495 to Hawaii; ₱8,494 to United States; ₱8,186 to British East Indies; ₱5,627 to Spain; and the rest in smaller proportions, to other countries. As regards leaf tobacco, Spain, as usual, had the largest portion thereof, the value being ₱6,961,407. France stood second, with ₱1,166,693, in the consumption of this article.

Embroideries.—One of the most successful business undertakings in the islands is the embroidery industry. It has been growing steadily from year to year since 1914. However, embroidery exports during the year under review showed a decline of 31 per cent in value, from ₱15,623,567 in 1920 to ₱10,696,207 in 1921. The United States, as usual, was the principal market, almost exclusive, for Philippine embroideries, the value of same exported to that country in 1921 being ₱10,677,332.

Other exports.—Other articles of exportation worth mentioning herein are the following: Copra meal with a value of ₱1,208,930 was mainly distributed between the United Kingdom, United States, the Netherlands and Germany, cordage with a value of ₱918,544, ₱252,164 of which was shipped to the United States; Maguey with a value of ₱1,848,794, Japan, the United Kingdom and the United States being the principal markets therefor; and lumber and timber, ₱1,208,930, the largest portion whereof having been marketed in the United States, China, and Australasia.

Gold bullion exports.—The value of gold ore and bullion exported from the islands during the year reached the sum of ₱2,661,375, as compared with ₱2,343,886 in 1920, all of which amount, except ₱16,000 exported to China, was sent to the United States.

ARRASTRE PLANT.

The depression in the commerce of the islands during the year caused a decrease in the amount of cargo handled by the Arrastre plant, there having been a total of 275,013 tons discharged on and laden from the piers and wharf, as against 400,950 tons in 1920. This is evidenced by the decrease in the number of vessels berthed at the piers during 1921, which totaled 547, as against 651 in 1920.

PROTESTS AND APPEALS.

The board of protests and appeals in Manila received during the year 101 protests against the classification and appraisal of imported merchandise, collection of tonnage dues, and storage charges, etc. Of this number 24 were overruled and denied, 4 dismissed, 27 sustained, and 46 were pending decision at the close of the year. Of the number overruled and denied not a single one was taken to the court of first instance on appeal.

Similar protests were received by collectors of customs at subports of entry.

IMMIGRATION AND EMIGRATION.

There has been an increase in the passenger movement for the year over that for the preceding year. A total of 26,538 persons arrived in and 31,833 departed from the Philippine Islands, both figures not including enlisted men and others attached to the military and naval forces of the United States.

Of the total arrivals 3,662 were citizens of the United States, of whom 1,928 arrived from the continental United States and 1,734 from other countries. Filipinos arriving from abroad totaled 5,923, of whom 3,008 came from the United States and 1,734 from other countries. There were 16,847 aliens arriving in the country, of whom 13,989 were Chinese, 874 Japanese, 740 English, 505 Spanish, and other peoples in small numbers.

Of the total departures 3,625 were American citizens, of whom 2,013 left for the continental United States and 1,612 for other countries. Filipinos to the number of 9,196 left the country, of whom 7,762 departed for the continental United States and 1,434 for other countries. The number of aliens leaving the islands was 19,005, of whom 15,954 were Chinese, 1,137 Japanese, 710 English, 567 Spanish, and other peoples in small numbers.

There were 903 aliens debarred from admission into the country during the year, of whom 849 were Chinese, 43 East Indians, 6 English, 1 Japanese, 1 Portuguese, and 3 Malaysians. Only Chinese and East Indians were deported under the various provisions of the immigration and opium laws, the former numbering 164 and the latter 2.

CONSULAR DUTIES.

A total of 405 seamen were discharged in Manila during the year from American merchant vessels, as against 1,100 during 1920. Of these seamen 221 were Americans, 169 Filipinos, 14 Chinese, and 1 Japanese. A total of 112 of these seamen became destitute and were granted consular relief. The number of destitute seamen sent to Manila by American consuls in nearby countries was 42. All of these destitute seamen left the country as members of the crews of American vessels bound for the United States except 74, who were given transportation at the expense of the United States Government. Of the discharged seamen 2 died in Manila during the year, their money and effects having been disposed of according to law.

There were 135 Filipinos who obtained employment on American vessels, 12 Chinese, and 1 Japanese.

One hundred and thirty-nine consular invoices and 377 invoices of returned American goods were issued by this office during the year.

DOCUMENTATION AND LICENSING OF VESSELS.

A total of 251 vessels with an aggregate net tonnage of 6,900.13 were newly documented in the coastwise and foreign trades and in the bay and river business. Of the vessels so documented in 1921, 87 were for the coastwise trade, tonnage, 3,235.06; 1 for the foreign trade, tonnage, 1,129.93; and 163 for the bay and river business, tonnage, 2,535.14.

Coastwise licenses were issued to 925 vessels, and bay and river licenses to 1,976, with a net tonnage amounting to 52,307.35 and 40,220.53, respectively. The number of vessels in commission during the year was 2,901, with a total net tonnage of 92,527.88.

INSPECTION OF VESSELS.

As against 223 in 1920, a total of 491 vessels, with an aggregate net tonnage of 58,675.21, were inspected during the year, of which 374 were steamers and 117 sailing vessels. The total number of vessels admeasured was 186, their gross tonnage aggregating 12,705.89 and net tonnage 8,746.94. Vessels to the number of 946 were permitted to operate in the coastwise trade and in the bay and river traffic pending issuance thereto of certificates of inspection.

MARINE OFFICERS.

Out of a total of 222 persons who took examinations for the different grades of marine officers, only two were Americans, the others being Filipinos. The number of successful candidates was 178, all of whom are Filipinos. A total of 233 marine licenses of different grades were issued as follows: Masters, 19; chief mates, 19; second mates, 21; third mates, 67; chief engineers, 9; second engineers, 11; third engineers, 12; fourth engineers, 15; major patrons, 10; minor patrons, 50. At the close of the year there were 2,180 marine officers holding unexpired certificates as such, while 210 persons were in possession of expired licenses pending renewal.

SECRET SERVICE.

The result of a close surveillance of all ports of entry exercised during the year is the apprehension of violators of the customs, opium, and immigration laws. Out of a total of 404 cases 282 convictions were secured and 53 dismissed, the fines imposed in such cases aggregating ₱58,331, with a total of 62 years, 2 months, and 8 days' imprisonment.

BUREAU OF INTERNAL REVENUE.

The total collections by sources for the years 1920 and 1921 are shown in the following statement:

Item.	1920	1921
Excise tax:		
Domestic—		
Distilled spirits.....	P 3,977,583.79	P 3,130,868.32
Fermented liquors.....	421,590.00	366,884.13
Manufactured tobacco.....	302,742.10	303,127.81
Cigars.....	324,075.62	266,252.54
Cigarettes.....	5,911,665.30	5,412,711.58
Matches.....	60,420.70	50,118.00
Wines and imitations.....	203,278.98	157,959.95
Playing cards.....	23.10	.....
Cinematographic films.....	509.63	792.05
Total.....	11,201,889.22	9,683,714.38
Coal and coke.....	22,070.13	15,341.09
Imported—		
Distilled spirits.....	294,552.96	362,911.12
Fermented liquors.....	11,469.87	12,435.62
Manufactured tobacco.....	161,376.64	216,734.18
Cigars.....	13.24	5.70
Cigarettes.....	231,853.40	434,114.15
Matches.....	319,974.68	400,675.85
Wines and imitations.....	150,081.31	91,405.22
Skimmed milk.....	299.04	136.80
Playing cards.....	166,999.47	170,648.65
Cinematographic films.....	29,210.70	48,415.15
Total.....	1,365,831.31	1,737,482.44
Kerosene or petroleum.....	711,938.39	631,660.79
Naphtha, gasoline, and all lighter products of distillation.....	878,265.94	780,791.46
Lubricating oils.....	126,666.93	269,107.50
Total.....	1,716,871.26	1,681,559.75
Prohibited drugs.....	.....	.24
Coal and coke.....	176,270.20	149,508.43
Total excise taxes.....	14,482,932.12	13,272,606.33
License, business and occupation taxes:		
Brewers.....	2,610.00	2,400.00
Distillers.....	19,525.00	22,022.00
Rectifiers of distilled spirits.....	9,145.00	10,035.00
Retail liquor dealers.....	38,913.00	39,125.58
Retail vino dealers.....	241,808.45	195,596.85
Wholesale liquor dealers.....	156,669.75	134,742.50
Retail dealers in fermented liquors.....	59,396.77	52,914.68
Retail dealers in tuba, basi, etc.....	308,479.30	272,199.46
Wholesale dealers in fermented liquors.....	31,769.25	30,192.50
Dealers in manufactured tobacco.....	304,108.13	277,920.41
Manufacturers of chewing and smoking tobacco.....	1,486.25	1,361.25
Manufacturers of cigars and cigarettes.....	2,430.87	2,891.00
Wholesale peddlers of tobacco products.....	6,778.00	4,645.00
Wholesale peddlers of alcoholic products.....	9,110.00	10,595.00
Retail peddlers of tobacco products.....	10,323.00	4,575.00
Retail peddlers of alcoholic products.....	10,426.50	4,442.00
Retail leaf tobacco dealers.....	148,393.75	129,930.42
Repackers of distilled spirits and wines.....	6,600.00	5,150.00
Total.....	1,368,033.02	1,200,738.65
Merchants and manufacturers.....	15,889,481.98	9,868,077.49
Printers and publishers.....	33,237.95	29,264.11
Common carriers.....	156,056.69	154,374.42
Contractors, warehousemen, and others.....	428,603.29	462,102.71
Peddlers of merchandise.....	767,934.22	484,696.06
Total.....	17,275,314.13	10,998,514.79
Commercial brokers.....	151,623.29	129,859.92
Stock brokers.....	19,926.53	15,865.52
Real estate brokers.....	44,460.21	26,745.32
Customs and immigration brokers.....	3,325.00	3,540.00
Pawnbrokers.....	24,612.50	25,740.00
Theaters, museums, cinematographs, and concert halls.....	26,380.02	26,320.00
Circuses.....	980.00	995.90
Billiard rooms.....	20,897.29	16,471.30

Item.	1920	1921
License, business and occupation taxes—Continued.		
Lawyers, medical practitioners, architects, land surveyors, engineers, and public accountants.....	P87,724.17	P90,338.58
Chiropodists, manicurists, tattooers, and masseurs.....	1,281.25	1,409.25
Pharmacists and farriers.....	17,158.50	17,850.00
Race tracks.....	10,320.00	11,320.00
Boxing or sparring exhibitions.....		8,602.50
Cockpits.....	705,626.57	667,248.61
Cockfights.....	157,307.24	130,714.59
Opticians and dental surgeons.....	15,027.00	14,353.50
Midwives and cirujanos ministrantes in medicine and dentistry.....	2,982.44	2,783.91
Procuradores judiciales, business agents, insurance agents, and subagents.....	22,174.50	22,505.50
Photographers, engravers, and professional appraisers or connoisseurs of tobacco, etc.....	17,773.00	17,301.50
Veterinarians and vehicles and bicycle repair shops.....	120.00	130.00
Money lenders.....	27,705.00	28,900.00
Signs, signboards, and billboards.....	234.70	22.49
Total.....	1,357,639.21	1,259,017.49
Banks and bankers.....	1,958,159.42	1,767,869.75
Insurance companies.....	99,185.69	115,406.65
Mines.....	25,998.51	22,657.42
Registered dealers in prohibited drugs.....	17,315.86	14,991.53
Sponge fisheries.....	249.14	16.55
Pearl fisheries.....	5,605.00	3,690.00
Weights and measures.....	178,793.85	157,660.19
Total license, business, etc., taxes.....	22,286,293.83	15,540,563.02
Cedulas:		
Class A. Regular at P1.....	40,529.00	36,629.00
Class B. Delinquent at P2.....	15,962.00	13,404.00
Class D. Special at P1.....	231.00	300.00
Class E. Fines.....	82.00	58.00
Class F. Regular at P2.....	4,218,864.00	3,961,296.00
Class G. Delinquent at P4.....	685,844.00	431,076.00
Class H. Special at P2.....	20,514.00	19,644.00
Class I. Road and bridge tax, P1.....	83.00	50.00
Class K. Delinquent road and bridge tax, P2.....	204.00	354.00
Class L. Delinquent from May 1 to June 30, P1.50.....	2,158.50	2,481.00
Class M. Delinquent from May 1 to June 30, P3.....	116,421.00	144,288.00
Class N. Delinquent from May 1 to June 30, P1.50.....	3.00	10.50
Total cedulas.....	5,100,895.50	4,609,590.50
Franchise taxes.....	426,373.81	431,757.54
Income tax.....	4,252,632.58	4,964,793.57
Documentary stamp tax.....	637,222.06	497,614.95
Inheritance tax.....	188,851.03	211,572.67
Incidental revenue:		
United States internal revenue collected in the Philippines.....	3,175,240.57	608,997.80
United States internal revenue collected in the United States.....	1,827.60	147,445.94
Rental and royalties on petroleum lands.....		2,400.00
Revenue from public forests—		
First-group timber.....	340,609.81	316,711.27
Second-group timber.....	100,773.33	99,861.84
Third-group timber.....	234,193.44	272,496.67
Fourth-group timber.....	120,163.68	128,945.80
Firewood (bacauan and tangal).....	37,664.55	35,939.81
Firewood (other wood).....	31,524.32	27,501.66
Minor forest products.....	144,594.40	131,258.15
Lease of forest land.....	355.60	435.96
Total.....	1,009,879.13	1,013,151.16
Miscellaneous stamp collections.....	2,450.55	877.53
Service income:		
Justice of the peace fines and fees.....	501,635.87	412,134.06
Total stamp, customs, and cedula collections.....	52,066,234.65	41,713,505.07
Other collections:		
Mining fees.....	383.38	1,923.11
Tobacco inspection fees.....	212,559.19	117,953.93
Grand total.....	52,279,177.22	41,833,382.11

APPORTIONMENT OF INTERNAL REVENUE TAXES AND OTHER COLLECTIONS MADE BY
THE BUREAU OF INTERNAL REVENUE.

By authority of the internal revenue allotment law (chapter 19 of act No. 2711), collections made by the Bureau of Internal Revenue accrue to the insular, provincial, and municipal governments in the following manner:

Item.	Accruing to—		
	Insular.	Provincial.	Municipal.
1920.			
Excise tax:			
Manufacturers of alcohol and tobacco products and matches—			
Domestic.....	P11,201,356.49		
Imported.....	1,169,322.10		
Coal and coke, domestic.....	22,070.13		
Coal and coke, imported.....	176,270.20		
Kerosene or petroleum, imported.....	711,938.39		
Naphtha, gasoline, etc., imported.....	878,265.94		
Lubricating oils, imported.....	126,666.93		
Cinematographic films, domestic.....	509.63		
Cinematographic films, imported.....	29,210.70		
Playing cards, domestic.....	23.10		
Playing cards, imported.....	166,999.47		
Prohibited drugs, imported.....			
Skimmed milk.....	299.04		
License, business, and occupation taxes:			
Dealers in alcohol and tobacco products.....	1,059,553.72		P308,479.30
Merchants, manufacturers, common carriers, etc.....	17,275,314.13		
Occupations, trades and professions.....	421,835.59		935,803.62
Bankers and banks.....	1,958,159.42		
Insurance companies.....	99,185.69		
Mines.....	25,998.51		
Registered dealers in prohibited drugs.....	17,315.86		
Sponge fisheries.....	49.84		
Pearl fisheries.....		P99.65	99.65
Weights and measures.....		5,605.00	
Cedulas.....		89,396.93	89,396.92
Franchise taxes.....		3,809,700.00	1,291,195.50
Income taxes.....	254,871.26	42,844.37	128,658.18
Documentary stamp tax.....	4,252,632.58		
Inheritance tax.....	637,222.06		
Incidental revenue:	188,851.03		
United States internal revenue collected in the Philippines.....	3,175,240.57		
United States internal revenue collected in the United States.....	1,827.60		
Revenue from public forests.....	1,009,879.13		
Rentals on lands containing gas or petroleum.....			
Miscellaneous stamp collections.....	2,450.55		
Service income:			
Justice of the peace, fines and fees.....	466,858.17	279.00	34,498.70
Total.....	45,330,177.83	3,947,924.95	2,788,131.87
Other collections:			
Mining fees.....	383.38		
Tobacco inspection fees.....	212,559.19		
Internal revenue allotment.....	(3,164,083.55)	1,582,041.78	1,582,041.77
Grand total.....	42,379,036.85	5,529,966.73	4,370,173.64
1921.			
Excise tax:			
Manufacturers of alcohol and tobacco products and matches—			
Domestic.....	9,687,922.33		
Imported.....	1,518,281.84		
Coal and coke, domestic.....	15,341.09		
Coal and coke, imported.....	149,508.43		
Kerosene or petroleum, imported.....	631,660.79		
Naphtha, gasoline, etc., imported.....	780,791.46		
Lubricating oils, imported.....	269,107.50		
Cinematographic films, domestic.....	792.05		
Cinematographic films, imported.....	48,415.15		
Playing cards, domestic.....			
Playing cards, imported.....	170,648.65		
Prohibited drugs, imported.....	24		
Skimmed milk.....	136.80		

Item.	Accruing to—		
	Insular.	Provincial.	Municipal.
1921.			
License, business, and occupation taxes:			
Dealers in alcohol and tobacco products.....	P928, 539. 19	.....	P272, 199. 46
Merchants, manufacturers, common carriers, etc.....	10, 998, 514. 79	.....	.....
Occupations, trades, and professions.....	391, 527. 99	.....	867, 489. 50
Banks and bankers.....	1, 767, 869. 75	.....	.....
Insurance companies.....	115, 406. 65	.....	.....
Mines.....	22, 657. 42	.....	.....
Registered dealers in prohibited drugs.....	14, 991. 53	.....	.....
Sponge fisheries.....	3. 31	P6. 31	6. 62
Pearl fisheries.....	.....	3, 690. 00	.....
Weights and measures.....	.....	78, 830. 10	78, 830. 09
Cedulas.....	.....	3, 442, 647. 00	1, 166, 943. 50
Franchise taxes.....	243, 633. 47	46, 642. 61	141, 481. 46
Income taxes.....	4, 964, 793. 57	.....	.....
Documentary stamp tax.....	497, 614. 95	.....	.....
Inheritance tax.....	211, 572. 67	.....	.....
Incidental revenue:			
United States internal revenue collected in the Philippines.....	608, 997. 80	.....	.....
United States internal revenue collected in the United States.....	147, 445. 94	.....	.....
Revenue from public forests.....	1, 013, 151. 16	.....	.....
Rentals on lands containing gas or petroleum.....	2, 400. 00	.....	.....
Miscellaneous stamp collections.....	877. 53	.....	.....
Service income:			
Justice of the peace fines and fees.....	386, 547. 13	172. 00	25, 414. 93
Total.....	35, 589, 151. 18	3, 571, 988. 33	2, 552, 365. 56
Other collections:			
Mining fees.....	1, 923. 11	.....	.....
Tobacco-inspection fees.....	117, 953. 93	.....	.....
Internal revenue allotment.....	(3, 164, 083. 55)	1, 582, 041. 78	1, 582, 041. 77
Grand total.....	32, 544, 944. 67	5, 154, 030. 11	4, 134, 407. 33

COST OF COLLECTION.

During the last 10 years the net cost of collection for each peso has been as follows: 3.08 centavos in 1912, 2.64 centavos in 1913, 2.45 centavos in 1914, 2.07 centavos in 1915, 1.87 centavos in 1916, 1.51 centavos in 1917, 1.28 centavos in 1918, 1.31 centavos in 1919, 1.27 centavos in 1920, and 1.80 centavos in 1921.

The increase in the cost of collection of 41.7 per cent over the figures for 1920 was attributable to the decrease of 19.98 per cent in the total internal revenue collected and to increases in such items as consumption of supplies and materials, printing and binding, maintenance and repairs, freight, express, and delivery service, miscellaneous service, and rental of buildings and grounds, items indispensable to the proper operation of the bureau.

ALCOHOL PRODUCTS.

Distilled spirits.—The total quantities of distilled spirits removed from distilleries during the fiscal years 1920 and 1921, including the amounts exempt from tax, were 11,716,896 proof liters, and 9,232,900 proof liters, respectively, or a decrease of 2,483,996 proof liters.

Taxes amounting to P362,911.12 were collected on 457,194 proof liters of imported distilled spirits in 1921 in comparison with P294,552.96 collected on 318,773 proof liters in 1920.

At the end of the year there were in operation throughout the islands 86 registered stills of modern type, as compared with 81 in operation on December 31, 1920, 81 on December 31, 1919, 81 on December 31, 1918, 80 on December 31, 1917, 80 on December 31, 1916, and 75 on December 31, 1915. Sixty-one illicit stills were captured by internal revenue agents during the year 1921, of which 1 was captured in Cagayan, 10 in Pangasinan, 1 in Tarlac, 23 in Tayabas, 23 in Albay, 1 in Nueva Ecija, 1 in Camarines Sur, and 1 in Sorsogon. During 1920 there were seized 20 illicit stills.

Wines.—The local consumption of still wines and imitation wines was, respectively, 1,937,901 gauge liters and 1,093,158 gauge liters or a per capita consumption of 0.18 gauge liter and 0.11 gauge liter.

Fermented liquors.—The quantities in gauge liters of domestic and imported beer on which taxes were collected during the years 1920 and 1921 were, respectively, 5,040,690.40 and 3,767,147.08, or a per capita consumption of 0.47 gauge liter and 0.36 gauge liter. In addition to the quantity of fermented liquors consumed in the islands, local brewers produced during the years 1920 and 1921 185,517.04 and 49,719.29 gauge liters, respectively.

TOBACCO PRODUCTS.

Smoking and chewing tobacco.—The following table shows the quantities of domestic and imported smoking and chewing tobacco on which taxes were collected during the years 1920 and 1921.

Kind.	1920			1921		
	Domestic.	Imported.	Total.	Domestic.	Imported.	Total.
Smoking tobacco.....	<i>Kilos.</i> 334, 221	<i>Kilos.</i> 94, 329	<i>Kilos.</i> 428, 550	<i>Kilos.</i> 342, 228	<i>Kilos.</i> 88, 823	<i>Kilos.</i> 431, 051
Chewing tobacco.....	213, 467	281, 238	494, 705	200, 686	341, 800	542, 486
Total.....	547, 688	375, 567	923, 255	542, 914	430, 623	973, 537

Local manufacturers produced in 1920 and 1921 96,925 and 547,108 kilos of smoking tobacco, respectively, for export to foreign countries.

Stripped and partially manufactured tobacco.—During the years 1920 and 1921 1,102,643 kilos and 537,777 kilos of stripped and partially manufactured tobacco, respectively, were removed for export.

Leaf tobacco.—In 1920 23,683,995 kilos of leaf tobacco were exported in comparison with 17,829,597.5 exported in 1921, a decrease of 5,854,397.5 kilos.

Cigars.—The total number of cigars removed for consumption in 1920 was 510,800,333, in comparison with 230,224,705 for 1921, or a decrease of 280,575,628 cigars. Of the total exportation during the two years 414,603,650 cigars represent the figures for 1920 and 154,184,049 those for 1921. The most serious blow to the Philippine cigar industry was the stagnation of the United States market. The figures for 1921 revealing a decrease of 248,313,019 cigars, and at the same time there being a difference of ₱9.91 in the average price per thousand cigars. The average price per thousand in 1920 was ₱65.16, for 1919 ₱53.14, for 1918 ₱43.68, and for 1917 ₱38.25.

Cigarettes.—The total consumption of cigarettes in the Philippines during the year was 4,492,390.886 cigarettes, as compared with 4,911,121,300 during the preceding year, the total production being, respectively, 4,521,193.605 and 5,039,784,441. Of the first number, 27,789,129 cigarettes were exported to foreign countries, 1,013,590 to the United States, and in 1920 125,439,506 cigarettes were exported to foreign countries and 3,223,635 were shipped to the United States. It will be seen, therefore, that of the total production for the two years 97.45 per cent was consumed in the Philippine Islands, 2.49 per cent was exported to foreign countries, and 0.06 per cent was shipped to the United States in 1920, in comparison with 99.36 per cent, 0.62 per cent, 0.02 per cent, respectively, for 1921.

LICENSE, BUSINESS, AND OCCUPATION TAXES.

Dealers in alcohol and tobacco products.—There were collected as privilege taxes on dealers in alcohol and tobacco products during 1921, ₱1,200,738.65, as compared with ₱1,368,033.02 collected during 1920, a decrease of ₱167,294.37, or 12.23 per cent. Of the total collections from this source 30.77 per cent was paid by dealers in distilled spirits and wines, 33.97 per cent by dealers in tobacco products, 29.59 per cent by dealers in fermented liquors, tuba, basi, and tapuy, and 5.67 per cent by manufacturers and peddlers of liquors and tobacco products as against 32.5 per cent, 33.1 per cent, 29.3 per cent, and 5.2 per cent, respectively, for 1920.

Merchants, manufacturers, and common carriers.—Percentage taxes were collected for 1921 in the amount of ₱10,998,514.79, in comparison with ₱17,275,314.13 collected during the preceding year, showing a decrease of ₱6,276,799.34, or 36.33 per cent. The amount paid by merchants, manufacturers, and peddlers

represented 94.1 per cent of the total collections; by printers, publishers, contractors, warehousemen, and hotel and restaurant keepers, 4.5 per cent; and by common carriers 1.4 per cent, as compared with 96.4 per cent, 2.7 per cent, and 0.9 per cent, respectively, for 1920.

Occupations, trades, and professions.—Privilege taxes were collected in the amount of ₱1,259,017.49, as against ₱1,357,639.21 during 1920, a decrease of ₱98,621.72, or 7.26 per cent. Of the total collections 66.4 per cent was paid by proprietors of cockpits; 13.7 per cent by commercial, stock, and real estate brokers; and 22.9 per cent by lawyers, doctors, civil engineers, surveyors, and other professionals. By the provisions of the internal revenue law the privilege-tax collections from owners of cockpits and the taxes on cockfights accrue entirely to the treasuries of the various municipalities in which such taxes are collected. Eight hundred and forty municipalities and townships availed themselves of the provisions of the law authorizing the imposition by municipal councils of additional taxes on cockpits. The rates of additional taxes thus imposed ranged from ₱4 to ₱18,000 per annum. There were 156 municipalities, townships, and municipal districts in which no cockpit tax receipts were issued during 1921.

Banks and bankers.—The following comparative statement, based upon taxes assessed and collected, shows the average amount of capital employed by, average amount of deposits with, and average amount of circulation of banks during the period from July 1, 1919, to June 30, 1920, and from July 1, 1920, to June 30, 1921:

	July 1, 1919, to June 30, 1920.	July 1, 1920, to June 30, 1921.
Average capital.....	₱48,709,267.25	₱40,298,668.01
Average deposits.....	207,463,903.08	183,309,200.22
Average circulation.....	22,492,606.07	36,389,895.27

Insurance companies.—The following table, based on statements rendered, shows the total amounts of each kind of insurance on which premiums were paid and the average rate of premium paid during the years 1919 and 1920:

Kind of insurance.	1919		1920	
	Total amount of insurance.	Average rate of premium.	Total amount of insurance.	Average rate of premium.
		<i>Per cent.</i>		<i>Per cent.</i>
Fire.....	₱367,819,418.33	1.04	₱476,615,828.88	0.99
Marine.....	673,607,899.31	.36	510,891,975.51	.45
Life.....	35,383,271.95	.....	51,358,734.21	.....
Accident.....	1,088,325.00	1.47	1,047,410.00	2.19
Fidelity and surety.....	131,785,125.42	.45	117,044,875.39	.40
Typhoon and earthquake.....	10,585,485.04	.42	12,778,822.00	.40
Motor cars.....	2,051,318.37	2.91	4,070,798.20	2.40
War (marine).....	5,270,078.54	.16	5,200,000.00	.30

CEDULAS.

There were collected as cedula taxes during the year ₱4,609,590.50, in comparison with ₱5,100,895.50 collected during the preceding year, or a decrease of ₱491,305. In 1921 there were sold 188,470 less cedulas than during the preceding year.

FRANCHISE TAXES.

Of the total collection of ₱431,757.54 as franchise taxes in 1921, ₱243,633.47 accrued to the insular government, ₱163,685.17 to the city of Manila, ₱5,721.31 to Provinces, and ₱18,717.59 to other municipalities.

INCOME TAX.

During the year there were collected as income tax ₱4,964,793.57, as compared with ₱4,252,632.58 in 1920, a total increase of ₱712,160.99, or 17 per cent. The

1921 collections consisted of ₱4,880,370.25 as taxes and ₱84,423.32 as penalties, while the 1920 collections consisted of ₱4,212,291.02 as taxes and ₱40,341.56 as penalties, an increase of 16 per cent in taxes and 109 per cent in penalties. The number of returns received from individuals in 1921 was 6,299, and from corporations 2,090, as against 3,200 and 1,914, respectively, during the preceding year.

INHERITANCE TAX.

There were collected in 1921 ₱211,572.67 as taxes and penalties on inheritances, legacies, and other acquisitions mortis causa, in comparison with ₱188,851.03 collected during the previous year, or an increase of ₱22,721.64. The total number of inheritance-tax returns filed during the year was 386.

PEARL FISHING.

Under the provisions of Act No. 2604 there was collected during the year just ended the amount of ₱3,690, as compared with ₱5,605 collected in 1920, showing a decrease of ₱2,915. This collection accrued intact to the respective provincial treasuries in which paid.

SPONGE FISHING.

Pursuant to the provisions of Act No. 2584 there was collected the amount of ₱16.55, of which 20 per cent, or ₱3.31, accrued to the insular treasury, 40 per cent, or ₱6.62, to the provincial treasuries, and 40 per cent, or ₱6.62, to the municipal treasuries concerned.

BUREAU OF PRINTING.

The vocational-training feature in the bureau of printing was continued during the year. There were 179 advances made of apprentices and junior craftsmen, and 120 apprentices and junior craftsmen on the rolls at the end of the year. The lack of well-trained printers in the local field and the several resignations of skillful craftsmen, who accepted better-paid positions outside, together with the retirement of craftsmen on account of physical disability, made it necessary for the bureau to augment the number of apprentices during the year.

On December 31 there were 620 on the rolls of the bureau, being all Filipinos, with the exception of one American, employed in the building and transportation section. In the course of several years positions vacated by Americans were taken over by Filipinos, thus causing a reduction in the overhead charges of ₱69,720 per annum, without impairing the efficiency of the service.

The most important works of the bureau executed and delivered during the year were the budget for 1922, the Philippine census of 1918, the Extraterritorial Decisions of the United States Court of China, the Finance Commission Report, several annual reports of bureaus, and the report of the Wood-Forbes mission.

The receipts, cost of operation (including depreciation of machinery and other equipment), and net profits of the bureau during the years from 1913 to 1921 are as follows:

Year.	Receipts.	Expenses.	Net profits.
1913.....	₱818,108.10	₱710,153.56	₱107,954.54
1914.....	653,407.48	594,469.57	90,937.91
1915.....	656,465.52	600,180.09	56,285.43
1916.....	693,656.87	639,432.37	54,224.50
1917.....	846,749.79	738,539.37	108,210.42
1918.....	1,058,775.74	921,196.49	137,579.25
1919.....	1,223,884.96	1,177,007.81	46,877.15
1920.....	1,957,091.65	1,654,276.32	302,815.36
1921.....	1,565,512.39	1,408,156.07	157,356.32

The following is a comparative statement of the quantity of paper consumed during the last nine years :

Year.	Book, writing, bond, and ledger paper.		Bristol board and cardboard.		En- velopes.
	Reams.	Pounds.	Sheets.	Pounds.	Number.
1913.....	14, 203	701, 645	200, 642	46, 453	5, 331, 595
1914.....	14, 622	729, 673	202, 888	47, 157	4, 883, 861
1915.....	16, 873	776, 190	239, 114	56, 982	6, 146, 189
1916.....	16, 646	775, 802	259, 589	64, 422	6, 080, 459
1917.....	18, 063	827, 934	408, 883	120, 135	6, 721, 107
1918.....	22, 802	1, 072, 143	343, 254	85, 886	6, 729, 560
1919.....	24, 884	1, 146, 071	406, 267	89, 386	6, 190, 242
1920.....	28, 891	1, 220, 442	592, 472	73, 669	7, 891, 313
1921.....	19, 801	887, 669	439, 099	115, 728	6, 717, 920

The property assets of the bureau on December 31, 1921, amounted to ₱2,872,126.14. After deducting therefrom the accrued depreciation of equipment, in the sum of ₱475,336.01, the net value of assets amounted to ₱2,396,790.13.

The constantly increasing volume of printing and binding work demanded from the bureau makes it necessary that additional buildings be constructed to assure more healthful conditions for the employees, reduce the fire risk, and provide sufficient floor. The new extension just completed has but partly relieved the crowded condition of machinery and the work in process.

Respectfully submitted.

ALBERTO BARRETTO,
Secretary of Finance.

THE GOVERNOR GENERAL OF THE PHILIPPINE ISLANDS,
Manila, P. I.

REPORT OF THE SECRETARY OF JUSTICE.

JANUARY 1 TO DECEMBER 31, 1921.

DEPARTMENT OF JUSTICE,
Manila, P. I., March 31, 1922.

SIR: I have the honor to submit the following annual report of the department of justice covering the fiscal year ending December 31, 1921.

OFFICE OF THE SECRETARY OF JUSTICE.

The secretary of justice, Hon. Quintin Paredes, having resigned on December 15, 1921, the undersecretary of the interior, Hon. Antonio de las Alas, was designated acting secretary of justice during the rest of the year.

The position of undersecretary of justice has been vacant since December 15, 1919.

I. SUPREME COURT.

Personnel.—The following changes took place in the supreme court: To fill the vacancies caused by the resignation of Justices Adam C. Carson and Percy M. Moir, Hon. James A. Ostrand and Hon. Charles A. Jones were appointed, and they took the oath of office on September 7 and October 7, 1921, respectively, arriving in the islands and assuming their offices on November 12 and November 9, 1921, respectively.

Chief Justice Victorino Mapa resigned effective October 31, 1921, and Mr. Justice Manuel Araullo was appointed in his place, taking the oath of office November 1, 1921. Judge Norberto Romualdez was appointed to fill the resulting vacancy, taking the oath of office November 1, 1921.

Business handled.—A statement of the cases filed, disposed of, and pending in the supreme court during the period from January 1 to December 31, 1921, as submitted by the clerk of the court, is as follows:

Cases pending at the close of business Dec. 31, 1920:	
Civil.....	585
Criminal.....	407
Total.....	992
Cases filed during the period Jan. 1 to Dec. 31, 1921:	
Civil.....	569
Criminal.....	704
Total.....	1,273
Cases disposed of during the said period:	
Civil.....	482
Criminal.....	563
Total.....	1,045
Cases pending decision at the close of business Dec. 31, 1921:	
Civil.....	294
Criminal.....	12
Total.....	306

Cases docketed but not submitted for hearing:

Civil-----	378
Criminal-----	536
Total-----	<u>914</u>
Applicants admitted to the bar examination: Filipinos-----	346
Present at examination: Filipinos-----	325
Passed the examination: Filipinos-----	156
Notaries public appointed by the supreme court during the period Jan. 1 to Dec. 31, 1921-----	294
Fees, fines, and court costs and bar-examination fees collected during the said period-----	₱25,597.32

During the year 22 complaints were filed looking to the suspension or disbarment of 22 different attorneys at law. In due course 5 were disposed of; 3 are pending decision, and 14 still in the hands of the attorney general for investigation and report. Besides these suspension and disbarment proceedings 2 complaints against two judges of court of first instance were received during the year. In 1 of said cases, the court has already forwarded its report to the Governor General and the other is still in the hands of the attorney general for proper action.

II. COURTS OF FIRST INSTANCE.

Personnel.—To fill the vacancies caused by the death of Judge Federico Olbes and by the resignation of Judges Maximino Mina, Manuel Camus, and Primitivo San Agustin, and the new positions created by act No. 2941, the following appointments were made: Hon. Delfin Jaranilla, provincial fiscal; Hon. Enrique V. Filamor, undersecretary of agriculture and natural resources; Hon. Emilio Mapa, assistant attorney of the bureau of justice; Hon. Eulogio P. Revilla, assistant city fiscal, city of Manila; Hon. Servillano Platon, provincial fiscal; Hon. Mariano H. de Joya, and Hon. Angel Roco, practicing attorneys; and Hon. Cayetano Lukban, director of the bureau of lands.

Several transfers from one district or group of districts to another, some of them involving promotions, were made.

Business handled.—During the fiscal year 1921 there were filed in the courts of first instance throughout the islands, except Cotabato, 9,259 civil cases and 10,448 criminal cases, whose total, compared with that of the cases filed during the previous fiscal year, shows a decrease of 1,227 cases; the number of cases disposed of during the fiscal year 1921 was 16,913, which, compared with 16,600 cases disposed of during the previous year, shows an increase of 313 cases. The number of cases remaining undisposed of at the end of fiscal year 1921 was 26,663 cases or 2,832 more than the number of cases pending at the end of the previous year, which was 23,831. The data for cases filed in the Court of First Instance of Cotabato could not be obtained because the provincial government building was burned, including all the records of the court.

The increase of 2,828 in cases pending at the end of the fiscal year 1921 can not in any way be interpreted as a lack of efficiency and activity of the judges of court of first instance in the administration of justice. During the last few years the cases remaining undisposed of at the end of the fiscal year has been constantly increasing at an average of 4,000 cases a year, and the increase for 1921 was reduced to 2,828 only, which increase was due to civil and probate cases which, by their nature, ordinarily can not be disposed of in one year.

The following table gives a summary of the business handled by the different courts of first instance throughout the islands during the fiscal year 1921:

Civil cases:

(a) Cases pending on Jan. 1, 1921—

1. Ordinary civil cases-----	9,024
2. Probate cases-----	5,801
3. Land registration cases-----	2,799
4. Other cases-----	125

Total pending-----	<u><u>17,749</u></u>
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Civil cases—Continued.

(b) Cases filed during the year—	
1. Ordinary civil cases	6,296
2. Probate cases	1,237
3. Land registration cases	1,544
4. Other cases	182
Total filed	9,259
(c) Cases decided during the year	4,686
(d) Cases dismissed during the year	2,353
(e) Cases pending on Dec. 31, 1921—	
1. Ordinary civil cases	10,917
2. Probate cases	6,108
3. Land registration cases	2,788
4. Other cases	156
Total pending	19,969

Criminal cases:

(a) Cases pending on Jan. 1, 1921	6,120
(b) Cases filed during the year	10,448
(c) Cases decided during the year	5,335
(d) Cases dismissed during the year	4,539
(e) Cases pending on Dec. 31, 1921	6,694

During the year the costs, fines, and fees received by the clerks of court amounted to ₱310,459.84, or ₱25,726.46 less than the amount collected during the preceding year.

III. JUSTICES OF THE PEACE COURTS.

During the fiscal year 1921 several justices of the peace were discharged from their positions on account of their having been found guilty of misconduct and inefficiency in the discharge of their official duties.

In view of the fact that the summary reports of justices of the peace from many Provinces have not yet been received, the work of the justices of the peace can not be included in this report. As soon as the data are completed, an additional report covering the same will be submitted.

IV. GENERAL LAND REGISTRATION OFFICE.

Applications for registration of title.—The following table shows the distribution, by Provinces and the city of Manila, of the total number of ordinary applications filed in the office up to December 31, 1921:

Summary of applications.

Province.	Number filed during fiscal years—					Total.	
	1903 to 1916, inclusive.	1917	1918	1919	1920		1921
Abra.....	24	6	5	3	4	10	52
Agusan.....	71	1	.....	3	32	70	177
Albay.....	207	4	2	8	1	2	224
Antique.....	23	1	1	3	1	.....	29
Bataan.....	205	6	7	3	12	6	239
Batangas.....	197	17	24	21	28	54	341
Batanes.....	1	.....	.....	.....	.....	.....	1
Bohol.....	196	2	3	11	9	5	226
Bulacan.....	529	67	56	56	46	40	794
Cagayan.....	103	6	3	10	10	4	136
Camaringes Norte.....	28	7	1	3	1	13	53
Camaringes Sur.....	136	4	20	3	21	23	207
Capiz.....	66	17	9	10	15	1	118
Cavite.....	187	6	15	13	17	11	249
Cebu.....	356	11	15	11	8	18	419

Summary of applications—Continued.

Province.	Number filed during fiscal years—						Total.
	1903 to 1916, inclusive.	1917	1918	1919	1920	1921	
Cotabato.....	216	8	7	2	4	4	237
Davao.....	220	30	13	33	40	12	348
Ilocos Norte.....	115	25	11	5	14	5	175
Ilocos Sur.....	79	7	3	5	11	45	150
Iloilo.....	432	7	7	19	15	9	489
Isabela.....	70	6	4	2	5	11	98
Jolo.....	116	3			1	2	122
Laguna.....	524	76	119	166	157	29	1,071
Lanao.....	30	2				2	34
Leyte.....	366	6	4	7	4	2	389
Manila.....	2,923	52	59	57	75	53	3,219
Mundoro.....	131	16	8	6	6	6	173
Misamis.....	42	2	3	10	3	9	69
Mountain.....	210	3	4	12	4	2	235
Nueva Ecija.....	638	130	172	226	291	95	1,552
Nueva Vizcaya.....	49	2			3	13	69
Negros (Occidental).....	567	13	6	8	5		599
Negros (Oriental).....	126	7	5	3	5		148
Palawan.....	25	11	1	3		1	41
Pampanga.....	507	43	73	75	80	59	837
Pangasinan.....	450	116	322	723	1,086	590	3,287
Rizal.....	586	32	49	69	49	60	845
Romblon.....	15					1	17
Samar.....	166	3	6	11	18	28	232
Sorsogon.....	187	4	5	14	10	10	230
Surigao.....	44	1	1	1		9	56
Tarlac.....	568	90	130	97	129	42	1,056
Tayabas.....	491	99	103	149	163	156	1,161
Union.....	142	13	9	8	69	5	246
Zambales.....	142	8	6	4	4	16	180
Zamboanga.....	159	7	23	4	7	4	204
Total.....	12,665	997	1,317	1,877	2,459	1,539	20,834

NOTE.—Marinduque and Masbate included in Tayabas and Sorsogon, respectively.

The foregoing figures show a decrease in the number of applications for land registration under act No. 496 received during the year 1921, as compared with that filed during the preceding year. This decrease is chiefly due to the impulse given to the compulsory registration under the Cadastral act, and to the fact that the public is realizing that it is much more economical to secure a Torrens title under the Cadastral act than a similar title under ordinary registration proceedings. The crisis which prevailed during the past year is also responsible for this decrease.

APPLICATIONS FOR REGISTRATION BY THE GOVERNMENT.

The total number of applications for registration of title filed during the fiscal year 1921 by the insular, provincial, and municipal governments, under acts Nos. 496, 2874, and 2259, is as follows:

Applications filed by—

Insular government under Act No. 496.....	0
Insular government under Act No. 2874.....	21
Insular government under the Cadastral act (C. D.).....	118
Total.....	139
Provincial government.....	7
Municipal government.....	93
The city of Manila.....	0
Grand total.....	239

DECISIONS.

During past year there were decided by the courts of first instance 1,672 cases, as against 1,905 decided during the year 1920.

In 35 of said cases appeals have been taken from the decision before the supreme court.

The disposition made of such cases, duly classified, as well as the status of all cases filed up to December 31, 1921, is as follows:

Status of all cases on Dec. 31, 1921.	Fiscal year 1921.			
	Affirmed.	Denied.	Dismissed.	Total.
Final disposition.....	1,496	3	40	1,539
Decided, but subject to appeal.....	93	1	4	98
Appealed to supreme court.....	23	4	3	35
Total year's business.....	1,617	8	47	1,672
Previously decided, but subject to appeal.....	15	4	8	27
Previous appeals pending.....	51	15	6	72
Prior final disposition made.....	15,424	428	907	16,759
Total business transacted.....	17,107	455	968	18,530
Pending on the dockets.....				2,304
Total.....				20,834

The following tabulated summary shows, by fiscal years, the total number of decisions rendered by the courts since the establishment of the Torrens system in the Philippine Islands in the year 1903, and the disposition made of the cases:

Summary of decisions rendered.

Fiscal year.	Con- firmed.	Denied.	Dis- missed.	Total.
1903 (to June 30).....	19		2	21
1903-4.....	204	9	15	228
1904-5.....	377	21	15	413
1905-6.....	646	38	26	710
1906-7.....	689	19	75	783
1907-8.....	767	29	35	831
1908-9.....	1,019	50	86	1,155
1909-10.....	885	30	80	995
1910-11.....	1,374	49	226	1,649
1911-12.....	830	24	61	915
1912-13.....	807	32	37	876
1913 (July 1-Dec. 31).....	366	14	19	399
1914 (new fiscal year).....	747	26	19	792
1915.....	999	20	28	1,047
1916.....	982	25	66	1,073
1917.....	928	25	32	985
1918.....	992	13	31	1,036
1919.....	1,062	9	34	1,045
1920.....	1,857	14	34	1,905
1921.....	1,617	8	47	1,672
Total.....	17,107	455	968	18,530

CADASTRAL CASES.

The following tabulated statement, by Provinces, including the city of Manila, shows the total number of cadastral cases filed up to December 31, 1921, and the approximate number of lots included therein, viz:

	1907 to 1919		1920		1921		Totals.	
	Cases.	Approximate number of lots.	Cases.	Approximate number of lots.	Cases.	Approximate number of lots.	Cases.	Approximate number of lots.
1. Agusan.....					1	428	1	428
2. Albay.....	2	1,728			11	15,489	13	17,217
3. Bataan.....	7	4,453			4	4,580	11	9,033
4. Batangas.....	1	435	3	1,588			4	2,023
5. Cagayan.....	2	3					2	3
6. Camarines Norte.....	1	74					1	74
7. Camarines Sur.....	2	20					2	20
8. Capiz.....					6	6,471	6	6,471
9. Cavite.....	3	993					3	993
10. Cebu.....	12	12,562					12	12,562
11. Cotabato.....					8	8,500	8	2,500
12. Davao.....					1	1,084	1	1,084
13. Ilocos Norte.....	7	6,418					7	6,418
14. Ilocos Sur.....	1	13			18	19,914	19	19,927
15. Iloilo.....	30	23,810					30	23,810
16. Jolo.....	1	629			1	2	2	631
17. Laguna.....	4	2,826	10	8,556			14	11,382
18. Lanao.....					3	6	3	6
19. Leyte.....	3	157					3	157
20. Manila.....	43	5,524	8	1,817	24	4,368	75	11,709
21. Mindoro.....	2	92	2	1,434	2	1,845	6	3,371
22. Misamis.....	1	1					1	1
23. Nueva Ecija.....	7	4,367	1	53	10	11,326	18	15,746
24. Nueva Vizcaya.....	1	492					1	492
25. Occidental Negros.....	23	23,945	3	1,626	4	4,390	30	29,961
26. Oriental Negros.....	7	6,660			11	11,427	18	18,087
27. Palawan.....	6	574					6	574
28. Pampanga.....	14	13,166			3	4,203	17	17,369
29. Pangasinan.....	33	25,997					33	25,997
30. Rizal.....	7	3,382					7	3,382
31. Romblon.....					1	1	1	1
32. Samar.....					1	1	1	1
33. Surigao.....					1	3	1	3
34. Tarlac.....	9	5,340	10	8,086	7	8,600	26	22,026
35. Tayabas.....	2	13	5	4,619	1	68	8	4,700
36. Union.....	1	1			11	12,740	12	12,741
37. Zambales.....					9	8,389	9	8,389
38. Zamboanga.....	11	6,461			1	97	12	6,558
Total.....	243	150,136	42	27,759	139	117,932	424	295,827

The preceding summary includes all the cadastral cases filed up to December 31, 1921, showing a total of 424 cases, of which 57 were filed prior to the reorganization of the courts, and 367 after the reorganization.

The year 1921 broke all former records in the number of cadastral cases instituted. As can be noted from the above table there were 139 cadastral cases, which represents an increase of 278 per cent as compared with the figures given for the year 1920. This increase is chiefly due to the earnest desire of the present administration to expedite as far as possible the registration of lands. In response to this desire the new auxiliary judges of first instance authorized by act No. 2941 have been appointed, and almost all of them have been directed to hold special sessions in those Provinces where cadastral cases have been set for hearing for the purpose of trying said cadastral cases and to enter final judgment therein.

DECISIONS IN CADASTRAL CASES.

During the year there were decided by the various courts of first instance 23 cadastral cases which cover approximately 14,036 lots.

In order that such work may be fully appreciated by comparing the same with that accomplished during the seven preceding years, the following table is given, viz:

Fiscal year.	Cadastral cases decided.	Approximate number of lots.
1914.....	12	2,858
1915.....	27	14,435
1916.....	73	56,809
1917.....	27	14,857
1918.....	18	10,660
1919.....	18	13,899
1920.....	15	6,268
1921.....	23	14,036

STATUS OF CADASTRAL CASES.

The status of all cadastral cases in this office on December 31, 1921, is shown in the following statement:

	Cases.
Pending setting by the court.....	91
Already set but pending publication.....	33
Published but pending trial.....	21
Being tried or pending decision.....	54
Decision not final.....	32
Decision final but no decrees prepared because some of the final plans have not been received.....	6
Decrees being prepared.....	5
All decrees issued except for a few lots lacking data.....	151
All decrees issued.....	31
Total cadastral cases.....	424

DECREES.

There were issued by the general land registration office during the last fiscal year 16,475 decrees, of which 2,764 were in ordinary cases and 13,711 in cadastral cases, as against 14,288 decrees issued during the year 1920.

Said decrees comprise 19,529 lots of land, cover an area of 671,389,590 square meters, and relate to 2,180 cases, as against 16,093 lots, with an area of 761,052,989 square meters, comprised in the decrees issued in 1,389 cases during the year 1920. The decrees in ordinary cases comprise 5,196 lots with an area of 491,499,781 square meters, while those in cadastral cases include 14,333 lots with an area of 179,889,809 square meters.

The following table shows, by fiscal years, the total number of decrees issued since the enactment of the land registration act:

Year.	Number of cases.	Number of decrees.	Number of parcels.	Hectares.
Fiscal:				
1903 (to June 30).....	19	19	19	3.2
1903-4.....	178	178	186	28,737.8
1904-5.....	339	339	357	6,335.8
1905-6.....	436	436	520	3,493.0
1906-7.....	598	598	728	34,201.4
1907-8.....	729	729	1,057	41,689.9
1908-9.....	896	896	1,255	28,563.6
1909-10.....	707	707	1,178	66,905.3
1910-11.....	1,203	1,888	3,080	76,957.5
1911-12.....	1,252	1,434	2,575	47,047.9
1912-13.....	845	4,070	5,260	78,376.8
1913 (July 1-Dec. 31).....	373	3,227	3,909	55,510.7
Calendar:				
1914.....	781	3,956	5,873	75,634.0
1915.....	871	1,249	2,795	55,274.9
1916.....	869	5,786	7,094	78,322.6
1917.....	1,005	37,762	40,779	158,359.9
1918.....	836	10,198	11,503	52,624.8
1919.....	1,047	13,538	15,465	63,947.3
1920.....	1,389	14,288	16,093	76,105.3
1921.....	2,180	16,475	19,529	61,135.9
Total.....	16,553	117,773	139,255	1,203,694.9

VALUE OF PROPERTY APPLIED FOR REGISTRATION UNDER ACT NO. 496

Of the 1,539 ordinary applications filed during the year 1921, 53 refer to property situated in the city of Manila with an assessed value of ₱660,794 and 1,486 to property situated in the Provinces with an assessed value of ₱4,921,975.16.

The following is a summary of the assessed value of the property covered by the applications filed for registration during the year 1921 and the preceding seven years:

Fiscal year.	Manila.		Provinces.	
	Cases.	Valuation.	Cases.	Valuation.
1914.....	192	₱4,570,019.00	710	₱3,767,767.00
1915.....	117	2,087,037.00	879	5,286,624.55
1916.....	67	1,480,730.00	903	5,191,645.61
1917.....	52	459,404.00	925	3,930,435.40
1918.....	59	967,427.00	1,258	5,423,114.23
1919.....	57	830,078.00	1,820	5,842,222.24
1920.....	75	1,042,866.00	2,384	5,082,756.72
1921.....	53	660,794.00	1,486	4,921,975.16

The assessed valuation of lands included in cadastral cases can not be given until after the distribution of costs.

MANILA CADASTRAL AND ORDINARY CASES.

In accordance with law, the chief of the general land registration office is the clerk of the fourth branch of the court of first instance of the ninth district in the exercise of the functions conferred upon said branch or the judge thereof in all matters relating to the registration of land. In view thereof all applications for registration of land situated in the city of Manila, whether under the ordinary or cadastral proceedings, are filed and docketed in this office. All sessions of said court at which registration or cadastral proceedings are held are attended by a deputy, who keeps minutes of such proceedings and performs with reference thereto all the duties of clerk of court. The business transacted in said court in matters relating to registration of land is, therefore, chargeable to the credit of this office.

The following statement shows the total business transacted during the past year in the said court:

Cases pending Jan. 1, 1921:	
Ordinary cases.....	34
Cadastral cases.....	16
Total taken up.....	<u>50</u>
Cases filed:	
Ordinary cases.....	53
Cadastral cases.....	24
Consultas.....	18
Total.....	<u>95</u>
Cases decided:	
Ordinary cases.....	69
Cadastral cases.....	8
Consultas.....	18
Total decided.....	<u>95</u>
Cases dismissed:	
Ordinary cases.....	2
Total dismissed.....	<u>2</u>

Cases pending Dec. 31, 1921:

Ordinary cases-----	15
Cadastral cases-----	32
Total pending-----	47

Of the number of cadastral cases pending on December 31, 1921, 18 were pending publication, 9 pending trial, and 5 being tried or pending decision.

NOTICES.

The number of notices issued by the general land registration office and published in the Official Gazette during the last year was 1,798, involving 56,028 parties notified, as against 2,701, involving 51,146 parties notified, in the year 1920. It will be noted that while the number of notices in 1921 decreased, the number of parties increased. This apparent lack of proportion is due to the fact that of the total number of cases published in 1921, 69 were cadastral cases, while in the preceding year only 16 were published, and the average of parties notified in cadastral cases is over 500, while the average in ordinary cases is only 15.

In accordance with the law there were also prepared in connection with the notices and submitted to the courts 1,798 certificates of the publication of said notices in the Official Gazette and of the service of same to the interested parties.

The total cost of publication of said notices amounted to ₱37,010.40, as against ₱43,594.86 in the year 1920, being an average of ₱20.38 per case.

EXAMINATION OF CASES.

This activity existed since the organization of the general land registration office, but none or little attention has been paid to it in previous reports. The accomplishment of it concerns the chief surveyor, who is directly bound by law with the duty of examining the applications, plans, and technical descriptions in all cases filed whether in Provinces or in the city of Manila and to make report to the court of any errors in said plans and technical descriptions and any conflicts between descriptions in said cases and descriptions of adjoining lands already registered. This work requires the assistance of competent surveyors, inasmuch as upon its exactness depends mainly the stability of the Torrens system. Said work is divided into two parts: One examination is made before the publication of the case, and another for the issuance of the decree after the decision has been rendered and is final.

During the year 1921, 156 cadastral cases and 2,102 ordinary cases were examined for publication, or a total of 2,258 cases, as against 2,680 cases examined during the preceding year. There were also examined during the past year 20 cadastral cases and 2,180 ordinary cases for issuance of decree, or a total of 2,200 cases, as against 1,384 cases in the preceding year. Said number of cases examined required the submission to the courts of nearly 2,000 reports.

COLLECTIONS.

The total receipts of the general land registration office during the year 1921 as registration fees and for miscellaneous services rendered amounted to ₱55,771.94, of which ₱18,785.33 were collected by the office itself in Manila and the remaining ₱36,986.61 by clerks of court in Provinces, against a total receipt of ₱55,492.29 in the year 1920. Of the amount collected in Manila ₱2,470 are registration fees for the filing of 53 applications for registration of land situated in the city of Manila. The registration fees collected in Provinces are estimated at ₱33,910.

ORIGINAL AND DUPLICATE CERTIFICATES OF TITLE PREPARED BY THE OFFICE.

Pursuant to the system adopted by the general land registration office since March 1, 1916, relating to the preparation of certificates of title, and by virtue thereof, the issuance of decrees and the entry as well as the issuance of decrees and the entry as well as the issuance of original certificates of title and their owners' duplicates are now almost simultaneous, there were prepared by this office and forwarded during the year 1921 to the various registers of deeds

16,271 certificates of title with their corresponding owners' duplicates, thus giving the parties the benefit of securing their Torrens title almost immediately after the issuance of the decree.

V. BUREAU OF JUSTICE.

CHANGES IN PERSONNEL.

The position of attorney general became vacant on January 21, 1921, when Attorney General Felicisimo R. Feria was dismissed by the Governor General. Beginning January 21, 1921, Assistant Attorney Pedro Tuason acted as head of the bureau of justice until the appointment of Hon. Antonio Villareal was confirmed by the Senate, by virtue of which confirmation he left his official station, Bacolod, Occidental Negros, on December 14, 1921, in order to qualify for his new position as attorney general, he having taken oath as such on December 19, 1921.

During the month of May of the same year Mr. Francisco Africa, a practicing attorney, and Mr. Ramon R. San Jose, then a law clerk in the bureau of justice, were appointed special attorney and assistant attorney of that bureau. During the month of June of the same year, Messrs. Doroteo Amador, a practicing attorney, Jacinto Yamson, then justice of the peace of Butuan, Agusan, and Pio M. Reyes, a practicing attorney, were appointed as special attorneys of the bureau of justice. During the month of August, Mr. Salvador Abad Santos, then a law clerk, was appointed assistant attorney of said bureau. During the month of November Mr. Alfredo Santos, a practicing attorney, was appointed special attorney of the bureau of justice.

On June 6, 1921, the employment of Mr. Francisco Africa as special attorney ceased. Also, the employment as special attorney of Messrs. Doroteo Amador, Jacinto Yamson, Pio M. Reyes, Justino Bernardo, Alfredo Santos, Basilio R. Mapa, and Natividad Almeda ceased on December 31, 1921. Mr. Basilio R. Mapa was transferred to the bureau of justice as special attorney from the office of the provincial fiscal of Camarines Sur on February 1, 1921. Mr. Emilio Mapa, then assistant attorney of said bureau, was appointed to the position of auxiliary judge of the second judicial group on November 19, 1921. Upon the passage of Act No. 2942 the additional positions of assistant attorneys in the bureau of justice created by Act No. 2878 were abolished. On December 9, 1921, Messrs. Pio Fajardo, Antonio E. Cuyugan, Vicente Bautista, and Ciriaco P. Garcia, all special attorneys of said bureau, were appointed provincial fiscals of Davao, Zamboanga, Sulu, and Cotabato, respectively.

During the year Messrs. Cesar Bengzon, Braulio Bejasa, Emilio Peña, Alfonso M. Recto, Buenaventura Reyes, Anastasio R. Teodoro, Marceliano R. Montemayor, Manuel V. Moran, Sabino Padilla, Pio M. Reyes, Alexander Reyes, and Fernando Jugo were detailed from time to time to the Provinces for the purpose of either acting as provincial fiscals or conducting investigations. On the other hand, the provincial fiscal of Palawan was detailed to this bureau for a short period of time.

SERVICES PERFORMED BY BUREAU.

Opinions.—There were rendered by the bureau of justice during the year 182 written opinions, or 117 less than the number of written opinions rendered during the previous year. These opinions may be subdivided as follows: To the Governor General, Philippine Legislature, and heads of department, 73; to chiefs of bureaus, 93; and to provincial fiscals, 16.

Briefs.—During the year there were presented in the supreme court 810 briefs and arguments as against 567 briefs and arguments presented during the previous fiscal year, or an increase of 243. There were also 1,062 motions presented during the same period, or 382 less than the number of motions presented during the fiscal year 1920.

Cases conducted in the courts of first instance, etc.—Besides cadastral cases and ordinary land registration cases in which the bureau of justice had to intervene, said office conducted 702 cases in the courts of first instance and justice of the peace courts during the period covered by this report or 23 cases less than the year 1920, 103 being in the court of first instance of Manila, 463 in the various courts of first instance in the Provinces, and 136 in the justice of the peace court of the city of Manila.

Land cases, etc.—During the year, there were 3,663 cadastral cases and ordinary land registration cases in which this bureau intervened, or 89 cases more than in the year 1920. In 562 of these cases this office presented oppositions and appeared in court. With regard to the other cases, after due examination of their respective expedientes no oppositions were presented. There were also 21 civil and military naval registration cases conducted by this bureau in behalf of the respective entities interested.

Investigations.—There were conducted by this bureau during the year 1921, 19 investigations against attorneys in private practice. In one of these cases, the complaint was withdrawn by the complainant, while one case was dismissed. During the same period there were also 38 administrative investigations made by this office against judges of the court of first instance and provincial fiscals, clerks of court, justices of the peace, and other employees of the judiciary.

Drafts of contracts, etc.—During the year 30 drafts for contracts, mortgages, and other instruments were prepared by the bureau of justice for the Philippine Postal Savings Bank, involving the sum of ₱347,500, as against 1,392 contracts, mortgages, and other instruments prepared last year. The reduction in quantity of these contracts, mortgages, and other instruments is due to the fact that said bureau is no longer preparing such forms for the Philippine National Bank, which has now its own attorney.

Administration of estates.—The following is a list of American Government employees who died during the fiscal year 1921 and whose estates have to be administered by the attorney general:

Fred. Off.
R. E. Kent.
A. H. Troge.
F. E. Alter.

During the same period the administration of the estates of the following deceased employees was terminated:

Walter Albert.
John Maher.
Charles A. Shields.
Will Arthur.

The estates of the following deceased employees were in process of settlement at the close of the fiscal year 1921:

Robert W. Gaylor.
D. F. Benedict.
Henry C. Allen.
Charles Berg.
Bert F. Bean.
C. W. Williams.
Fred. Off.
James Darrah.
R. E. Kent.
A. H. Troge.

Funds, estates of deceased American employees.

Balance, December 31, 1920-----	₱1,917. 87	
Receipts, fiscal year 1921-----	4, 629. 63	
	<hr/>	₱6, 547. 50
		<hr/> <hr/>
Disbursements, fiscal year 1921-----	4, 358. 24	
Balance, December 31, 1921-----	2, 189. 26	
	<hr/>	6, 547. 50

As stated in the previous reports, the attorney general was named executor of the will of the late Father Gregorio Crisostomo, by which the insular government was made a legatee. After the provisions of the will were confirmed by the supreme court, commissioners on appraisal were appointed. These commissioners, after having qualified as such, passed upon claims against the estate which were settled with the approval of the court. The attorney general as administrator is now proceeding to distribute the inheritance to the heirs, the inheritance tax having already been paid to the government. After this distribution, the administration of this estate will have been terminated.

VI. PROVINCIAL FISCALS.

WORK HANDLED.

The following is a statement of the work done by the provincial fiscals throughout the islands during the fiscal year 1921:

Criminal cases:	
Dismissed without complaints.....	2, 580
Convictions.....	3, 238
Acquittals.....	604
Total.....	<u>6, 422</u>
Civil and land-registration cases:	
Cases won.....	215
Cases lost.....	105
Total.....	<u>320</u>
Number of cases investigated:	
Civil cases.....	330
Criminal cases.....	5, 003
Total.....	<u>5, 333</u>
Appearances in justice of peace courts.....	<u>804</u>
Opinions:	
Rendered.....	1, 416
Pending.....	65
Total.....	<u>1, 481</u>

The data corresponding to the offices of the fiscals for Batanes, Cotabato and the city of Manila are not included in the above statement for the reason that their respective reports have not as yet been received.

VII. BUREAU OF PRISONS.

CHANGES IN PERSONNEL.

The most important changes in the personnel have been that of the resignation of Assistant Director Dr. Bernardino Monreal on March 2, 1921, and the appointment of Supt. J. W. Quillen of the Iwahig Penal Colony to this position, the transfer of Mr. Ramon Victorio, superintendent of the San Ramon Penal Farm to the position of superintendent of the Iwahig Penal Colony on November 15, 1921, and the appointment by transfer of Mr. Ramon P. Mitra as chief accountant. Mr. Victorio's detail to the Iwahig Penal Colony was made necessary by reason of the existing vacancy in the position and the absence of the assistant superintendent of the colony.

PRISON POPULATION.

On December 31, 1921, the prison population of the Philippine Islands was distributed as follows:

Bilibid Prison.....	2, 769
Iwahig Penal Colony.....	1, 047
(Members of the colonists' family, 38.)	
San Ramon Penal Farm.....	655
Working at Corregidor.....	793
Bontoc Prison ¹	140
Constabulary stations.....	29
Insular prisoners working at provincial jails.....	1
San Lazaro Insane Asylum.....	18
City Boys' Reformatory.....	1
Luneta Police Station.....	49
Confined in provincial jails.....	1, 580
Total.....	<u>7, 052</u>

¹ Bontoc is a mixed insular and provincial prison, non-Christian insular prisoners being confined therein while the full maintenance expense is borne by the Mountain Province.

The total number of insular and provincial prisoners on hand on December 31, 1920, was 6,830, while on December 31, 1921, there were 7,082, an increase of 252 prisoners.

The number of insular prisoners on December 31, 1920, was 5,256 and on December 31, 1921, 5,487. These prisoners are confined at Bilbid Prison, Iwahig Penal Colony, Corregidor, San Ramon Prison and Penal Farm and in the Bontoc Prison while some were detailed for work in other bureaus and government divisions.

The daily average of insular prisoners in confinement in the bureau of prisons during the year was 5,325, while the average number during the period covered by the previous report was 5,175, an increase of 150.

The number of provincial prisoners on hand on December 31, 1920, was 1,576 and on December 31, 1921, 1,595, an increase of 19.

The following is a summary of changes in the insular prison population:

	Bilbid.	Iwahig.	Corregidor.	San Ramon.	Bontoc.
In confinement, Jan. 1, 1921.....	2,793	1,100	627	612	121
Received by commitment.....	4,017			137	155
Received by capture.....	1			6	
Received by transfer.....	873	175	552	13	
Total.....	7,684	1,275	1,179	768	276
Released:					
Expiration of sentence.....	3,154	161		75	35
Court order.....	320			1	85
Pardon, conditional.....	202	18		9	6
Pardon, unconditional.....	27				
Parole.....	2				
Deported, United States of America.....	7				
Deported, China.....	25				
Death.....	120	32	6	2	8
Transferred.....	1,058	17	380	20	2
Escaped.....				6	
Total change.....	4,915	228	386	113	136
Total remaining.....	2,769	1,047	793	655	140
Daily average.....	2,790.4	1,114.7	692.7	624.6	139.8

Bilbid Prison having the greater number of prisoners and being the receiving prison for practically all newly convicted prisoners as well as the distributing station for outside details and assignments, records the largest number of changes, there being an average of approximately 27 entering or leaving this prison daily, which is an increase of about 1 over the preceding year.

The number of commitments by the courts was 4,154, as against 4,038 for the year 1920, of which 1,018 were from the Provinces and 3,136 were from Manila, as against 938 from the Provinces and 3,100 from Manila for the preceding year. Those committed from the city of Manila include short-term municipal prisoners as well as insular prisoners. Those convicted of the opium habit are sent to Bilbid for treatment, regardless of their status.

The principal crimes for which prisoners have been committed are murder and robbery in the different degrees. Those showing increase are abduction, concubinage, damages to property, embezzlement, frustrated homicide, homicide, illegal marriage, murder, parricide, physical injuries, qualified theft, rape, unchaste abuses, and vagrancy.

DISCIPLINE.

The discipline maintained in the bureau of prisons has been on the average with that of preceding years. Efforts have always been made to enforce good order with the least degree of corrective measures commensurate to securing this result, and it is believed that practically all prisoners who have been punished will freely acknowledge to have merited the punishment imposed.

The greater number of prisoners have been obedient to the existing prison rules and regulations. Comparatively few serious infractions of them have occurred, nearly all having earned the full credits authorized for good conduct. The principal exceptions are four who committed crimes in Bilbid Prison, one of whom was aided by an employee, and are reported in detail as follows:

Prisoner Gabriel Topacio, serving sentence of life imprisonment for parricide, killed prisoner Alfonso Martinez with a pickax on the morning of January 28, 1921. This prisoner pleaded guilty of the crime before the court of first instance of Manila and was sentenced to an additional life imprisonment. It was later learned that this crime resulted from a family quarrel before the prisoner's commitment, the deceased being a relative of the prisoner's wife, for whose assassination he was serving sentence.

Prisoner Macario Bonete, serving a sentence of 12 years and 1 day for robbery in band, stabbed another prisoner in the chest, causing the latter's death. He was sentenced to death by the court of first instance of Manila for the crime of murder. The case is on appeal in the supreme court.

Prisoner Segundo Barimbao, sentenced by the court of first instance of Misamis for the crime of homicide to 14 years 8 months and 1 day imprisonment, assaulted another prisoner. He was given an additional sentence of 6 months for inflicting injuries by the court of first instance of Manila.

Claro Mendiola, serving a sentence under 12 separate charges amounting to 26 years 3 months and 5 days imprisonment, being responsible for the making of counterfeit coins at Bilbid, was given an additional sentence of one year imprisonment and ₱1,000 fine. The other prisoners implicated but against whom there was insufficient evidence for conviction in the court were administratively punished as provided in the prison rules. One of the prison guards who was an accomplice of the prisoners in the counterfeiting, by permitting the work in his office and passing the coins, was found guilty and sentenced to two years imprisonment and a ₱2,000 fine by the court of first instance of Manila.

Prisoner Leon Tobias, who was sentenced by the court of first instance of La Union to 20 years imprisonment and an indemnity of ₱1,000, committed suicide by stabbing himself with a knife on February 21, 1921.

There have been more violations of the rules and regulations at the San Ramon Penal Farm this year than in the previous year, although only one prisoner has been returned to Bilbid for misconduct as compared with 10 who were returned in 1920. There were six escapes during 1921 at this institution, and while four have been recaptured, two remain at large.

There has not been any offense committed by the colonists at the Iwahig penal colony of a sufficiently serious nature to warrant intervention by the courts. In the latter part of the year five colonists planned to leave the reservation without permission, but were apprehended before the execution of their plan. This is reported as being due to the lax discipline maintained during the first part of the year and which is now being corrected.

PRISONERS' INVESTIGATION COMMITTEE.

The work of this committee at Bilbid during the year 1921 is marked with success. The members, consisting of five jurymen, one fiscal, and one defender, have disposed of 1,842 reports against prisoners during the year 1921, as compared with 1,743 of the previous year, showing an increase of 99 in the number of reports made. These reports consist principally of the following offenses: stealing, 32; loafing, 289; fighting, 92; disobedience, 60; keeping food, 202; refusing to work, 90.

It has been found necessary to modify 170 of the recommendations made by this committee, which is in excess of changes made in previous years, but was found necessary in securing the desired disciplinary results.

There were only three changes made in the prisoners' investigating committee during the year 1921, two members having been pardoned and one transferred to the San Ramon penal farm, were replaced with qualified inmates.

SUBSISTENCE.

The total cost of subsistence shows a decline from that of the previous year, the average daily cost for a prisoner being as follows:

	Bilbid.	Iwahig.	San Ramon.
American and European.....	₱0.7646	.....	₱0.4120
Sick prisoner.....	.5925	.....	.....
Native and Asiatic.....	.2210	₱0.2324	.1592

For 1920 this average cost per ration was :

	Bilibid.	Iwahig.	San Ramon.
American and European.....	P0. 5394		P0. 6864
Filipino and Asiatics.....	. 3997	P0. 1856	
Sick in hospitals.....	. 8409		

While a considerable increase is shown in the average cost of subsistence at the Iwahig Penal Colony, this increase is covered to a large extent by increased accounting prices for items of colony production.

The following is a summary of rations issued, with reported values of agricultural products and purchased items :

	Number of rations.	Value.		
		Products.	Purchased.	Total.
Bilibid Prison.....	1, 273, 268	P24, 649. 85	P316, 209. 92	P340, 859. 77
Iwahig Penal Colony.....	406, 852	82, 823. 86	11, 744. 97	94, 568. 83
San Ramon Prison.....	227, 854	33, 125. 30	4, 065. 81	37, 191. 11

MAINTENANCE.

The cost of maintenance of prisoners during 1921 has been reduced considerably from that of 1920, due principally to the decline of prices of commodities, although during the early part of the year this had but little effect, as contracts for the first six months' supply were entered into in the latter part of 1920, when prices of articles were still high. This fact accounts for the principal deficit which has occurred in the appropriation for the year. The expenditure for consumption of supplies and materials is ₱728,551.25, in comparison with ₱919,083.11 for 1920, or a decrease of ₱190,531.86.

The following is a brief summary of the cost of maintenance in the three principal bureau divisions :

	Cost of maintenance.	Average number prisoners during the year.	Average cost of maintenance per capita.	
			Per year.	Per day.
Bilibid prison.....	P680,057. 33	3, 529. 1	P192. 6999	P0. 5279
Iwahig penal colony.....	243, 256. 44	1, 155. 66	210. 4913	. 5766
San Ramon penal farm.....	128, 038. 11	624. 63	204. 9823	. 5615

THE INDUSTRIAL DIVISION.

In this division the same activities have been continued and the amount of work accomplished has been practically the same as that of the previous year. The decrease of work in some departments, like the machine and vehicle repairs shop, has been offset by a corresponding increase in the hardwood and wicker furniture shops, where the orders received were about double their producing capacity, for which reason numerous orders had to be rejected, especially those for rattan and bamboo furniture.

Offers have been received from firms in Europe and in different cities in the United States for the establishment of sales agencies in those places, but it was not believed necessary to seriously consider this subject, inasmuch as the production has been insufficient to supply the local demand.

AMUSEMENTS AND ENTERTAINMENTS.

Amusements and entertainments, like occupations, serve a very important part in reformation and in preserving order among prison inmates. For this

reason the usual recreations and entertainments have been provided. These consist of books, periodicals, and various games, such as baseball, boxing, and other outdoor sports. Every Saturday and Sunday night there is a moving-picture show. The Bilibid orchestra has furnished music during special entertainments on Christmas and other holidays and for the regular weekly shows and entertainments. A drama has been staged by the inmates themselves and was received with marked enthusiasm on special programs during the principal holidays throughout the year. The prison band, now one of the best bands in the Philippines, gives daily concerts which are greatly appreciated and materially aid in lessening the monotony of prison life.

Favorable comment has frequently been made by competent authorities upon the system of training and recreation now being followed for prisoners and the beneficial results which have been accomplished by these methods.

RELIGIOUS SERVICES.

The attendance of inmates at religious services is encouraged and they are granted every opportunity to receive the spiritual attention of the church with which they are affiliated. The chaplains have held services on Sundays and holidays and have made frequent visits to the sick in the hospitals. The aim of their preaching is a continuous endeavor to impress the inmates with the fact that the purpose of their imprisonment is not to punish a wrong-doer in anger but to correct and improve them, to give them hope, inspiration, encouragement, and uplift to a new life and opportunity. The voluntary work of the religious societies with reference to the religious teaching and instruction to inmates, especially in Bilibid Prison, can not be overestimated. Members of these associations have regularly visited the prisoners, and, with the aid of the chaplains, there has been a liberal distribution of books, periodicals, and pamphlets relating to religious subjects and teachings.

PRISON SCHOOL.

The educational work at Bilibid Prison has been continued in as thorough a manner as possible with the meager equipment available for this purpose and it is believed that it serves as a positive factor in dispelling ignorance and its attendant viciousness and in quickening and enlivening the moral sense of the prisoners in general. As nearly all the prisoners are illiterate, the course of study in the Bilibid school is necessarily a very elementary one. The classes are divided into regular class, day class, and night class.

The regular class is composed of prisoners whose ages are from 15 to 18 years. This class has continuous daily work, with the exception of Sundays, from 7 to 11.30 a. m. and from 1 to 4 p. m.

The day classes have daily sessions of one hour with the exception of Saturdays, Sundays, and holidays. They are composed of prisoners who may be excused from their regular prison duties for the time of class session without detriment to the work.

The night class sessions are held in the evenings in all dormitories with two exceptions. This gives an opportunity for prisoners who are busy during the day to receive the benefits of the school work.

HEALTH.

The general health of prisoners as indicated by the mortality rate is an improvement over the average for the five-year period, although there is an increase in the number of deaths over the preceding year.

The deaths occurring among insular prisoners at the several places where they are stationed or confined were as follows:

	1917	1918	1919	1920	1921
Bilibid prison.....	107	193	126	103	120
Iwabig penal colony.....	23	72	25	21	32
San Ramon penal farm.....	4	45	12	5	2
Corregidor.....	39	68	7	1	6
San Lazaro.....			4	2	3
Baguio.....			2		
Total.....	173	378	176	132	163

There was a general death rate of 31.5 per thousand in the insular prisoners, of which about one-half were for pulmonary tuberculosis.

Nine children, as compared with six the previous year, were born to women prisoners, who were pregnant at time of conviction, in Bilibid prison, two of whom were males and seven females. With but one exception the parents of these children were serving sentence for adultery.

In the Iwahig penal colony 5 of the reported deaths were due to accident—1 from drowning, 1 by falling from a tree, 1 by falling and having a loaded wagon pass over him, 1 having been struck by a falling tree, and 1 by falling from a motor cycle.

Two assassinations and one suicide are included in the number of deaths occurring in Bilibid prison.

The detailed report relative to prison health and sanitation is submitted to the bureau of health by the physicians in charge of this work.

PROVINCIAL JAILS.

Provincial governors have direct control over provincial jails and jail officials, and all have endeavored to improve conditions during the past year. In a number of Provinces the buildings used as jails are reported as being badly in need of repairs and alterations, especially as regards sanitary arrangement, and the jail guards without or with worn-out uniforms, but in almost every instance shortage of funds to make the needed changes have been reported as the cause of existing conditions. The monthly reports of inspection of provincial jails rendered by provincial commanders of constabulary are an invaluable aid in bettering conditions and improving efficiency, as each defect reported is immediately brought to the attention of the responsible official with a view of correction, and cooperation to this end has invariably been accorded.

IWAHIG PENAL COLONY.

The total expense of operation of the Iwahig penal colony during the year 1921 is ₱243,256.44, while the receipts from various sources (colony production and cash collections for labor and services) are approximately ₱169,975.66.

SAN RAMON PENAL FARM.

The total expense of operation of the farm for 1921 is ₱128,038.11, while the receipts from colony production and service incomes are approximately ₱75,746.23.

VIII. PUBLIC UTILITY COMMISSION.

WORK OF THE COMMISSION.

Generally the work done by the commission during the year covered by this report is twice as much as that of the previous year. The rapid growth of public utilities declared as such by the provisions of Act No. 2307, as amended by Act No. 2694, and placed under the jurisdiction and control of the commission, and the increased familiarity of the public with the laws and regulations controlling them, are the main causes which gave rise to the great volume of work of this body.

The development of public utilities in the islands, especially automobile lines, electric-light plants, and motor boats, is worth being noted. The demand of the public for land and water transportation, as well as for electric service, is always growing.

Public utilities whose services have been the object of frequent criticisms and complaints by the public, and which, therefore, constantly claimed the attention of the commission, are the telephone company and the street car company doing business in the city of Manila.

The commission carried out, as far as possible with its limited personnel, its proposed plan of strictly controlling and regulating the operation of automobiles engaged in public service. The majority of auto operators for public use were not previously provided with the corresponding certificate of public convenience, thus violating the public utilities act and unlawfully competing with operators duly authorized in the same line of service, to the prejudice of the interests of the latter. With regard to operators provided with certificates of public convenience, simple information or serious complaints were filed

with this commission more or less frequently, advising that either the approved rates were not adhered to or that for lack of competition higher fares were charged.

The commission decided to subject to strict supervision and regulation utilities of minor importance, such as bancas, lighters, and other small water craft that are engaged in transporting passengers and cargo from the side of ship to the shore or beach of the ports of call where no wharf, pier, or dock exists. Apparently these enterprises seemed to be of no importance, considering the small capital invested therein and the way they are operated; but if it is borne in mind that these are the only means available to move cargoes and passengers from the ship to the shore or vice versa, it would readily be seen that they do directly affect the cost of living of the people of those ports where no wharf, pier, or other landing facilities are available excepting said small utilities. Upon investigation it was found that excessive and exorbitant charges are being exacted, being in some instances as high as those charged by the carrying steamer or ship.

In general the activities of the commission may be confined to the following items:

1. Investigation of complaints.
2. Appraisement and valuation of property.
3. Fixing of just and reasonable rates.
4. Filing of schedules and itineraries.
5. Standards, classifications, regulations, etc.
6. Connections, gauges, highways, and devices.
7. Compliance by public utilities with the Philippine laws.
8. Service, equipment, and facilities.
9. System of accounting.
10. Annual reports of finances and operations.
11. Depreciation accounts.
12. Investigation of accidents.
13. Filing of statement on administrative action by public utilities.
14. Issuance of certificates of public convenience.
15. Issuance of certificates of public necessity and convenience of franchises.
16. Increase or reduction of rates.
17. Regulation, practice, measurement, etc.
18. Proper, safe, and adequate service.
19. Prevention of undue preference and advantage.
20. Sales of stocks, bonds, franchises, etc.
21. Sale and mortgage of property, franchise, etc.
22. Abandonment or change of railroad stations, or steamer routes.
23. Supply to the government bureaus and to the general public of information on all kinds and readjustment of accounts.
24. Supervision over the rates of the Manila Railroad Co.
25. General control of public-utility cars in cooperation with the bureau of public works.
26. Supervision over the granting of franchises in cooperation with municipal councils.

NUMBER OF UTILITIES.

For the purpose of giving a general idea of the extent of the work of the commission in supervising and regulating existing public utilities the following table is given below:

Public utilities controlled by the commission, 1921.

Railroads.....	8
Street railway.....	1
Steamers and steamship lines.....	138
Small water craft.....	45
Automobiles and autotrucks.....	484
Public wharves.....	24
Ice plants.....	11
Gas plant.....	1
Electric plants.....	54
Water systems.....	8
Telephone systems.....	40
Telegraph systems.....	2
Total.....	811

This table includes municipalities and Provinces that are operating wharves, telephone systems, electric plants, steamers, and automobile lines as public utilities.

CASES HANDLED.

During the year 1921, 512 cases were handled by the commission, classified as follows:

Increase in rates of—	
Water	1
Steamship company	9
Street car	1
Automobile service	7
Electric light company	12
Telephone company	2
Ice company	2
Railroad company	16
Certificate of public convenience for—	
Automobile service	231
Ice company	6
Steamship company	10
Wharves	1
Banca	3
Motor boats	26
Electric light company	11
Sale of property:	
Steamship company	2
Electric light company	3
Ice company	1
Telephone company	1
Automobile service	11
Motor boats	3
Manila Electric Co.	4
Change of schedule, etc:	
Steamers	2
Regulations:	
Ice company	1
Electric light company	4
Steamer	1
Telephone company	1
Complaints against—	
Motor boats	2
Electric light company	11
Water	1
Automobile service	10
Telephone company	4
Gas company	1
Steamer	5
Increase of capital stock of—	
Electric light company	1
Telephone company	2
Automobile service	1
Miscellaneous cases	2
Total number of cases filed in 1921	512
Cases inherited from previous years	241
Grand total	753
A classification in accordance with the action taken in expediting these cases is given below:	
Classification of the 241 inherited cases:	
Decided	189
Pending	52
Total	241

Classification of the 512 cases filed in 1921:

Decided	297
Cases newly filed and pending at the end of the year	215
Total	512
Grand total	752

MATTERS HANDLED BY CORRESPONDENCE.

Owing to the fact that the public is becoming more familiar with the public utilities act and regulations, matters disposed of by correspondence are numerous. Complaints against utilities as to rates, service, etc., that can be adjusted by correspondence are so expedited. Through letters and indorsements the public and government bureaus and offices were also furnished with information on rates, time tables, and other matters relating to operating utilities.

IX. PHILIPPINE LIBRARY AND MUSEUM.

CHANGES OF PERSONNEL.

During the year 1921 there were not many important changes in the personnel of the Philippine Library and Museum. In the absence of Mr. José Zurbito. Mr. Manuel Artigas has been designated acting director to take his place. One of the reference librarians has been transferred to the University of the Philippines on July 16, 1921, and another one was detailed to the press bureau at Washington, D. C., leaving the islands on March 23, 1921. Mr. Rosauro de Guzman retired from the service on July 2, 1921. During the session of the Philippine Legislature many temporary appointments have been made.

CIRCULATING DIVISION.

The services rendered by the circulating division to the public from its organization up to the present time have been very beneficial, especially for the inhabitants of Manila who have made use of the books pertaining to this division.

The total circulation of books, not including the reference section, during the last five years is as follows:

1917	139, 131
1918	114, 496
1919	141, 093
1920	173, 421
1921	184, 078
Total	752, 219

FILIPINIANA DIVISION.

The utility and usefulness of this division to the public and to the government is manifested by the number of readers registered during the year.

The following figures represent the number of readers during the year 1921:

0. General works	888
1. Philosophy	3
2. Religion	34
3. Sociology	3, 582
4. Philology	144
5. Natural science	163
6. Useful arts	51
7. Fine arts	7
8. Literature	869
9. History	1, 706
Total	7, 447

Books read, by languages.

English	4,287
Spanish	2,578
Tagalog	542
Visayan	16
Other Philippine languages	19
Other foreign languages	5
Total	7,447

Of the books consulted, sociology stands the highest in the number of readers with 3,682; history, 1,706; literature and general works, 869 and 888, respectively.

CATALOGUE DIVISION.

At the beginning of 1921 there were on the shelves of the catalogue division 2,606 volumes, and from time to time during the same year, 4,111 books were received from the accounting and property division. Of these were classified and catalogued 4,252 volumes, which, together with 2,709 classified and catalogued for the Filipiniana division and the 150 for the legislative reference division, make a total of 6,481 volumes. Besides these 434 volumes have been reclassified and recatalogued; while 8,208 volumes have been relabeled and repocketed. And for all the different departments and branches of the library 40,083 catalogue cards have been typewritten, almost all of which have been also filed.

Books classified and catalogued	6,481
Books reclassified and recatalogued	434
Books relabeled and repocketed	8,208
Cards typewritten	40,083

GENERAL REFERENCE AND PERIODICAL DIVISION.

While the "American Circulating Library" was under the bureau of education, the general reference and periodical division formed a section of the said circulating library.

The division has furnished information on various topics to students of the different schools and colleges. Typewritten bibliographies were prepared for members of the legislature, government officials, and for certain public readers. Readers from all walks of life have asked ready reference questions and were promptly answered or referred to more accurate and detailed sources of information. Several members of the legislature have been furnished typewritten copies of magazine articles dealing on various political subjects.

The activities of this division may be illustrated by the following statistics:

Periodicals prepared for binding	459
Readers in reading room	58,106
Reference books consulted	15,935
Ready reference questions answered	313
Detailed reference work prepared	6
Back number of periodicals consulted	18,436
Reference books mutilated	1
Periodicals mutilated	38
Periodicals purloined	7
Criminal convictions for mutilations	1

LEGISLATIVE REFERENCE DIVISION.

This division, which at first was established shortly after the inauguration of the Philippine Assembly, became a part of this library upon the enactment of act No. 2572 on February 4, 1916, reorganizing the Philippine Library.

The chief functions of the same are those researching information and data concerning various problems, and the proper drafting of bills. The legislature finds in this division a useful aid upon which is committed the work of preparing all of those details as indispensable information regarding the various affairs under study by both houses of the legislature. But aside from this, the collection which it possesses renders to the public an excellent service.

PROVINCIAL BRANCH LIBRARIES.

The following statistical table shows the number of books sent by the Philippine Library and Museum to its provincial branches during the last three years:

	1919	1920	1921
Iloilo.....	2,822	2,639	None.
Cebu.....	1,000	2,200	None.
Bureau of science.....	100	100	100
College of agriculture.....	150	150	150
Baguio.....	None.	1,100	654
Associated charities.....	None.	400	400
Tondo.....	400	400	None.
Laoag.....	935	1,025	None.
Zamboanga.....	513	513	None.
Vigan.....	None.	200	None.
Camaringes.....	None.	200	400

MUSEUM DIVISION.

While the growth of the museum has not been just as steady as was desired by this office, its collection of specimens has gained during the year just ended a fair increase as herein below described:

1. Coat of arms, used by the Lanao Moros of Mindanao, donated by Governor General Harrison;
2. Manobo hats, donated by Acting Director Zurbito; and
3. Mallet, from the general land registration office.

This mallet is made of camagon and incusted with silver, and was formerly used by the judge of the court of land registration of the Spanish Government. It is very interesting from the historical point of view. Through the request of Mr. Manuel Artigas, then acting director of the Philippine Library and Museum, it was transferred from the general land registration office to the Philippine Library and Museum.

A few archeological specimens for temporary exhibition were loaned to the museum by Maj. Eugene di Mitkiewicz, and several others by the department of anthropology of the University of the Philippines.

In concluding this report it should be observed that the undersigned has made no recommendations herein for the reason that he is now preparing a supplementary report which will include a program for the activities of this department during the next four years, together with the appropriate recommendations. It should also be observed that the undersigned assumed the duties of acting secretary of justice only on January 26 of this year, 1922, and has not as yet had sufficient time to make a careful and complete survey of the work of this department to enable him to include his recommendations in this report.

Very respectfully,

JOSE A. SANTOS,
Acting Secretary of Justice.

THE GOVERNOR GENERAL,
Malacañang Palace.

REPORT OF THE SECRETARY OF AGRICULTURE AND NATURAL RESOURCES.

JANUARY 1 TO DECEMBER 31, 1921.

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES.

Manila, P. I., _____.

SIR: I have the honor to submit herewith the annual report of this department covering its activities during the year 1921.

PERSONNEL OF THE DEPARTMENT.

Toward the end of the year a change in the personnel of this department took place when the resignation of Dr. Galicano Apacible as secretary of agriculture and natural resources became effective on October 31, 1921. Having been appointed to succeed Doctor Apacible, the undersigned took oath of office November 2, 1921. On November 16 the nomination of Hon. Enrique V. Filamor as judge of court of first instance for the first judicial district was confirmed by the senate, he remaining on duty, however, as undersecretary of agriculture and natural resources till the end of the year.

IN GENERAL.

In examining the different activities of this department, again the inadequacy of the number of trained personnel and of the amounts allotted to the different offices under this department are strikingly pointed out by all the directors, particularly as to the insufficient number of scientific and technical men for the work of investigation and experimentation. The immense work needed and expected in, with the responsibility devolved on, the development of our agriculture and the conservation of the natural resources of the Philippine Islands carry with it not only the most efficient and expeditious way in disposing of lands of public domain, the investigation of the best methods of cultivation, and the best means of exploitation of our natural resources, but also a system of organization so adequate and efficient as to obtain the cooperation of the public in general and the persons directly affected in particular. The field covered is so broad and so large that it requires more attention and more expenditures.

A new and undeveloped country as the Philippines certainly offers an unexplored and undeveloped field which demands a thorough and careful study and investigation of her vast scientific and technical problems for the development of her natural resources.

On the other hand, it is natural and logical that such portion of our public as is directly interested in the development of our natural resources, upon finding so many opportunities for new activities and enterprises, agricultural as well as commercial and industrial, becomes in most cases impatient that with our vast resources in the islands the offices under this department are unable to furnish to them such data and information which they believe must already be in the hands of the government. Such data and information can not certainly be developed by science in a short period of time, because this must be the result of long and conscientious analysis and experimentation in the laboratory and of the long and painstaking labor of making collections and observations in the field.

With the funds and personnel available the bureaus under this department have done well to continue the work already started in some activities, just

started in others, and they expect to be able to start, in many cases, activities not only those placed upon them by law but also those which the public believed should be shouldered by them as a matter of expediency and hearty cooperation. It should be admitted that people seem to expect that the insular government should do and bear the cost of everything. As typical cases of this nature may be cited the campaigns against rinderpest and locusts. The present legislation places in the hands of provincial governors the initiative of the work of stamping out the rinderpest and locusts, and only requires the bureau of agriculture to render its technical services. The facts, however, are that not only has the bureau of agriculture to do all the work but the worst is that it could not even obtain the cooperation from those who are by law or by individual interest called upon to start and maintain the work.

ACTIVITIES PROPERLY BELONGING TO THE DEPARTMENT OF AGRICULTURE
AND NATURAL RESOURCES.

In the first place, I desire to enumerate those activities which existing legislation has specially assigned to this department, aside from the direction and executive supervision over the bureaus of agriculture, forestry, lands, science, and weather bureau. Such special activities are (a) matters related with rice colonization and plantation on public lands; (b) the establishment and maintenance of stock herds and farms; (c) the administration of ₱1,000,000, to be loaned to rural credit associations; (d) matters concerning hunting, fishing, and other maritime products; and (e) matters regarding concessions of lands containing coal, gas, petroleum, and other mineral oils.

(A) THE GOVERNMENT AGRICULTURAL COLONIES.

At present there exists a lack of systematic administration of the agricultural colonies belonging to the government. It is true that under the present legislation, their administration is assigned to this department. As a matter of fact, however, neither the Governor General, who formerly was in charge of these colonies, nor the secretary of agriculture and natural resources, to whom the administration has been later transferred, has been able to directly manage these colonies. From the beginning their administration has always been delegated to one or more officials of the government. Upon the reorganization of the executive departments in January, 1917, under Act No. 2666, the department of agriculture and natural resources assumed the administration of the so-called government agricultural colonies, which were then established as follows: One in Cotabato, Province of Cotabato; one in Momungan, Province of Lanao; one in the municipality of Carmen, Province of Bohol; and one in Abulog, municipality of Abulog, Cagayan, Luzon. After the reorganization of this department, the administration of these colonies was delegated to the directors of those bureaus which were, before such reorganization, in charge of their administration.

By operation of the law, the administrative control over these colonies was given to the Governor General, but this high official, aside from creating a board on agricultural colonies, also appointed the director of lands as his representative for the colonies in Abulog, Cagayan, and Carmen, and the governor of the department of Mindanao and Sulu for the colonies in Mindanao and for all those in Cotabato and Momungan. However, the Momungan agricultural colony has been under the immediate supervision of the director of agriculture (sec. 1754 of the Revised Administrative Code) and had remained so up to the reorganization of the executive departments in 1917, when the secretary of agriculture and natural resources delegated the administration of these colonies in the following manner: Abulog and Carmen to the director of lands; Cotabato to the director of the bureau of non-Christian tribes; and the Momungan agricultural colony to the director of agriculture.

As this system does not produce coordination and simplification of the administration, the undersigned, upon taking charge of the office of secretary of agriculture and natural resources, deemed it more convenient to delegate the administration of all of these colonies to the director of agriculture, keeping in mind, however, the special conditions existing in the colonies under the supervision of the director of the bureau of non-Christian tribes. The plan, however, is still under consideration on account of lack of funds to start an administrative reorganization.

Although financially speaking these colonies have not so far been a success, however, it must be borne in mind that the success of any agricultural enterprise is oftentimes slow and usually requires longer time than any other enterprise before it can be self-supporting. Furthermore, we should not lose sight also of other benefits obtained by the government through the establishment of these colonies. In the first place, the emigration of inhabitants from the more densely populated parts to the less densely populated towns of the archipelago has been largely carried out. In the second place, the establishment of these agricultural colonies in Mindanao with settlers from the islands of Luzon and Visayas established a stronger link of harmony and understanding among the inhabitants of said islands. So, socially speaking, these colonies have been a success so far.

COTABATO COLONIES.

There has not been any change in the management of these colonies, although there had been an increase in their population. The colonies in this region are placed under the supervision of the director of the bureau of non-Christian tribes. During the year 1922 the present colony personnel will be decreased by seven persons in compliance with the order issued to effect the strictest economy possible without impairing the efficiency of the service.

Growth of the colonies.—The growth of the colonies, though slow, has been steady and firm, so that the present number of colonists and the area of land cultivated are now larger than ever. The increase or decrease in the population of the colonies may be seen in the following statements:

Inhabitants (colonists).

	Number of families.	Adults.		Minors.		Number of persons.
		Male.	Female.	Male.	Female.	
Total number of colonists Dec. 31, 1920.....	637	944	888	907	795	3,534
Colonists admitted since.....	7	41	39	14	10	104
Births.....				141	74	215
Deaths.....		(17)	(13)	(22)	(20)	(78)
Separations.....		(17)	(13)	(11)	(11)	(52)
Total number of colonists admitted during 1921.....	374	514	619	640	515	2,288
Grand total.....	1,018	1,465	1,520	1,669	1,363	6,011

Public health and sanitation.—Public health and sanitation throughout the colonies have been given the necessary attention. A dispensary building has been built in each of the colonies 1, 3, 5, and 9, where the people are attended to by four sanitary inspectors and dispensary attendants when they ask for medical treatment. One female district nurse who is stationed at Peidu Pulangui also goes to attend to cases of any sickness within her district whenever called upon to do so. When the sickness is serious, the patients are taken to the public hospital at Cotabato, where they are treated free of cost if financially unable to pay their doctor's bills. The colonists therefore may be considered in general terms to be in good health.

Activities.—There are altogether 2,073.05 hectares of land already plowed and planted with palay, corn, tobacco, peanuts, camote, mongo, coffee, coconut seedlings, sugar cane, ubi, cowpeas, gabi, kapok, and cacao. The crops of about 715 hectares have been a total loss due to drought, floods, and other causes.

Economic status.—Enabled by the little financial assistance offered them by the government, the colonists have been able to cultivate their homesteads to such an extent that they are now beginning to reap the fruits of their honest labors and become self-supporting. Most of them sell the surplus of their farm products in the markets, for which they get moderate prices.

Allotments allowed by the legislature to these colonies are as follows:

Act No. 2254.....	₱226, 701. 62
Act No. 2280.....	50, 000. 00

In addition thereto, the following funds were made available for these colonies:

Loan from insular government-----	₱135,000.00
Transferred from Bohol colony-----	4,000.00
Loan from provincial government of Cotabato-----	68,956.64
Do-----	5,229.63
Total -----	213,186.27

MOMUNGAN AGRICULTURAL COLONY.

This colony has been established for the sole purpose of giving lands to destitute married Americans who, through misfortune, could not procure a living in any other manner, so this colony was first entirely occupied by Americans who were married to Filipino women, but in view of the fact that some of them preferred to abandon the colony, the policy of admitting Christian Filipino settlers was adopted. Homeseekers from different regions of the Philippine Islands have been invited to come and settle there, so the colony is now composed of Americans and Christian Filipinos.

Very little progress has been made by this colony. The drawback has been chiefly due to the fact that some colonists abandoned their homesteads and also to the fact that locusts have destroyed the plantations and reduced it to about 50 per cent, so the year 1921 may be considered a very poor year.

At the end of 1921, there were 43 colonists; of these, 6 have paid their indebtedness to the government in full. However, 31 colonists abandoned their homesteads and 2 died during the year, making a total of 76 colonists at the beginning of the year 1921. The area covered by this colony is 2,344 hectares of land, of which 623 are under cultivation, 589 uncultivated agricultural land, 754 vacant lots covered by forest, and 378 vacant agricultural land. During the year 1921, there had been a decrease of 58 hectares of land under cultivation from the number cultivated during the preceding year 1920. This is due, as above stated, to the fact that some of the colonists abandoned their homesteads.

Infestation of locusts has also caused a great deal of damage during the year, so that only a very poor yield was obtained.

The total cost of the administration expenses during the year 1921 was ₱32,254.52. The total amount loaned to the colonists at the close of the year was ₱98,242.22. In this amount is included the cost of agricultural machinery, such as tractors, gang plows, disk harrows, animals, etc. The total sales of merchandise during the year amounted to ₱18,228.25, on which there was a gross profit of ₱2,980.68.

The share of the government out of the crops produced by colonists was 619 cavans and 16½ gantas of corn, valued at ₱2,201.72; 150 cavans of peanuts, valued at ₱307.30; 10,891 kilos of sweet potatoes, valued at ₱333.87; and 8½ kilos of coffee, valued at ₱8.50, harvested and delivered to the colony office by the colonists during the year.

The allotments allowed by the legislature to this colony are as follows:

Act No. 2254-----	₱100,000
Act No. 2697-----	25,000
Act No. 2785-----	20,000
Act No. 2875-----	20,000
Total -----	165,000

BOHOL AND CAGAYAN AGRICULTURAL COLONIES.

There has been no change in the administration of this colony except the dismissal of the superintendent of the Cagayan agricultural colony, who was found to be negligent in the performance of his duties.

BOHOL AGRICULTURAL COLONY.

The colony is divided into two parcels of land. With the exception of four lots in parcel No. 21, all lots in this colony have already been taken up by the

colonists. The four parcels which have not been occupied so far are reserved for the bureau of agriculture for an experimental station. At present there are 154 colonists. The cultivation in the second parcel began only this year. This accounts for the small results which have been obtained in these parcels in the year 1921. So altogether there were 970 hectares cultivated during the year, distributed in the following rates: Forty-four per cent in the old parcels and 27 per cent in the new parcels. The total area of this colony covers 2,522 hectares, divided into 158 parcels of 16 hectares each.

Production.—There has been again an invasion of locusts in this colony which destroyed the rice crop and reduced same to nearly 50 per cent. Notwithstanding this, the total production during 1921 has surpassed that of 1920.

	Production, in kilos.		Government share.	
	1920	1921	1920	1921
Parcel No. 1 (old colony).....	84,942	51,984	23,625	6,493
Parcel No. 2 (new colony).....		35,807	.....	5,043
Total.....	84,942	87,791	23,625	11,536

It is to be noted that even though the production this year in both parcels has been greater than that of 1920, still the share of the government in the former year (1921) was far below that of the latter (1920). This was due to the fact that there were several colonists who have become independent of government supervision and who paid no government share during the year because of the ruling of this department to the effect that self-supporting colonists shall be considered as independent individuals living in the colony and shall not be called upon to pay for the administration thereof, unless they use the services of the colony, in which case they are charged for such services.

At the end of the year there were about 18,473 kilos of palay which could not be disposed of, due to lack of transportation. It must be borne in mind that the colony can only be reached by horseback from the municipalities of Carmen, Sierra Bullon, and Talibon. The cost of the transportation between the colony and those of the municipalities is almost prohibitive and it will not be advantageous either to the colonists or to the government to sell the palay in the neighboring towns.

Corn production has been insignificant. According to observation, corn does not thrive well in this colony.

Secondary crops.—Secondary crops are playing an important part in the staple food of the colonists. They serve as substitutes for rice and corn in case of shortage or failure of production of the latter crops. The most important secondary crop is sweet potatoes, which are produced at an average of 10 sacks per colonist every year. After the sweet potatoes, yams, cassava, and ubi come in importance. Bananas also form one of the leading secondary crops in the colony. They are not being cultivated in commercial quantities but are planted around the houses.

It is estimated that 1,520 sacks of sweet potatoes were produced during the year. There were about 8,900 gabe plants, 10,500 cassava and various other kinds of plants. Up to December 31, 1921, about 150 hectares have been planted to secondary crops.

Other products of the colony are coffee, cacao, nangca, pineapple, and others. in addition to sugar cane.

Financial statement.—Since the year 1913, when this colony was founded, up to December 31, 1921, the amount of ₱102,000 had been appropriated. The money realized from the government sales, cash paid by the colonists, and other sources, amounted to ₱6,872.13, which was likewise made available for expenditure, making a total appropriation of ₱108,872.13. The amount of expenditures for the same period was ₱97,060.71. The amount available on December 31, 1921, was ₱11,811.42.

Summary of the financial statement.

Appropriation received from 1913-14 (act No. 2254).....	₱56,000.00	
Appropriation received from 1915-Dec. 31, 1921.....	46,000.00	
Total receipts automatically appropriated.....	6,741.26	
Cash from accounts payable.....	130.87	
		₱108,872.13
Total disbursements from 1913-14.....	20,000.00	
Total disbursements from 1915-1921.....	77,060.71	
		97,060.71
Cash balance Dec. 1, 1921.....		11,811.42

It must be mentioned at this juncture that due to the retrenchment policy of the government the emergency board reduced the appropriation of this colony for the year 1921 from ₱10,000 to ₱5,000.

Accounts of the colonists.—The following tabulation will show the status of the account current of the colonists, which shows an increase of nearly 50 per cent in 1921, due to the fact that parcel No. 2 only began its operation in 1920:

	Indebtedness Dec. 31, 1921.	Amount paid.		Amount advanced.	
		1920	1921	1920	1921
Parcel No. 1.....	₱10,223.63	₱3,921.93	₱630.97	₱148.38	₱40.50
Parcel No. 2.....	7,849.55			2,595.00	5,496.55
Total.....	18,073.18	3,921.93	630.97	2,743.38	5,537.05

There are 41 colonists who are no longer indebted to the government and who hold homesteads to the extent of 423 hectares out of 2,522 hectares, the total area of the old colony.

These colonists will now be entitled to the issuance of patents for their homesteads. Final proof forms have already been forwarded to the superintendent with instruction that he make all the above colonists submit their final proofs to the bureau of lands.

The school.—The number of school children is being increased as years pass by. In the year 1921, 190 school boys and girls attended school and the highest grade taught was fifth grade. Due to the present demand for a good school, a building of strong materials, costing ₱5,000, will be erected where seventh grade can be taught, the survey of the school site having been already ordered.

There were about 1,708 inhabitants in the whole Bohol colony, including children. During the year there has been 36 births and 8 deaths, 2 of the latter being colonists, and 6 were children.

Sanitation.—The climate of the colony is healthful and sanitation is carefully guarded, due precaution being taken, and proper advice given.

In conclusion it may be said that this colony has shown a great deal of success since the beginning in comparison with the other colonies. This is, in my opinion, due to the fact that no settlers from the other Provinces have been brought to this colony, but from the same Province.

CAGAYAN AGRICULTURAL COLONY.

This colony is divided into two parcels and is made up of 2,677.6475 hectares, divided into 167 lots of 16 or less hectares each. Parcel No. 1 contains 76 lots and parcel No. 2, 291 lots.

Occupied lots.—In parcel No. 1, 40 lots are occupied, leaving 36 lots as vacant. Eighty-two lots are occupied in parcel No. 2 and only 9 are vacant. Most of the colonists came from the northern Provinces—the Ilocos and Cagayan.

Production.—The number of kilos of palay produced during 1921 was 194,670 as against 119,461 kilos produced during 1920, or an increase of 75,209 kilos. The government share naturally increased to 68,334 kilos as against 41,274 in 1920.

The following figures will show the progress made by this colony in the production of rice:

Year.	Production in kilos.	Share of the government.
1918.....	43,896	18,012
1919.....	71,425	24,990
1920.....	119,461	41,274
1921.....	194,670	68,334

From the amount produced in 1921, 23,235 kilos are excluded, same being produced by new colonists, who, under contract, are not obliged to pay any share to the government during the first year of colonization.

The production of corn during this year has greatly diminished, due to the fact that the colonists began to plant palay during the months of April, May, and June, when it was best suited to the planting of corn. The amount of corn harvested during the year amounted to only 724 kilos as against 6,581 kilos for the last year. Consequently the government share had decreased also from 2,303 kilos in 1920 to 253 kilos in 1921. Attention is invited to the fact that in 1919, 14,182 kilos of corn were produced. It will be noted that the production has been on the decrease, while rice production has been on the increase.

Sugar cane.—The colonists have abandoned the cultivation of sugar cane and are devoting more of their attention to the cultivation of rice.

Secondary crops.—No production of secondary crops of any importance has been made during the year 1921. Steps have been taken, however, to plant secondary crops for the next year.

FINANCIAL STATEMENT.

The total appropriation for the Cagayan Agricultural Colony since its organization in 1913, to December 31, 1921, amounted to ₱88,116.65. The amount expended since 1913, to December 31, 1921, was ₱109,762.72; cash paid by the colonists or received from other sources and which was made available for expenditure amounted to ₱27,832.65, there remaining, therefore, on January 1, 1922, a balance of ₱6,186.58.

Summary of financial statement.

Appropriation received from 1913-14, Act No. 2254.....	₱34,116.65	
Appropriation received from 1915 to Dec. 31, 1921....	54,000.00	
Total receipts automatically appropriated.....	27,027.63	
Cash from accounts payable.....	805.02	
		₱115,949.30
Total disbursements from 1913-14.....	₱35,247.47	
Total disbursements from 1915 to Dec. 31, 1921.....	74,515.25	
		109,762.72
Cash balance, Dec. 31, 1921.....		6,186.58

As in the case of the Bohol Colony, the appropriation for the Cagayan Agricultural Colony for 1921, was reduced by the emergency board from ₱10,000 to ₱5,000.

The total indebtedness of the colonists on December 31, 1921, reached the enormous sum of ₱38,948.62. The following shows the standing of the accounts of the colonists:

	Total indebtedness December 31 1921.	Amount paid.		Amount advanced.	
		1920.	1921.	1920.	1921.
Parcel No. 1.....	₱23,434.71			₱713.44	₱687.42
Parcel No. 2.....	15,513.91	₱21.77	₱235.28	377.85	570.35
Total.....	38,948.62	21.77	235.28	1,091.29	1,257.77

By December 31, 1921, there were but six colonists who had paid in full their debts to the government. These colonists will be required to file their final proofs, and as soon as same are submitted and found in order patents to their homesteads will be issued.

The reason why in this colony 45 lots are still unoccupied is the inability of the government to induce people living in the neighboring Provinces to settle in Cagayan Colony, which is situated in rather a distant place from the nearest town.

One of the difficulties also found in this colony is that many of the colonists are of lazy disposition, loitering around most of the time instead of working to improve their holdings, and, what is worse, they induce others to follow their example.

The schools on both parcels have always been run regularly throughout the year.

Sanitation.—Sanitation has been good and no serious diseases appeared except malaria.

Animal diseases.—However, during the month of September rinderpest visited the colony, as a result of which two carabaos died, one belonging to a colonist and the other to the government. Prompt steps were taken to prevent the spread of the disease by the help of a veterinarian from the bureau of agriculture.

Recommendation.—The undersigned makes no recommendation as to the agricultural colonies at present, but it is the purpose of this department to make a thorough study of colony matters and submit a definite recommendation.

(b) STOCK FARMS ESTABLISHED UNDER ACT NO. 2758.

Act No. 2758 passed by the Philippine Legislature on the 23d day of February, 1918, appropriated the amount of ₱400,000 for the establishment of stock herds and farms in the Philippines for the purpose of promoting the breeding and propagation of large cattle of better types in the islands and of furnishing same to the public on economical terms for agricultural work, propagation, and consumption. In accordance with this act the secretary of agriculture and natural resources purchased from India 637 head of cows and carabaos, with their respective calves, of which 212 were sold to the Department of Mindanao and Sulu. The department having rejected some of the animals upon arrival in Manila, only 415 head were purchased, at a cost of ₱98,465. Immediately the department established a stock farm at Bongabong, Nueva Ecija, to which the animals imported from India and 280 more from the Alabang stock farm, Rizal, were transferred.

For the purpose of breeding and propagation the department purchased 737 head of cows of Philippine breed, besides 29 female carabaos and 82 carabaos from Indo-China. In 1919 and 1920 stock farms were also established in Bohol, Capiz, and Ilocos Norte. At present there are in the Bongabong stock farm, Nueva Ecija, 379 head, including young ones; in Capiz, 216 head; in Bohol, 738 head; and in Ilocos Norte, 39 head.

There have been numerous requests for information as to the best breed of cattle to be raised in the Philippines, their feeding and management. In line with the retrenchment policy adopted by the insular government, no new stock farms were established during the year nor further improvements made. All unfilled orders for animals have been canceled.

The year 1921 has a unique misfortune in that the heaviest losses on account of rinderpest have been registered during the year. The animals purchased by this department from Roublom arrived at the farm and one of the animals having died of what was supposed to have been rinderpest, immunization of all animals was immediately started, but such step did not succeed in stopping the course of the disease, and the result was that 215 head of native cattle died at the Dumarao stock farm.

PROGRESS OF THE WORK.

The activities under Act No. 2758 have been practically the same as those in previous years. The stock farms already established progressed very slowly on account of reduction of expenses.

While the stock farms are operated primarily as stations for the production of breeding animals, experimental works are not neglected. The comparative

merits of the different breeds of cattle are carefully observed and their relative adaptability to different conditions noted. This department is now breeding cattle from the stock farms along the following definite lines:

1. Pure Nellore crosses.
2. Nellore-native crosses.
3. Pure Multani crosses.
4. Multani-native crosses.
5. Pure Hereford crosses.
6. Hereford-Nellore crosses.
7. Pure Indian carabao.
8. Indian-native carabao crosses.
9. Pure Indo-Chinese carabao crosses.

The work during the year has been on the whole satisfactory, there having been 314 births with 291 deaths; 215 of the latter died of rinderpest at the Dumarao stock farm.

In view of the demand for Indo-Chinese carabaos for working purposes in the islands of Panay and Negros and of the fact that the prices charged by local importers for this kind of animals were exceedingly high, 70 head of Indo-Chinese carabaos at ₱225 per head delivered at Iloilo were shipped to the Dumarao stock farm. The purpose is to raise this kind of carabao there.

Owing to the unfavorable conditions of the stock farm at Bangui, Ilocos Norte, this Department is now contemplating the transfer of all animals and equipment therein to some other place suitable for stock farming. The Indian cattle in this station seem to be unable to stand the strong wind blowing from the north, a thing which seems to have been practically proven by the fact that it is now over two years since the Indian cattle were first sent to Bangui, but so far their numbers have not been increased but have, instead, decreased.

Purchase and sale of animals.—The demand for bulls during the year has been smaller than during the previous years, when the demand exceeded the supply. Only 35 Indian bulls, 5 grade bulls, and 1 Indian buffalo bull were sold during the year for breeding purposes at the value of ₱10,112. During the same period the live stock purchased to stock the different stations amounted to 435 native cows and 70 Indo-Chinese carabaos.

Status of the funds appropriated under Act No. 2758.—During the year, the amount of ₱93,891.21, was expended, of which ₱22,891.59 was spent for salaries of personnel and wages of laborers, ₱12,766.31 for miscellaneous expenses, ₱57,783.90 invested in the purchase of animals. The salaries and wages of permanent employees amounted to ₱19,730 per year.

The value of animals sold during the year was ₱10,112. There are still a great number of animals of salable age at Bongabong and at Ubay stations that were not sold during the year on account of lack of buyers. Had these animals been sold, the stock farm should have paid the expenses and left a fair margin besides.

On December 31, 1921, the number of animals on all the stock farms was 1,561, including cattle and carabaos, worth at the present market price at least ₱261,325.

A detailed statement of the activities in each stock farm follows:

BONGABONG STOCK FARM (NUEVA ECIJA).

The animals in this farm have been kept in good condition throughout the year. One hundred and seven calves were dropped and 24 deaths due to many causes were reported during the year. During the same period 22 head of Indian and grade bulls and 1 Indian buffalo were sold.

American Hereford.—In spite of due care and attention given to these animals, they seem to thrive very little, 2 bulls having already died and the rest are in poor condition.

Indian water buffaloes.—These animals, which have a reputation of being good milkers, are thriving well on the Bongabong stock farm.

Native carabaos.—There has been no success met with as yet in the crossing of the Indian buffalo bulls with the native carabaos during the past two years.

UBAY STOCK FARM (BOHOL).

The weather throughout the year has been favorable to the animals on this farm. Fresh water and green grass have been in abundance and the animals were in excellent condition. Excepting the typhoon on November 10, 11, and

12, which killed a few of the animals on account of the strong rain, there was nothing important worth mentioning in this report.

One hundred and sixty-five head of native cattle were purchased during the year. There were also 160 calves dropped and 37 deaths reported at the farm during the year. There was an outbreak of hemorrhagic septicemia among the cattle and carabaos at Ubay, but fortunately, although our animals were in the infected area, only few died of this disease.

Indian and native cattle.—The Indian and native cattle were pastured together, having Indian bulls as sires.

The grade calves are resistant to rinderpest as well as to the heavy rains.

Indian and native carabaos.—There were 6 births registered among the carabaos, 4 of which were Indian and 2 were native.

DUMARAO STOCK FARM (CAPIZ).

The work accomplished at the Dumarao stock farm during the year has been exclusively devoted to the purchase of animals to stock the station.

The weather prevailing on the farm throughout the year has been favorable to the animals. There was plenty of green grass and fresh running water. With the exception of those animals that were purchased from Odiongan, which failed to adapt themselves to the new environment, all the animals have been in good condition.

In May the station was infected with rinderpest which killed 215 head of native cattle besides other cattle that did not recover as a result of the inoculation. The native cattle were the ones that suffered the most from this disease since the other animals were immunized before they were shipped to the stock farm.

Indian and native cattle.—The Indian and native cattle were pastured together, and it was observed that the native cattle failed to adapt themselves to the new environment and some of the animals died on account of the cool nights which prevailed at the farm throughout the year. It has been also observed that the Indian cattle can resist colder weather than most of the native cattle. There were 22 births and 218 deaths on this farm during the year.

Indo-Chinese carabaos.—Since the majority of the female carabaos were received at the station during the middle of the year only few births were registered at the farm. Twelve births and six deaths were reported during the year.

The Indo-Chinese carabaos have been in fine condition during the year. This probably was due to the fact that the weather prevailing at the farm was favorable for the carabaos.

BANGUI STOCK FARM (ILOCOS NORTE).

It was decided to transfer this farm to Lagangilang, Abra, but in view of the policy of the insular government to reduce the expenses for the year 1921, this proposition was postponed.

During the last inspection trip made by the agent of this department in 1920, and after a careful study as to the conditions of the stock farm, it was decided to transfer the station to a more suitable place, since the present location is not adapted for raising Indian cattle or carabaos. A place in Lagangilang, Abra, which has been previously inspected and recommended has been selected.

During the year there were 18 head of native cows purchased; 2 births and 3 deaths were registered at the same time.

ALABANG STOCK FARM (RIZAL).

This stock farm is under the direct supervision of the director of agriculture. This department, however, is using it as a temporary station for the animals to be transferred to other stock farms and for animals available for sale under Act No. 2758.

At the beginning of the year there were 35 head of Indian and grade cattle and at the close of the year there were 31 head. During the same period 11 Indian calves were dropped and 15 head of Indian bulls and calves sold for breeding purposes.

Recommendation.—The undersigned, for purposes of coordination, simplification, and efficiency of the work, proposes to combine the present veterinary and animal husbandry divisions of the bureau of agriculture into one unit, to be called "animal industry division," as soon as sufficient personnel and funds are secured, and then turn over to the bureau of agriculture all the activities of

the government concerning live stock, including the stock farms, etc., now under this department. This animal industry division will consist principally of two main subdivisions to be known as the veterinary section and the animal husbandry section. Under this scheme it is believed that by putting said bureau in charge of all the activities of live-stock industry there will be a combined and coordinated action which doubtless will redound to a more efficient and proper management of the live-stock industry of the country, especially that of the government. By placing the animal husbandry and veterinary activities under one chief, the dual management that now exists will be eliminated and there will be more effective administration, which will avoid duplication of work and will make for a centralized and more efficient management, as it will permit a better utilization of the services of technical personnel. For instance, in Provinces where there is no rinderpest, the services of the veterinarians may be advantageously utilized in the animal husbandry work, and vice versa. This recommendation, however, is only tentative, as the plan at this writing has not been as yet completed.

(C) RICE AND CORN FUND.

(Act No. 2818.)

Loans out of ₱1,000,000 fund (Act No. 2818).—The Philippine Legislature, desiring once more to render aid to the farmers, appropriated by Act No. 2818 the sum of ₱1,000,000 (commonly known as "rice and corn funds") to be loaned through the rural credit associations to their members, to be used solely and exclusively for clearing and cultivating new lands for the planting of rice and corn. The only condition imposed upon the borrowers is that they should furnish suitable guaranty subscribed by solvent persons for the repayment of the loan. The associations, by regulation, are required to pay to the "rice and corn funds" 6 per cent as interest upon the amount loaned and allowed to charge individual borrowers an interest of 10 per cent, thus benefiting the associations by 4 per cent. The period within which the loans should be repaid to the government shall not be later than June 30, 1925, after which date the entire capital, with all the interest earned, reverts to the insular treasury. By regulation, no individual loan is allowed to exceed ₱2,000.

Notwithstanding the crisis during the year 1921, the rural credit associations to whom loans have been made out of the funds appropriated by Act No. 2818 have been meeting their obligations quite satisfactorily. The amount of ₱90,578.97, which is 10 per cent of the capital due 1921, has been collected during that year, making in all a total amount of ₱164,998.97 collected up to and including December 31, 1921. The amount collected during 1921, compared with that collected during the year 1920, ₱74,420, is an excess of ₱16,158.97 in favor of the year 1921. The collection of interest during these two years (1920-21) shows the amounts of ₱44,572 and ₱52,286.80, respectively, or an excess of ₱7,714.80 in favor of the year 1921. There has also been collected the amount of ₱347.94 as interest for delayed payment of installments. So the total amount collected for interest is ₱97,206.74. The administration expenses from 1919 up to and including December 31, 1921 (three years), including the accrued leave of employees, amounted to ₱28,669.03, which, if deducted from the gross amount of interest collected up to December 31, 1921, will leave a net gain amounting to ₱68,537.71, which the undersigned believes to be a fair showing of the result of the operation of Act No. 2818.

Before the enactment of this law there were only 244 associations. At present, however, there are 536, 277 of which have received aid from the rice and corn fund (Act No. 2818). The estimated benefit derived by these associations from the operation of this act up to December 31, 1921, is placed at about ₱50,000.

A fair estimate of the government profit up to June 30, 1925, when all loans and interest shall be paid back to the government, shows the amount of ₱400,000 less the expenses of administration.

The amount of loans given to 277 associations is ₱1,195,700, the average loan to each association being ₱4,000 and to an individual ₱150, there being 8,141 borrowers in all, distributed among 277 municipalities in 35 Provinces.

The Provinces which received more loans are:

Iloilo	₱110,500
Pangasinan	94,100
Capiz	80,000
Nueva Ecija	79,000
Camaringes Sur	70,000

The expenses of administration from 1919 to December 31, 1921, amounted to ₱28,669.03, which is a little more than 29 per cent of the total gain of the government for interest collected, or 1.76 per cent of the amount of capital on December 31, 1921.

For detailed information as to the operation of this act attention is invited to the following statement of accounts:

Allotment		₱1,000,000.00
Collection:		
10 per cent of principal, 1920	₱74,420.00	
10 per cent of principal, 1921	90,578.97	
		164,998.97
Collection:		
6 per cent interest, 1920	₱44,572.00	
6 per cent interest, 1921	52,286.80	
		96,858.80
Accrued interest collected for delayed payment		347.94
		<u>1,262,205.71</u>
Loans made:		
1919	₱818,200	
1920	239,500	
1921	138,000	
		1,195,700.00
Administration expenses from 1919 to Dec. 31, 1921 (3 years):		
Salaries (not including accrued leave payable, ₱2,460.46)	₱22,204.08	
Traveling expenses	997.29	
Equipment	1,430.63	
Maintenance and repair	16.93	
Supplies	1,531.99	
Miscellaneous	27.65	
Accounts receivable (hospital bill)	6.47	
		26,215.04
Balance: Cash on hand		40,290.67
		<u>1,262,205.71</u>
Account receivable until Dec. 31, 1921		295,273.77
Amount collected		261,857.77
		33,416.00
Postponed to 1922		6,960.00
		<u>26,456.00</u>
Accounts receivable pending collection:		
1920	None.	
1921—		
January	₱600.00	
February	960.00	
March	800.00	
June	4,296.00	
July	1,720.00	
August	2,828.00	
September	2,194.00	
October	2,472.00	
November	2,864.00	
December	6,922.00	
Tiwi, Albay, remittance lost in post office	800.00	
		26,456.00
Gain of the government until Dec. 31, 1921, as 6 per cent interest ..		97,206.74
Expenses incurred in 3 years		28,669.03
		<u>68,537.71</u>

(d) FISHING AND OTHER MARITIME PRODUCTS.

There exists in the bureau of science a division of fisheries which, as may be seen from the report of said bureau, hardly handles work of any importance. This is due to the lack of funds and personnel. During the years of war permits were issued by this department for fishing sponges and pearls in Mindanao. No such permit, however, has been issued during the year 1921.

Hunting.—Under the provisions of Act No. 2590, the secretary of agriculture and natural resources, with the approval of the Governor General, issued department orders establishing seasons for birds and mammals throughout the Philippine Islands, as well as special orders prohibiting hunting and taking of game in certain Provinces. In enforcing the law regarding hunting great difficulty has been met by this department in view of the fact that the licenses for hunting are issued by the chief of constabulary with the approval of the secretary of the interior. This duality of functions does not make for an effective enforcement of the regulations. The undersigned is at present studying an amendment to the hunting law to make it more effective, inasmuch as the abuses to which the game animals in the Philippines are being subjected, seem to indicate that it is high time for the government to adopt more efficient and effective methods to remedy the situation. A cooperative plan is under consideration whereby direct administrative control over hunting may be transferred to the bureau of forestry, in view of the fact that the employees of said bureau are in a better position to enforce the law, without losing sight, however, of the cooperation of the constabulary, which should always be requested in every case, inasmuch as the issuing of firearms license belongs to this bureau.

(e) LANDS CONTAINING COAL, ETC.

Under Oct No. 2719 the department of agriculture and natural resources is charged with duties pertaining to leasing of lands containing coal, but the duties devolved upon same have been, by regulation, delegated to the director of lands or to the director of the bureau of science, as the case may be, and are being exercised through those officials.

Act No. 2932 has likewise placed under this department matters pertaining to the leasing of lands containing petroleum, gas, and other mineral oils. As in the case of Act No. 2719, the duties thus devolved upon this office are, by regulation, exercised through the director of lands or the director of the bureau of science. In both cases the scientific and technical parts of the work are being handled by the bureau of science, and the administrative and legal by the bureau of lands.

AGRICULTURE.

Agriculture has perhaps suffered more than any other economic activity from the lowering of prices registered during the year 1921. The lack of measures calculated to minimize the effects of the falling off of prices is due to the lack of organization among the farmers. On account also of the lack of such organization, agricultural credit has not been duly attended to. The production has not been proportionate with the demand, and consequently here, as well as in the United States, the farmers have been producing without taking into consideration the depression of the market, the high rates of wages, and other expenses of production.

Compared with 1920 there was a slight decrease in the areas planted to tobacco and abaca, but the cultivation of edible crops, especially rice and sugar cane, was greatly extended, so that the total area grown to the six leading crops of the Philippines, namely, rice, corn, sugar cane, coconuts, abaca, and tobacco, exceeded by 7 per cent that for the preceding year, the record year in the history of Philippine agriculture. A new record was thus established in 1921, when the area totaled 3,515,587 hectares as compared with 3,276,942 hectares in 1920. Notwithstanding this appreciable increase in hectarage, the year was nevertheless one of general dissatisfaction from a financial standpoint. The abaca market continued declining gradually from 1919, and the tobacco from about the middle of 1920, just before the planting season, resulting in a decrease in hectarage for these two crops. On the other hand, influenced by the record prices prevalent during 1919-20, the area subsequently planted to rice was increased by 12.7 per cent; to sugar cane, 22.3 per cent; to coconuts, 5.3 per cent; and to corn, 1.2 per cent. In yield

per hectare 1921 shows also an increase of 1.2 per cent for rice and 3.4 per cent for sugar over that for the corresponding crops in 1920; but market conditions went from bad to worse, so that in spite of the increase in area and yield the value of Philippine production for all the six leading crops fell from ₱687,131,502 in 1920 to ₱403,258,251 in 1921, or a decrease of fully 41 per cent.

As heretofore, all the statistical data contained herein are based on the agricultural year ending June 30, unless otherwise specified.

The following table shows the development of the country's agriculture in the last 12 years, 1921 included, as regards the six leading crops:

Area and value of the 6 leading crops.

Year.	Area.	Increase or decrease.	Value.	Increase or decrease.	Average value per hectare.
	<i>Hectares.</i>	<i>Per cent.</i>	<i>Pesos.</i>	<i>Per cent.</i>	<i>Pesos.</i>
1910.....	2,256,532	.....	137,005,956	.....	61
1911.....	2,148,238	-5	152,501,515	+11	71
1912.....	2,303,875	+7	148,347,499	-3	64
1913.....	2,361,483	+3	168,633,730	+14	71
1914.....	2,579,994	+9	163,496,249	-4	63
1915.....	2,522,208	-2	159,055,329	-3	63
1916.....	2,531,701	+4	179,241,378	+13	71
1917.....	2,691,412	+6	244,179,473	+36	91
1918.....	2,918,590	+8	361,940,449	+48	124
1919.....	2,974,925	+2	458,698,576	+27	154
1920.....	3,276,942	+10	687,131,502	+50	210
1921.....	3,515,587	+7	403,258,251	-41	115

STANDARD CROPS.

Rice.—The high prices prevailing for this national food staple of the Filipino people during the last few years, especially in 1919, when the French Government imposed prohibition restrictions on the exportation of rice from Indo-China, upon which country these islands depend for this cereal, have been responsible for the great increase in the local production of the grain. Even though the rains during 1921 have come somewhat late, and when they came were too heavy for the young seedlings, and floods washed out newly planted crops in many places, the farmers succeeded in replanting the destroyed areas and in raising crops. There has been an increase of 12.7 per cent of the area cultivated over that of the year 1920, 33.9 per cent greater than the average for the five-year war period 1915–1919, and 46.8 per cent greater than the five-year pre-war average 1910–1914. The total production was 3,110,890,500 liters, or 41,478,540 cavans, of rough rice, which is 14.1 per cent greater than that of 1920 and 51.9 per cent and 111.1 per cent in excess of the average production during the war and pre-war periods, respectively. The value, however, fell 38.4 per cent as compared with that for the preceding year. Nueva Ecija, Pangasinan, Iloilo, Tarlac, Pampanga, Bulacan, La Union, and Batangas are the leading Provinces in the order of their importance as regards area cultivated. It will be interesting to note in connection with our production the corresponding amounts of rice imported in the three different periods:

Cavans imported (average).

Pre-war, 1910–1914.....	3,161,548
During the war, 1915–1919.....	2,943,738
After the war, 1920–1921.....	1,207,986

On the basis of the population (26 per cent of whom are calculated to be non-consumers of rice) as given in 1918 census, it is estimated that the Philippines food and seed rice requirements for the ensuing year of 1922 will be 45,180,748 cavans of palay (43,517,748 cavans for food alone). The total crop was only 41,478,540 cavans of palay.

Sugar cane.—A new record as regards both area and production was established in the sugar industry of the islands during the year under consideration. In area this year's crop was 22 per cent greater than 1920 and in production 26 per cent.

The production of sugars, by classes, was as follows: Refined, 5,123,250 kilos; centrifugal, 179,156,637 kilos; muscovado, 325,891,451 kilos. A close comparison of the amounts of the different classes of sugars obtained this year with those of the previous crop reveals the influence of the centrals in the sugar industry of these islands. During the 1919-20 campaign the proportion of refined sugar did not reach even 0.1 per cent, while this year it was exactly 1 per cent; the centrifugal sugar advanced from 21 per cent in 1919-20 to 35 per cent in 1920-21, and the muscovado fell from 79 per cent to 64 per cent, respectively.

The 1921 prices in the municipal markets, as compared with those of the preceding year, were as follows: Refined, ₱0.51 per kilo or ₱32.47 per picul, against ₱0.63 per kilo or ₱40 per picul; centrifugal, ₱0.23 per kilo or ₱14.24 per picul, against ₱0.45 per kilo or ₱28.18 per picul; muscovado, ₱0.14 per kilo or ₱8.90 per picul, against ₱0.35 per kilo or ₱22.45 per picul; and panocha, ₱0.19 per kilo or ₱11.96 per picul, against ₱0.30 per kilo or ₱18.95 per picul.

Sixty-seven per cent of the total area cultivated and 76 per cent of the country's sugar production came from the four Provinces of Occidental Negros, Pampanga, Batangas, and Iloilo.

Coconuts.—With the only exception of 1913, when an unusually prolonged, intense drought caused great damage to coconut plantations and was followed by a series of destructive typhoons, which resulted in the destruction of over 1,500,000 trees, every year since 1910 has shown an increase over that preceding, so that in 1921 there were over two and a half times (2.55 per cent) as many coconut trees in the Philippines as there were 11 years ago. Naturally the copra production has also increased.

On June 30, 1921, there were in the islands 83,591,896 trees cultivated, of which 47,009,080, or 56.2 per cent, were in bearing. The nuts on about 1.2 per cent of these latter, however, were not allowed to mature, as the sap was used for making tuba. The production of nuts was 1,547,583,132. This was 2.5 per cent greater than the production for 1920, although the trees average a yield of only 33 nuts each, against 35 per tree in 1920. This decrease was due to the damage suffered by the plantations from typhoons, especially during the latter part of 1920, and also to the fact that a large number of young trees bore nuts for the first time.

Of the total nuts gathered during the year 92.8 per cent were made into copra, 1.8 per cent used for the making of oil, and the remaining 5.4 per cent were used for domestic purposes. There were 374,622,476 kilos, or 5,922,885 piculs, of copra, 2,706,723 liters of oil (homemade), and 103,854,736 liters of tuba made during the season. Of the copra produced, 181,022,575 kilos, or 48.3 per cent, of the total were sundried; 192,626,041 kilos, or 51.4 per cent, were smoked or "tapahan" copra, and 973,860 kilos, or 0.3 per cent, were steam and hot-air dried copra.

The prices of the different grades of copra and of the other by-products of coconuts, as compared with those of the preceding year, were as follows: Sun-dried copra, ₱0.15 per kilo against ₱0.31; smoked copra, ₱0.17 per kilo against ₱0.29; steamed copra, ₱0.11 per kilo against ₱0.30; fresh nuts, ₱4.73 per 100 against ₱6.70; coconut oil, ₱0.53 per liter against ₱0.59; tuba, ₱0.11 per liter against ₱0.14. Because of these greatly reduced prices the total coconut production this year was valued at only ₱76,192,530, whereas in 1920, with a smaller production, the respectable sum of ₱128,196,891 was realized.

The six leading coconut-producing Provinces, according to the number of trees cultivated, were, in the order of their importance, Tayabas, Laguna, Cebu, Misamis, Samar, and Albay, which carry 55.9 per cent of the total number of trees planted in the islands.

Corn.—With an increase of 1.2 per cent in area this product held the distinction this year of occupying the fourth place in hectarage among the leading crops of the Philippines. The production, however, was even less than that of last year, due to adverse weather conditions, which caused a decrease of 6.6 per cent in the average yield per hectare. In value this year's crop is also less than last year's, not only because of this decrease in yield per hectare but of the great fall in the price of this commodity.

Five hundred and forty-three thousand eight hundred and twenty-eight hectares were put under cultivation and yielded 516,299,700 liters of shelled corn, which were sold for ₱38,187,266. The area planted this year was the largest ever planted, it being 26 per cent larger than the average area for the five-year period of the Great War (1915-1919) and 57 per cent larger than that for the five-year period (1910-1914) immediately preceding the war. The

production was larger, too, by 12 per cent than the 1915-1919 average, and by 79 per cent than that for 1910-1914, but was exceeded by 7 per cent in 1919-20.

Sixty and nine-tenths per cent of the total area cultivated and 64.5 per cent of the total production was carried by six Provinces alone. These were Cebu, Isabela, Leyte, Occidental Negros, Oriental Negros, and Bohol, named in the order of their importance.

In these Provinces corn constitutes the principal grain food of the people in lieu of rice. It may be stated that owing to the last war and the ever-increasing price of rice the price of corn has likewise gone up high, a fact which necessarily encouraged the increase in the production of the latter.

Maguey.—Being so closely commercially allied, the maguey industry suffered in practically the same manner as did the abaca. The hectareage of last year was reduced 0.6 per cent, the production by 49.5 per cent, and the total value by 69.1 per cent.

Leading in the cultivation of this fiber were Cebu, Ilocos Sur, Ilocos Norte, Bohol, and Pangasinan. Their aggregate area this year was 28,658 hectares, or 93 per cent, of the total area, with a production of 8,981,745 kilos, or 97.9 per cent of the country's production.

Abaca.—This important Philippine fiber, which for years occupied the second place among the leading crops of the islands in the order of value of production, was ousted by sugar cane in 1919, by coconuts in 1920, and this year passed even by corn, so that now it occupies the fifth place only. This is due to the distressingly steady fall in prices, which began declining in the last year of the war, when the prices for all other articles advanced tremendously. As a result of these discouraging market conditions, coupled by adverse labor and climatic disturbances, many planters have turned their attention to the cultivation of other crops, such as rice, corn, or sugar, utilizing in many cases old abaca plantations and areas destroyed by typhoons and droughts.

The area under cultivation of this product this year was 548,094 hectares, which was 2 per cent smaller than that of last year. The greatest decrease was registered in the average yield per hectare, and consequently in the total production, which were 385 kilos and 108,353,530 kilos, respectively. This production—the smallest production in the 12-year record of the bureau of agriculture—was 34.4 per cent less than that of 1920. With such a considerable reduction in the total output and with the lowest quotation registered in the last five years, it is no wonder that the value was only ₱26,829,221, or 57.5 per cent less than that obtained last year, which was 3 per cent less than the corresponding amount for 1918-19, which in turn was 30 per cent still smaller than that for 1917-18, when the total value of the Philippine abaca crop reached the highest mark ever known.

The principal abaca-producing Provinces in the order of hectareage are Leyte, Albay, Sorsogon, Camarines Sur, and Samar. These have altogether 367,366 hectares planted, or 67 per cent of the total abaca area cultivated in the islands, and produced this year 72,432,870 kilos of fiber, or 67 per cent of the total production.

Tobacco.—With a decrease of 10 per cent in the area cultivated and 18.7 per cent in the production of this year as compared with the preceding year, tobacco came sixth in rank of value among the chief crops of these islands.

These decreases were due to the same causes that affected abaca—that is, low prices, drought, and heavy rains—and for the same reasons part of the area that was used for planting tobacco was this year grown to rice and sugar cane.

The area cultivated was only 90,980 hectares, yielding 52,799,030 kilos of leaf tobacco, which was valued in the municipal markets at ₱8,777,574, or ₱0.17 per kilo.

Despite these unfavorable results the area planted for this year was 39.4 per cent greater than the average for the five-year period of war (1915-1919), and 46.9 per cent greater than that for five years (1910-1914) immediately preceding the war, while the production was larger by 7.1 per cent and 50 per cent, respectively.

Practically three-fourths of the total area and over four-fifths of the total production was planted and gathered in only five Provinces, to wit, Isabela, Cagayan, Cebu, Pangasinan, and La Union. During the year these Provinces put under cultivation 68,023 hectares out of a total of 90,980 hectares and raised 43,999,966 kilos out of a total of 52,799,030 kilos.

Miscellaneous field crops and vegetables.—During the years of the war the department of agriculture and natural resources and the bureau of agriculture

had started a campaign for the increased food production, so as to reduce to the minimum possible the importation into the Philippines of those food products which the United States and her allies needed at that time. To this purpose a general campaign was systematically initiated through the medium of the bureau of agriculture, with the cooperation of the bureau of education and the women's club, the legislature having appropriated funds for such campaign.

It is gratifying to note, as was expected, that the campaign produced an immense benefit not only in the increase of our food production but also in making the people accustomed to such production.

The results obtained during the year 1921, the withdrawal by the government on December 31, 1920, of the special "Food production" funds notwithstanding, have been highly satisfactory—147,483 hectares were planted to different edible crops and yielded the aggregate amount of 316,201,668 kilos of foodstuffs, valued in the municipal markets at ₱11,081,025. Compared with the results obtained in the preceding year, there was a decrease of but 1 per cent in the area cultivated and 12 per cent in the total value due to the general fall in prices, but an increase of 18 per cent in the production.

The principal crops were sweet potatoes, worth over ₱3,000,000; mongo and gabi, over ₱1,000,000 each; and tomatoes, ubi, eggplants, casava, and beans, over a half million pesos each.

Fruit production.—The fruit industry in these islands has in general been greatly neglected and in fact there are very few plantations that are entitled to that designation. The reason for this is that fruits do not form part of the menu of the majority of the Filipinos. Aside from this, fruits being grown with abundance in every region of the islands because of its tropical climate, the Filipino could procure same anywhere without difficulty. Therefore, the importance of the fruit industry is only known in those towns adjacent to the city of Manila and other important cities. This is the reason why imported dried and preserved fruits in 1921 amounted to ₱740,028 and the fresh fruits ₱952,529. In spite of this, fruits brought the growers the considerable amount of ₱35,883,813, which represent, if compared with the previous year, an increase of 32 per cent.

Among the leading fruits, bananas and mangoes registered the greatest increases in both production and value.

Live stock.—Notwithstanding the fact that the most dreaded cattle disease, the rinderpest, has been with us constantly since it appeared 20 years ago, records kept since 1910 show a steady growth of the country's animal industry. The latest figures are as follows: 1,570,609 carabaos, 786,166 cattle, 294,638 horses, 3,639,183 hogs, 821,661 goats, and 195,705 sheep. Compared with the preceding year, these figures show increases: Carabaos, 13 per cent; cattle, 16 per cent; horses and mules, 15 per cent; hogs, 16 per cent; goats, 12 per cent; and sheep, 17 per cent. It must be stated, however, that a good part of these increases was due to the fact that many municipal districts in Mindanao and Sulu not reporting in previous years, submitted their live-stock reports for 1920.

As an animal census is taken only once a year, on December 31, it is only possible here—as in the previous animal reports—to give the data for the preceding year.

For three consecutive years the birth rate of all animals went on declining. Fortunately this was not the case during the year 1920, as a general rise was registered, especially for cattle, horses, and sheep. Comparing the rates of increases due to births for 1920 with the average for the preceding five-year period of 1915–1919, we have the following contrasts: Carabaos, 13.9 per cent against 11 per cent; cattle, 25.5 per cent against 20.1 per cent; horses and mules, 20.2 per cent against 15.7 per cent; hogs, 30.2 per cent against 29.7 per cent; goats, 23.3 per cent against 22.6 per cent; sheep, 29.3 per cent against 24.3 per cent. The death rate for all the above domestic animals, except the cattle, also increased in 1920, but the increase was negligible, it being only a small fraction of 1 per cent for carabaos, horses, goats, and sheep, and 3.8 per cent for swine. This extraordinary death rate for hogs is attributable to the series of typhoons and floods in 1919 and 1920, which actually drowned a large number of hogs and caused more diseases.

From what has been stated above, it will be seen that Philippine agriculture is being developed in a steady and progressive manner. If a great portion of this development is due to the farmer, also another great portion is due to the bureau of agriculture, and, as regards garden products, also to the bureau of education and the Women's Club.

ORGANIZATION OF THE BUREAU OF AGRICULTURE.

The bureau functioned under essentially the same organization plan adopted on August 1, 1919, with 13 divisional units, namely, the administrative, animal husbandry, veterinary, plant industry, demonstration and extension, plant pests control, fiber, animal insurance, rural credit, farm statistics, publication, accounting, and the property divisions.

ADMINISTRATIVE DIVISION.

This division has under it the following activities: General service, records, cashier and disbursing officer, land transportation, repair shop, and the Momungan agricultural colony. No change has been made in the function of this division during the year.

The operation of the bureau of agriculture during the year 1921 has shown the following results:

Expenses (under general appropriation act)-----	₱1,732,737.60
Expenses (under special act)-----	213,897.27
Total-----	<u>1,946,634.87</u>
Receipts (under the general appropriation act)-----	237,942.71
Receipts (under special act)-----	147,648.53
Total-----	<u>385,591.24</u>
The total net expenditure of operation of this bureau is-----	1,561,043.63

ACCOUNTING DIVISION.

The accounting division of the bureau of agriculture furnished the following data with regard to accounts receivable of the bureau:

	1920	1921
Amount credit extended.....	₱154,403.49	₱186,497.87
Amount collected.....	66,768.75	122,569.17
Balance uncollected.....	87,634.74	63,928.70

PROPERTY DIVISION.

Aside from the office routine, the property division has made and received during the year the following shipments of property:

	Number of shipments.	Number of parcels.	Value.
To the Provinces.....	1,577	7,014	₱241,449.66
From the Provinces.....	698	7,314	74,556.52
To foreign countries.....	18	51	6,362.66
From foreign countries.....	19	78	11,531.78
Total.....	2,307	14,457	333,900.62

VETERINARY DIVISION.

The activities of this division may be enumerated briefly as follows: (a) inspections, quarantine, and immunization of animals imported from foreign and domestic ports; (b) cooperation with provincial and municipal officials in suppressing dangerous communicable animal diseases; (c) maintenance and operation of quarantine and immunizing stations; (d) meat inspection in Manila and Sisiman, cooperation with local authorities in municipal slaughterhouse system; (e) preparation and application in the field of antirinderpest serum and vaccine; and (f) research, investigation of the causes, prevention, and treatment of dangerous communicable animal diseases.

The number of imported animals from foreign countries was 28,295 cattle in 1921, as against 18,941 in 1920, and 2,708 carabaos in 1921, as against 4,528 carabaos in 1920; and the number of animals which arrived at Manila from Provinces totaled 6,856 during 1921, as against 11,350 during 1920. The majority of the cattle were from French Indo-China and were brought in for slaughter. The carabaos were for work purposes and mostly from Cambodia.

Post-mortem examinations have been made in the following slaughterhouses during 1921: Native cattle in Manila, 5,222, against 10,666 in 1920; cattle imported from China, in Pandacan, 23,327; cattle imported from Australia, in Sisiman, 728.

In this connection, attention is invited to data under "Animal husbandry" of this report, which show that there are in the Philippines apparently a sufficiently large number of native cattle for local consumption. The importers, however, claim that the meat of the native cattle is inferior to that of the imported animals. The local cattle raisers, on the other hand, allege that it does not pay to try to improve their stocks, as they have no buyers and because of their fear of the rinderpest. The importers also allege that there are not enough cattle in the Philippines to supply the demand, as in Manila alone the consumption varies between 32,000 and 36,000 head yearly. The cattlemen, however, claim that during the war, especially in 1916, 1917, and 1918, they have supplied practically all the meat needed in Manila. The undersigned joins with the cattlemen in the opinion that there are sufficient cattle in the islands to supply the demand. What is lacking is an organized market and a system that would facilitate the bringing of the animals to Manila.

Rinderpest.—There were 45,380 cases and 35,740 deaths from this disease recorded during the year. This is more than twice as many as the cases and deaths (22,442 cases and 16,911 deaths) reported in 1920. While the disease appeared in 35 different Provinces, its ravages were severest in the Visayan Provinces, as over two-thirds of the cases and deaths occurred in the Provinces of Antique, Bohol, Capiz, Cebu, Iloilo, and Occidental Negros. Outside the Visayan region the Provinces of Bulacan and Masbate were the worst infected. Sporadic outbreaks of limited extent occurred in the following Provinces: Abra, Albay, Bataan, Batangas, Cagayan, Camarines Norte, Camarines Sur, Cavite, Ilocos Norte, Ilocos Sur, Isabela, Laguna, Lanao, Leyte, Manila city, Mountain, Nueva Ecija, Nueva Vizcaya, Oriental Negros, Pampanga, Pangasinan, Rizal, Samar, Surigao, Tarlac, Tayabas, and Zambales.

The following table shows the number of rinderpest cases and deaths by three-month periods during 1921:

	New cases.	Deaths.
First quarter.....	9,134	7,000
Second quarter.....	11,450	9,088
Third quarter.....	13,864	11,138
Fourth quarter.....	10,932	8,514
Total.....	45,380	35,740

During the year 357 new outbreaks of rinderpest were reported, counting each case where a municipality was taken up as infected or reinfected as a separate outbreak.

In the island of Burias, which has been free from this disease since 1901, rinderpest again appeared in January, 1921, owing to the introduction into this island of a certain number of cattle from Sorsogon. Fortunately the owner of the infected herd cooperated heartily with the bureau of agriculture veterinarians, and with a liberal use of the antirinderpest serum and the observance of strict quarantine measures the island was soon freed of the disease. Also in the Province of Masbate, which is noted for its cattle industry, rinderpest appeared about July, 1921. This island has been free from this disease since 1918. The cause of the reinfection of the island of Masbate is attributed to a local trader who had taken to the island of Negros a certain number of head of cattle to sell, but the animals were not all sold and the man brought the remaining ones back to Masbate. Occidental Negros was then infected with rinderpest, and consequently returned animals carried the disease back home with them. Notwithstanding the prompt action taken toward checking the disease, utilizing

even constabulary forces for the enforcement of quarantine measures, 3,372 cases followed by 2,916 deaths have been recorded to December 31.

This brings up again the matter of cattle importation. The cattle raisers, basing themselves on reports of the bureau of agriculture, allege that as a general rule cattle brought in from China are infected with rinderpest and those from Australia with pleuropneumonia, and ask that cattle importation should be prohibited for the protection of the home cattle industry. The importers, on the other hand, claim that there is no danger in such importations inasmuch as the imported animals are slaughtered for consumption, or else are first placed under a strict quarantine and immunized by the simultaneous inoculation method before they are allowed entrance. Veterinarians, though, maintain that from technical and scientific points of view, although the rinderpest has here acquired an enzootic character, the importation of infected animals should be prohibited.

During the past year there have been several requests from provincial governors for the permanent assignment of veterinarians to their respective Provinces. It has been impossible to comply with these requests owing to the fact that the veterinary personnel is so limited that there are not enough veterinarians to attend to all of the infected Provinces. It has been for all these years the hope of this division to be able to assign a veterinarian permanently to each Province and two veterinarians to some of the larger ones. This would mean a field force of 55 veterinarians, but this will be necessary if it is the desire of the government to be able to establish effective control of dangerous communicable diseases in all parts of the archipelago. The lack of sufficient veterinarians is one of the reasons why the best cooperation of live-stock owners can not always be secured, as they become discouraged because of the lack of technical advisers.

The turning over of the control of dangerous and communicable animal diseases to the provincial officials has not worked out very satisfactorily in practice. With few exceptions, the provincial governors and their representatives, the municipal presidents, are not taking the initiative that they should in enforcing the preventive measures for the control of rinderpest. Whenever they can, they try to leave it all to the representatives of the bureau of agriculture and only show some activity where political motives impel them to do so. The glaring fact stands out that at no time, since the control of contagious-animal disease was turned over to the local officials, has a single Province made a regular yearly appropriation to take care of the animal disease-control work. They have frequently requested the assignment of veterinarians and live-stock inspectors of the bureau of agriculture to their respective Provinces, but have made no move toward employing veterinarians or inspectors of their own.

It is, however, becoming more apparent that the people are gradually becoming disillusionized. For the past two years, several representatives in the Philippine Legislature have been discussing and making tentative plans to return the control of dangerous and communicable animal diseases to the director of agriculture where it properly belonged. This year they have gotten along with the matter far enough to present a bill to this effect in the Philippine Legislature.

Antirinderpest serum.—Antirinderpest serum has been employed in the field as an aid in the control of rinderpest in those places where the live-stock owners have been willing to pay for it. The bureau of agriculture several years ago discontinued the policy of the extensive employment of antirinderpest serum free of charge. This is due to the fact that the length of the period of immunity conferred is so short that it is not commensurate with the expense involved in the production and use of the serum, particularly so when it is difficult to enforce adequate quarantines in infected areas. Serum is now used principally in those places where cases of rinderpest have recently appeared or in which infection is imminent. This ordinarily results in the exposure of the animals to the disease after having received large doses of serum and before it can be eliminated from the body of the animal. By this procedure many animals pass through a modified attack of rinderpest and thus acquire a more lasting immunity. When the serum is employed on animals which are not close to infection they are liable to contract rinderpest after the elimination of the serum from the body, which is usually from 10 to 15 days. The total amount of serum produced by the bureau of agriculture during the past year was 4,360 liters.

Immunization.—Under Act No. 2548 and its amendments immunizing stations have been established in some municipalities and animals were immunized by the process of simultaneous inoculation. During the past year immunizing operations have been carried on at Candaba (Pampanga), Lipa (Batangas), Iloilo (Iloilo), and the Pandacan quarantine station of the bureau of agriculture in Manila. A total of 19,127 animals were immunized against rinderpest by this method. The mortality attendant on this process was a trifle less than 2 per cent.

The benefits resulting from the immunization of cattle and carabaos are well demonstrated in the Province of Pampanga, where this work has been carried on since 1916, through the splendid cooperation there of Governor Ventura. In previous years that Province was always a hotbed of rinderpest and the losses suffered were considerable. In those districts where a large percentage of the animals have been immunized rinderpest is nonexistent and is no longer a serious factor. During the past year there have been some minor outbreaks of rinderpest, but they occurred in areas where immunizing operations had not been carried on.

Each of the immunizing stations now regularly shows a deficit. Act No. 2548 provides for the payment of a fee of ₱3 for each animal immunized. This fee is to cover the expense of construction and maintenance of the stations and the payment of 75 per cent of the value of the animals that die during the process.

Other diseases.—The following diseases are prevalent in the islands and take their toll of deaths year after year, though they have caused no general alarm, as the losses are relatively small as compared with the losses from rinderpest. No accurate records have been kept of the cases and deaths from those diseases, owing to the lack of personnel, and for the same reason no campaigns have been undertaken toward eradicating them.

Anthrax.—During the year no cases of this disease have come to the attention of this office. The lack of personnel may account for this.

Hemorrhagic septicemia.—Small outbreaks were reported during the year in the Provinces of Mountain, Isabela, Ilocos Sur, and Rizal. The losses caused by this disease were slight.

Contagious bovine pleuropneumonia.—During the year cases of this disease were found among the Australian cattle imported for slaughter at the Sisiman Matadero. The quarantine station of Sisiman is fairly well isolated, to insure against any possibility of the disease spreading out into the Provinces. The theory that this disease is not highly contagious in the Tropics seems to be well borne out by the observations carried out at Sisiman, extending over a period of many years. Native work carabaos at the station in continuous contact with infected Australian cattle have failed to contract the disease.

Surra.—During the year this disease was reported in Burias Island and along the northern coast of Cagayan Province. It is prevalent in all Provinces but is not usually reported by the local authorities unless it causes considerable mortality. The losses occasioned by this disease are large enough to affect adversely the proper development of the horse industry in the Philippines. Effective methods of controlling this disease have not yet been discovered.

Glanders.—Isolated cases of this disease have been reported from time to time throughout the islands, but no serious outbreaks have occurred this year.

Hog cholera.—No accurate records of the total losses due to this disease have been kept owing to the lack of means, but it is known to have prevailed throughout the Provinces in a mild form. The research of the development of a vaccine for the hog cholera was kept up throughout the year, and the results obtained so far are very encouraging.

Contagious abortion.—This disease, which is widely prevalent in India, has never been known to exist in the Philippine Islands. For this reason strict measures were adopted when a few cases of suspected contagious abortion appeared in a dairy herd of Indian cows in the city of Manila.

Tuberculosis.—This disease has not yet been found among the native cattle and carabaos. The few cases encountered this year were among the cattle imported for slaughter from Australia and French Indo-China. It was also found in a slight degree among hogs slaughtered at the Azcarraga Matadero.

Foot-and-mouth disease.—Mild but protracted outbreaks of this disease were reported in the Provinces of Ambos Camarines, Sorsogon, Masbate, and Surigao. The losses caused by this disease were small, and it was noticed that the virulence is on the decline.

ILOILO QUARANTINE STATION.

During the year but 2,536 carabaos and cattle arrived at this port from abroad—French Indo-China and Pnom-Pehn—as compared with 8,500 head imported in the preceding year. This reduction was due to the business depression prevailing throughout the year.

SISINAN MATADERO.

Operations were resumed at this station after a lapse of about five years, with the importation of two shipments of Australian cattle on October 31 and November 29, consisting of 309 and 430 head, respectively.

VETERINARY RESEARCH LABORATORY.

During the past year we have installed at the laboratory two Sharples super-centrifuges of the small laboratory type with a Rix air compressor and a Fairbanks-Morse crude-oil engine for operating the compressor and centrifuges; also a large electrically heated water bath. This new equipment, plus the refrigerating plant and the Matthews tissue mill installed during 1920, makes it possible to produce a larger quantity of antirinderpest vaccine. The main point at the present time is to secure sufficient material from which to make the vaccine. The laboratory is still in need of some type of ball mill to get the vaccine in complete suspension before it is used. At the present time mortars are used to work it up into suspension, which to a certain extent may subject it to external contamination. With the proper type of ball mill the chances for external contamination would to a great extent be eliminated.

By aid of the Sharples centrifuge we are able to produce vaccine in a concentrated pasty form. In this condition it retains its potency for a much longer time than when in liquid suspension. This pasty vaccine has given good protection to highly susceptible animals even after being kept for as long as six months.

The vaccine is sent to the Provinces in Ferostat thermos bottles, thus keeping it at a low temperature up to the time of use. During the past year 30,000 animals have been vaccinated in various Provinces with highly satisfactory results. Numerous outbreaks of rinderpest have been smothered out, and the owners of animals are well satisfied with the benefits they have derived from it. We have vaccinated with good results Hereford cattle imported from the United States and dairy cows from Australia. Several of these cows were giving milk while undergoing vaccination, and little or no change in the milk supply could be noticed. Also several of the cows gave birth to normal healthy calves during the period they were being immunized by the vaccine method.

The research laboratory is so located that we are in intimate connection with the quarantine station and slaughterhouse, where imported animals are quarantined and even slaughtered. During the past year we have obtained material for vaccine from 353 of these animals, most of which were Indo-Chinese and Hongkong bulls. This has effected a considerable saving to the government in the cost of vaccine production.

A building located on the grounds of the Pandacan quarantine station and formerly belonging to the college of medicine of the University of the Philippines was transferred to this office a few months ago. This building has been remodeled to some extent and is being used for work on hog cholera. Results have already been obtained showing that a vaccine against hog cholera can be produced. During the coming year we hope to have the hog-cholera vaccine on as good a basis as the rinderpest vaccine at the present time.

All the diagnostic work on rabies for the bureau of health has been performed at the veterinary research laboratory during the past year.

PLANT INDUSTRY DIVISION.

The activities of this division are carried out in 12 experimental and propagation stations.

SINGALONG PROPAGATION AND TESTING STATION.

This station serves as a center of distribution of plant and seed materials going to and coming from the Provinces and other countries. Seed testing and various vegetative propagation experiments are also conducted at this station.

Among the 10,000 seedlings transplanted for grafting and budding, 3,048 have already been grafted on or budded with selected mango scions. Mango bud-sticks of 10 varieties were received from the United States Department of Agriculture, and they were grafted on native mango stocks, but only 4 have survived. The budding and grafting of other fruit trees were continued as usual.

Forage crops.—Small plots of Guinea grass, Napier grass, and Uba cane have been cultivated for distribution purposes and for supplying a part of the forage fed to the station animals.

Germination test.—Every lot of new seed is first tested for germination before the material is distributed. There were 2,011 samples tested during the year, consisting of 857 species and varieties.

ALABANG CENTRAL RICE BREEDING STATION.

Only lowland rices are handled at this station, and work has been conducted along the following lines:

(a) *General variety test.*—This is a comparative test of different varieties for mass selection. This year 232 varieties were used, including 2 from Borneo, 1 from Formosa, 9 from Saigon, 6 from Siam, and 1 from the United States. New varieties are added and undesirable ones discarded from year to year. Best varieties are further improved by the process of head-to-the-row test before they are multiplied and distributed for propagation.

(b) *Head-to-the-row test.*—This is line selection, which usually results in the production of a greatly improved seed, the product of the best strain in the test. Several rice varieties have been improved by the bureau of agriculture through this process, and these are now being grown on a commercial scale by farmers. This year there were seven varieties in the test.

(c) *Selection work with bearded rice.*—These varieties are very good yielders, vigorous and strong, and their grains are attached more tenaciously to the stem than those of the nonbearded varieties. These desirable characteristics have led the bureau of agriculture to work for the elimination or at least reduction of the objectionable awns through selection.

(d) *Hybridization.*—Preliminary studies have been started this year in artificial cross-pollination with 12 varieties.

(e) *Acclimatization.*—Trials were made of varieties introduced from Borneo, Japan, United States, Java, Persia, Madagascar, and Indo-China.

(f) *Viability test.*—Four varieties were used in this work, and it was observed that rice seeds three months after harvest have a vitality of something like 95 per cent, and that this vitality gradually increases from month to month until it reaches its maximum in June, whence the vitality gradually falls.

(g) *Summer crops.*—Experiments have been made to find varieties suitable for dry-season planting, such as practiced at places where irrigation water is available. It was noted with surprise that some of the seeds usually used for this purpose ("palagad") have been excelled by a few new varieties.

(h) *Weed-control experiment.*—It was found that in paddies kept submerged in water 15 centimeters or deeper comparatively very few weeds developed.

(i) *Fertilizer experiments with rice.*—Two commercial mixtures of the so-called "rice fertilizers" of known formulæ were employed to test their respective value. They were applied in various proportions and in two ways: First, by applying it before planting; and, second, by applying 30 days afterwards. Results were not conclusive.

(j) *Seed propagation.*—It was decided to make a saving in the raising of rice for seed purposes by introducing the so-called "casama system," or having tenants work the land for a certain share of the crop.

(k) *Planting rice by a drill planter.*—This was the first trial of a rice drill obtained from the United States. The drill came rather late in the season and so the trial was not extensive. The results were highly encouraging, and the drill will be given a more extensive trial next season. One important feature of this grain drill is that it can be pulled by two bullocks.

(l) *Duty of water used in irrigation.*—It was found that the average weekly water requirements for the preparation of 1 hectare of rice land at Alabang amounted to 2,162,368 liters, and for seed-bed preparation 370,133 liters. The amount of water for submergence varies inversely with the age of the crop, varying from 1,283 to 1,519 second-liters of water, depending on varieties.

Sugar cane.—Canes are grown in Alabang for trial as well as for supplying points to farmers. At the beginning of the year there were 14 varieties growing at the station and a few others were added afterwards to the collection.

Forage crops.—There was not much work done at Alabang in connection with the forage crops beyond the propagating of the Uba cane, Guinea grass, Napier grass and barit, and of eight varieties from seedlings of forage canes introduced in this station from the College of Agriculture.

LAMA O EXPERIMENT STATION.

Orchard investigation.—Pruning, eradication of disease, cultivation, and the planting of cover crops were continued as usual.

Citrus.—There are under culture 17 different species, 212 hybrids, and several other unidentified citrus. The 17 species include 237 varieties. During the year 21 varieties of sweet oranges (*C. sinensis*), 4 grapefruits, and 3 pomelos (*C. maxima*) were studied comparatively, and it was found that the Duroi, Washington Navel, Enterprise, Magnum Bonum, Excelsior, and Ruby were the varieties of sweet oranges most worthy of propagation and dissemination. The cayo and Jaffa sweet oranges can be ranked with the above varieties in quality and flavor. The pomelos are rather shy bearers under Lamao conditions, while the grapefruits are bearing good crops. However, of the latter group, only the Triumph variety has shown sufficient merit to justify wider culture.

Mango.—Of the *Mangifera indica*, there were under trial 7 native varieties and 11 of Indian origin already planted in the field. There were also specimens of a few other varieties recently imported that are still in the nurseries awaiting permanent planting. Indian mangos were observed to be more susceptible to the attack of insects than the native varieties. In addition to the *M. indica* collection the station has also a number of trees of the *M. odorata*, *M. verticillata*, *M. caesia*, and *M. foetida* under trial. An orchard of 142 plants, consisting of budded and seedling trees of native mangos, has also been planted at the station. This is aimed to demonstrate in a commercial way the difference between the two methods of propagating the mango by budding and by ordinary seedling.

Coffee.—Variety test and selection. The following 12 varieties are under trial: Liberian, Excelsa, Abeocuta, Bukobensis, Dybowski, Congo, Uganda, Canephora, Quillon, Robusta, Stenophylla, and Zansiberica. The first three varieties have borne fruit during the year. The yields of Liberian and Abeocuta were slight. One of the Excelsa trees produced as much as 21.7 kilos of berries, while the others ranged from .02 to 5 kilos.

Pineapples.—(a) Acclimatization and variety test: The nine varieties of pineapples imported in 1920 from Calcutta, India, were all set out in the permanent field in July, 1921. They are all making fairly good progress, although they are planted on a sloping ground. Besides these varieties there were also imported during the year from Porto Rico and India a few slips of the varieties Cabezona, Sugar-loaf, Country Spineless, Manuritus, and Kew Giant, but these are now still under quarantine at Harrison Park, Manila. These varieties will be included in our variety test as soon as they are released from quarantine. (b) Seed and plant propagation: The station maintains a field of Hawaiian pineapples about 2 hectares in extent.

Root crops.—There are under test 49 lots. Of the 27 varieties of camote (*Pomea batata*), the Jersey Red is giving the highest yield. The collection includes also various varieties of gabi (*Colocasia sculenta* Schott), Yautia (*Xantosoma sagittifolium* Schott), and Cassava (*Manihot utitissima* Phol).

Vegetables.—Hybridization has been successfully made between three varieties of native eggplant and one American variety as male. There were 37 kinds of vegetables included in the acclimatization test, but quite a number of the imported seeds failed to germinate, and some of those that grew died before maturity. A ball fertilizer, advertised to contain 8 per cent nitrogen, 46 per cent soluble phosphoric acid, 10 per cent potash, and 34 per cent carbon dioxide, was tried in a seed plot of rape. The fertilized made about 25 per cent better growth than, and as a whole superior to, the unfertilized plants, but the use of the fertilizer can not be generally recommended because of the high cost of the material. Cultural experiments, including seasonal plantings, were also made with vegetables.

Miscellaneous horticulture.—Aside from the fruit-tree species already discussed above, namely, mangos, coffees, citrus, etc., there are several orchards maintained at Lamao Station in which about 150 species, including about 200 varieties, of fruit trees are represented. The result of vegetative propagation experiments conducted during the year were as follows:

The Chinese litchi (*Litchi chinensis*) was successfully grafted on the lagoon (*Nephelium mutabile*).

A good percentage of successful grafts was obtained by grafting the seedless mabolo on the seeded variety.

Sixty per cent success was obtained in grafting the Tahiti lime (*Citrus aurantifolia*) on the limoncito (*Triphasia trifolia*).

Cuttings.—Root cuttings of Rambutan (*N. lappaceum*) were successfully grown.

Marcottage.—During the rainy season the following were easily grown by marcottage: Chinese lemon, limon-real, calamondin, Tahiti lime, oranges, pomelos, yambo, rima, and yaruma.

Rice.—Only upland rices are planted at Lamao. The variety test consisted of 77 varieties, of which 11 produced over 30 cavans per hectare.

Corn.—During the latter part of the year a number of corn varieties were received and planted in a variety test. Also, some 46 cavans of shelled corn were produced for seed purposes during the year.

Sugar cane.—Hawaii No. 109 cane is decidedly superior in many respects to any of the native varieties that were ever planted in Lamao. A yield of 70.5 metric tons of cane per hectare has been produced. The variety test includes a number of varieties grown from seeds—not from cuttings as ordinarily.

Forage crops.—Napier grass, Guinea grass, Uba cane, and Sudan grass were tried in the station for comparative yields, and the Napier excelled the others by registering a yield of not less than 171 metric tons per hectare.

Adlay (Coix lacryma-jobi L.).—A more extensive trial with adlay has been made at this than in any of the other stations. The adlay is an old grain, growing wild in all parts of the Philippines and known under a great number of names. Analyses made by the bureau of science show that hulled adlay closely approximates wheat in starch and protein contents, while it contains nearly four times as much fat as wheat. In a broad sense, adlay can not of course hope to supplant rice and corn in the dietary of our people, but doubtless it is a good substitute, and might well be used to supplant these grains partly as a human food and partly as feed for stock and poultry. The tender plant makes also a good forage for cattle and horses. In the light of our present knowledge concerning the plant, adlay can not yet be recommended for general planting, but because of the grain's high and well-balanced food value, its cultural adaptability to a wide region of the Philippines, the many and varied uses to which it might be put, and its apparent productiveness, which, it is true, still requires verification, this cereal deserves a thorough investigation and will be given due attention in the future.

LA CARLOTA EXPERIMENT STATION.

Rice.—As in Lamao, only upland rice is tried in La Carlota, but here the trial is more extensive. (a) The variety test is composed of 209 varieties, including 3 samples from the United States, 2 from China, 9 from Japan, 9 from Saigon, and 5 from Siam. Because of the drought during the latter part of the season, some varieties did not produce a full crop. (b) There were 4 varieties in the head-to-the-row test. (c) A preliminary study of various ways of preserving rice seeds was made. (d) Seasonal plantings, without irrigation, were made beginning with June, 1920, and ending with January, 1921. The crop planted in June was normal, this being the regular planting season for upland rice. The rice planted in September was fair, but the November, December, and January plantings produced hardly any crop.

Corn.—(a) Variety test: The test consisted of six varieties, and two plantings were made—the one at the beginning and the other at the end of the rainy season. The latter planting gave much better results, as the crop grown during the rainy season suffered very much from unfavorable weather conditions. Records so far made go to show that the variety Baluga Yellow is the highest yielder, with actual average production of 31.55 cavans of shelled corn per hectare from the dry season planting. This variety also gives a fairly good yield in the rainy season and is an early cropper.

(b) Ear-to-the-row test: This corresponds to the head-to-the-row test with rice, being a method of improving a given variety of corn by line selection whereby desirable characteristics may be built up and intensified. New varieties of corn are taken up from time to time.

Sugar.—(a) Variety test: This year 42 varieties of sugar cane, mostly of foreign origin, were included in this test. Weekly sucrose content determinations have been made from the different canes and in the following table are given the corresponding mounts at which the juice of each of the varieties has been found to contain the maximum percentage of sucrose.

Variety name.	Plant cane.		Ratoon crop.	
	Month.	Per cent sucrose.	Month.	Per cent sucrose.
Yellow Caledonia.....			April.....	17.19
Negros Purple.....	May.....	17.37	do.....	17.26
Cebu Purple.....	March.....	19.30		
Badila.....	April.....	19.20	February.....	17.35
Inalmon.....	February.....	17.75	March.....	15.60
Louisiana Striped.....	April.....	16.62	December.....	17.08
Java-247.....	February.....	16.04	March.....	19.40
Big Tanna, 3525.....	March.....	33.36	February.....	15.34
Lahaina.....			April.....	16.39
Mindoro.....	April.....	19.89	do.....	20.30
Luzon No. 1.....	May.....	17.46	do.....	17.60
Hawaii-16.....	June.....	14.55	May.....	14.14
Hawaii-20.....	May.....	18.14	do.....	15.52
Hawaii-69.....	March.....	14.11	February.....	11.83
Hawaii-109.....	February.....	17.97		

(b) Fertilizer test: Fertilizer tests on a large number of varieties in ratoon are in progress, an artificial fertilizer being used. It is yet too early to draw any conclusion.

(c) Hybridization work: Attempts have been made to cross Yellow Caledonia and Negros Purple, two varieties of cane presenting desirable characteristics, for a combination.

(d) Propagation of seedling canes: Seeds of Hawaii-16, H-27, H-109, Inalmon, and Badila have been planted. The resulting plants exhibit some variations from the original types. Certain stools possess desirable characteristics.

Miscellaneous agronomy.—Wheat: The small sample of wheat received from Cagayan made a fair growth and nearly half of a kilo of seed was harvested from the planting. This seed was planted in September but did not grow. Kodo, a new grain from India, did fairly well at La Carlota. Forage crops, coffees, root crops, legumes, etc., as well as vegetables, are also being tried at La Carlota station. The tenant system for the production of seeds has also been adopted in this station. Mango trees previously planted were doing well. The banana experiment includes 10 varieties, and the fruit-tree collection embraces 63 distinct varieties of tropical plants.

DAMMAO TOBACCO STATION (ISABELA).

Tobacco.—(a) The production of improved or otherwise suitable seed for free distribution for the production of superior leaves is the principal work of this station. Considerable areas were planted to the established native varieties like the Dammao Large Broadleaf, Dammao Small Leaf, Espada Dammao, etc. In addition to these there were also grown on a small scale well-known varieties of foreign tobacco like the Florida Sumatra, Connecticut Seedleaf, Connecticut Broadleaf, etc.

(b) The variety and acclimatization work consisted of 27 varieties in all, including the newly introduced Ceylon tobacco and Olsen No. 1. It has been the aim of the station to make as complete investigations as possible of the worth of each of the varieties, particularly as regards their capacity to produce the maximum amount of wrapper leaves which are so much in demand. One special feature of the work started this year was a study as to the resisting qualities of the different strains of tobacco to fungus diseases. Various native varieties have been found to produce a good quantity of leaves of good quality, but they, as a general rule, have the defect of having leaves with too uneven a surface to make a good wrapper.

(c) Selection work: Selection work has been started with the following-named varieties: Florida Sumatra, Sumatra, Connecticut, Habana, Dammao, Large Broad, Medium Fine Dammao, and Anipa Broadleaf.

(d) Sterilization experiments: Experiments were conducted this year to see what chemical disinfectants might do in the way of sterilizing the soil in the seed bed to prevent fungus diseases like the so-called damping-off disease, leaf rot, root rot, and *Cercospora nicotiana*.

(e) *Cultural treatment of seed beds.*—It was observed that the tobacco seed sown in a partially shaded seed bed germinated earlier and gave a greater percentage of germination than the seed sown in an open seed bed. Good results were obtained in growing seedlings in the sun by keeping the soil moist and by covering the bed toward noon for at least six successive days. It was also observed that seedlings in thickly seeded seed beds are susceptible to the attack of fungus.

(f) *Stalk-curing experiment.*—By air drying methods, the prime lower leaves were cured in 26 days, counting from the date they were set on poles. But the leaves on the poled stalks were cured in 35 days. Considering the inferior quality of the finished products obtained from this latter method, this system of curing, though less elaborate and more economical in labor, is not to be recommended.

(g) *Air drying versus sun drying.*—This test was performed in April. The leaves wilted in the sun here, after 26 days in the curing shed, become spotted, lifeless, brittle, and very ununiform in color; while those which were placed in the curing shed right after priming were generally more uniform in color and cure, and were elastic and without spots.

(h) *Public seed beds.*—The station is maintaining seed beds of nearly one-half hectare in size for raising seedlings for free distribution. This practice has been effective in inducing the tobacco planters to use the varieties of tobacco recommended by the bureau.

COTABATO TOBACCO STATION.

(a) Nine varieties composed the variety test, and the Florida Sumatra and the Dammao Broadleaf gave the best results, the former giving over 11 per cent of the crop suitable for wrapper and the latter 3 per cent. The crop of Florida Sumatra is remarkable when it is considered that the variety is still in the process of acclimatization. It contains many types, and better results may thus be expected through selection. (b) *Hybridization:* Besides the remarkable results obtained with Florida Sumatra and 16 strains of other varieties isolated from the general culture, the station has been able to do some crossbreeding with a number of good varieties, using the Florida Sumatra and Sumatra wrapper as the foundation stock for the production of wrapper leaves. There have been newly introduced at the station the varieties Connecticut Round Tip, P. I. No. 7836, A and B. Batoli, and Baker's Sumatra, and these are all believed to be valuable material for this work.

BONTOC SEMITEMPERATE PLANT STATION.

At this station fruit trees of semitemperate origin, such as apples, peaches, pears, cherries, walnuts, etc., were planted during the year for trial. In addition to these, cauliflowers, Brussels sprouts, and Irish potatoes were also tried. Many of these varieties of semitemperate plants are now thriving, though others failed to grow, due to poor condition of the seeds and plants when received at this station.

PANGASINAN RICE BREEDING STATION.

This station is engaged in (a) the cultivation on a large scale, for distribution purposes, of the improved rice seeds produced at the Alabang Central Rice Breeding Station; (b) the improvement of local varieties; and (c) in the study of cultural methods. Pangasinan is only rivaled by Nueva Ecija in the production of rice.

SAN PABLO LANZON STATION.

Budding and grafting lanzons are the work of this station. About 500 of over 5,000 seedlings are now ready for grafting. A large number of seeds were also sown during the year.

BATANGAS COMMERCIAL CITRUS STATION.

(a) *Cultural treatment of a run-down mandarin orchard.*—The orchard was suffering from an attack of the bark-rot disease. Results so far obtained seem to indicate that the disease can be controlled by proper cultivation and proper

orchard sanitation. There is a gradual improvement in the cultivated plots, while the disease remains unchecked in lots not cultivated.

(b) *Bark-rot disease investigation.*—Bark rot was more apparent during the dry than during the rainy season. The affected trees shed their leaves at the close of the rainy season, giving no chance for the fruit to mature. The oozing of the diseased parts of the trees was greater during the dry weather. Good results were obtained by treating the trees with a chemical mixture.

(c) *Variety test orchard and stock trials.*—The object of the stock experiment is to find out the comparative value of the different stocks, and the most suitable of these for each of the commercial varieties of citrus under Batangas conditions.

CEBU CORN BREEDING STATION.

Flinty v. starchy corn.—Seeds of the two types of Cebu corn were used. The object is to determine their relative value for commercial production. These types were also tested for their susceptibility to the attacks of weevils, and it was observed that whereas the flinty type suffered a destruction equivalent to 15.45 per cent. the starchy one lost 53.85 per cent. Another lot made up of what might be called an intermediate type lost 30.70 per cent. Besides, experiments on spacing and green manuring were also made.

ISABELA CORN BREEDING STATION.

The varieties Ilagan White and Cagayan Yellow proved the best of the six varieties of corn included in the variety test. For line selection work the Ilagan White was used. An experiment designed to determine the best season for planting corn at Isabela has also been started.

Seed and plant introduction and distribution.—The work on seed and plant introduction and distribution is one of the most important features of the activities of the division. Such seed and plant materials as it is thought may be grown in the Philippines are introduced for trial and for distribution of the resulting plants and seeds, if any.

During the year 1921 there were introduced from abroad avocado, mango, pears, juglands, cherries, apples, plums, almonds, raspberries, peaches, strawberries, apricots, quinces, grapes, currants, loquat, pineapples, duku.

During the same year, seeds valued at ₱35,703.30 were distributed.

DEMONSTRATION AND EXTENSION DIVISION.

To this division belongs the important task of disseminating among the farmers by actual demonstration or other appropriate means knowledge of such farming methods and practices, as well as seeds and other plant materials, as the bureau of agriculture has found to be commendable. For this purpose, farm advisers are detailed in the Provinces. They have charge of the work in their respective Provinces, and they are assisted by agricultural assistants and tobacco inspectors. They are, in turn, directly supervised by five supervising agricultural agents.

Cooperative plots.—From the inception of the demonstration and extension work it has always been the practice to secure from farmers in different towns or barrios every year what has come to be known as cooperative plots. These plots are worked and planted by the farmers themselves with the assistance of, and according to methods suggested by, a farmer adviser or his assistant, and usually are alongside other plots cultivated and entirely in the farmers' own way. The idea in this connection is to demonstrate to interested parties the contrast between improved and unimproved methods. The following is a tabulation bearing on the cooperative plots attended to by the field men of this division during the year just ended:

Kinds of crops.	Number of plots.	Area of plots in hectares.	Average yield per hectare.	Average yield per hectare adjacent fields.
Rice.....	988	1,299	38 cavans.....	29 cavans.
Corn.....	578	537	23 cavans.....	13 cavans.
Tobacco.....	140	61	3,612 kilos.....	2,912 kilos.
Sugar cane.....	82	105	40 piculs.....	25 piculs.
Vegetables.....	154	55	2,470 kilos.....	2,232 kilos.

Distribution of seeds and plant materials has been continued and amplified. The results were quite encouraging this year especially when it is considered that the distribution was made largely by sale. The sources of these materials were the bureau of agriculture, the provincial and municipal nurseries, and also private persons having good seeds and seedlings.

Seed and animal selection.—By means of instruction and cooperation about 16,000 farmers are now practicing seed selection. As to the educational campaign for the raising of better breeds of live stock and poultry, some 70 sows, 2 mares, 20 bulls, and 300 chickens were selected by farmers with the aid of this division's field agents.

Clubs.—The field men helped in the organization and development of the following clubs:

Women's	364
Civic	515
Farmers'	436
Poultry	411
Swine	432

Irrigation.—Another worth-while activity of farm advisers and agricultural assistants is in connection with the construction of simple irrigation systems. Two hundred and fifty-seven irrigation dams, capable of irrigating some 18,000 hectares, were planned, finished, or repaired through their cooperation during the year.

Home gardening.—Great emphasis was placed on this feature of the work in view of its importance to the people of the islands. The total number of home gardens established as a result of the campaign in this connection is 170,772. In addition, this division's field force assisted in treating, pruning, and grafting some 15,300 trees of economic value. They cooperated also in the planting of about 2,000,000 trees of different kinds.

Lectures or conferences.—Farm advisers and agricultural assistants are required to deliver talks, whenever there is an opportunity, on such agricultural subjects as would be of interest to farmers in a given locality. During 1921 they talked at 2,543 meetings of farmers and 1,222 school agricultural clubs.

Demonstration stations and nurseries.—The bureau of agriculture has three demonstration stations, one in Lipa (Batangas), one in La Paz (Tarlac), and the third in Santa Cruz (Laguna). For lack of necessary funds the Santa Cruz station, the provincial nurseries, of which there were 15, and the municipal nurseries, 22 in number, failed to give the satisfaction expected. Considerable amount of seedlings were distributed from them, however.

The division is greatly handicapped in many respects. Some of the main difficulties confronting it in carrying on its activities are (a) lack of a sufficient number of technical personnel with ample practical experience and sufficiently trained to do the work effectively; (b) the natural suspiciousness and prejudice old farmers feel toward our young agents; (c) the present tenancy system, which makes it extremely difficult to induce a mere tenant to change his methods or introduce any improvement on his little farm; (d) the lack of irrigation systems; (e) the insufficiency and often uncertainty of funds; and (f) the indifference or lack of sufficient interest very common among provincial and municipal officials.

PLANT PEST CONTROL DIVISION.

This division is engaged in (a) the eradication of plant pests and diseases; (b) the plant quarantine service; and (c) research work.

Locust extermination.—There were 20 municipalities infested with locusts in March, thence the number gradually increased to 90 in July and August, from which time the condition improved, and by the end of the year there were but 58 municipalities infested. The reasons for such increase of infestation are: First, small number of people living in places where such infestations occur; second, infestations mostly originated from cogonal regions far from the reach of people and then swarmed to other places or islands; and third, the great distance between barrios, frequently 30 to 40 kilometers apart, in Mindanao and other southern islands. It is impracticable to send people from one barrio to another to help the infested barrio, due to lack of transportation facilities and subsistence. Take, for example, a barrio of about 30 kilometers from other communities. People from such communities journeying to an infested barrio would spend more than a day on foot. The amount of 15

centavos authorized for a meal is not sufficient for three meals, and if we increase this allowance of 15 centavos there will be no funds to cover the amount allowed. Consequently, in trying to carry on locust campaigns, there are places where one can not well enforce the provisions of the locust act, No. 2472. The law was framed to meet conditions in the thickly populated regions of the country, but when it comes to some of the Visayan Islands and Mindanao or in the Mountain Province the strict enforcement of the law would mean tyrannizing the people, inasmuch as the bureau of agriculture can not even give them three meals a day.

Rat extermination.—Actual work of the campaign this year was transferred from our inspectors to the farmers themselves. Our inspectors only gave personal advice as to the best method of combating this pest in the field by demonstration and by instructions prepared in Spanish and English. During the year this office distributed 701 kilos of white arsenic and some carbon bisulphide in connection with this campaign gratis to the farmers and the provincial and municipal authorities who asked for the poison. Where an infestation had been severe bureau inspectors were sent to the place, and they personally supervised the campaign.

Acting upon the recommendation of this office, the provincial board of Camarines Sur has adopted a resolution to the effect that in order to make the killing of rats more effective a committee of three (consisting of the municipal president, the municipal treasurer, and the municipal chief of police) has been authorized in each municipality of the Province to purchase field rats at the rate of 2 centavos each. Dead rats after purchase are to be mutilated and buried. The amount to be paid will come from the gratuitous funds allotted by this bureau to the Province of Camarines Sur or from local funds especially appropriated for the purpose.

Abaca diseases' experiments.—The physiological experiments being conducted in Silang, Cavite, to find out the cause or causes of the so-called abaca heart-rot and abaca root-rot disease and to determine a practical way of controlling them have been continued during the year.

Coconut pests and diseases.—The work of inspectors for bud-rot, the worst coconut disease, was discontinued about the middle of the year, due to lack of funds. Three million five hundred eighty-four thousand two hundred and twenty-two trees were inspected in the Provinces of Tayabas, Laguna, Pangasinan, Iloilo, Cavite, Camarines Sur, and Zamboanga. Of these, 2,697 trees were found to be infested and were cut down and burnt by our inspectors, with the cooperation of the coconut grove owners, to prevent the healthy trees from being infected with the disease.

There are minor coconut pests which have done slight damage to coconut trees. One of them is the coconut leaf miner, *Promcotheca cuningi*, which has been reported from Misamis, Lanao, Cotabato, Laguna, and Zamboanga. Fortunately, however, the eggs, larvae, and pupae of this insect are parasitized, and so the pest is not usually of much consequence.

Another coconut pest, known as the "slug caterpillar" (*Thosca cinereamarginata*), broke out in the Provinces of Lanao, Cotabato, and Zamboanga. This pest, however, is naturally well controlled by three species of hymenopterous insects, which parasitize the larva of the "slug caterpillar" and by one dipterous insect which parasitizes the pupa.

Plant quarantine service.—The plant inspection service is the biggest and most important project of this division. In the Philippines we have already experienced great losses, due to the importation of plant pests and diseases. A tremendous loss will be experienced if the influx of plant pests and diseases is not checked. This country has already quite a number of foreign pests and diseases, and one of the main functions of the plant quarantine service is to prevent any further introduction.

One dangerous pest which, if introduced, would become a menace to our horticulture is the so-called San José scale (*Aspidiotus perniciosus*, Comet), an insect causing much damage in Japan, the United States, and many other countries. We have already intercepted the San José scale insect in brown pears coming from Kobe, Japan. The fruits were all thoroughly fumigated to prevent the introduction of the pest into the country.

One hundred and twenty-six plant pests and diseases were intercepted and destroyed during the year in incoming plant materials, a great number of which were not yet found in the Philippines. Where a foreign plant disease has already gained a foothold in the Philippines, administrative orders have

been issued and interprovincial quarantine has been ordered by the director of agriculture, through the recommendation of the plant quarantine board.

Entomological specimens.—Specimens handled during the year:

Identified	94
Classified according to order and family	130
Bred	45
Mounted	600
In ricker mounts, containing short biological description	23

Miscellaneous pests.—Several pests and diseases were reported this year, the most widely prevalent of the pests being two species of rice cut-worms (*Prodenia litura* and *Spodoptera mauritia*), and the ricebug locally known as "Atangia" (*Leptocoris acuta*). Inspectors were dispatched to show the people how to eradicate the pests, and printed instructions as to the methods of combating them were distributed to the farmers concerned.

Plant diseases laboratories.—The work on plant diseases has been continued as last year, especially that on the Fiji disease and the downy mildew of sugar cane. Other diseases of sugar cane known in this country, according to the plant diseases laboratories, are: Pineapple disease, mosaic disease, yellow stripe disease, top rot, Helminthosporium spot, Pestalozzia spot, red-rot leaf-killing disease, sclerotial banded disease, red vascular disease, pokkah bong, red spot, smut, rust, Marasmius root disease, sheath spot, *Phyllachora* spot, Sclerotium disease, and sooty mold. The first 13 of these, have been determined by the plant diseases laboratories, and their presence is claimed by the mycologist in charge to have been first observed in the Philippines by his department. This is the first sugar-cane disease survey ever made in the Philippines.

The work on diseases affecting abaca has been carried on by a member of the Bureau of Agriculture, under the supervision of the mycologist of the Bureau of Science. Investigations of the abaca heart-rot and of the deterioration of hemp have been carried on. The causal organism of the heart-rot has been isolated and its pathogenicity has been demonstrated by inoculation tests.

In the case of the deterioration of low grades of abaca fiber much has been accomplished, but there is still much left to be worked out. The problem was taken up by considering each of the theories advanced by the London buyers and definitely proving or disproving each hypothesis.

The theory advanced by Sir David Prain, director of the Kew Gardens, at London, that the deterioration of the fiber was due to the action of microorganisms was proved in a study made in our laboratory, whereby it was found possible to isolate 22 microorganisms from deteriorated hemp.

Studies of tobacco diseases have also been started. The resisting qualities of different varieties of tobacco to some of the serious diseases are also being determined.

Plant diseases from the field and intercepted plant materials from foreign countries are sent to the plant pathology laboratories for identification and for recommendations as to the proper control measures.

FIBER DIVISION.

The activities of this division are (a) fiber grading and inspection, (b) fiber plant investigation, and (c) propaganda work among the planters.

Fiber grading and inspection.—The enforcement of the fiber grading and inspection, as contemplated by Act No. 2380, constituted the most important function of the fiber division during the year. This law is patterned much after that adopted in the United States governing the grading and classification of hay.

It was in connection with the enforcement of the fiber grading and inspection law that the fiber division received several complaints from London. As early as the latter part of 1919 this office began to receive some complaints from London regarding an alleged defective quality of abaca being received from the Philippines, but it was not until the year 1920 that these complaints became sufficiently important to require attention.

The cause of the complaints seems to rest mainly on the depressed condition of the fiber market in Europe as a result of the World War. At the beginning some of the complaints alleged inefficiency of the government to carry on proper inspection of the fiber, but later the complaints dealt with the real or imaginary

deterioration of the fiber due to causes as numerous and as varied as the many theories presented by the London importers. In some cases the complaints were reasonable; as, for example, when the fiber received by the importers had been in storage for a long time before exportation. It is an undeniable fact that abaca fiber, long held in storage, deteriorates in strength and color, and the lower the grade the quicker the fiber deteriorates in strength.

Another ground for complaint is the admixture of "Canton" and "Pacol" with abaca of the lower grades. Canton and Pacol fibers are far inferior in strength to abaca fiber, and their admixture with the latter is prohibited by law. Being weak fibers, they can not be stripped in the fine grades, and therefore can not be mixed with abaca of the finer grades. But the case is very different when the same weak fibers are mixed with low-grade abaca, where it is extremely difficult, if not impossible, to detect the adulteration, due to the similarity in color and cleaning to low-grade abaca.

To put a stop to this adulteration of abaca which was ruining the good name of Manila hemp in London markets and to protect the interests of the foreign importer, as well as to answer suggestions from some London merchants that an immediate step be taken toward remedying the situation, there was recommended on April 28, 1921, the adoption of administrative order No. 13, which eliminates the production of low grades of abaca fiber. The order became effective on September 1, 1921. In connection with this administrative order it might be of interest to note that the net stocks of baled abaca fiber at Manila and Cebu were reduced by some 130,000 bales after the order had been in effect four months, and at the same time an increase in quotation of from three to four pesos per picul.

Grading stations and establishments.—During the year 125 fiber grading establishments were granted permits as prescribed by Act No. 2380, to classify and bale fibers in accordance with government regulations.

Abaca investigation.—Our attention was mostly confined to the testing of the tensile strength of the different grades of abaca fiber under various conditions. We narrowed our experimenting to this, believing that the cause of the deterioration of abaca fiber lies largely in the long storage of fiber both in the Philippines and abroad while waiting for a better market.

Agave.—Experimental plantings of sisal, maguey, henequen, zapupe, and other like plants have been under cultivation at our La Carlota Experiment Station. This year the collection was found to be infected with anthracnose disease. At first the sisal and henequen were not affected; but later in the year, notwithstanding the strict observance of proper quarantine measures, the infection continued to spread. The zapupe was the worst attacked.

Cotton.—Fourteen varieties of cotton were under observation at the La Carlota Experiment Station. The most common enemies of the cotton plant were scale insects and the *Dysdercus cingulatus*.

Kapok (Ceiba pentandra). The kapok trees under observation were of two groups; those grown from seeds and those from cuttings. Judged from the number of pods yielded by each tree, those grown from cuttings are more productive. As to the longevity, nothing is as yet certain. Trees of both groups are doing well. Bats are injurious to green pods.

Distribution of planting materials.—During the year, 49,860 grams of seed of abaca, cotton, jute, kapok, roselle and 20,060 suckers of maguey, Panama hat palm and sisal have been distributed.

Whether abaca (*Musa textilis*) will remain or not a natural Philippine monopoly, if no prohibitive measure is enacted, only time can tell. Already several countries have introduced abaca into their respective tropical colonies. Foremost among these are the Dutch East Indies which are now exporting abaca fiber in commercial quantities although of inferior strength as compared with Philippine abaca.

At the London Exposition last June, abaca fibers from plants grown in British North Borneo and Formosa were exhibited. The French introduced abaca in Angers, France, French Indo-China, and Tahiti; the British in British North Borneo, Straits Settlements, Federated Malay States, Lower Burma, the Bahamas, the Seychelles, Australia, and British East Africa; the Japanese, too, have plantations in Davao and Formosa. Costa Rico, Nicaragua, and Ecuador are also experimenting in abaca cultivation, and so is the National Educational Association of China at Shanghai. And lastly the United States Department of Agriculture has asked for abaca suckers to be planted in Panama.

ANIMAL INSURANCE DIVISION.

By Act No. 2573, as amended, the bureau of agriculture is placed in charge of a draft-animal insurance division under the direction of a board composed of the director of agriculture and two private persons. The policy of the law is to help the farmers operate this insurance by means of an association composed of cattle owners, which is called the Work Animal Insurance Society. At the end of the year 1921 the society had 3,888 members. During the same year 4,371 head of animals were insured, and since the draft animal insurance law came into effect there have been 8,714 head insured. 1,682 policies have expired and not renewed, 426 policies on which indemnity was paid, 11 denied payment, and 79 cases still pending the action of the board.

The financial condition of the insurance fund is as follows: The total collection of premiums during the year was ₱48,093.37 against the amount of ₱56,973.97 paid as indemnity to policies. The transactions during the year, therefore, represents a loss of ₱8,880.60. This loss was brought about principally by the outbreak of rinderpest in the Provinces of Capiz, Laguna, and Iloilo, where there were many animals insured, coupled with the general monetary crisis which affected adversely our collections of premiums, as compared with 1920. There was, however, a net gain last year of ₱13,703.92, so that on December 31, 1921, there was still a marginal gain of ₱2,411.66 to be added to the yet untouched ₱25,000 appropriated as the initial working funds of the society. As regards entrance fees, the society collected ₱5,299, and this amount was added to the regular appropriation for administrative expenses.

RURAL CREDIT DIVISION.

One of the most helpful activities the bureau of agriculture is engaged in concerns the organization in the municipalities of credit associations designed to extend small loans to needy farmers. These associations are cooperative in nature and for the mutual benefit of their members. They are essentially agricultural, inasmuch as Act No. 2508, as amended by Act No. 2566, under which laws these associations are organized and managed, does not permit the making of loans except for "exclusively agricultural purposes." Incidentally, the rural credit division helps the associations to obtain loans from banks and to fight usury.

On December 31, 1921, there were 537 incorporated associations, representing 900,000 shareholders with a paid-in capital of over ₱1,000,000, and another ₱200,000 in deposits, and another ₱1,000,000 loaned by the secretary of agriculture and natural resources to associations under Act No. 2818. The Philippine National Bank has recently made ₱500,000 available to associations for six-month crop loans of ₱2,000 each for such associations as meet the bank's conditions. Ten of the associations have a paid-in capital of ₱10,000 each, which is the limit allowed by Act No. 2508. They desire to increase their capital, but an amendment of the law has first to be adopted.

Nearly two and one-half million pesos are loaned out by the associations, the first one of which was incorporated October 16, 1916. Efforts are being made to have each association increase its paid-in capital and secure more deposits, to organize associations in as many as possible of the remaining 300 municipalities, and to improve the internal working of the existing associations.

FARM STATISTICS DIVISION.

The gathering, compiling, and publishing of farm statistics are the activities of this division.

ANIMAL HUSBANDRY DIVISION.

The activities of this division include: (a) Feeds and feeding experiments; (b) animal breeding, experimental and commercial; (c) selection, multiplication, and distribution of live stock; (d) purchase and sale of animals.

Alabang stock farm.—In addition to feeding experiments, public breeding service, and multiplication work with hogs and poultry already going on at the station, cross-breeding experiments were started during the year with different types of sheep, goats, cattle, and chickens. These experiments of course have to be carried on for a number of years before any conclusion can be drawn.

LA CARLOTA EXPERIMENT STATION.

The main activities at this station in 1921 consisted of public breeding with horses and pigs; production of poultry and eggs, young pigs, goats and sheep to be sold to the public at reasonable prices. Cattle raising—Indian and native stocks—was the main project, however. Young cattle, pure or mestizo, were also sold to the public principally for breeding purposes. Practically all the feed used, both grain and green forage, was raised at the station, which also has fairly good pasturage.

BATANGAS BREEDING STATION.

This station is more devoted to public breeding. Great interest is shown by the people in upgrading the native horses as judged from the number of services rendered by the public breeding sires and the number of half-breeds now found in the Provinces.

The Berkshire breed of hog finds more favor among the people, so do the Rhode Island Reds, the Shanghai Reds and the Cantonese chickens which are found more adaptable to the climatic conditions prevailing in this Province.

ORIENTAL NEGROS BREEDING STATION.

The most important projects in this Province are horse, cattle, swine and poultry breeding.

PANDACAN CHICKEN HOUSE.

For the production of a breed of chicken of uniform color and more adapted to the climate in this country than the Rhode Island Reds and larger than the Cantonese, cross breeding between the two breeds was begun at this station during the year. The results obtained so far do not justify a definite conclusion. Public breeding work is also going on at this station.

POULTRY-SWINE STATIONS.

There were 10 cooperative poultry-swine stations and 4 maintained by the bureau distributed among 13 Provinces. Some of the cooperative stations were closed during the year due to the shortage of funds.

Including cattle, swine, goats, sheep, poultry, and eggs, the sales of bureau animals made by this division during a year amounted to ₱24,501.40; and the live stock purchased for the bureau and other branches of the government totaled ₱45,984.15, including in this animals purchased from the United States.

PUBLICATION DIVISION.

This division is in charge of the publication of the Philippine Agricultural Review (quarterly), the Philippine Farmer (monthly), El Agricultor Filipino (monthly), and the bulletins and circulars which the bureau issues from time to time.

RECOMMENDATIONS.

It is respectfully recommended:

1. That the Philippine Legislature be asked to amend Act No. 2545, so as to increase the immunizing fee from ₱3 to ₱5 per head.

2. That section 1 of Act No. 2548 be amended so as to give the director of agriculture more authority in determining the time and place at which "all cattle and carabaos within, exported from, or imported into an infected area shall be immunized against rinderpest by simultaneous inoculation," etc. Under the present law, a previous agreement must be had between the provincial board and the director of agriculture as to the time and place of the immunization. This makes it difficult for the people to bring their animals to the immunization station, and frequently the bureau has been compelled to close up stations before all the animals in the locality had been immunized. This, in a way, defeats the object of the immunization, as it leaves a certain number of nonimmunized animals which may later become infected and spread the rinderpest to adjoining regions where the animals have not been immunized.

3. That a humid fruit station be established wherein may be assembled and improved humid climate fruit trees, such as the lanzon, mangosteen, duku,

marang, bauno, kayam, durian, rambutan, bulala, juani, gandaria, rambi, Brazil nuts and the like, and also coconuts, rubber, oil palms, and allied plants.

4. That a coffee station be established with a view to encouraging the coffee industry in the islands.

5. That a technical man be sent to Java, Sumatra, China, Japan, and India, and, if possible, to Ceylon to make horticultural and agronomical investigations in those different countries.

6. That a production and marketing section be opened up in the bureau of agriculture to take charge of the cost of production and marketing. The bureau of agriculture, being in close contact with the farmers and having at its service sufficient field personnel, is in better condition to render help to the agriculturists in the statistics of their products and marketing of same. This will require the creation of another section and consequently appropriation for it.

7. That plant-inspection houses similar to that built in front of Pier 5 be constructed at the ports of Cebu, Iloilo, and Zamboanga, and, if possible, at Jolo. A piece of land should be acquired by this bureau for isolation purposes in the ports of Manila and Zamboanga.

8. That the plant quarantine inspectors at the port of Manila be given the same privileges as are given the employees of the bureau of customs to receive extra compensation for working overtime. Oftentimes plant quarantine inspectors of this division detailed at the port of Manila work until 10 o'clock at night and whole Sundays and holidays due to arrivals of big consignments of fresh fruits and other perishable plant materials. The consignees want the inspection work expedited and are willing to bear an extra expense therefor so that they may be able to take delivery of the consignments as soon as possible. The inspectors oblige them without accepting their offers of payment, as there is no provision in the law allowing them to do so.

9. That the Philippine Legislature provide liberal funds for the purchase of animals and poultry, for the establishment of more breeding stations and stock farms, and for the proper compensation of personnel to take charge of the work.

10. That a law be enacted obliging the provincial board in every Province to set aside a certain sum of money as aid to the insular government in carrying on cooperative agricultural projects in the proportion of 1 peso of provincial fund to every 2 pesos of insular, and also a piece of land suitable for the purpose.

11. That more pensionados, having technical training and long experience in agriculture in the government service, be appointed to travel in Australia, Argentina, United States, and Europe for agricultural research.

BUREAU OF FORESTRY.

General statement.—The director of forestry, who has been on leave in the United States since March 25, 1920, reported to duty on March 4, 1921, after an absence of nearly one whole year. He commends the loyalty and efforts put forth by the entire personnel of the bureau of forestry under the trying conditions during his absence.

The acute condition in regard to personnel continued to prevail during the year. But due to financial depression and consequent business depression of many of the licensees, their business was either curtailed or closed up entirely, and thus was eased the situation to some extent during the year. This allowed the carrying on in part of the work of land classification scheduled by the bureau. Another fact that aggravated the personnel question considerably was the failure of the legislature to appropriate the necessary funds required by the special classification allowed in 1920 by the Governor General and the civil service, whereby the maximum salary of rangers was raised from ₱1,560 to ₱2,400 per annum. Again, positions made vacant in 1920 could not be filled because of the action of the emergency board which curtailed the appropriation of the bureau. This condition naturally brought about tremendous increase of work for the remaining personnel and necessitated the refusal of requests for leave. During the year 21 resignations took place as follows: Two foresters, 1 wood expert (retired), 7 rangers, 10 clerks, and 1 draftsman.

Legislation.—During the year no bills were passed affecting the bureau of forestry, although a considerable number of changes in the existing laws as well as new measures have been proposed.

Activities.—The activities of the bureau of forestry have been conducted through five divisions: Forest management, investigation, forest land and maps, sawmills and utilization, and administrative.

DIVISION OF FOREST MANAGEMENT.

The main work of the division of forest management consists in the formulating and carrying out of rules and plans for the proper protection and exploitation of the forest so that the supply of valuable forest products may not be wasted and exhausted. While the amount of work accomplished in proportion to the number of personnel is very gratifying, it was calculated that the force of the division was only 80 per cent of that which was necessary to properly handle the supervision of license areas, cañgin patrol, special use permits and illegal cutting operations in the 13 forest districts into which the whole Archipelago is divided.

Records show 2,309 licenses for ordinary timber this year, a decrease of 184 as compared with 1920. This decrease was due principally to the declining lumber business and to certain restrictions enforced by the bureau to curtail the speculative purposes of many persons. The increasing demand, however, for tanbark, dye bark, wood oils, diliman, gogo, etc., has resulted in 4,635 licenses being issued, an increase of 724 for minor forest products over those of the previous year. Gratuitous licenses also show an increase of 107 this year, 2,799 for 1921, against 2,692 for 1920. In addition to these, there were 378 licenses issued for building tobacco-curing houses.

There was a marked decrease in offenses by licensees in 1921. The most noticeable form of violation was the cutting of undersized first group trees for ties. There was also a great decrease of illegal cutting by nonlicensees. All of these reductions in offenses are attributable principally to increased efficiency in patrol work by forest guards and to the propaganda work on forest protection and conservation.

Past experience has shown the necessity of stricter control of the limited almaciga stand in the islands. As fast as data are received, therefore, license agreements will be issued in the operation of all almaciga licenses, as well as of other oil, resin, or gum products, if circumstances and other conditions permit. The present system of extracting the almaciga and balsa resins is indeed very destructive, and experiments will be made with a view of remedying present conditions on new cutting rules for the collection and extraction of almaciga.

The different uses of forest lands under section 1838 of the Administrative Code are fast becoming better known by the people, and consequently the work of the special permit section has been increased considerably during the year. There have been issued during the year 11 lease agreements, 16 ordinary fishpond and salt-work permits, 54 pasture permits, and 3 special-use permits, as compared with but 12 lease agreements, 13 pasture permits, and 1 minor license agreement granted in 1920.

In order to eliminate speculative ventures by some applicants the depositing of cash instead of personal bonds as a guaranty for the satisfactory compliance with the terms of the lease or permit has been required. This policy has a salutary effect, as it was found that out of 293 applicants only 16 had been able or were willing to make the deposit.

In the case of fishponds and salt works a bond of ₱20 per hectare was deemed sufficient, although a conservative cost estimate of replanting 1 hectare of mangrove swamp would require approximately from ₱30 to ₱60. In pasture or residence permits the payment of the annual rental in advance is the only necessary requisite, it being understood that the same will be forfeited in case of nonuse of the permit granted.

Cattle raising in the Philippines is constantly growing and will become one of the most important industries.

Permits are now being granted for grazing on public forest lands, and data collected tend to show the effects of grazing from which proper control measures may be formulated to apply to this class of permits.

A tentative plan has been prepared by which squatters on forest lands will be put under proper control. It has been the practice of many cañgineros to reside on or in the vicinity of their clearings, and in many cases they declare the area as their private property, paying land taxes therefor. At other times they do not care to pay their bit to the municipality but simply move from place to place without any permanent settlement. In order to check abuses, the bureau proposes to issue ordinary residence permits to people found residing within the forest and for the use of which very moderate rentals will be charged.

Aiming primarily to enable us to control squatters the system must in itself become a possible source of revenue from land that would otherwise remain idle.

It will, however, follow that the bulk of the work will correspondingly increase and that the necessary personnel will be required.

The suppression of the *cañgin* evil depends to a great degree on the cooperation of the municipal officials and licensees, and all forest officers will, as heretofore, endeavor to obtain that cooperation among all the people concerned. Licensees and holders of *cañgin* permits are required to report to the nearest forest officers all violations which may come to their knowledge.

The general business depression that prevailed during the year has compelled a large number of people to produce food crops by the "*cañgin*" system as a temporary relief measure, and consequently not less than 2,592 *cañgin* permits have been issued throughout the country, to which may be added the 1,602 illegal *cañgin* cases (representing some 1,500 hectares of forest land) reported, of which 673 resulted in conviction in the courts. In 1920 only 721 permits were issued and in 184 cases of violation convictions were obtained. The Government must stop this unnecessary destruction of forest, and the only way to do it is to adequately guard against it. To this end, as well as for the purpose of preventing and detecting frauds and illegal cuttings by licensees and nonlicensees, it is part of our aim in the course of the next five years to adequately increase our force of forest guards for patrol work.

The Archipelago is at present divided into 13 forest districts. During the year 4 stations were closed, but 5 new ones were opened, so that the total number of forest stations in the 13 districts at the close of the year was 61.

DIVISION OF INVESTIGATION.

The division of investigation is located at Los Baños, Laguna, and its activities may be briefly enumerated as (a) field and laboratory research; (b) experimental district control; (c) special projects; (d) publication; and (e) forest school.

The administration of the Makiling National Botanic Garden was transferred to this division in the early part of the year, and the reconnaissance work carried on during the year was confined to this region. The class of 1922 of the school of forestry spent the months of April and May in an intensive reconnaissance on four conventional blocks of the botanical garden around the forest school, during which considerable mapping and timber estimating were accomplished. The stand per hectare in the four blocks varied from approximately 126 to 174 cubic meters. It is the plan to continue this work in the succeeding years till the entire area of the botanic garden shall have been covered.

All the work done on dendrology was in connection with the instruction given in the forest school. All available data are being gathered in order that the records may be brought up to date and obsolete names eliminated and replaced with the correct common and scientific names. Additional collections for the forest school herbarium were made and considerable material was obtained from the Manila office. At present there are on hand 2,528 botanical specimens, representing 114 families, 490 genera, and 1,069 species.

No work of an investigative nature was done this year in lumbering, due to lack of personnel and funds. As to the minor forest products, the study on mangrove swamps as outlined and used in 1920 was continued this year. Various species of rattan have also been studied to determine their character and qualities for various uses, as well as the most efficient method of reproducing them. The increasing demand for charcoal for various uses has led to the starting of work on the manufacture of this material, inasmuch as very little is known of the properties of the charcoal from the various Philippine tree species. Two charcoal kilns were constructed at the forest school. Charcoal obtained from the various species is being analyzed by the organic chemistry department of the College of Agriculture. This material will also be sent to various firms in Manila, which use charcoal, particularly those companies that use producer gas in internal-combustion engines. It is also planned to send material to the Forest Products Laboratory at Madison, Wis., to determine whether any of this charcoal will be of value in certain industries of the United States. Specimens of and pertinent data on other miscellaneous products, such as gums, resins, oils, etc., have also been gathered during the year, and some of the materials have already been analyzed.

The engineering work carried in 1920 was continued this year, and considerable was accomplished, particularly in topographic and type mapping, establishing of additional bench marks, differential leveling, and the prelimi-

nary location of a trail on Mount Makiling. The wood specimens in the durability tests were examined again this year. The remaining pieces were buried anew for further study in 1922. The wood sample collection was greatly increased during the year, and at present there are 1,281 hand specimens of native woods and 480 foreign specimens.

In forest management and silviculture activities have been conducted principally on—

(a) Growth studies, in which a large number of trees comprising eight principal species were measured.

(b) *Reforestation*.—This work this year has been greatly handicapped due to lack of funds. It was, however, possible to make an inspection of some of the plots for the purpose of determining possible extension and improvement work to be done in the future. It has been discovered that the problem of reforestation in the Provinces of Ilocos Sur, Ilocos Norte, and Zambales is only solved by affording proper means of protection from fires and grazing. The work of reforesting Corregidor was started on June 16, 1921. After putting the project in good running order, it was left with the military authorities for continuation. It may be said that next to the actual administration of the Philippine forests reforestation is the most important single problem with which we have to deal.

(c) *Nursery*.—The area devoted to this work in the grounds of the forest school has been improved considerably during the year by additional planting, the construction of a nursery house, and the installation of a pipe line to all parts of the area.

(d) *Arboretum*.—New plantings are being made in the arboretum from time to time as material becomes available.

(e) *Reproduction studies*.—The 13 plots, 6 of which were established in 1913, were inspected.

(f) *Seed collection and distribution*.—More seed was received this year than in 1920. The field force is to be complimented for its cooperation. However, the bureau is still unable to meet the demands. Among the seeds received were one lot of *Hydnocarpus hutchinsonii* and one of *Hydnocarpus anthelmintica* (family Flacourtiaceæ), the former from Basilan Island and the latter from the Jardin Botanique, of Saigon, China. These seeds yield a very excellent substitute for chaulmoogra oil.

(g) *Plant accessions and distribution*.—Seven thousand one hundred plants were received from the forest nursery, Baguio, College of Agriculture, and the bureau of agriculture, and most of them were redistributed to various places for planting. During the year 35,950 plants, including timber and ornamental tree species, bamboos, palms, vines, and herbs, were distributed.

(h) *Plantations*.—Cost records of seed collection and planting were continued during the year.

The Baguio station has not only continued its work of preparing seeds and transplant beds, manuring, cleaning, mulching, making nursery frames and seed flats for the propagating house, but also has been instrumental in beautifying the city through cooperation with the city authorities.

In addition to the various studies mentioned under other headings, work has been started on a complete silvicultural investigation of several commercial timber species, teak, molave, narra, yacal, and lumbang. This will be continued and additional species taken up. Some important information has already been obtained. Studies on forest entomology have also been started this year in cooperation with the College of Agriculture.

Publication.—Volumes I and II of Bulletin No. 22, "Minor Forest Products," were issued during the year, while Volume III is at present in press. The preparation of a handbook for forest rangers has also been commenced, and the work will probably be ready for press by June, 1922. Besides, it is hoped to transfer the Mountain Echo to Los Baños for publication, thus making it the official organ of the division of investigation and the forest school.

Forest school.—The school work was resumed on January 10, 1921, after the Christmas vacation, and the commencement exercises for the 1920-21 class took place on the 19th of March. The diplomas were presented by Acting Governor General Yeater. There were 15 graduates, and every one of them entered the service of the bureau of forestry.

The school year 1921-22 opened on April 11. The enrollment at present consists of 25 seniors and 26 juniors; 2 of the seniors and 4 of the juniors are British North Borneo pensionados. In the class of 1923, two are Igorrotes.

Unlike the previous years, all classes were taught at the forest school this year. No work was given to the College of Agriculture on account of the

loss of time in going to and fro. Furthermore, the College of Agriculture was unable to give any outside courses due to lack of instructors. No vacancies have occurred in the forest school faculty this year. On the contrary, two new members have been added to the staff—Harold Cuzner, professor of dendrology, and Justino Seguerra, assistant in forest engineering and management. A number of improvements of a more or less permanent nature have been made at the school during the year, which contributed considerably to both the beauty of the site and the efficiency of the institution.

The advanced course leading to the degree of bachelor of science in forestry was approved by the university council and the board of regents during the year, but the course could not be conducted due to lack of sufficient personnel and equipment. It is hoped that the work may be started by June, 1922. From the year 1912 to December, 1921, there have graduated from this school 219 students, 10 of them from China and 2 from Guam.

DIVISION OF SAWMILLS AND UTILIZATION.

Lumbering.—While financial and market conditions existing during the year have brought about a slight decrease in lumber sales as compared with 1920, the production at the mills at which regular scaling is carried on has shown material increase. Reports from 21 companies show the following figures for the year:

Year.	Log scale.	Mill tally.	Sales.	Forest charges.
	<i>Cu. m.</i>	<i>Cu. m.</i>	<i>Cu. m.</i>	
1920.....	309,737.28	221,286.15	218,694.54	₱264,308.58
1921.....	352,368.53	228,503.26	195,331.10	322,010.56

Scaling and grading.—There is great need of providing an adequate corps of permanent grade scalers employed on civil service status. During the year there were 52 mills in operation on license areas, but regular scaling of all timber cut could be carried on at only 26 of them. Through also lack of funds and personnel, no progress has been made in lumber grading work.

Local market.—In spite of the low prices prevalent during the year, there seems to be confidence in the future lumber market and an underlying demand for lumber, which will create a very active market if the continued large production by the mills in operation and the interest in installation of new mills are an indication.

The volume of lumber sold by the 21 companies from which regular reports are received shows for 1921, 82,820,386 board feet against 92,726,486 for 1920, while the production for 1921 was 96,886,230 board feet as compared with 93,825,353 board feet for 1920.

Foreign market.—The exports during 1921 were less than those of 1920 by some two and one-half million board feet, while imports have shown a sharp increase. Much of the import was made up of 90,000 ties (about 5,000 cubic meters) from the United States for sugar centrals. There was a sharp increase in exports to Australia, Hongkong, China, Japan, and British Indies, but those to the United States have decreased some 8,000 cubic meters (3,392,000 board feet) during the year. The total exports for 1921 amounted to 27,807 cubic meters or 11,790,168 board feet, with a value of ₱1,574,664, against 32,694 cubic meters or 13,862,256 board feet, valued ₱1,834,297 for 1920. On the other hand, the lumber and timber imported into the Philippines amounted to 25,157 cubic meters or 10,666,568 board feet, valued at ₱912,545, against 18,488 cubic meters or 7,838,912 board feet, valued ₱761,930 for 1920.

Utilization section and working collection.—There were a number of new projects taken up during the year. Prominent among them were experiments on wood preservation which are being conducted in cooperation with the Atlantic, Gulf & Pacific Co. In these preliminary treatments by pressure processes, it was found for the first time that apitong (*Dipterocarpus* sp.), the most abundant structural timber of the islands, lends itself easily to impregnation, more so than the lauans, due to the comparative absence of thyloses in the pores. Several hundred paving blocks and railroad ties were treated, and as much as 17 pounds absorption per cubic foot has been ob-

tained. The blocks and railroad ties will be tested for durability by the city of Manila and various railroad companies.

One of the drawbacks in the use of molave, ipil, and other naturally durable woods is the prohibitive cost, which amounts to about 45 centavos for each block of 3 by 8 by 5 inches in size. Another objection is that molave and other first group woods, when used for paving blocks, are too hard, and during the rainy season, the paved streets become so slippery that they have to be covered with sand to prevent the horses, etc., from sliding. This, as will be seen, not only endangers the lives of horses and men, but also increases the cost of maintenance. Apitong, on the other hand, while not as durable as molave, contains those properties which are desirable in paving blocks—moderate hardness, strength, and susceptibility to treatment. It might be added in this connection that the common species used in the United States, where traffic is much greater than in this country, is Douglas fir (Oregon pine), the strength values of which are much lower than apitong, being only equivalent to our white lauans. Furthermore, the blocks are smaller, being only 3 to 4 inches high as compared with 5 inches ordinarily used in this country. The cost of treatment can not, as yet, be given as the tests were made on a small scale; however, an idea may be obtained from available data of treating plants in the United States, where the cost of treating a square yard of 4-inch blocks amounts to ₱1.10, assuming the cost of oil injected into the wood to be 2 centavos per pound and 16 pounds per cubic foot.

The use of creosoted paving blocks is almost universally adopted in all modern cities the world over. Coal-tar creosote is a strong antiseptic, and as large quantities of it are injected into the wood, it follows that its presence alone tends to keep the streets in a healthy and sanitary condition. Creosoted paving blocks are durable; they are superior to molave in durability once treated and wear slowly, amounting to about one thirty-second of an inch on soft wood blocks a year. Streets are easily repaired and the surface can always be kept smooth at a very low cost. They are noiseless and for this reason are desirable in congested business districts. As a result of these preliminary tests which are now being made on a semicommercial scale, this company is seriously considering the establishment of a large treating plant for preserving native woods. Studies are also being made on the microscopy of the Philippine woods, and there are now in preparation permanent mounts of the most important of them. Another work taken up during the year was a detailed study of the shaft industry. Experiments are now being planned to determine the bending qualities of native woods. Data along this line are valuable for a possible bent-wood furniture industry similar to Vienna products.

There have been received during the year 458 botanical specimens, 134 of which were collected with wood specimens. Among the most notable additions to the collection were ample materials of "Manggasalakag" (*Hydnocarpus hutchinsonii*), the seed of which contain chaulmoogra oil, a specific cure for leprosy. Foresters stationed in Mindanao, especially in Basilan, have located numerous trees, and these are now being protected. The botanical specimens lost in the fire of 1920 carnival are now gradually being replaced.

Identification, grading, and inspection.—The number of specimens submitted by lumbermen, forest officers, and others dealing in wood ran into several hundreds. There were also 87 specimens from Sumatra for identification. There have been numerous requests by local lumbermen to certify the identity of samples which they submitted to their dealers abroad. The amount of timber inspected and measured during the year was 686,127 board feet, distributed as follows: Logs, 371,135; piles, 137,994; and lumber, 176,998 board feet. These figures do not include shipments of timber, of which only identification was wanted.

DIVISION OF FOREST LANDS AND MAPS.

Public forest land cases.—The lack of mutual understanding between provincial fiscals and forest officers led the bureau of forestry to request the attorney general to issue a circular which would lead to uniform procedure. The fiscals were instructed in Circular 366 of August 23, 1921, to confer with the forest officers who reported violations of the forest law or who were entering opposition to the alienation of forest lands by private individuals, with a view to strengthening the case for the government instead of dismissing it because of insufficient evidence. The fiscals were also directed to notify the bureau of forestry promptly whenever a case was completed.

There were 40 cadastral and 918 ordinary cases handled during the year, covering 165,873 hectares of land. On December 31, 1921, there were but 16 cadastral and 31 ordinary cases, involving approximately 89,152 hectares.

Private forest land registration.—Thirty-seven certificates of registration of private forest land for 53 parcels of land with a total area of a little over 11,552 hectares were issued during the year in accordance with the provisions of section 1829 of the administrative code. This brings the total number of private woodlands to 1,194 parcels, representing 440,027 hectares.

To the many difficulties raised in the administration of the forests by those whose only claim to forest land is a tax receipt, a more serious obstacle was introduced this year by the legal interpretation of the provisions in sections 1513 and 1829 of the administrative code. Ambiguity has arisen over the interpretation and application of the expressions "Forest" and "Forest land," as well as lands more valuable for forest purposes. The bureau of forestry is endeavoring to clarify the situation by amending the law in order to make it conform to a progressive forest policy.

Land classification.—In consonance with the spirit of the new public land act, more attention has been given to the delimitation of public forests and the segregation of public land areas which are alienable or disposable. To further this work, a committee consisting of representatives of the bureaus of lands and forestry has been appointed by the secretary of agriculture and natural resources, whose duties are to study and recommend a plan for a closer and more efficient cooperation between the two bureaus in the questions affecting the adequate disposition and adjudication of public lands. During the year 5,282 applications were received, of which 305 were certified for agriculture, 27 for forestry, and 18 returned uncertified.

Forest reserves and zones.—During the year three forest reserves were established as per proclamations No. 28, 40, and 42, and another one was proposed but is still pending final action. The forest reserves established are at Port Banga, Zamboanga, Mount Banahao, Tayabas, and Mount Arayat, Pampanga. In connection with the land classification, forest zones were established in the regions already classified in order to separate the lands that are retained by the bureau of forestry for forestry purposes.

Communal forests.—There have been established 95 new parcels, with a total area of about 10,322 hectares, as communal forests in 55 municipalities. These bring the total since 1908 to 811 parcels, containing 129,777 hectares. Twenty parcels, representing 4,301 hectares, have, however, been canceled during the same period of 14 years.

It is the plan of the bureau of forestry to handle the communal forests so that they will not only furnish building material and forest products for the present but also in the future. It is hoped that these forests will be developed into sites for silvicultural experiments and that they will serve for the recreation of the people and become centers for educating the people regarding the benefits of forests.

Mapping and drafting.—For the purpose of compiling an up-to-date forest map of the different regions of the Philippines, forest officers are required to make topographical notes and valuation surveys in their respective districts in addition to their numerous duties relating to the administration of public forests. For the first nine months of the year the total of trail notes taken was 13,087.95 kilometers, with 1,137.74 hectares of forest valuation, distributed in the 13 forest districts. A large number of progressive communal forest, land classification, and miscellaneous minor maps have been completed during the year.

ADMINISTRATIVE DIVISION.

This division has under its control the following sections, besides having direct supervision over all clerical work of the bureau: Accounting, property, records, library and translation, general service, and district clerks. Due to the economy measure which has been strictly observed, the clerical personnel of the bureau of forestry has been overworked. Property amounting to about ₱2,795.26 was dropped from the records of this office during the year through sale, loss, and condemnation. The average monthly collection of the property clerk, who also acts as cashier and disbursing officer for the Manila office, amounted to ₱14,000 during the time of the renewal of timber and minor forest products licenses. The difficulty of securing clerks for the forest district stations has continued during the year. It was very difficult to secure efficient

clerks for this kind of service on account of the low salary which the bureau is authorized to pay them. Until a more reasonable pay can be offered for these positions this condition will continue.

RECOMMENDATIONS.

That the policy of permanent forest reserves be given greater impetus:

That the legislation affecting communal forests be changed to give them the status of forest reserves:

That forest legislation now in force be made clearer so as to delegate authority of enforcing it to the director of forestry:

That at least six forest experiment stations be established throughout the islands:

That a forest products laboratory be provided for the division of investigation:

That funds be made available for adequate reforestation of watersheds:

That the government urge the necessity of higher technical training in forestry at the forest school to the board of regents of the university:

That the salaries of the personnel of the bureau be on the same plan as other technical bureaus:

That the personnel, particularly in the ranger group, be increased to adequately handle the work; and

That a permanent corps of forest guards, having at least third-grade civil-service status, be allowed.

BUREAU OF LANDS.

Since October 16, 1921, Judge Cayetano Lukban, director of lands, has been on leave of absence. Since that date Assistant Director Carballo has performed the duties of the director. On December 9, 1921, the appointment of Mr. Lukban as judge of the court of first instance for the second judicial district was confirmed by the senate.

The most important function of this bureau, in the first place, is the execution of laws relative to public agricultural lands. Taking into consideration the small number of titles issued by the Spanish Government, which, in practically all cases, contain very vague descriptions, the great difficulties confronting the bureau of lands become at once apparent, because to carry out the requirements of the law the bureau of lands has to delimit both the lands of the public domain as well as those of private ownership, a work which requires a tremendous amount of funds and a great number of personnel, covering, as it does, the entire Philippine Islands. Therefore, at the same time that the bureau of lands administers public agricultural lands belonging to the government, the survey and registration of titles under the so-called Torrens system (Act No. 496) are also given impetus.

During the last few years, and because of the prosperity brought about by the war, applications for public lands have considerably increased. Such increase may also be due to the increasing knowledge of the people regarding the advantages of homestead. If to the number of these applications those pending decision or patent in previous years are added, it will be seen that the land problems which the bureau of lands has to solve every year are proportionately increased in number.

The causes of these problems which became complicated as years passed by may be summarized as follows:

1. Declaring portions of the public domain for taxation which are later applied for by others through homesteads, sales, leases, or free patents.

2. Bad faith on the part of the applicants in filing their applications knowing that the lands thereby covered are already taken up by other applicants.

3. Neglect and acquiescence of owners of private lands coupled with the desire to take advantage of the ignorance of public-land applicants and to get the benefit of the applicants' labor after the lands have been cleared and cultivated. The systematic procedure followed by these owners of private lands is to have their claims surveyed and applications filed for registration in court, including in their applications hundreds of homesteads in some cases.

4. The greed of some notaries public, "procuradores judiciales," and local officials to earn money through litigation. They instigate conflicts between

public-land applicants themselves and between these applicants and private claimants.

5. Neglect of public-land applicants to comply with the regulations relative to cutting trails and placing posts or stakes on the land applied for, thereby misleading other applicants to believe that said land is still vacant, or voluntary destruction of the posts or stakes by some one.

6. Professional land grabbers, who have full cognizance of the law. They would cheat, rob, perjure, bribe, and falsify documents to get possession of the land of honest and well-meaning applicants.

The facilities which the government gives to the people through the aid of the bureau of labor to emigrate from one Province to another have contributed greatly to the better distribution of population in those Provinces which are less densely populated. This naturally produces the result of populating uninhabited regions of the islands and disposing of all public lands therein to the homeseekers.

The bureaus of lands and forestry have never received, since the beginning of their foundation, sufficient funds for the purpose of carrying out a systematic delimitation and subdivision of public lands so as to facilitate their disposition to the people.

The following tabulation will show the annual appropriations of the bureau of lands:

Year.	Appropriations.	Expenditures.	Balances.	Friar lands.		Collection.
				Number of hectares sold.	Value.	
1910.....	P1,106,418.82	P1,090,442.92	P15,975.90	16,424.9609	P2,831,652.19	P735,298.60
1911.....	¹ 1,119,846.92	1,120,473.39	(626.47)	7,585.2158	1,425,233.02	840,232.17
1912.....	¹ 1,444,003.52	1,206,224.32	237,779.20	6,518.2328	939,911.40	830,002.43
1913.....	² 732,769.94	711,076.18	21,693.76	3,279.6612	447,071.83	1,468,985.10
1914.....	1,347,792.50	1,301,769.87	46,022.63	2,220.6480	338,154.30	903,277.06
1915.....	1,055,262.91	1,049,264.50	15,998.41	1,006.5489	168,551.02	867,618.97
1916.....	1,237,988.03	1,118,220.08	119,767.95	4,449.8174	602,035.99	1,415,204.30
1917.....	1,146,628.42	1,098,598.49	48,029.93	3,054.5540	666,655.00	1,243,557.03
1918.....	1,152,233.72	1,134,564.26	17,669.45	6,117.9916	1,040,582.93	1,197,022.01
1919.....	1,470,185.09	1,152,037.67	318,148.42	5,561.6678	874,439.57	1,226,325.53
1920.....	1,556,413.66	1,528,974.32	27,439.34	20,314.3134	2,324,383.34	1,388,357.98
1921.....	1,558,127.00	1,526,377.41	31,749.59	3,923.9253	417,596.91	945,004.34

¹ Fiscal year ran from July 1 to June 30 of the next succeeding year.

² The data refer only to the time between July and Dec. 31, 1913.

In this connection it must be remembered that during the last three years, while some increase in the appropriation has been obtained, yet the cost of labor, transportation, and materials during this period were practically thrice as high as in the previous years so as to probably more than offset said increase. And still in the case of surveys, the cost per lot has been considerably diminished despite the high cost of labor, transportation, and materials and the much higher degree of precision now required. Moreover, all corners of a survey have to be monumented, even though they number more than 100, whereas in the earlier years only corners 1 and 2 had to be monumented.

However, the action of the legislature in approving a slight increase in the appropriation of the bureau in spite of the determination to cut down the expenditures of the bureaus, has been a great help.

Personnel and organization.—The employees are as a rule greatly underpaid, and it has been next to impossible for the bureau of lands to retain the services of most of its old and experienced personnel.

Act No. 2935 provided for 646 positions, and the year began with 522 and ended with 554. The number of temporary employees paid from the lump-sum item of the appropriation was 349. There were 201 new appointments and 153 separations. Of the latter, 100 resigned, 39 were dropped, 7 were dismissed, and 7 transferred to other offices.

No important change in the organization and general functions of the bureau took place during the year. Due to lack of space in the Oriente Building, a branch office on Calle Felipe II, Binondo, was rented during the last part of the year.

LAW DIVISION.

Notwithstanding the economic depression and financial crisis during the year, the number of records of registration cases that were received in this division for examination and proper action did not suffer considerable reduction. Neither did its other activities diminish. On the contrary, it filed during the year about three times as many registration cases of a cadastral nature as the previous year.

Judicial confirmation of imperfect or incomplete titles (Ch. VIII, sec. 45(b), Act No. 2874).—During the year 569 records of applications for registration of lands in which the applicants sought the benefits of section 45(b) of Act No. 2874, were received from the different courts of first instance. Those applications cover 17,585.3544 hectares, more or less, and were acted upon by this division as follows:

No opposition	488
With opposition	81
Total	<u>569</u>

Reasons for opposition:

No titles filed with the expediente to justify claim.....	57
Land is part of public domain.....	2
Difference in area between land desired to be registered and that described in the muniments.....	2
Occupied by homesteaders.....	8
Creeks included in the application.....	2
Land inside civil reservations.....	10
Total	<u>81</u>

Registration cases where the benefit of possession was not applied for.—The following shows the action taken by this division upon receipt of the notification of hearings of cases where the applicants did not apply for the benefit of section 45(b) of the act aforementioned:

No opposition.....	1,052
With opposition.....	52
Total	<u>1,104</u>

Reasons for opposition:

No title filed with application.....	43
Land of the public domain.....	3
Creek included in the application.....	1
Occupied by homesteaders.....	4
Land inside military reservation.....	1
Total	<u>52</u>

Applicants:

Private individuals.....	1,053
Religious corporations.....	1
Other corporations and associations.....	3
Municipalities and municipal districts.....	37
Total	<u>1,104</u>

Compulsory registration (sec. 50 of Act No. 2874).—There were 22 petitions for the institution of compulsory registration cases filed during the year.

Cadastral cases (sec. 1855 of the revised Administrative Code in connection with Act No. 2259).—There were 112 petitions prepared in the law division during the year 1921 under the provisions of section 1855 of the revised administrative Code and filed in the different courts of first instance.

Forfeited lands.—There were forfeited during the year to the government for failure to pay the land taxes 7,885 parcels of land, 1,716 of which were repurchased by the former alleged owners upon payment of taxes and penalties, 122 were canceled, and 5 were sold.

Public lands division.—This division is in charge of the disposition of agricultural public lands belonging to the government. For better understanding of the increase of its activities, there is transcribed herein the following tables, submitted by the director of lands in his annual report:

Year.	Law division, imperfect titles.		Public lands division.				
	Number of applications.	Area in hectares.	Homesteads.		Sales.		Lease applications received.
Applications received.			Patents issued.	Applications received.	Patents issued.		
1910.....	405	23,642.1568	2,210	1	63		66
1911.....	688	38,330.2094	2,995	1	164	2	73
1912.....	456	21,815.0255	3,706	27	220	3	120
1913.....	496	38,525.0000	4,962	106	353	4	96
1914.....	606	39,826.0259	5,552	160	337	4	98
1915.....	582	43,276.0000	7,466	515	431	7	78
1916.....	677	52,624.2113	8,198	192	354	1	103
1917.....	730	32,920.4349	8,922	322	683	3	166
1918.....	778	26,250.4114	8,259	309	716	14	317
1919.....	854	37,680.6728	7,026	326	732	1	237
1920.....	1,114	35,620.2037	9,561	739	1,025	5	332
1921.....	569	17,585.3544	6,672	835	573	15	137

Year.	Public lands division.					Surveying division, cadastral surveys filed in courts.		
	Free patents.		Reclaimed lands.		Fore-shore lease applications received.	Revo-cable permit to occupy shore.	Number of lots.	Area in hectares.
	Applica-tions re-ceived.	Pat-ents is-sued.	Applica-tions received.	Ap-proved.				
1910.....		133	22	18	5		1,070	604
1911.....		191	4	3	1		6,477	2,596
1912.....	8	358	3		9		9,925	14,101
1913.....		465	2		8		14,669	6,697
1914.....	1,191	523		2	10		45,317	63,362
1915.....	1,375	1,906			14		17,134	107,893
1916.....	1,137	2,117	1		14	2	11,857	86,136
1917.....	1,819	475	11	2	15	23	17,687	105,364
1918.....	1,203	258	11	3	13	14	15,187	48,092
1919.....	562	306	12	10	7	3	12,813	61,639
1920.....	670	1,071	26	8	17	15	38,802	88,448
1921.....	767	887	7		21		112,089	402,251

HOMESTEADS.

The decrease in the number of applications for public lands received during the year may be attributed to, first, the depression in our economic situation; second, the realization by the public that no stability whatever is offered by the government to the possession of their land holdings due to lack of means for determining the status of the land, thus resulting in the majority of cases either that two or more applicants contest for the same piece of land, or that afterwards it is found that the land is private property; and third, that applications in regions not open to disposition can not be acted upon and are held pending. Only 6,672 homestead applications were received during the year against 9,561 of the year 1920, a decrease of about 3,000 applications.

There were received during this year 68 additional applications covering an area of 409,5885 hectares. The total number of additional homestead applications filed from January 1, 1920, up to December 31, 1921, is 100, covering an area of 639,2092 hectares. All of these applications, except one which has been canceled, are still pending action.

There were pending at the beginning of 1921, 728 protests, of which 166 were decided during the year, thus leaving 562 pending of the previous protests, and 1,036 pending at the end of the year 1921.

The number of patents issued during the year has surpassed all previous records. The record of homestead patents, 517 in 1915, had never been equaled before, but during 1920 it was broken with 739 patents. However, during the year 1921, 835 homestead patents were issued.

The number of provisional permits issued during the year greatly exceeded that of the year 1920, and was 1,343, covering a total area of 24,820.4531 hectares of land, there being in all 1,489 provisional permits issued up to December 31, 1921, covering a total area of 27,315.2096 hectares.

In accordance with the provisions of section 21 of Act No. 2874, 119 applications for the transfer of rights and improvements were received in this office during 1921. Of these 10 were approved.

It must be borne in mind in connection with the disposition of public lands that the public-land law places such lands under reservation until opened again to disposition by the Governor General. The purpose of this disposition is to avoid the increase of the number of conflicts involving public lands, in view of the results obtained under the old law of public lands. The main object of the new law is not to open any public land to disposition until after same has been delimited by the bureau of forestry and surveyed and subdivided by the bureau of lands. If within the portion so delimited private claims exist, then the validity of such claims are first tested in the courts. However, the bureau of lands, in view of its lack of sufficient means to delimit, survey, and subdivide public lands previous to their disposition, has adopted the policy, since the new law came into effect, of issuing provisional permits for the occupation and improvement of public lands applied for pending final delimitation, survey, and subdivision.

SALES APPLICATIONS.

Only 573, covering an area of 26,550.4063 hectares, were filed during the year. No award was made on any application received during the year 1921, while 17 were canceled.

Seventeen sales applications from corporations covering an area of 10,271.5928 hectares were filed during 1921. None of these applications has been approved, while 3 were canceled, and 2 were granted provisional permits to enter upon and cultivate the land. Only 1 application filed by a corporation (Southern Island Agricultural Co.) covering an area of 1,024 hectares has been approved during 1921. The members of the corporation are all Americans. Also 1 patent has been issued during the year to a corporation applicant, the Kolambagan Lumber Development Co. The area patented was 37,9822 hectares.

At the end of the calendar year 1920 there were 2,309 applications pending. Of these, 100 have been acted upon, 35 approved, and 65 canceled, so that 2,209 pending applications in 1920 were left over with the same status at the end of the year 1921, there being a general total of 2,765 applications pending at the end of 1921.

It should also be noted that the year 1921 showed a decrease in the number of applications approved. This was due mainly to the failure of the applicants to make the necessary deposit to defray the cost of advertisement. The deposit required is ₱130.

The Provinces so far open for disposition under the provisions of section 7 of the new public land Act No. 2874 are Cagayan, Isabela, Nueva Vizcaya, Mindoro, Agusan, Cotabato, Davao, Lanao, Sulu, Zamboanga, Bukidnon, Nueva Ecija (Vaca Valley), and the municipalities of Guinayangan and Calawag, Province of Tayabas. Three hundred and thirty applications have been received from these Provinces.

During 1921 35 applications, covering an area of 1,399.6090 hectares, were approved. The total selling price was ₱21,721.73, ₱5,750.11 of which has been actually paid.

Seventeen approved applications covering an area of 406.8739 hectares were canceled during 1921. The amount actually paid on these applications was ₱2,223.32, ₱1,672.55 of which amount was forfeited to the government and ₱550.77 refunded to the applicants.

Fifteen applications were patented during 1921 as against 5, during 1920. While, therefore, there was about 44 per cent decrease in the number of applications received during 1921, there was, however, 300 per cent increase in the number of applications patented. Fifty-nine patents have been issued up to December 31, 1921, covering an area of 5,102.9712 hectares.

One hundred and thirty-nine provisional permits were issued during the year, covering 9,168,6712 hectares.

Thirty-four protests have been received during the year 1921 against 22 applications and 12 entries during 1920. Only 2 of these protests have been acted upon and were both sustained, leaving 32 pending. Fifty-three protests were left over as pending at the end of the year 1920, 7 of which have been decided against the protestants during 1921. There were, therefore, left over as pending at the end of the year 1921, 78 protests.

LEASES.

The causes hereinabove mentioned for the decrease in the number of public lands applications are greatly responsible for the decrease of more than 100 per cent in the number of applications received during 1921. Only 137 lease applications were received as against 332 in 1920, resulting in a decrease of more than 100 per cent. None of the applications has been approved, while 8 were canceled. Three of the applications were filed by corporations. At the end of the calendar year 1920 there were left over as pending 842 applications. One hundred and eighty-seven of them were canceled during the year, 1 was reinstated, and 7 were approved, leaving a general total of 778 applications pending at the end of the year 1921.

While in the case of sales applications the bureau could not act upon as many as it ought to, due to the failure of the applicants to make the necessary deposits for publication, in leases the same difficulty is found in the deposits for survey. Lease applicants to-day are requested to deposit an amount equal to the estimated cost of the survey, and unless said deposit is made the survey is not ordered. Many applicants were unable to meet the expense and for that reason many applications are pending survey.

As stated above, 7 leases were approved during the year as against 4 during the preceding year, covering an area of 2,323,8095 hectares, with a total annual rental of ₱1,628.85, or an average annual rental of ₱0.70 per hectare. There were, therefore, 124 approved leases at the end of 1921, covering an area of 44,729,3595 hectares, with a total annual rental of ₱36,547.80, or an average of annual rental of ₱0.80 per hectare.

Fifty-seven provisional permits covering an area of 27,358,8495 hectares were issued during the year. It is believed that the number of provisional permits would have been doubled if the issuance thereof for the Provinces of Nueva Ecija, Tarlac, and Nueva Vizcaya had not been suspended.

The number of protests received during the year was 17; three were dismissed, leaving 14 pending. Of the 11 protests at the beginning of the year, one was dismissed. Hence, there were 24 protests at the end of the year.

RECLAIMED LANDS.

Probably due to the commercial inactivity during 1921, only 7 applications for reclaimed land were received—2 from Cavite, 1 from Davao, 1 from Iloilo, and 3 were for lots in the Manila reclamation No. 1, commonly known as the port area. The applications from Cavite and Iloilo were canceled because the tracts of land applied for were not reclaimed land.

Of the applications left over as pending in 1920, 10 were canceled and none has been approved. This is due to the fact that it is not known whether the applications from the different Provinces, with the exception of Cebu and Manila, cover reclaimed land. Due probably to the ignorance of the applicants of the classification of public land, they made their applications in the forms used for reclaimed, foreshore, and marshy land leases. For that reason their applications were registered as reclaimed-land applications. It is presumed that most of these applications cover lots suitable for residential but not for commercial and industrial purposes. Of the subsisting leases in 1921 there were canceled during the year:

Lease No.	Name of lessee.	Block No.	Area in square meters.	Annual rental.
40	Mariano Velasco & Co.	51	3,904.53	₱995.66
41	.....do.....	55	5,002.41	1,913.42
29	Philippine Manufacturing Co.	50	3,904.53	1,493.48

The first two were canceled because of the failure of the lessee to make the improvements and the last at the request of the lessee.

FORESHORE AND REVOCABLE PERMITS.

The year 1921 surpassed the preceding year in the number of foreshore lease applications received, 21 having been filed during 1921 as against 17 in 1920. None of the new applications has been approved while 3 were canceled. There were left over as pending in 1920, 47. One of these has been canceled and 3 were approved, leaving 61 pending at the end of 1921. Those approved are the following:

Lease No.	Name of lessee.	Location of land.	Annual rental.
21	Earnshaws Docks & Honolulu Iron Works.....	Manila Bay.....	P800
32	Atkins, Kroll & Co.....	Zamboanga.....	50
33	Tomas Alonzo.....	Cebu.....	1,000

The number of applications acted upon during 1921 was rather small. This is due to the fact that it has been found that in many cases the tracts applied for were not foreshore and the purpose for which the same will be used is not that intended by the law for foreshore land. In many cases blank forms for foreshore lease applications were used when the land borders a sea, a lake, or a navigable river, although the land was intended for the construction of dwelling houses or bodegas.

No application for revocable permit to occupy foreshore has been received in 1921. Two applications pending in 1920 were canceled during 1921, so that 13 were left over as pending at the end of the year 1921. Also 2 approved permits were canceled during the year.

Miscellaneous sales and leases.—Applications made under the provisions of section 56, subsection (d), and sections 66 and 67 of Act No. 2874 are classified and registered as miscellaneous sales or lease applications, as the case may be. Generally the tracts of land taken up under subsection (d) of section 56 are for residential purposes.

During the year 33 miscellaneous sales applications were filed, all of which are still pending. Of the pending applications at the end of the year 1920, 1 was approved in 1921.

Five miscellaneous lease applications were filed in 1921. One was canceled and none approved. Two of those pending in 1920 were canceled in 1921, so that there were still 12 applications left over as pending on December 31, 1921. No miscellaneous lease application has as yet been approved.

When the Provinces where these applications came from are opened for settlement in accordance with section 7 of the Public Land Act No. 2874, the applicants will probably be requested to file sales instead of lease applications.

PRIVATE PROPERTY OF THE INSULAR GOVERNMENT.

No application to lease land of the private property of the insular government has been received during 1921. Of the 3 applications pending in 1920, 2 were canceled in 1921, leaving only 1 pending. The subsisting leases are as follows:

Lease No.	Name of lessee.	Location of land.	Annual rental.
1	The Philippine Islands Telephone & Telegraph Co....	Manila.....	P1,200.00
4	Simmie and Grilk.....	Muelle de la Industria, San Nicolas, Manila.....	3,300.00
6	Luzon Brokerage Co.....	Madrid, San Nicolas, Manila.....	900.00
8	City of Manila.....	Ermita, Manila.....	240.00
9	Municipal Council of San Juan del Monte.....	San Juan del Monte, Rizal..	12.00
10	Producers' Warehouse Association.....	Manila.....	1,446.30
12	Evaristo Francisco.....	Pandacan, Manila.....	435.00
13	Enrique de Marcalda.....	.....do.....	600.00
14	Oriental Theatrical Co.....	Manila.....	2,000.00
15	Methodist Episcopal Church.....	Manila.....	780.00

FREE PATENTS.

There were received during the year 1921, 767 free patent applications, an increase of 97 over that of the previous year. Two of said newly received applications have been canceled, leaving 765 pending action. Of the 10,800 applications filed in previous years, which were pending action at the beginning of the year 1921, 67 were canceled and 887 patented, thereby leaving 9,846 which, in addition to the 1 reinstated application of the canceled applications of the previous years, gives a total of 9,847 pending action at the beginning of the year 1921. Adding 9,847 to 765 applications we have a grand total of 10,612 pending action at the end of the year 1921.

During the year there were 887 patents issued, while in the year 1920, 1,071 were recorded as issued, and comparatively there has been a decrease of 184 patents during the year 1921.

There were received during the year 64 protests. This number includes both conflicts and claims, of which 1 was sustained and 6 dismissed, thereby leaving 53 claims pending action at the end of the year 1921. The 4 conflicts received during the year are still pending action, so that 57 is the total number of protests and claims pending action at the end of the year.

Of the 41 claims and conflicts filed in previous years, 6 were dismissed and 35 still remain pending at the end of the year 1921. Combining 41 claims and protests filed in previous years and 64 protests and claims filed during the year 1921, we have a total of 105 protests and claims filed at the end of the year, of which 92 remain pending, 12 were dismissed, and 1 was sustained.

DIVISION OF SURVEY.

With practically equal appropriation and the same personnel as the previous year, and without appreciable changes in the organization made except the shifting of some members of the personnel by assigning them to other branches of the bureau where they can render the maximum service to the people, the division of surveys has been able to increase its activities, as may be seen from the following brief comparative summary of its accomplishments.

Cadastral surveys filed in courts.

Year.	Number of cases filed.	Number of lots.	Area in hectares.	Percentage of increase over previous year—	
				In lots.	In area.
1919.....	21	12, 813	61, 621	.....	.....
1920.....	50	36, 346	89, 725	184	46
1921.....	121	112, 089	402, 251	208	348

Cadastral projects field work completed.

Year.	Number of projects.	Number of lots.	Area in hectares.	Percentage of increase over previous year—	
				In cases.	In area.
1919.....	15	24, 086	126, 646	.....	.....
1920.....	22	64, 154	144, 767	47	12
1921.....	34	51, 431	190, 642	55	38

Public lands and private surveys—General totals.

	Number of surveys.	Area in hectares.	Cost.	Cost per lot.
Miscellaneous surveys completed:				
1919.....	5,468	89,861	P163,438.29	P17.47
1920.....	7,185	156,543	358,615.74	36.49
1921.....	9,532	127,287	376,556.54	26.58
Free patents:				
1919.....	332	1,036	11,672.51	36.14
1920.....	2,049	9,025	54,958.68	26.51
1921.....	789	2,287	22,862.44	28.05
Homesteads:				
1919.....	457	5,340	30,198.32	64.53
1920.....	1,319	15,183	63,148.56	43.82
1921.....	1,627	19,121	77,329.14	48.66
Isolated surveys, section 45, Act No. 2874:				
1919.....	271	8,660	40,209.90	50.45
1920.....	351	9,147	46,685.12	62.41
1921.....	263	14,920	46,997.77	78.85

Verification of private surveyors' plans.

Year.	Number of surveys.	Number of parcels.	Area in hectares.	Cost.	Cost per lot.
1919.....	3,693	7,234	56,094	P34,544.68	P4.78
1920.....	2,489	4,409	90,490	26,970.33	6.12
1921.....	5,745	10,957	47,327	46,997.77	4.85

For a better understanding of the activities of this division, the following tabulation from the report of the director of lands is here inserted:

Year.	Public lands division.			Surveying division— Cadastral surveys filed in courts.		
	Reclaimed lands.		Fore- shore leases, applica- tions received.	Revoca- ble permit to occupy shore.	Number of lots.	Area in hectares.
	Applica- tions received.	Ap- proved.				
1910.....	22	18	5	.....	1,070	604
1911.....	4	3	1	.....	6,477	2,596
1912.....	3	.....	9	.....	9,925	14,101
1913.....	2	2	8	.....	14,669	6,697
1914.....	.....	.....	10	.....	45,317	63,362
1915.....	.....	.....	14	.....	17,134	107,893
1916.....	1	.....	14	2	11,857	86,136
1917.....	11	2	15	23	17,687	105,364
1918.....	11	3	13	14	15,187	48,092
1919.....	12	10	7	3	12,813	61,639
1920.....	26	8	17	15	38,802	88,448
1921.....	7	.....	21	.....	112,089	402,251

Year.	Surveys.	Parcels.	Area in hectares.	Cost per parcel.	Cost per hectare.	Average area per parcel in hectares
1910.....	.....	3,070	4,604	.....	.....	.....
1911.....	3	5,687	6,871	P2.79	P2.31	.....
1912.....	3	8,215	6,434	5.71	15.17	0.29
1913.....	35	17,118	22,722	16.18	10.69	1.32
1914.....	.....	48,380	164,684	8.06	2.37	3.40
1915.....	.....	17,456	128,246	26.78	3.65	7.35
1916.....	.....	12,983	84,198	46.64	6.64	7.03
1917.....	113	44,617	134,064	11.38	3.79	3.00
1918.....	.....	52,341	108,610	12.27	5.92	2.07
1919.....	.....	24,086	126,646	30.88	5.87	5.26
1920.....	.....	64,154	144,767	10.24	4.54	2.2
1921.....	.....	112,089	402,251	14.05	3.92	3.5

During the year efforts were concentrated in expediting the accumulated survey work of the bureau by assigning and appointing more personnel in the Manila office. For this reason no new regular cadastral project was inaugurated during 1921 except the Malolos Cadastre, where the provincial and municipal authorities voluntarily voted to help the financing of the survey by appropriating the sum of ₱11,300 for the direct payment of laborers and field supplies.

The field forces confined their activities within the limited pay roll allowances allotted to them, which did not enable them to extend their field work as usual. All available surveyors were detailed in making public lands surveys and in the delimitation and subdivision of big tracts of public lands, the most important of which are those located in the municipalities of Pinamalayan, Mindoro, and Solano, Nueva Vizcaya.

The first annual convention of surveyors and public lands inspectors took place from February 7 to 12, 1921. The convention proved to be very instructive to those who attended it and very advantageous to the bureau, as its objects have been realized and a mutual understanding between members of the field forces and those in the Manila office fostered.

Survey parties.—During the first part of the year there were 38 survey parties operating in the Provinces, but, due to lack of appropriation and the completion of their projects, two parties were disbanded.

Cadastral surveys.—At the end of the year 1921 there were 434 cadastral cases covering 350,568 lots, with an aggregate area of 1,244,842 hectares, completely surveyed in the field and the returns received in the Manila office for verification, preparation of plans, and filing in the respective courts.

Of the above 176 cases covering 130,295 lots, with a total area of 372,332 hectares, have been decided by the courts, which is equivalent to 42 per cent of the total number of lots and only 31 per cent of the total area surveyed. The plans as amended by the orders of the courts were forwarded to the general land registration office in all decided cases.

During the year 1921 only 14 cases covering 9,462 lots, with an area of 36,401 hectares, were finally decided by the courts, the final amended plans of which were sent to the general land registration office, as compared with 30 cases covering 27,010 lots, with an aggregate area of 42,847 hectares, of the previous year.

Since the inauguration of cadastral surveys there have been filed in the courts 384 cadastral cases, covering 304,736 lots, with an aggregate area of 980,426 hectares, of which 208 covering 174,441 lots, with an area of 608,094 hectares, are still in the hands of the courts and the hearings thereof are still pending or in progress. Exception should be made of La Paz, case 2, Tarlac, the amendments of which were in progress in this office at the end of the year. It is estimated that only 10 per cent of the total number of lots in the hands of the courts were decided.

As tabulated in the brief summary of work accomplished, there were 121 cadastral cases filed in the courts during the year 1921, covering 112,089 lots, with an area of 402,251 hectares, as compared with only 50 cases covering 36,346 lots, with an area of 89,725 hectares, during the previous year, showing increases of 208 per cent in the number of lots and 348 per cent in the total area filed. The number of cases filed was about two and a half times that of the year 1920.

On the other hand, there were 34 projects of municipalities completed during the year 1921, covering 51,431 lots, with an area of 190,642 hectares, as compared with 24 covering 64,154 lots, with an area of 144,767 hectares, during the year 1920, showing a slight decrease in the number of lots completed. There was, however, a big gain in the number of projects and area surveyed during the year over that of the previous year.

Cadastral costs.

Total cost of cadastral surveys up to Nov. 30, 1920, plus 10 per cent surcharge.....	₱5, 343, 437. 71
Cadastral cost for Dec. 1-31, 1920, plus 10 per cent.....	72, 973. 48
Cadastral cost during the year 1921, plus 10 per cent.....	917, 309. 11
<hr/>	
Total cost of all cadastral surveys expended up to Dec. 31, 1921.....	6, 333, 720. 30

Of the above amount only ₱556,655.76 was distributed by the courts. The sum of ₱348,501.76 was certified by this office to the general land registra-

tion office as final cadastral costs without being distributed. Sixty more cadastral cases, costing ₱5,059.84 were certified to the same office before submitting this report, making a total of ₱1,293,561.60 which is ready for distribution to the land owners, Provinces, and municipalities concerned, and can not be collected unless the courts and the general land registration office distribute the same to the interested parties.

The total cost of the 208 cadastral cases in the hands of the courts which are not yet decreed is ₱2,301,377.40. The total cadastral collections for each year from 1914 to 1921, inclusive, was only ₱161,251.65.

The amounts received each year were as follows:

Year.	Amount collected.	Amount not collected each year.	Year.	Amount collected.	Amount not collected each year.
1914.....	¹ ₱13,722.43	₱16,195.38	1919.....	₱24,465.76	₱126,211.88
1915.....	8,324.71	30,813.25	1920.....	18,307.92	160,026.82
1916.....	22,341.77	46,761.14	1921.....	19,271.65	207,021.47
1917.....	29,271.49	56,271.85			
1918.....	25,545.92	103,814.17	Total.....	161,251.65	.....

¹ Total from previous years.

Needless to state, the responsibility in the collection of these amounts depends entirely upon the provincial treasurers. This department, however, has been informed that the matter has not always received the cooperation of said treasurers.

Private surveyors and their surveys.—There were 28 practicing surveyors who were given certificates of authorization during the year 1921, making a total of 318 authorized surveyors in the Philippine Islands at the end of the year, as compared with only 280 at the end of the previous year.

Of the 28 authorized, only about 20 have definitely decided to engage in private practice, and the rest are still connected with the government service, except 1, who is studying in the University of the Philippines.

For several years there has been an accumulation of verification work of private surveyors in this office, due to the tremendous increase of survey work turned in by private surveyors from year to year, considering the fact that their number has been constantly augmented, due to the separation from the government service of a considerable number of surveyors and to those who pass the private and civil-service surveyor and civil engineer examinations, who are, as a general rule, entitled to certificates of authorization.

Upon the termination of the field work of cadastral surveys it became necessary to detail a great number of the personnel of the Manila central office of the bureau of lands to the cadastral survey plans, and those left to attend to the surveys submitted by private surveyors were necessarily insufficient.

The comparative work of private surveyors received and completed and on hand for the last two years is as follows:

Year.	Surveys received.	Surveys completed.		On hand at end of year.
		Surveys.	Parcels.	
1920.....	5,373	2,489	4,409	4,551
1921.....	5,126	5,745	10,957	3,932

It is expected, however, that the verification work for private surveyors can be kept up to date within the first six months of the year 1922 by assigning more personnel to this class of work if the additional positions authorized in the appropriation for 1922 can be filled.

PUBLIC LANDS.

Isolated public lands surveys.—In order to remedy, to some extent, the embarrassing condition of this bureau, due to lack of appropriation, beginning with the year 1920 the policy of expediting public-lands surveys simultaneously with and to the sacrifice of the general progress of cadastral surveys has been adopted. The result of this policy was evidenced by the fact that the work accomplished by the division of surveys on homesteads and free patents during the two preceding years has been almost equivalent to the total number of surveys completed since the organization of this bureau up to and including the year 1919. The survey of 5,140 homesteads with an aggregate area of 60,626.25 hectares, costing ₱283,122.34, and 9,675 free patents of 31,119.65 hectares in area at a total cost of ₱304,961.34 has been completed from 1906 up to and including December 31, 1921, by the division and turned over to the public lands division for the issuance of the corresponding titles. Of the total of 14,815 homestead and free patent surveys, patents for 12,223 lots have already been issued, while the remainder have been held pending due to adverse claims inside the lots applied for or to the fact that the surveys thereof had been ordered in advance. During the year 1,627 homestead surveys, of 19,121 hectares, and 789 free patent surveys, of 2,287 hectares, were completed.

The number of surveys on hand on January 1, 1922, was 8,645, of which 1,784 homestead and 2,107 free patent surveys were on file in this office and 3,478 homestead and 1,276 free patent surveys were in the field, pending execution.

Of the 8,645 homestead and free patent applications, already in this division awaiting surveys, 1,277 lots are within cadastral projects, 679 of which have already been completed by this bureau, but the plans thereof have not as yet been requested by the public lands division, while the remaining 598 are in the various sections pending completion. It is evident, therefore, that 7,368 applications are pending execution, which should be attended to by surveyors in the field during the year 1922. It is conservatively estimated that 120 surveys can be completed by a surveyor within a year, so that it will require at least 62 surveyors to accomplish the surveys on hand this year.

Added to the above, there are 23,349 applications for homesteads and free patents which are expected to be turned over from the public lands division to this division for investigation and survey as shown by the following:

20,122 homestead applications approved at the end of the year 1916, which means ready for survey, more than five years having elapsed since their approval.

19,319 free patent applications ready for investigation and survey at the end of the year 1921.

39,441 homesteads and free patents ready for survey at the end of 1921.

23,460 applications already in this division. (14,815 surveyed; 8,645 pending survey.)

15,981 applications expected to be turned over to this division by the public lands division during the year 1922.

7,368 applications pending execution already in the surveying division.

23,349 homestead and free patent applications to be handled during the year 1922.

With the policy of expediting the delimitation and subdivision of public lands in view, no cadastral projects were inaugurated during 1921, but in lieu thereof two cadastral survey parties, after the completion of their projects, were transferred to Bongabon, Mindoro, and Solano, Nueva Vizcaya, for the delimitation and subdivision of public lands therein which had been previously classified by the bureau of forestry. Besides the survey parties in the Department of Mindanao and Sulu, there are five survey parties engaged in the execution of public lands delimitation and subdivision in Occidental Negros, Nueva Ecija, Camarines Norte, Mindoro, and Nueva Vizcaya.

The public lands subdivisions whose field work was entirely completed during the year 1921, were as follows:

Province.	Municipality.	Bureau of lands cadastre No.	Number of lots surveyed.	Area in hectares surveyed.	Total field cost.
Sulu.....	Maimbung.....	58	629	4,094	P14,155.76
Lanao.....	Dansalan.....	63	2,103	2,000	23,492.44
Zamboanga.....	Lamitan.....	74	474	4,577	17,901.85
Do.....	Lambil Island.....	77	20	184	1,036.52
Do.....	Sibago Island.....	78	19	193	939.66
Do.....	Coro Island.....	79	13	78	589.50
Agusan.....	Butuan.....	84	427	2,000	15,366.60
Davao.....	Davao.....	102	1,074	31,700	42,265.04
Cotabato.....	Tuguis.....	152	244	2,000	26,676.05
Bukidnon.....	Simaya and Nabago..	158	233	5,000	14,412.76
Agusan.....	Nastpit.....	169	707	3,678	25,711.18
Total.....			5,933	55,504	182,547.36

The following shows the public lands subdivisions in the Department of Mindanao and Sulu whose field work is still in progress:

Bureau of lands cadastre No.	Location.	Date inaugurated.	Number of lots surveyed.	Area in hectares surveyed.
59.....	Parang, Sulu.....	May 15, 1915	2,700	17,000
99.....	Daho, Sulu.....	Dec. —, 1916	2,200	32,000
107.....	Dulauan, Cotabato.....	June —, 1917	2,543	19,430
111.....	Taraka, etc., Lanao.....	May —, 1917	2,367	4,227
121.....	Butuan-Cabadbaran, Agusan.....	Nov. —, 1917	694	8,000
153.....	Kraan, Cotabato.....	Mar. —, 1919	50	750
159.....	Panamau, Sulu.....	Jan. —, 1920	535	8,200
175.....	Tugbok, Davao.....	July 1, 1920	530	14,700
			11,619	104,307

Since the enactment of the public land act No. 2874 and in accordance with the provisions of section 7 thereof, the Governor General has issued proclamations opening the public lands in the following regions to concession and disposition:

Proclamation No.	Date.	Location.	Remarks.
20.....	Apr. 3, 1920	Pinamalayan, Mindoro.....	Survey in progress.
32.....	Aug. 20, 1920	Lala, Kapatagan, Kolambugan, Lanao.....	Survey pending.
40.....	Oct. 9, 1920	Vaca Valley, Nueva Ecija.....	Surveyed 11,417 hectares.
50.....	Nov. 4, 1920	Calapan, Mindoro.....	Partly surveyed.
51.....	do.....	Guinayangan-Calauag, Tayabas.....	
61.....	Nov. 20, 1920	Saug, Kiamba, Cotabato.....	Survey pending.
63.....	Dec. 15, 1920	Whole island of Mindoro.....	Portion inaugurated.
64.....	do.....	Whole Province of Nueva Vizcaya.....	Survey pending.
65.....	do.....	Whole Province of Cagayan.....	Do.
66.....	do.....	Whole Province of Isabela.....	Small portions in each Province surveyed.
67.....	do.....	Whole Provinces of Agusan, Bukidnon, Cotabato, Davao, Lanao, Zamboanga, and Sulu.	

At the request of this bureau, the bureau of forestry has notified this office that the following regions have already been classified and the agricultural public lands therein are ready for delimitation and subdivision by this bureau:

Province.	Municipality.	Approximate area in hectares.	Remarks.
Mindoro.....	Calapan.....	28,499	Entire jurisdiction of Calapan.
Do.....	Bongabon.....	17,080	Area between Tambong and Bongabon Rivers.
Nueva Ecija.....	do.....	7,840	Area between Santor, Pampanga, and Digmala Rivers.
Camarines Norte.....	Labo.....	6,022	Area located between Labo River and Alinae Creek, southwest of Labo.
Occidental Negros.....	San Carlos.....	33,357	Municipalities of San Carlos, Vallehermoso, La Castellana, and Murcia.
Nueva Vizcaya.....	Bayombong, Solano, Bagabag.....	21,765	Agricultural public lands, Sitios Murong to La Torre.
Lanao.....	Solambugan.....	1,024	Applied by Southern Islands Agricultural Co.
Tayabas.....	Guinayangan and Calauag.....	21,226	
Do.....	Baler.....	27,000	Report of forestry board pending.
Cagayan.....	Whole Province.....	290,000	Do.
Isabela.....	do.....	300,000	Do.
Total.....		753,813	

The bureau of forestry has also finished the classification of the following places in compliance with the request of this bureau:

Province.	Municipality.	Approximate area in hectares.	Remarks.
Camarines Sur.....	Tinambac and Calabanga.....	33,809	From Bicol River to Lupi River.
Leyte.....	Capocan.....	4,000	Municipality limit.
Occidental Negros.....	abankalan.....	28,000	Report of forestry bureau pending.
Samar.....	Gandara.....	9,820	Municipalities of Gandara, Tarangan, and Catbalogan.
Sorsogon.....	Irosin.....	1,616	Municipality limit.
Total.....		77,245	

Besides those mentioned above which have already been classified, the inspecting surveyors of this bureau have located agricultural public-land tracts within their respective districts, with a total area of approximately 635,918 hectares, which can be subdivided into 26,330 homesteads containing 24 hectares each. Of the total area located only about 5 per cent is undergoing survey.

In order to grasp an idea, more or less concrete, of the voluminous work of delimitation and subdivision of public lands awaiting action of this bureau, approximate data are inserted herein as follows:

Classified by the bureau of forestry, 831,058 hectares.

Conservatively estimated to be private claims, 299,802 hectares.

Unclaimed agricultural public lands awaiting delimitation and subdivision, 531,256 hectares.

Cost per hectare, conservatively estimated, which is the mean of the cost to this bureau per hectare in Mindanao and Luzon Islands, ₱5.

Calculated total cost of unclaimed agricultural public-lands surveys, ₱2,656,280.

Total allotment for 1921 for the division of surveys, ₱1,239,276.69.

Twenty per cent of the above allotment exclusively for the delimitation and subdivision of public lands, as recommended, ₱247,855.34.

It has been estimated that it will take at least 12 years for this bureau to complete the delimitation and subdivision of public lands already classified by the bureau of forestry at the end of 1921.

There are so many immigrants rushing from the crowded Ilocos Provinces, Pangasinan and Tarlac, into the Province of Nueva Vizcaya, that their applications for public lands therein overlap one another, there not being sufficient public lands to accommodate them. The home seekers that can not settle in Nueva Vizcaya must have some outlet, and by reason of their geographical locations the Provinces of Cagayan and Isabela are naturally the places to which they migrate to find their new homes. It is consequently obvious that delimitation survey parties in these two Provinces should be assigned to inaugurate the delimitation and subdivision of public lands therein which have already been classified by the bureau of forestry.

Financial statement.—Deducting the overdraft of the previous year, amounting to ₱40,680.93, the total available appropriation for the year was ₱1,517,446.07 and the total expenditures ₱1,526,377.41, there being an overdraft of ₱8,931.34. The income during the year was ₱1,064,704.70, as against ₱962,660.14 during the previous year.

RECOMMENDATIONS.

1. Inasmuch as the pending work of this office in the execution of isolated public lands surveys alone which have already been classified by the bureau of forestry is sufficient to keep the present technical force of the government busy at least within the next 12 years, it is recommended that more funds be appropriated for this class of work in order to carry out effectively the provisions of the public land act No. 2874.

2. It is believed that the actual sources of revenue of the government are not sufficient to finance the extension of the cadastral system to the 387 municipalities that have made formal applications therefor to date. It is recommended that the reimbursable system of carrying out cadastral projects as provided under section 1857 of the Administrative Code be authorized, which in the opinion of the undersigned can be done administratively by the Governor General and the insular auditor. It is believed that the private surveyors will not be financially able to handle satisfactorily for many years to come this enormous work without the cooperation of the government.

3. For the purpose of accelerating the opening for entry and disposing of the public lands as contemplated under the provisions of sections 7 and 8 of act No. 2874, it is recommended that funds for at least four more delimitation parties be made available at the earliest opportunity. The present survey parties will have to devote their whole time to cadastral and public lands surveys now pending execution in the bureau of lands.

BUREAU OF SCIENCE.

Mr. E. D. Merrill, director of the bureau, returned from the United States and reported for duty on March 2, relieving Mr. R. C. McGregor, who was acting director during Mr. Merrill's absence.

There have been few changes in the personnel. Among the most important during the year were the following:

Dr. A. W. Sellards, of the Harvard Medical School, was appointed on a one-year contract and reported for duty on July 28. Dr. Crisanto Panganiban, a pensionado, returned from the United States and assumed his duties in the Serum Laboratory at Alabang on March 28. Mr. Charles S. Banks, chief, entomology division, returned from leave spent in the United States on May 2. Miss Asuncion Sandoval, a temporary scientific assistant, metropolitan water district, was detailed to work in the water laboratory of the bureau of science.

In the division of organic chemistry, Dr. H. I. Cole and Dr. Bernard Nelson were appointed. Doctor Cole reported for duty on February 4, and Doctor Nelson on February 23. Dr. A. P. West resigned on June 30. Mr. Ramon Feliciano, a pensionado, returned to Manila in May. Mr. Wells, chief of this division, returned from leave of absence in the United States and reported for duty on December 12. The contract of Dr. W. D. Smith, chief, division of mines, expired on September 14, and was renewed for a period of one year. Mr. H. G. Schenck returned to the United States on the expiration of his contract on September 15. Mr. Victoriano Elicaño was reinstated as geologist on August 1.

On March 2, Mr. Elmer D. Merrill, director of the bureau of science, after an absence of several months in the United States on leave, again assumed his duties as such.

GENERAL CONDITIONS.

In spite of the financial stringency existing during the year and the general retrenchment policy of the government the work of the bureau has progressed in a fairly satisfactory manner. It has been able to handle not only the routine matter but also to do a reasonable amount of research work, while its income has shown an increase from ₱224,757.97 in 1920 to ₱268,702.77 in 1921. For the first time in the recent history of the institution all authorized positions were filled, this being possible through the policy pursued by the council of state in granting additional special contracts for technical men.

While during the past year the technical personnel has been stronger and somewhat more numerous than for several preceding years, the fact should not be lost sight of that in certain departments the technical staff should be increased by providing additional positions and securing the services of additional technical men for research problems.

For some years past there has been a tendency to increase routine and decrease research. Neither should be developed at the expense of the other. The term "routine" is perhaps unfortunate, for much of this work involves a high degree of technical training and ability on the part of members of the bureau of science staff charged with the work, especially in connection with advice and assistance extended to various individuals, corporations, and other government units regarding industrial, technical, and public-health questions with which we have to deal.

There has also been a tendency to increase the manufacturing aspect of our work, which is unavoidable, especially in the operations of the serum laboratory, and in the manufacture on a large scale of tikitiki extract for the treatment of beriberi and of the chaulmoogra-oil derivatives for the treatment of leprosy. These manufacturing projects demand space and make inroads on the time of the technical personnel in devising means to supply the demands and in supervising the manufacturing processes. The chief handicap in this is that, for operating these purely manufacturing processes, the bureau is entirely dependent on funds secured by appropriation, while all income derived from sales reverts to the insular treasury as government revenue.

THE NEW SERUM LABORATORY AT ALABANG.

The serum laboratory of the bureau of science was moved to Alabang, 25 kilometers from Manila, the latter part of March and actual operations in the manufacture of serums and vaccines were commenced early in April. While the plant is not yet perfect, it compares very favorably with similar institutions abroad so far as its general equipment is concerned. For its specific purposes, which are really the function of a Pasteur institute, the serum laboratory is admirably located, and in the immediate future should be able very radically to increase its output of serums and other biological products. For the establishment and equipment of the serum laboratory at Alabang great credit must be given to Dr. G. Apacible, ex-secretary of agriculture and natural resources, for his consistent support.

The standard products manufactured in the serum laboratory include: Antitetanic serum, antidysenteric serum, normal horse serum, vaccine virus, cholera vaccine, typhoid and paratyphoid vaccine, dysentery polyvalent vaccine, bacillus coli vaccine, gonococcus vaccine, staphylococcus albus and aureus vaccine, streptococcus vaccine, and the materials necessary for the Pasteur antirabic treatment.

The importance of this new laboratory to the bureau of science after repairs and improvements made upon the old buildings belonging to the bureau of agriculture, the former occupant of the property, is that the bureau of science is now in a better condition to develop its activities along this line. The bureau can now carry a much greater number of live stock which can be maintained largely on forage grown at Alabang, thus increasing its production without materially increasing its expenses.

Up to the present time, owing to the limited facilities available in Manila, the bureau of science has never been able to produce certain essential serums in sufficient quantity to meet all demands. A notable example of this is antidysenteric serum, the demand for which invariably increases at the beginning of each rainy season. We have at times been obliged radically to restrict the sale

of this product on account of the lack of reserve supplies, and at times have been unable to supply all that the Philippine General Hospital needed. With ample space now available at Alabang, not only for laboratory and manufacturing purposes but also for the maintenance of the necessary live stock, the bureau of science should be able to produce all standard types of vaccines and serums in sufficient quantities to meet local demands.

NEW TESTING LABORATORIES.

With the transfer of the serum laboratory to Alabang it became possible to rearrange the testing laboratories in the concrete outbuildings then vacated, and for the first time in the history of the bureau of science the testing machinery is assembled as a convenient working unit.

PASTEUR ANTIRABIC TREATMENT.

The antirabic treatment has been given free as in past years, the serum being prepared in the serum laboratory. In May there were several cases of hydrophobia in Manila, with a resulting increase in the demand for treatment. The total number of individuals treated in Manila was 526, while 350 treatments were sent to provincial points in response to requests received through the Philippine health service, which has cooperated by directing all persons bitten by dogs, cats, etc., to apply to the bureau of science for the Pasteur treatment. In a number of cases the animals' brains examined presented the characteristic Negri bodies indicative of hydrophobia. Since the Pasteur antirabic treatment was initiated in the Philippines by the bureau of science in 1911, 3,408 individuals have been given the treatment either at the bureau of science or at provincial points. The last two years have shown radical increases in treatments as the accessibility of the treatment becomes better known. From 1911 to 1919 the maximum number was 453, in 1919, which increased to 771 in 1920, and 876 in 1921.

INDUSTRIAL FELLOWSHIPS.

The general proposition of industrial fellowships as developed by the Mellon Institute of Industrial Research of Pittsburgh, Pa., was approved. Although no fellowships were arranged for during the year 1921, at the end of the year advances were made by the Philippine Sugar Centrals Agency with the view to establishing such a fellowship for the benefit of the Philippine sugar industry.

CENTRALIZATION OF SCIENTIFIC WORK.

The bureau of science was organized for the specific purpose of avoiding duplication in government agencies in reference to scientific work. Properly to prosecute scientific work and to determine the most practicable and efficient routine methods involves ample library facilities, thorough laboratory equipment, competent technical personnel, and adequate financial support. The objects for which the bureau of science was organized have been attained and in an efficient manner. There has been little duplication of effort through government agencies, and as a result a vastly greater output of productive work than could have been possible had the present work of the bureau of science been scattered in several independent units. The success of the idea has been appreciated by the French authorities in Indo-China, and the organization of the Institution Scientifique in Saigon accomplished, which is in part modeled on the bureau of science. During this year, on request from the Governor of Ceylon, full data regarding the organization of the bureau of science were supplied to him, as it has been proposed to organize a similar institution in Colombo in the interests of economy and efficiency. These data are of distinct interest at the present time and are pertinent to the question as to whether the bureau of science shall be maintained as such or merged with another institution.

COOPERATION.

It is difficult to express in words how close and how essential to the public service as a whole is much of the work of the bureau of science, Much of the work which is done is in cooperation with other government units, and it is the policy of the institution to cooperate to the greatest possible extent with all government units needing the services or the advice of our technical personnel.

Naturally the bureau of science is in very close touch and cooperation with the Philippine health service, the bureau of agriculture, the bureau of forestry, the bureau of public works, the metropolitan water district, the bureau of commerce and industry, the University of the Philippines, and the Philippine General Hospital, and with the United States Army.

In reference to private parties and corporations, some cooperative work was done with a group of Japanese fishermen. Laboratory space and library facilities have been supplied to the geologists of the Richmond Petroleum Co. as well as to individuals interested in botany, zoology, etc.

Funds have been supplied by Messrs. Dickerson and Taylor to enable the bureau to carry on field work in zoology and by Mr. O. Ames in prosecuting field work in botany. In botany close cooperation is maintained with the bureau of forestry. With institutions outside of the Philippines systematic work in botany has been done for Nanking University, Nanking, China; the Canton Christian College, Canton, China; College du Protectorat, Hanoi, Indo-China; the botanic garden, Singapore; the forestry departments at Kuala Lumpur, F. M. S., and at Sandakan, British North Borneo; and with the Smithsonian Institution, Washington, D. C. Through arrangements approved by the Peking Union Medical College and the Rockefeller Foundation, Miss Hartley Embrey was authorized to spend two months at the bureau of science for the purpose of carrying on an investigation of local food products from a dietary standpoint.

PEKING MEDICAL CONFERENCE.

In connection with the dedication of the buildings of the Peking Union Medical College at Peking, China, and the accompanying medical conference held under the auspices of the Rockefeller Foundation September 15 to 22, 1921, Prof. Frank G. Haughwout was sent as an official delegate, whose traveling expenses in view of the exhausted funds of the bureau were raised by private subscription among the technical staff of the bureau of science, among business men interested in medical-survey work, and lastly through a generous donation of the required balance by the Rotary Club of Manila.

DIETARY STUDIES.

Through an arrangement suggested by Dr. Victor G. Heiser, of the International Health Board, Miss Hartley Embrey, of the Peking Union Medical College, was brought to Manila in November for two months' work on this subject, Miss Embrey volunteering her services, the bureau of science paying her actual traveling expenses. In this connection, the Woman's Club of Manila supplied a fund of ₱500 to cover incidental expenses in connection with Miss Embrey's work.

The problem was the working out of a cheap, practical, and nutritive diet for Filipinos based on available foods with the view to prevention of such diseases as beriberi and scurvy. A large series of feeding experiments were carried on in testing the antiscorbutic vitamins (water-soluble C) in native fruits and vegetables.

A careful study was made of coconut press cake, which was found to be rich in protein and to contain antineuritic vitamins (water-soluble E), which prevent beriberi. Under her direction combinations were made of coconut press cake, mongo beans, and low-priced vegetables, and 32 palatable recipes were worked out. The results are to be made available in a series of press bulletins.

Material in bulk has been prepared for a further series of feeding experiments to be carried on by Miss Embrey after her return to Peking. The necessary data have been secured and are now being compiled for a popular series of bulletins on detailed diets by Provinces, based on the common food products available in each Province.

In November Miss Embrey made a short trip to the Culion leper colony for the purpose of investigating the diet there, which was found to be very deficient.

SPECIAL CONTRACTS.

The director of the bureau of science states that the present method of contracting with technical employees is highly unsatisfactory. While the civil-service rules provide two or three year contracts, yet so long as there is no revision in the civil-service salary schedule, special-contract employees can be secured only on one-year contracts renewable each year, subject to legislative appropriation.

PENSIONADO STUDENTS.

At the present time we have eight pensionado students in the United States: Dr. Onofre Garcia, Dr. Antonio Garcia, Mr. Ramon Abarquez, Mr. Leopoldo A. Faustino, Mr. Antonio Alvir, Mr. Pedro Sengson, Mr. Salvador Fernandez, and Mr. Vicente G. Lava. During 1921 two pensionados returned: Dr. Crisanto Pañaniban, veterinarian, serum laboratory, who arrived on March 2; and Mr. Ramon Feliciano, organic chemist, who returned on June 1. Mr. Ramon Abarquez was granted additional time of six months from August, 1922. Drs. Onofre Garcia and Antonio Garcia are expected to return in September and October, respectively, and Mr. Leopoldo A. Faustino in December, 1922. No new pensionado students were appointed during 1921. The absence of these men has been a distinct handicap, as this has reduced our productive force by eight men. On their return, however, their services, due to their specialized training, will be of very much greater value than would otherwise be the case.

SYMPOSIUM.

In August there was commenced a symposium, meeting at the bureau of science in the evening once every two weeks for a discussion of the whole subject of the origin and relationships of life in the Philippines. These meetings have been regularly attended by the members of our staff as well as by members of the University of the Philippines staff and other residents of Manila interested in geology, paleontology, ethnology, zoology in its broadest sense, and botany. The subject has been considered from the broadest possible angle, and a large mass of data has been compiled on geology, paleontology, ethnology, botany, and zoology bearing on the general subject. The data remain to be correlated and prepared for publication. The meetings are still being held and will be continued until the subject is exhausted. The distribution of living plants and animals in the Philippines and the indicated relationships of the fauna and flora of the archipelago with the fauna and flora of other regions can only be explained by taking into consideration all possible factors, including paleontological and geological data, evidence of previous land connections, etc. The discussions have largely served to clarify numerous points in reference to the origin of the primitive peoples of the Philippines, their probable paths of migration into the archipelago, as well as similar data in reference to zoological and botanical relationships.

BIOLOGICAL LABORATORY.

Among the few changes in the personnel of this division during the year 1921 was the appointment of Dr. A. W. Sellards, of the Harvard Medical School under a one-year contract. Dr. Sellards reported for duty on July 28.

As usual, a very large amount of diagnostic work was done for the Philippine health service, for the hospitals of San Juan de Dios, St. Paul's, Mary Chiles, St. Luke's, and Mary Johnston in connection with the control of communicable diseases. In connection with medico-legal cases regarding biological examination of drugs and foods for human consumption, much data were supplied.

Special work.—The work as to immunity of Filipinos to diphtheria infection and the significance of diphtheria carriers has been completed. This was initiated in the preceding year. We find that young Filipino children show as much susceptibility to diphtheria as do the children of other races, but from the age of 10 years upward they show a greater proportion of immunity to diphtheria than do those of other countries. We have also found that a certain proportion of Filipinos carry in their throats diphtheria bacilli which are not virulent according to laboratory tests; the value of these tests has been confirmed by observations made in one public institution where carriers of this form were located on previous examinations and no measures taken to disinfect their throats; yet no clinical diphtheria developed in the period of over one and one-half years after the examinations were made.

Work has been continued regarding the incidence of leprosy in children born in the Cullion Leper Colony of leper parents. Also as to the viability of the cholera vibrio, as well as the organisms causing typhoid and dysentery, on fruits and other food products which are commonly consumed without cooking.

The work to determine the extent of filarial infection in the Philippines has been started. In cooperation with the Philippine health service and the

Philippine General Hospital an investigation has been undertaken as to the control and the eradication of the yaws.

An extensive investigation of amoebic dysentery had been carried on by Doctor Sellards in cooperation with Doctor Leiva. Contrary to current opinion and to the findings of other investigators, these investigators have shown definitely that experimentally infected animals are of distinct value in testing the efficiency of certain drugs in the treatment of amoebic dysentery. In addition to investigations of the emetine treatment, satisfactory results have been obtained with preparations of *Castela nicholsoni*, a native of southern United States and Mexico belonging in the family *Simarubaceae*. A considerable quantity of *Harrisonia perforata*, another representative of the same family, occurring in the Philippines has been secured and experimental work is now in progress with the view to determining whether or not it possesses similar curative properties. It is planned to undertake similar work with other native representatives of this family, as material can be secured.

In cooperation with Major J. E. Ash, A. M. C., Professor Haughwout completed a dysentery survey at Fort Mills. A preliminary report has been submitted to the military authorities, and the final report is being worked up for publication by the investigators. As a direct result of this work, the entire problem of intestinal diseases at Corregidor was cleared up and since the work was completed admission to the station hospital under the diagnosis of dysentery has practically ceased. In cooperation with Major Ash, an extensive series of studies on the incidence and distribution of intestinal parasites among food handlers in the United States Army is being carried on; also a study of parasitism among American school children in Manila and vicinity, and, further, a series of studies on the incidence of intestinal parasitism in the adult American and European population of Manila.

The work of the two branch laboratories, one at Cebu and the other at Iloilo, has on the whole been satisfactory. However, arrangements should be made either to increase the number of these laboratories, or to transfer this provincial work to the Philippine health service.

SERUM LABORATORY.

The operations of the serum laboratory for the year have been mostly of routine work. In August, 1921, surra, a disease of horses and carabaos, was transmitted to the live stock kept for serum purposes. Immediate steps were taken to eradicate it. Forty-one horses and mules found positive for parasites were segregated and destroyed, besides certain carabaos found afflicted with surra. On September 23, the disease was under complete control.

Investigations are under way in connection with the purification and concentration of serums with the view to the adaptation of these methods to practical purposes. Considerable attention has been given to the preparation of dried vaccines and serums, because the dried products are much more practicable under the climatic conditions existing in the Philippines than are the standard liquid products, as no ice or cold storage is necessary in shipping such products. Our output of dried products is limited by the drying space available. In the Manila office a comparative study of the antiseptic value of various oils, with special reference to the treatment of tuberculosis, is in progress, as is also a study of immunity resulting from vaccination with cholera vaccine.

The amount of products manufactured and dispatched both to the Government and through private sales is indicated in the following table:

Comparison of serums and vaccines bottled and disposed of by the bureau of science in 1919, 1920, and 1921.

Product.	1919	1920	1921	Increase.	Decrease.
Antitetanic serum.....units..	5,244,000	4,616,000	4,412,000	.....	204,000
Antidysenteric serum.....cc..	67,740	73,740	63,040	.....	10,700
Normal horse serum.....do..	6,810	13,150	15,750	2,600	.....
Vaccine virus.....units..	9,465,417	4,494,204	3,278,599	.....	1,215,605
Cholera vaccine.....cc..	.....	.....	557,974	.....	.....
Gonococcus vaccine.....ampules.	2,364	3,460	5,913	2,453	.....
Other vaccines.....do..	7,715	271,466	62,978	.....	208,488
Autogenous vaccines.....treatments.	57	79	64	.....	15
Pasteur treatments.....sets..	453	771	1,072	301	.....
Wassermann reactions.....	331	1,236	736	.....	500

BOTANY.

Most of the work of this division has been of a systematic nature. Field work on exploration has been done chiefly on Mount Calavite in Mindoro and in Lepanto sub-Province, Luzon. Considerable material has been received through the bureau of forestry while ample collections have been submitted by private persons for identification.

Systematic work.—The manuscript on the systematic enumeration of Philippine plants, which has been in process of preparation for several years past, has been brought up to date, and fascicles one and two of volume one, including the *Gymnosperms* and the *Monocotyledons* up to the *Orchidaceae*, and volume two fascicle one, *Dicotyledons* from the *Casuarinaceae* to the *Nepenthaceae*, inclusive, have been sent to the printer.

Identification.—All the Philippine material received has been identified and incorporated in the herbarium. Work on extra-Philippine material has claimed a great deal of time and attention, and the following collections have been identified: Approximately 1,000 numbers collected in 1920 in British North Borneo, 450 in Burma, Siam, and Assam for the United States Department of Agriculture submitted by the Smithsonian Institution; about 110 specimens of Sumatran plants; about 296 Bornean plants collected by Maj. J. C. Moulton, of the Raffles Museum; over 1,000 numbers from the Malay Peninsula and Siam; over 2,600 numbers collected in southern China, Hainan, Indo-China, and Siam for the Canton Christian College; 200 specimens of the Indo-China material for Professor Petelot, of the College du Protectorat, Hanoi, Indo-China, and about 380 numbers of Chinese plants from Nanking University, Nanking, China. Of extra-Philippine material alone, over 6,200 identifications have been made during the year, with 2,300 still remaining to be completed.

Herbarium.—Accessions to the herbarium from all sources during the year have totaled 14,068, bringing the number of mounted sheets up to approximately 226,400, of which about 125,000 are Philippine, the remainder extra-Philippine.

Exchanges.—A total of 33,995 specimens, including both Bornean and Philippine specimens, have been exchanged with numerous institutions in the United States, England, France, Holland, Germany, India, Malaysia, China, and Australia. In the same period approximately 6,200 specimens were received from neighboring countries in tropical Asia for identification, and about 2,413 in exchange from the Botanic Garden, Singapore, the Botanic Garden at Buitenzorg, Java, the United States National Museum, the Brisbane Botanic Garden, the Sydney Botanic Garden, and the Arnold Arboretum. Duplicates of Warburg's Malayan and Philippine collections approximating 2,300 numbers from the Berlin Botanic Garden was the largest individual collection received.

Loans.—Mounted specimens in various groups approximating 400 sheets were loaned to specialists in other countries; at the same time large quantities of duplicate material were sent for identification to certain specialists.

Medicinal plants.—The work on this subject has been prosecuted as in previous years and many additional data have been compiled. Our chief need in this line at the present time is a competent pharmaceutical chemist for isolating and studying the active principles of our promising and more or less unknown medicinal plants, and the cooperative work of a physiologist to study the effects of the drugs on animals with the view to adapting promising new principles to the practice of medicine.

Publications.—In addition to several publications submitted to the Philippine Journal of Science, an extensive manuscript on Bornean plants has been prepared by Director Merrill, of the bureau of science, and submitted to the Royal Asiatic Society, Straits Branch, at Singapore, for publication in the journal of that society.

PLANT PATHOLOGY AND MYCOLOGY.

In this division, owing to the lack of personnel, no attention has been given to medical mycology, and its activities have continued only as they were established in 1920, specializing on agricultural and industrial mycology.

Agricultural mycology.—The work has continued as in the past under the headings of diseases of abaca, sugar cane, rice, and tobacco.

Of the diseases of abaca most attention has been given to what is known as abaca heart rot. This disease has been previously described by Reinking as a bacterial one. Our work shows that a fungus of the genus *Fusarium* is uniformly associated with the disease. Results from over 400 inocula-

tions with this fungus upon healthy plants show that the disease was produced in more than 75 per cent of the cases. Control punctures without the fungus have given negative results almost uniformly. The fungus has been compared with one of the same genus, *Fusarium cubense*, which causes banana wilt; we have shown that the differences are very slight and that undoubtedly the *Fusarium* of abaca heart rot is of the same species as that of banana wilt, although possibly a subspecies or a variety. Considerable evidence has accumulated indicating the prevention of the disease by improvement of air drainage or ventilation in abaca plantations. There are also slight differences apparent in the degree of susceptibility of some of the abaca varieties, which may lead to effective control of the disease by the use of resistant varieties. A paper on this disease is now in progress of preparation.

During the past year we have shown the presence of the following diseases in cane, hitherto unreported from this country: Fiji disease, mosaic disease, pineapple disease, downy mildew, banded sclerotial disease, ring spot, *Pestalotzia* leaf spot, helminthosporiose, yellow leaf spot, red rot leaf-killing disease, caused by the fungus *Collectotrichum fulcatum*, red rot of the leaf sheath, caused by the fungus *Scierotium rolfsii*, wilt, pokkah bong, and red vascular disease. Our information on the presence of these diseases is of course of more than academic interest, since these data have a direct connection with the plant-quarantine work and the data are continuously in use in routine determinations and correspondence.

Fiji disease, the most destructive disease known to sugar cane in any country, has been found, not only in Luzon and Mindoro, but also in Negros. The disease may entirely eliminate a crop, although much more frequently losses of from 10 to 25 per cent or, in newly affected plantations, even less are observed. The transmission of the disease by seed cuttings has been very clearly shown by the experiments of the bureau of science and have also shown that the disease may be minimized by seed selection. Further work on this disease is in progress in cooperation with Prof. Colin G. Welles, of the college of agriculture, University of the Philippines.

Downy mildew, known previously only in Australia and Formosa, has recently appeared in two localities in Luzon. In one locality the disease has been entirely eradicated. The prospects are in favor of the entire eradication of the disease from this country. Experiments on sugar cane must have corroborated previous investigation, showing the transmission of this disease from crop to crop by seed cuttings, and points. Healthy points are also affected by immersing in water mixed with diseased points.

Investigation of tobacco disease has been along the lines of securing disease-resistant varieties of tobacco. The work on the rice diseases has been in the main identification of the great number of fungus diseases of rice prevalent here. The serious disease of rice that we have been calling sterile head, which occurs in the Mountain Province, has so far given no results in endeavors to determine the cause. However, varieties of rice entirely resistant to the disease have been observed which afford a complete prevention of the disease.

In industrial mycology the most important problem was the determination of the cause of abaca fiber (Manila hemp) deterioration and methods of prevention. It has been found that fungi, bacteria, and other microorganisms are constantly associated with deteriorated hemp. A further study will be made. Prevention of this deterioration, however, may be effected by more careful drying after stripping, better storage and transportation conditions, and better ventilation and air circulation in bodegas.

During the past year over 2,000 duplicate specimens have been distributed to mycologists in other countries, while about 1,400 have been received in exchange. Some attention is now being given to the collection and naming of Philippine fungi for distribution.

ENTOMOLOGY.

The routine work of this division is constantly increasing, such as the identification of many kinds of injurious insects to a great variety of objects; reports on the specific insects and injuries caused by them, etc. About 15,000 insects have been added to the collection of the bureau. Many valuable life histories have been worked out for insects hitherto unknown. Material has been sent to the United States National Museum, the Hawaiian Sugar Planters' Experi-

ment Station, the American Museum of Natural History, the Dresden Zoological Museum, and the Brooklyn Academy of Arts and Science. Several papers have been submitted for publication in the Philippine Journal of Science, while popular articles have been prepared for the local press on mosquito control, the house-fly situation in Manila, insects injurious to sugar cane, coconut insects, and the possibilities of silk culture in the Philippines. The silk-culture work has been continued in order to have thoroughly acclimatized "seed" for distribution.

FISHERIES.

Doctor Herre, the chief of this division, has visited Cayman Lake, in Laguna, and Sampaloc Lake, in Batangas, to ascertain the results of planting of black bass and carp therein. The results were negative for both. It was found on investigating the Pansipit River near its source in Lake Taal that due to the methods used in fishing it was practically impossible for any migratory fish to reach Taal Lake from salt water.

Investigations were made in Bataan Province of the possibility of establishing a fish-canning industry at Orion and of the fishing activities of a Japanese group employing methods new to the Philippines. Investigations were carried on in the vicinity of Romblon, Sibuyan, Cresta de Gallo, Maricaban, Culion, Busuanga, and elsewhere. An extensive trip was made to Cebu, Bohol, Butuan, and into the vicinity of the lower Agusan River, Cagayan de Misamis, and the Provinces of Bukidnon, Lanao, Zamboanga, and Sulu. In Lake Lanao no black bass were detected, although bass were planted some years ago. In Lake Dapao no carp were found, although carp were planted there several years ago. Extensive collections were made in the vicinity of Kolambugan, in Pangil Bay, and in Zamboanga, where data were supplied to the local authorities as to stocking the pond at the hydroelectric plant with fish. Various points in and about Sulu were visited and a trip was made to Sitanki, Bongao, and Siasi, where the general local methods of catching, salting, and drying fish were observed as well as special methods of preparing squid, shark fin, and trepang. In all of these trips not only large and valuable additional collections of fish have been gathered but also advice and assistance given to local fishermen regarding the improvement of their fishing methods, the preservation of fish and their transportation to the market.

Through cooperation with Mr. E. H. Taylor, Dr. R. E. Dickerson, and the California Academy of Sciences, funds have been made available to pay all of the expenses of field work carried on by Mr. G. Lopez in Romblon, Sibuyan, Culion, the Bataan Islands, and elsewhere, through which cooperation we not only secured many rare specimens but also greatly extended our knowledge of the distribution of individual economic species in the Philippines.

ORNITHOLOGY AND TAXIDERMY.

The usual amount of custom work, consisting of mounting birds and mammals and tanning skins, was done. On the whole, only the routine matter has been accomplished due to the limited personnel and the great demands on Mr. McGregor's time in connection with the editorial work and printing of the Philippine Journal of Science and other technical and popular publications.

GENERAL, INORGANIC, AND PHYSICAL CHEMISTRY.

The activities of this division may be classified as follows:

Section of weights and measures and water analysis.—Aside from the analysis of water, the testing, standardization, and correction of weights and measures, the calibration and adjustment of various scientific apparatus, analysis of clays, sediment, etc., considerable work has been added due to the active cooperation being rendered to the metropolitan water district on the water-supply project in the Anga region, Bulacan Province. It is regrettable that important investigations on the provincial water-survey work had to be discontinued for lack of funds.

The influence of bacteria on the acidity and alkalinity of surface waters under ordinary Philippine conditions is also being studied. Steaming tests of coals to determine their value under boiler conditions are also being undertaken.

During the year the control work on the fineness of silver bullion used by the Philippine mint was continued, and a method of determining the quantity of silver in copper-silver alloys is now being developed.

Material-testing laboratory.—In addition to the routine work done, several research problems have received attention. A paper entitled "Physical Properties of Philippine Concrete and Aggregates" was published in the Philippine Journal of Science for February, 1921. Data on failing concrete in the Philippine Islands are being accumulated. The final data on Dr. J. C. Witt's cement studies have been obtained and have been forwarded to him in the United States. Considerable headway has already been made on the tensile-strength tests of standard grades of abaca, and it is probable that the results will be available early in 1922.

Analytical section.—Aside from the routine work, the regular chemical analyses, the facilities offered to private individuals for the assay of gold and silver, special cyanidation and amalgamation tests for certain mining concerns, the important problems are the investigations made on galvanized iron and as a result concerted efforts are being made so that roofing material of the quality suited to tropical conditions may become available to local dealers and consumers. This is an important step in securing a more durable kind of galvanized sheet. In view of the fact that we are annually importing approximately ₱2,000,00 worth of this material, various kinds of roofing materials that have recently been put on the market are being tested under weather exposure.

Some research problems are under way, such as the study of the aluminum content in galvanized sheets; that of some of the local sea weeds with respect to their potash content; and exposure tests of tin plate. The work of testing coals for the various government units, which has hitherto been done by a private laboratory, is about to be undertaken in cooperation with other sections of the division.

Regulatory measures as to the sale of fertilizers and insecticides and fungicides have been prepared, based on the practice now in vogue in most of the States of America, in order to protect the farmers from reckless manufacturers and dealers.

ORGANIC CHEMISTRY.

Due to lack of supplies, materials, and equipment, it has been found necessary to discontinue the manufacture of book varnish and to limit other pursuits of the division, including the production of the extract of tikitiki for the cure of beriberi. During the year only 18,187 bottles of this extract were prepared and delivered, leaving approximately one-fourth of the requests of the public unfilled.

Investigation is in progress and considerable data have been assembled along the following lines of research: Identification of alkaloids by microscopic methods; the use of alcohol mixtures as motor fuel, with particular reference to the manufacture of an alcohol-ether mixture from Philippine products; the identification and differentiation of Philippine fibers; methods for the determination of ambergris; isolation of various constituents of Philippine plants for the treatment of tropical diseases; investigation of the possibility of making neosalvarsan for the treatment of yaws and syphilis; a survey of the distribution of *Hydnocarpus hutchinsonii* and other representatives of the genus yielding oils used for the treatment of leprosy; the hydrogenation of Philippine oils; the oxidation of lumbang oil; the composition of bagulumbang oil; quantitative determination and composition of coconut oil by Haller's method; the development of a method to be used in the production of solid products from coconut oil by transformation into mono and di-glycerides; investigation of the solid bitumens of Leyte asphalt with the view to determining the variety of materials most suitable to commercial utilization.

A plant was designed and set up with a capacity for manufacturing 200 liters of ethyl ester of chaulmoogra oil per month, as the original request of the Philippine health service for Culion was for 7,200 cubic centimeters per month. At present there are large stocks of ethyl ester at the Philippine health service headquarters at San Lazaro and at Culion. The plant is rapidly increasing this stock by working at half to three-fourths its capacity. Meanwhile cod-liver ethyl esters, sodium morrhuate, sodium hypocardate, Muir's E. C. O., and special Mercado mixture are being supplied to the Philippine health service.

MINING.

The great bulk of the routine work of this division consists of consultations and in furnishing as far as possible reliable information on all matters pertaining to the mining industry in the Philippines.

The activities of the division of mines may be subdivided as follows, and under each head the accomplishments during the year are indicated:

Geological mining and field work.—According to the report of the director of the bureau of science, the chief of the division of mines has at various times inspected the mines of the National Coal Co., which is a quasi public corporation. In Baguio most of the work done consisted of the preparation of special memoranda and the completion of a manuscript on the Geology and Mineral Resources of the Philippines. The property of the Leyte Asphalt & Mineral Oil Co., near Villaba, Leyte, as well as private coal properties in Cebu were visited. The Angat River basin has been investigated from a geologic standpoint in connection with the proposed water supply of the metropolitan water district.

Mineralogical and petrographical.—The principal work has been the examination of all the stratification samples submitted by the bureau of public works. Numerous rock and mineral samples, sent to us through the mail or brought in by individuals, have been identified. The work of Mr. Schenck and Doctor Smith, on the former's collections from Samar, is the only piece of research along these lines done during the year.

Paleontological.—While some fossils have been collected by members of the division of mines, the determination of them has been largely turned over to Dr. Roy E. Dickerson, who has very kindly and sympathetically cooperated with us throughout the year.

Engineering and metallurgical.—Mr. Elicaño and Doctor Smith have given advice and have prepared reports on several projects coming under this head, the principal one being the new water-supply project of the metropolitan water district.

Publications.—During the year the material for the biennial "Mineral Resources," 1920-21, has been prepared for the press. The manuscript, illustrations, and maps for a general publication on the geology and mineral resources of the Philippines have been completed.

Miscellaneous.—The members of the division of mines staff endeavored to arouse the Filipinos to a realization of the importance of the development of the mineral resources of the country and of their neglect of the same. In this connection it has been necessary or at least advisable to hold informal conferences on Saturday afternoons for the general public and to prepare several semipopular articles for the press. The work must be done by some local entity, and these efforts have in the main met with favor.

LIBRARY.

There has been no substantial change in the function of this division. No book orders were forwarded during 1921. Outstanding obligations were reduced during the year by the delivery of publications estimated at ₱4,155.18 in value. Fair progress is being made in claiming and securing missing numbers. Most of the outstanding bills have been paid.

PUBLICATIONS.

As in 1920, the Philippine Journal of Science was published monthly. The material published during 1921 covers: In entomology, 20 articles; botany, 14 articles; chemistry, 7 articles; invertebrate zoology other than entomology, 3 articles; ornithology, 3 articles; geology, 2 articles; human anatomy, 2 articles; medicine, 2 articles; ethnology, 2 articles; ichthyology, 1 article; cement, 1 article; and timber tests, 1 article. Two special publications were issued, the Nineteenth Annual Report of the Director of the Bureau of Science and Amphibians and Turtles of the Philippines, by Edward E. Taylor. During the year the number of names on the mailing list of the Philippine Journal of Science was 951, against 1,128 of the year 1920. The decrease is due to the establishment of its own official organ by the Philippine Islands Medical Association.

POWER PLANT.

Beside the routine work and the additional work required on account of the transfer of the serum laboratory to Alabang and by the rearrangement of the testing laboratories in the quarters vacated by the serum laboratory, the following table shows the general work of this division. The total amount of

steam, electricity, and gas produced and the production per unit were as follows:

Year.	Steam.	Average cost per kilo.	Kilowatt hours.	Average cost per kilo.	Gas.	Cost per 1,000 cubic feet.
	<i>Kilos.</i>	<i>Peso.</i>		<i>Peso.</i>	<i>Cubic feet.</i>	<i>Pesos.</i>
1920.....	8,185,476	0.00705	197,538	0.2208	1,108,114	2.825
1921.....	5,504,338	.00756	224,440	.1480	1,146,225	2.372
Difference.....	2,681,138	.00051	26,902	.0728	38,111	.453

Much less steam was produced in 1921 than in 1920, due to the fact that the Otto gas engine was in proper working order practically throughout the year, while in the previous year the gas producer was idle nearly seven months. The kilowatt production has considerably increased, being 26,902 kilowatts for 1921, as compared with 3,700 kilowatts for 1920. This rather radical increase justifies the installation of the new Diesel unit. The cost per kilowatt has also decreased, due to the fact that the producer-gas engine was working at full capacity for 11 months, this being a much more economical power unit than the steam engines, and to the great reduction in the price of coal; furthermore, there has been a considerable reduction in the price of lubricating oil. With the reduction in the price of crude oil there has been a corresponding decrease in the cost of gas manufactured in the Mansfield gas apparatus.

Alabang power plant.—The power plant installed at Alabang to supply light and power for the serum laboratory has been in proper working condition since the work was initiated there in March, 1921. The average kilowatt hours consumed per month was 6,115. The expenses in connection with the Alabang power plant for supplies and materials amounted to ₱10,096.22 and for salaries and wages ₱9,120, a total of ₱19,216.22, or an average monthly expense of ₱1,601.35.

CLERICAL DIVISION.

Except minor changes in the personnel, no substantial change has been registered in this division.

EXPENDITURES AND INCOME.

The following comparative statement of expenditures will show expenses for the operation of the bureau of science during the year 1921 as compared with the fiscal years 1919 and 1920:

Item.	Fiscal year.		
	1919	1920	1921
EXPENDITURES.			
Salaries and wages, including accrued leave, bonuses, and traveling expenses of personnel.....	₱268,785.07	₱324,542.05	₱384,094.42
Purchase of apparatus, supplies, etc., including consumption of supplies and materials, subscription, apparatus, and equipment, including books.....	131,306.94	203,049.57	310,549.38
Miscellaneous expenses, including rental of buildings, postal, telegraph, telephone, and cable service; freight, express, and delivery service; printing and binding reports, documents, and publications; illumination and power service; miscellaneous service; maintenance and repair of furniture and equipment.....	41,266.57	60,200.00	55,059.75
Distribution of tikitiki extract, antityphoid vaccine, and anti-dysenteric serum, including salaries and wages, bonuses, equipment, consumption of supplies and materials, and other services.....		24,000.00	40,055.24
Grand total.....	441,358.58	611,791.62	789,758.79
INCOME.			
Receipts from operations, as well as sales of supplies, sales of fixed assets, and other.....	205,569.04	224,757.97	268,702.77
Appropriation, including accounts allotted by the emergency board as well as the reduction by the board.....	538,829.46	782,424.65	837,440.08

Miscellaneous accounts (1921).

Item.	Available.	Expended.	Balance.
Replacement fund (Iloilo and Carnival fires).....	P1, 127. 89	P1, 127. 89	.....
Construction of serum laboratory, act No. 2786.....	43, 999. 50	35, 915. 34	P8, 084. 16
Publicity service for the Philippine Food Commission (allotted by the emergency board).....	1, 738. 80	.....	1, 738. 80
Total.....	46, 866. 19	37, 043. 23	9, 822. 96

RECOMMENDATIONS.

The bureau of science is becoming badly cramped for space and no great enlargement of its operations is possible without providing this essential item. The library has reached its maximum expansion; in fact, were all books called in at one time, shelf space would not be available for them. The library needs to-day all the floor space on the second floor of the east wing. Provision should therefore be made at an early date either to extend the present east wing to the north or to construct a corresponding west wing to provide sufficient space for all work in botany, ornithology, and entomology on the second floor, as well as additional space for inorganic chemistry on the first floor. The need is most urgent.

The herbarium has also reached its maximum development in its present quarters. The same is true of entomology; in fact all entomological work is now crowded into one room, whereas formerly three rooms were occupied. Space occupied by the herbarium and by the ornithological work should be turned over to the library and those activities moved elsewhere.

It is definitely recommended that cooperative arrangements be perfected with the Smithsonian Institution for the preparation and publication of a general flora of the Philippines. This plan would meet with favor by the Smithsonian Institution authorities.

Provision should be made for adequate transportation facilities between the Alabang serum laboratory and the bureau of science in the form of a light Ford truck. The need is most urgent.

For the Alabang power plant a reserve pump is an absolute essential. It should be driven by an oil engine to safeguard our essential water supply in case of a breakdown of our electrically driven pump. Additional dwellings for the Alabang staff should be provided.

For the main power plant in Manila an adequate oil-storage tank must be provided as soon as possible after the new power unit is installed, which will be ready for operation in March, 1922. At the same time a water-cooling tower should be provided in order that we may reduce our already heavy expenses for water from the Metropolitan water district and be more independent of this supply, which at times is inadequate for our needs.

The cold-storage rooms of the bureau of science must be remodeled in the immediate future, as the floor is now in a precarious condition. At the same time the brine tanks and the floor in the refrigerating-machine room must be repaired.

There should be an increased technical personnel, as revenues permit, in the biological laboratory, in the divisions of mines, fisheries, botany and entomology, and the library.

The Iloilo sugar laboratory should be rehabilitated and developed into a sugar experiment station, perhaps in cooperation with the bureau of agriculture and the Philippine Sugar Centrals Agency.

The provincial branches of our biological laboratories should be increased in number and adequate support granted, or else the work should be turned over to the bureau of health.

WEATHER BUREAU.

METEOROLOGICAL DIVISION.

Central observatory.—There have been six well-developed typhoons which traversed the Philippines or passed very close to them during the year 1921. Three of them struck or passed very near the Batanes Islands in July, August, and September; one passed very close to Manila in July; and two traversed the

Visayan Islands in November. It is rather unusual that not a single typhoon was observed during the month of October in the Philippine Islands. The most destructive typhoon was that which struck the island of Batanes on July 22 and was considered the worst observed there in many years. The damage done by this typhoon was considerable and included the destruction of several provincial buildings in the Province, including a church and a convent. The government loss is estimated ₱10,000.

The next destructive typhoon was that which passed a few miles to the north of Manila on July 4, doing considerable damage to the city. The greatest damage done by this storm was in the Provinces of Bulacan, Rizal, Pampanga, and Bataan. The two November typhoons, on the 10th and 11th, and 24th to 25th of the same month, were similarly destructive and both caused considerable damage, particularly in the Visayan Islands. The damage was caused largely by heavy rains and floods rather than by the force of the winds.

A remarkable feature of the second November typhoon was the destruction caused by it in Capiz by a tremendous wave and heavy rainfall that flooded the municipalities of Ibajay and Macato in the evening of the 25th, while the center of the typhoon was passing about 15 or 20 miles to the north. One hundred persons were said to have perished in this catastrophe, and a great loss to crops and property resulted. Due to the absence of typhoons during the month of October, lack of rain was reported from practically all stations in the Philippines, and due to the typhoons just mentioned during the month of November the total monthly rainfall for that month was considerably above the normal in southeastern Luzon and Visayas; otherwise there was nothing particular in the monthly distribution of rainfall in the Philippines during the year 1921.

Typhoon warnings have been regularly and promptly issued by the central office of the weather bureau throughout the Philippines and to the observatories of the Far East, the same having been spread through the wireless station of Cavite to all steamers provided with wireless equipment. The number of typhoon warnings cabled to foreign observatories during the year was 140. It may also be well mentioned that, unlike in previous years, weather reports from Japan have been often at hand before noon; hence the weather bureau has often been able to prepare and distribute morning weather maps shortly after noon of the same day. Weather reports from Guam have also been regularly received.

With the kind cooperation of the directors of the Hongkong Observatory and the United States Weather Bureau, the weather bureau has succeeded in obtaining observations during the year 1921 from 143 steamers, representing a total of 3,063 days' observations. These observations were particularly utilized to verify our typhoon tracks. Cooperation with foreign observatories throughout the world have been maintained during the year, and the employees of the weather bureau have oftentimes been busy in complying with frequent requests for the meteorological and climatological data of the Philippines.

A slight reorganization of the meteorological division took place during the year by the appointment of an assistant chief of division and four section chiefs. This has resulted in an increase in the efficiency of the division, and at the same time an opportunity has been given to five Filipino employees in the weather bureau to occupy positions of greater responsibility.

Secondary stations.—Owing to the financial condition of the Government the new 200 rain stations that were provided for by the legislature three years ago were reduced to 140 in the appropriation for the year 1921; and even this number was again reduced during the year to 113 by the emergency board, hence the work of establishing new stations had to be practically suspended toward the middle of the year. Only 30 new stations were established during the year, distributed in the following Provinces: Abra, 1; Antique, 2; Albay, 4; Camarines Sur, 3; Capiz, 5; Ilocos Norte, 3; Ilocos Sur, 2; Iloilo, 1; La Union, 3; Mountain, 4; and Tarlac, 2. The Belgian Father's of the Mountain Province were kind enough to take charge of the mounting of instruments in the new stations of that Province, although the training of the observers was placed in charge of our first-class observer in the Mirador Observatory, Baguio. A third-class station was opened at Boac, Marinduque, on February 10; and the third-class station of Echague, Isabela, which had to be suspended in March, 1919, owing to lack of observer to take charge thereof, was reopened on March 20. Thus the weather bureau maintained at the end of the year 160 official stations; 7 first-class stations, including the branch observatory on Mount Mirador, Baguio; 12 second-class stations; 30 third-class stations, and 111 rain

stations. Meteorological observations have been also made regularly as heretofore in the seismic stations of Ambulong and Tigaon and in the magnetic station of Antipolo. There have been 19 volunteer or cooperative stations opened during the year in the following Provinces: 1 in Abra; 2 in Bulacan; 6 in Cotabato; 1 in Occidental Negros; 2 in Pampanga; 1 in Tayabas; 6 in Zamboanga. The total number of volunteer stations at the end of 1921 was 82. This number added to the 160 official meteorological stations and to the two seismic stations and 1 magnetic station, in which meteorological observations are also taken, make a total of 245 stations making monthly rainfall reports to the control office.

Ten volunteer stations of Negros and Mindanao had suspended sending their observations during the year, although efforts have been made to secure again regular observations from them.

Seismic division.—The Philippine Archipelago suffered during the year 1921 only two serious earthquakes. Fortunately they did not cause damage worthy of consideration. On the 21st of May a very violent shock put out of commission the clockwork at the lighthouse of Batag, Samar, followed by a series of aftershocks which during five days caused considerable apprehension to the people of Samar Islands and of the Provinces of Sorsogon, Catauduanes, and Albay, but without further disagreeable results. On November 8 frequent shocks began to be felt in the towns near Caraga, on the southeast coast of Mindanao. In the evening between the 11th and 12th of the same month the most violent earthquake of the period, with subterranean rumblings and great disturbance in the sea, was registered. Fortunately, however, the damage done in the towns located closely north and south the seventh parallel was not considerable. Both earthquakes, the one which hit Samar in March and that of November, originated in the Pacific Ocean in the great Philippine deep, whence most of the disturbances affecting the eastern coasts of Mindanao and Vasayas come.

Central Mindanao, northern Agusan, and southern Luzon have also experienced very strong but not violent earthquakes.

The total number of individual earthquakes felt in the archipelago, not taking into account the numerous small tremblings which followed the two aforesaid violent earthquakes of Samar and east of Mindanao, was 160, a figure scarcely surpassing the yearly average of the last 20 years.

Similarly the instrumental or microseismic disturbances recorded at Manila, even including the aftershocks previously mentioned, have not been excessively numerous. They reached the figure of 390, slightly above the average. Moreover, 132 of them corresponded to earthquakes distant more than 1,000 kilometers.

Butuan recorded 800 disturbances, but this number does not exceed the high average of that station, due to its vicinity to the deepest and most unstable portion of the Philippine deep.

Bulusan Volcano, the active state of which has been since 1918 of some concern to the towns located around it, had now and then slight eruptions, but more frequent but shorter during the last three months. Close attention is being paid to its action.

All the stations with seismograph reported regularly the disturbances observed. There did not occur any changes in their number, instrument, or personnel.

Magnetic division.—During the year 1921 occurred a magnetic disturbance of the most remarkable character, not seen since 1882. Beginning on May 13 with a sudden start, it continued until May 17; but after a quieter interval between the 17th and 19th it increased again during the last day. Its characteristics were an extraordinary persistence and size of short oscillations. This disturbance received unusual attention due mainly to the strong earth currents interfering with telegraphic operations all over the globe.

Minor disturbances occurred January 17, April 18, 19, 29, 30, and October 8. Generally speaking, the magnetic character of the year must be considered as disturbed, the lightly and strongly disturbed days outnumbering calm days.

Astronomical division.—As in the preceding years, time signals have been sent every day during five minutes (10.55 to 11 a. m.) from the observatory to all the stations connected by telegraph or cable with the central post office of Manila. For the convenience of the city and the steamers anchored in the bay, the time ball is hoisted every day at 11.55 a. m. and dropped exactly at noon. At night (9.55 to 10 p. m.) through the connection set in by the central post office of Manila time signals are sent from the observatory to

the Cavite Naval Radio Station, for the service and assistance of the shipping provided with convenient radio-receiver apparatus.

One thousand seven hundred and thirty star transits have been taken during the year, and the instrumental constants azimuth and collimation computed more than 70 times observing circumpolar stars; the level is observed and reduced to zero frequently during the time of taking transits.

A good number of polaris transits have been observed in order to determine the equatorial time intervals of the side wires to the middle or meridian wire.

PERSONNEL.

No change in the personnel has been effected during the year except in few instances. Ninety-four per cent of the personnel of the weather bureau are Filipinos. Six new positions of greater responsibility were created by act No. 2935 of the legislature, 2 assistant chiefs of divisions, and 4 section chiefs, all having been filled by very efficient Filipino employees who have served the government for 18 to 30 years. Act No. 2952 also created the position of assistant director of the weather bureau which has been filled by the appointment of Father Miguel Selga, formerly secretary of the same office, the position of the secretary having been abolished by the same act.

RECOMMENDATIONS.

In order to improve the weather service, especially during the typhoon season, it is recommended:

1. That either cable or wireless communication be established as soon as possible with Basco, Bataues Islands.

2. That an easy and prompt communication be assured between Manila Observatory and the steamers on the sea by establishing a wireless station in the observatory or otherwise.

3. That new rain stations for the benefit of agriculture be established throughout the Provinces.

Respectfully submitted.

RAFAEL CORPUS,

Secretary of Agriculture and Natural Resources.

The GOVERNOR GENERAL,
Manila.

REPORT OF THE SECRETARY OF COMMERCE AND COMMUNICATIONS.

JANUARY 1 TO DECEMBER 31, 1921.

MANILA, *March 24, 1922.*

SIR: Pursuant to the provisions of section 91 of the Administrative Code, the undersigned has the honor to submit hereunder the annual report of the department of commerce and communications for the fiscal year ending December 31, 1921:

DEPARTMENT ORGANIZATION.

The department of commerce and communications was created by virtue of act No. 2666, approved November 18, 1916, which reorganized the executive departments of the Philippine Islands.

The department at the beginning comprised one secretary, one undersecretary, and two employees (now increased to six), the bureau of public works, the bureau of posts, the bureau of supply, the bureau of labor, and the bureau of coast and geodetic survey.

In 1918 the bureau of commerce and industry was established pursuant to act No. 2728, and in 1921 the boards of examiners for the professions of engineer and architect were appointed in accordance with act No. 2985, so that at present the secretary of commerce and communications has under his direct executive control and supervision the bureau of public works, the bureau of posts, the bureau of supply, the bureau of commerce and industry, the bureau of labor, the bureau of coast and geodetic survey, and the boards of examiners for the professions of engineer and architect.

He is ex officio chairman of the postal savings bank board and the irrigation council.

During the major portion of 1920 the undersecretaryship of this department was vacant. The position was filled, effective September 11, 1920, with the appointment of Mr. C. E. Unson, who then had behind him an excellent record of public service covering a period of 18 years, his experience in the executive bureau and in the bureau of supply, first as assistant purchasing agent and subsequently as purchasing agent, being of particular value. With my association with him during the entire year of 1921 I have come fully to appreciate the value of competent cooperation, the absence of which was keenly felt during the prolonged vacancy just mentioned.

BUREAU OF PUBLIC WORKS.

ORGANIZATION AND PERSONNEL.

Practically no changes were introduced in the organization of the bureau in 1921. Toward its close, however, plans were laid out for the reorganization of the constructing division field personnel. The outstanding feature of this plan would be the creation of six positions for division engineers to supervise all work carried on in the various engineering districts of the archipelago. This duty has heretofore been discharged by supervising engineers who are at the same time district engineers. The reorganization of the division of architecture is also contemplated, and the year 1922 will probably see its realization. The consolidation of the positions of two supervising architects who are joint heads of this division into only one position of consulting or chief architect is the keynote of the prospective reorganization.

At the close of the year the personnel paid from the funds of the bureau consisted of 35 Americans and 347 Filipinos, as against 33 Americans and 365 Filipinos of the previous year. The technical employees, including draftsmen and other semitechnical employees, were 27 Americans and 99 Filipinos, as

compared with 26 and 117, respectively, in 1920. The bureau has also under its direction and control numerous employees engaged in the prosecution of provincial and municipal public works and paid by the Provinces or municipalities concerned.

At the head of the whole force is Mr. José Páez, director of public works, who is recognized as one of the ablest bureau chiefs of the Philippine Government. He is well assisted by experienced and capable division chiefs, some of whom have creditably acted as director of public works in the absence of Mr. Páez.

PUBLIC WORKS EXPENDITURES.

Public works expenditures for 1921 supervised by the bureau of public works amounted to ₱22,438,604.74, this being the largest sum ever expended on public works in the islands in any one year. The following table shows the totals of expenditures for the different principal works supervised by the bureau:

Expenditures supervised during the year 1921 as compared with the year 1920.

	1921	1920
Total expenditures.....	₱22,438,604.74	₱19,529,615.28
Total expended upon road and bridge work.....	7,017,003.23	7,456,498.77
Total expended upon building work.....	6,774,633.74	5,925,042.45
Total expended upon port works.....	4,901,957.69	2,769,000.38
Total expended upon water supply.....	1,110,365.45	1,853,579.37
Total expended upon irrigation projects.....	1,662,804.52	386,820.97
Operation of auto line, quarries, and the supervision of motor vehicle traffic.....	354,000.00	375,000.00

Expenditures on miscellaneous items account for the balance.

ROADS AND BRIDGES.

Roads.—While new road construction has been largely curtailed due to lack of funds, road and bridge maintenance work has been more extensively carried out to meet the ever-increasing volume of traffic. During the year, 8,107.1 kilometers of second-class roads were maintained at a total cost of ₱4,508,321.23. This is the largest road kilometrage ever maintained, and exceeds that of 1920 by 575.7 kilometers. The total number of kilometers of first-class roads, as of December 31, 1921, was 4,836.4 kilometers as against 4,698.8 for 1920, or an increase of 137.6 kilometers.

Bridges.—The most important bridges and spillways constructed or under construction in 1921 are the Bued River Suspension Bridge (Benguet), the Hagonoy River Bridge (Bulacan), the Imus River Bridge (Cavite), the Talaban Diot River Bridge (Occidental Negros), the Abacan River Concrete Spillway (Pampanga), the Bued River Bridge and the Catablan River Bridge (Pangasinan), the Dampalit River Bridge, the Mango River Bridge, and the Zapote River Bridge (Rizal), and the Sampaloc Concrete Spillway (Tayabas.)

The William A. Jones Memorial Bridge over the Pasig River, the construction of which was supervised by the bureau, was thrown open to vehicle traffic on August 22, 1921, and was practically completed in November, 1921, and fully commissioned in December, 1921.

BUILDINGS.

During the first half of the year the construction or completion of many modern public buildings of large dimensions was vigorously prosecuted until the funds provided therefor were either reduced or reverted by the emergency board, with the result that some important building construction projects had to be suspended. In spite of this fact, however, 148 prominent buildings, comprising schools, markets, hospital, etc., were completed. This figure represents an increase of over 80 per cent of the number of public buildings completed during the preceding year and is the largest number of buildings in any one year since 1915.

Among the projects which have been suspended were the Insular Building, the nurses' dormitory for the Philippine General Hospital, the addition to the supreme court, and the new post office, whose foundation has been completely

laid. The important buildings completed in Manila during the year are the executive building and Rizal Hall for the University of the Philippines, the addition to the bureau of printing, the maternity pavilion, and the dining pavilion of the Philippine General Hospital. The reconstruction of the Intendencia Building is well under way and will be completed early in 1922.

PORT WORKS.

The execution of the port work program for the archipelago suffered a setback during the year, due to the financial depression that is felt by the Government. Work on many of the port projects and plans which have been prepared were indefinitely deferred.

The most important of the port projects are the Manila Harbor improvement, embracing the construction of Pier No. 7, work on which is now well under way, but may be considerably delayed on account of the retrenchment policy of the government, and, unless funds from the port works fund can be released at an early date, it may become necessary to suspend this work.

The port development in the Provinces comprises the improvement on the Port of Loay (Bohol), the contemplated seashore protection for Aparri (Cagayan), the reclamation of the Cebu Port area, the Iloilo River wall project, the completion of the San Fernando Wharf (La Union), and additional construction on the Zamboanga sea wall.

IRRIGATION WORKS.

Construction work during 1921 was confined to projects approved for construction during previous years. The Trinidad irrigation system was completed during the year, and work on several irrigation systems which would benefit 55,754 hectares of land and which would cost approximately ₱8,584,500 was well under way. The retrenchment policy of the government affected only those projects which were being undertaken by administration, but not those under contract, of which there were six. The total amount expended upon these projects during the year amounted to ₱1,461,409.41. The status of construction work on the insular irrigation projects are as follows:

Project.	Province.	Irrigable area.	Estimated cost.	Allotments authorized.	Remarks.
		<i>Hectares.</i>			
Trinidad.....	Mountain.....	200	₱ 40,000.00	₱ 40,000.00	Completed.
Santa Barbara.....	Iloilo.....	4,500	630,000.00	595,000.00	92 per cent completed.
Baruyen River.....	Ilocos Norte.....	1,200	80,000.00	56,000.00	60 per cent completed.
Dingras River.....	do.....	1,200	126,000.00	106,000.00	85 per cent completed.
Tagudin.....	Ilocos Sur.....	1,300	200,000.00	110,000.00	30 per cent completed.
Amburayan River.....	La Union.....	4,500	642,000.00	269,000.00	25 per cent completed.
Talavera River.....	Nueva Ecija.....	10,000	1,028,000.00	650,000.00	30 per cent completed.
Angat River.....	Bulacan.....	25,000	4,500,000.00	850,000.00	4 per cent completed.
Aganao River.....	Iloilo.....	5,500	900,000.00	300,000.00	4 per cent completed.
Naic.....	Cavite.....	800	275,000.00	250,000.00	40 per cent completed.
Lacag-Vintar.....	Ilocos Norte.....	6,000	1,000,000.00	(300,000.00)	Funds reverted to insular treasury.
Lamao.....	Bataan.....	160	25,000.00	5,000.00	5 per cent completed.
Total.....		60,360	9,536,000.00	3,232,000.00	

WATER WORKS AND ARTESIAN WELLS.

Water works.—Seven new water-works systems were started during the year and 27 systems on which work was commenced in 1918, 1919, and 1920, are being finished. To date, there are altogether 89 systems in the islands, 13 of which were completed in 1921. There are 76 new systems in 29 Provinces proposed for construction which will be financed as rapidly as the legislature can provide funds and the municipalities shall have appropriated their share, one-third of the total cost.

Water-works projects completed to date furnish potable water to a total population of 286,980 and have cost ₱2,728,304.28, while projects under construction will supply a population of 100,797 at an estimated cost of ₱1,764,879. The 76 proposed systems contemplate supplying potable water to 322,274 people at an estimated cost of ₱5,522,700.

Artesian wells.—Since 1904 until the end of 1921, 1,368 successful artesian wells have been drilled. During the last year, there were 125 successful deep wells drilled which will serve approximately 316,000 people at a cost of ₱338,770.54. Nine wells drilled were unsuccessful, constituting 7 per cent of the total in 1921, which is 3 per cent less than the percentage for 1920.

REGISTRATION OF MOTOR VEHICLES.

There were 1,865 new motor vehicles registered, and 11,476 reregistered, or a total of 13,341 registrations for 1921, as compared with 13,493 registrations in the previous year. There were 1,917 motor vehicles previously registered which were withdrawn from operation, 88 of which were reported unserviceable.

THE AGNO RIVER HYDROELECTRIC DEVELOPMENT.

The Agno River presents a splendid opportunity for development of water power on a large scale in central Luzon. Its vast importance is clearly brought into relief by the mere fact that the Philippines, at present, is almost entirely dependent for power upon imported coal and fuel oil.

The bureau of customs records show that we have imported annually an average of 470,000 tons of coal during the past 10 years and paid over ₱43,000,000 to foreign countries for this coal, not including the cost of transportation. Fully 25 per cent of this article is used by the Manila Electric Co., and the Manila Railroad Co., and this consumption of power can easily be increased 50 per cent to meet the growing needs of these companies if hydroelectric power can be substituted. The feasibility of electrifying the railroad lines in central Luzon and the probable demand of power for lighting and other purposes in the Provinces of Pangasinan, Tarlac, Nueva Ecija, Pampanga, Bulacan, and Rizal, with a total population of 1,700,000, through which the transmission lines to Manila would pass, should also argue strongly in favor of developing the Agno River water power.

Mainly in view of these considerations, this project has been investigated and a report rendered based on a preliminary survey made during the past dry season by Mr. H. P. Hart of the irrigation division of the bureau of public works.

The survey shows a total head available of 411 meters (1,346 feet) from the mouth of the Itogon River in Benguet Province to San Manuel, Pangasinan Province, a distance of over 40 kilometers. Preliminary plans contemplate utilizing this head at four plants numbered 1 to 4 in order, descending the river. Sites are available for constructing storage reservoirs for plants 1 to 4 to impound the daily excess flow of the river to take care of peak loads or the maximum daily demands for power. There are no sites available in the Agno River watershed where water could be stored during the rainy season for use during the dry season. A possible site, however, on the Toboy River, near San Manuel, which might be utilized in constructing plant 4 is being investigated. It has, therefore, been found advisable to base the preliminary design for the plants on the mean dry season flow of the river and to use an auxiliary steam plant, which could be located in Manila, to take care of the periods of minimum flow, which usually occur during the months of April and May. Based on stream flow data, which are available for a period of eight years, the plants would have maximum capacities as given hereunder:

	Net head.		Capacity (kilowatts).
	Miles.	Feet.	
Plant 1.....	73	240	15,000
Plant 2.....	102	334	19,500
Plant 3.....	66	217	13,500
Plant 4.....	128.6	412	36,000
	369.6	1,213	84,000

The most costly feature of the proposed development is the construction of the waterways, the greater part of which would be in tunnels apparently through solid rock. The construction of these rather long waterways and the low diversion dams proposed have, however, been found to be the most feasible plan

of development since a series of high dams to utilize the head available would be not only more costly but impracticable on account of the immense flood discharge of the Agno River. The estimated cost of the hydroelectric development, including the cost of construction of roads and transmission lines to Manila, is as follows: Plant 1, ₱6,000,000, or ₱400 per kilowatt; plant 2, ₱8,000,000, or ₱410 per kilowatt; plant 3, ₱6,200,000, or ₱460 per kilowatt; plant 4, ₱13,500,000, or ₱375 per kilowatt; total, ₱33,700,000, or ₱401 per kilowatt.

This estimate is intended to be conservative and compares favorably with the cost of some of the hydroelectric plants constructed in recent years in the western part of the United States. If the estimated cost of a steam auxiliary plant is added to the above estimate and an allowance of 13 per cent made for fixed annual charges (interest sinking fund, maintenance, taxes, insurance, and miscellaneous) and ₱10 per kilowatt for operation charges, power could be delivered in Manila at a cost of approximately 3½ centavos per kilowatt hour on the basis of a load factor of 0.35, or 2½ centavos on the basis of a load factor of 0.50. This means that power could be furnished to Manila and the Provinces already mentioned from the proposed plants at a considerably cheaper price than it can be generated at steam plants with coal at the present market price.

BUREAU OF POSTS.

ORGANIZATION AND PERSONNEL.

At the close of business on December 31, 1921, the personnel of the bureau of posts numbered 3,316, 14 of whom were Americans, and the rest, Filipinos. There was an increase of 79 in the classified service and a decrease of 65 in the unclassified. Two Americans and eight Filipinos were retired under the provisions of act No. 2589. There were 8 post offices, 30 money-order offices, 162 postal savings banks, and 2 telegraph offices opened during the year, making a total of 907 post offices, 421 money-order offices, 642 postal savings banks, 368 telegraph offices, and 16 radio stations in operation.

The last few years witnessed a very material increase in the volume of postal work in all its branches. With inadequate appropriation, the difficulties with which the administration had to contend appeared insurmountable at times. Nevertheless, due to the initiative, energy, and progressiveness of the director, Mr. José Topacio, it was possible to introduce a number of improvements in this service and to start entirely new activities.

ACTIVITIES.

POSTAL BUSINESS.

Railway mail service.—During the year mails were transported over 1,336,999.3 kilometers of railroad at a cost of ₱101,333.65, an increase of 19,383.86 kilometers and ₱4,161.34, respectively, over the records of the previous year.

Mail routes.—There was a slight decrease in the number and length of mail routes. Several routes were consolidated while others were discontinued by taking advantage of other routes. The presence of steamers at several port towns rendered some of the routes useless. During the year 1921, there were 504 mail routes in operation, 426 of which were between post offices, 64 between post offices and mail boats and mail trains and 14 were municipal routes. The length of routes between post offices in operation was 10,055.60 kilometers.

C. O. D. service.—Seventy thousand five hundred and four domestic collect-on-delivery parcels were handled, an increase of 540 over the previous year. The C. O. D. service with the United States which was inaugurated on August 1, 1920 had, up to December 31, 1921, handled 12,471 parcels.

Registry business.—A total of 3,501,561 pieces of registered matter was handled, an increase of 314,640 pieces over the business of the previous year.

Second-class publications.—At the close of the year 127 publications printed in the Philippine Islands were listed as second-class matter, and five newsdealers held permits to mail publications at the second-class rate of postage.

TELEGRAPH OFFICES AND LINES.

Four new telegraph offices were established at Montalón (Cebu), Rio Guinobatan (Masbate), Cantilan (Surigao), and Antipolo (Rizal).

The Antipolo station was only temporary to accommodate pilgrims to that place during the pilgrimage season.

Thirty-nine kilometers of new land lines were constructed and 348½ kilometers of old ones reconstructed. There are now 10,358.86 kilometers of land lines and 1,477.54 kilometers of cables as against 10,318.11 and 1,491.54, respectively, at the close of the year 1920.

Telegraph printing machine.—A telegraph printing machine was installed on July 2 between Manila and Batangas allowing quick transmission and reception of telegrams between these two points.

Combined telegraph-telephone service.—One of the most important accomplishments of the bureau of posts in recent years was the inauguration on July 1 of the combined telegraph and telephone service. Under this system telegraphic messages destined to, or originating at, points which do not have telegraph offices but which are connected with telephone may be accepted without causing the senders or addressees the inconvenience of extra expense to which they were subjected in the past. This arrangement has increased the usefulness of provincial telephone lines and practically extended the benefits of the telegraph service in 277 towns and barrios in 16 Provinces which have come under the system. In order to encourage the extension of provincial telephone lines to those towns and barrios where it is impracticable to establish telegraph stations, a new policy was adopted whereby some of the telegraph poles may be used under certain conditions by the Provinces or municipalities for telephone purposes. This resulted in great economy to the Provinces or municipalities taking advantage thereof, in that the need to erect new poles and to employ linemen at great expense was obviated.

Wireless stations.—A 2-kilowatt radio station was established in the barrio of Amuguis, municipality of Mulanay, Tayabas, on March 5 under an arrangement with the Richmond Petroleum Co. The station at Margosatubig was closed on September 30. The 200-foot steel tower and the buildings for the radio station at Santo Domingo de Basco, Bataues Islands, were completely destroyed by a severe typhoon during the month of July.

The following stations were projected, some nearly completed: Mati (Davao), Lebak (Cotabato), Siasi (Sulu), Bongao (Sulu), Cagayan de Sulu, Balabac (Palawan), Sindangan, Romblon (Romblon), Glan (Cotabato), San Fernando (Romblon), Odiongan (Romblon), Coron (Palawan).

Repairs and improvements have been made on the old 3-kilowatt radio station at San Jose, Mindoro, so that the transmission and reception efficiency thereof has increased.

MONEY-ORDER SERVICE.

The rates of exchange on the United States, Hongkong, and Japan were abnormally high and fluctuating, reaching 15 per cent at times. To prevent abuse of the system by speculators, it became imperative to raise and lower the rates of fees and money orders payable in those countries to the level of the rates charged by local banks. This resulted in a marked increase in the amount of fees collected on money orders payable in said countries. The total number of orders issued was 573,939, amounting to ₱33,640,128.52. There were 53,216 telegraphic transfers issued, amounting to ₱8,525,673.64.

Extension of money-order service to Japan.—After more than 15 years of continuous negotiations, an agreement for the direct exchange of money orders with the Empire of Japan was concluded in 1921, taking effect on March 1. In view of the abnormal condition of the money-order exchange prevailing during the year, the bureau of posts was not at first disposed to inaugurate the service until conditions should have improved. However, upon the earnest request of the Japanese administration to have the service inaugurated at the earliest possible date, it was agreed to commence the service March 1, 1921, in view of the growing commercial relations between the two countries. The statement below will give an idea of the growth of this new undertaking.

Money-order business with Hongkong, Australia, Macao, and Japan.—The number of money orders issued in the Philippine Islands payable in Hongkong was 200, amounting to ₱9,540.38, while the number issued in Hongkong payable in the Philippines was 122, amounting to ₱2,836.06. The number issued in the Philippine Islands payable in Australia was 21, amounting to ₱622.40, while the number issued in Australia payable in the Philippines was 87, amounting to ₱2,638.02. The number issued in the Philippines payable in Macao was 2, amounting to ₱21.82, while the number issued in Macao payable in the Philippines was 3, amounting to ₱42.70. The number issued in the Philip-

pines payable in Japan was 394, amounting to ₱38,502.38, while the number issued in Japan payable in the Philippines was 136, amounting to ₱13,399.28.

United States and foreign money-order business.—The total amount of money sent out of the Philippines by means of the money-order service was ₱2,722,137.06, an increase of ₱1,206,146.06 over the preceding year 1920. The amount of United States and foreign orders paid in the Philippines was ₱2,066,651.76, thus leaving a balance in our favor of ₱655,485.30.

POSTAL SAVINGS BANK.

Depositors and accounts.—More than 94 per cent of all depositors in the bank are Filipinos. This is 24 per cent over the preceding year. The number of new accounts opened during the year increased 36.6 per cent, and of accounts closed 26.6 per cent. The number of accounts open at the close of the year showed an increase of 21 per cent, and in the amount due depositors a decrease of 0.68 per cent. During the fiscal year under review, there was a decrease of 5.4 per cent in the amount of interest paid on closed accounts and 1.8 per cent in the amount of accrued interest added to accounts open at the close of the year.

The reserve fund of the postal savings bank as of December 31, 1921, amounted to ₱227,249.40, an increase of ₱77,672.32 over the previous year.

FINANCIAL STATEMENT.

The 1921 revenues of all the divisions of the bureau of posts, compared with 1920, decreased, except the money-order division which registered an increase of receipts of ₱58,652, or 20 per cent, as shown in the following table:

Comparative statement of revenues for 1920 and 1921.

Division.	Fiscal years—	
	1920	1921
Telegraph.....	₱1,487,959.69	₱1,340,925.46
Inspection.....	1,562,097.37	1,521,240.37
Money order.....	293,883.06	352,535.06
Postal Savings Bank.....	356,156.20	354,581.55
Total.....	3,700,096.32	3,569,282.44

BUREAU OF SUPPLY.

ORGANIZATION AND PERSONNEL.

During the year there have been practically no changes in the organization of the bureau of supply. As the bureau now stands it is composed of the purchasing agent, the buying division, the accounting division, the division of supplies, and the division of cold storage. The civil-service classified personnel on January 1, 1921, numbered 106. There were 12 original appointments made during the year, and 22 were separated, 14 by resignation, 4 by transfer, 3 by death, and 1 by other causes, leaving 96 in the classified service at the end of the year. Those in the unclassified service have also been reduced from 411 at the beginning of the year to 267, consisting of 8 temporary employees, 25 watchmen, and 234 semiskilled and unskilled laborers at the close of the year.

Mr. Miguel Cuaderno is at the head of this bureau. He has handled its affairs in a praiseworthy manner.

APPROPRIATION.

The appropriation act for 1921 allotted to the bureau of supply the amount of ₱1,230,626, of which ₱567,270 was for the bureau of supply proper and ₱663,356 for the division of cold storage. In view of the financial condition of the government these amounts were reduced by the emergency board to ₱466,522 and ₱565,756, respectively. Comparing these reduced amounts with those allowed for the year previous, the bureau of supply appropriation was decreased 23 per cent for the bureau of supply proper and 14 per cent for the division of cold storage.

STOCK.

In view of the general business depression prevailing in the Philippines and elsewhere there were practically no purchases for stock made during the year except a few items which were regularly required by the government in quantities sufficient to last for two or three months. A physical inventory of the stock of the bureau of supply, taken under the supervision of a representative of the insular auditor, valued it at ₱4,992,250.47, while the amount shown on the books was ₱4,974,700.37, showing a difference of ₱17,550.10.

OPERATIONS OF THE BUREAU.

Purchases and sales.—The amount of purchases and sales together was ₱36,020,490.59, while that of the previous year was ₱45,539,754.86. The amount of purchases made by the bureau of supply was ₱17,312,084.32, and that made by the different branches of the government on contracts entered into by the bureau of supply under the direct order and payment system was ₱1,819,635.50, reaching the sum total of ₱19,131,719.82. These purchases were distributed as follows: From Manila or through Manila merchants, ₱10,612,292.93, or 55.469 per cent of the total; from the United States through the purchasing agent at New York, ₱8,497,275.70, or 44.414 per cent of the total; and from other countries, ₱22,151.19, or 0.115 per cent of the total. The sales aggregating ₱18,708,406.27, or ₱4,355,148.38 less than those of 1920, are classified as follows: To bureaus and offices in the city of Manila, ₱13,730,434.69; to Provinces, ₱3,750,712.09; to municipalities, ₱1,210,776.44; and to private parties, ₱16,483.05.

Requisitions and orders.—The number of requisitions received during the year was 17,056, while that of the preceding year was 19,317, showing a decrease of 2,261. These requisitions were received as follows: From bureaus and offices in the city of Manila, 7,970, and from Provinces and municipalities, 9,086. About 50,000 cards for local purchases and 30,000 issue orders from the stock of the bureau of supply were made out. Eighty-three circular proposals covered by about 250 awards, 1,116 letter orders, 49,233 buyers' orders with local firms, and 546 orders from our purchasing agent at New York were issued during the year. Four million five hundred and eight thousand one hundred and fifty packages weighing 78,959.3 metric tons and 5,696.177 board feet of lumber were delivered by trucks to the bureaus and offices in the city of Manila: 420,977 packages weighing 27,809,539 metric tons and 2,230,632 board feet of lumber were shipped either by rail or by water to the different Provinces and municipalities all over the islands; and 2,123 packages weighing 1,985.649 kilos were shipped by mail at a total cost of ₱917.11. Aside from this, 204 packages weighing 52,177 tons were also shipped to foreign countries, thereby making a total of 4,931,454 packages weighing 106,823.002 metric tons and 7,926,809 board feet of lumber issued during the year. The shipments were covered by 19,629 bills of lading, as against 18,552 bills of lading issued during the year previous, or an increase of 1,077.

Earnings.—The percentage of operating expenses to cost value of sales was 2.81 per cent showing that, even if the bureau of supply had been allowed a surcharge of only this percentage on the net cost of supplies sold instead of 5 per cent as is now provided by law, it would still be able to operate on its earnings. The surcharges derived from direct purchases made by the different branches of the government under what is known as the direct payment order system amounted to ₱36,393.71. The gross earnings for the year, exclusive of the division of cold storage, aggregated ₱1,025,122.71 while the expenses totaled ₱493,851.89, a net gain on operation of ₱531,270.82.

THE ICE PLANT.

This is a revenue-producing institution, having turned over to the insular treasury the amount of ₱956,456.79, or 69 per cent more than the amount allotted to it for operation. In spite of the economic depression prevailing, the business done by the ice plant during the year exceeded that of 1920 by ₱34,162.77. The earnings of the division of cold storage amounted to ₱957,259.90, while the expenses of operation were ₱612,405.39, giving a net gain of ₱344,854.51.

BUREAU OF COMMERCE AND INDUSTRY.

PERSONNEL AND ORGANIZATION.

During the absence of Director Fidel A. Reyes on his tour of duty in the United States and in Europe in connection with the Philippine commercial publicity, until his return on September 9, 1921, Assistant Jorge B. Vargas acted as director and managed the affairs of the bureau efficiently. Mr. Vargas was ably assisted by Mr. Serafin Marabut, special agent, who was designated acting director on two occasions when the former was away from Manila on official inspection.

At the close of the year there were in the classified service of the bureau 1 American and 260 Filipinos, and in the unclassified service, 3 Americans and 970 Filipinos, while 21 were of other nationalities, making a total of 1,255.

In order to insure a more systematic and effective operation of the bureau of commerce and industry, the internal organization was, effective the first day of the year, revised and modified so that a more scientific coordination of all the work could be brought about by a proper arrangement and grouping of divisions and sections and a clearer definition of the activities pertaining to each.

BUSINESS CONDITIONS.

Due to the financial depression prevailing all over the world, the foreign and domestic commerce of the Philippines suffered a tremendous slump—the foreign trade, by 32 per cent, and the domestic commerce, by 38 per cent. For the first time in recent years, imports exceeded exports in value by ₱55,446,503. This was a tremendous drain upon our funds, and caused the almost sudden recession of the exchange value of our currency. The imports for 1921 amounted to ₱231,677,148, a decrease of ₱67,199,417 from that of 1920. The exports for 1921 amounted to ₱176,230,645, a decrease of ₱126,017,066 from that of the preceding year.

CHANGE IN THE RICE SITUATION.

In the years 1918, 1919, and 1920, due to an apparent insufficiency of the rice stock in the Philippine Islands on account of poor harvest and lack of importable cereal, the problem which the government had to solve was one of procuring an adequate supply of rice, distributing it among the consumers, and keeping the price from soaring to prohibitive rates. Since the latter part of 1920 the situation began to change conversely so that early in 1921, due to the abundance of the cereal of local production, it became a problem of protecting the rice industry in the islands from foreign competition. With this end in view, the Philippine Legislature, on February 28, 1921, passed act No. 2993, entitled "An Act empowering the Governor General to prohibit temporarily and for a fixed period the importation of rice." Under this law the Governor General issued proclamations Nos. 6 and 16, placing a ban on the importation of rice until June 15 and October 15, 1921, successively. As in the two preceding years when the rice problem was different, the bureau of commerce and industry was charged with the duties of executing their provisions with the necessary cooperation of the bureau of customs, the provincial treasurers, fiscals, and other officials.

ACTIVITIES.

The first half of the year saw unprecedented activities in the different divisions of the bureau, particularly those that comprise the trade promotion group, which carried on their campaign through personal interviews, letters, bulletins, magazine articles, advertisements, and other means. One important gratifying result of this work has been the receipt from various countries of increasingly numerous commercial inquiries and requests for trade connections with local firms and merchants, the great bulk of which came from the United States and the countries surrounding the Philippines, including Australia. An increase of correspondence with the South American, European, and even African countries, has also been noted. During the last six months of the year, however, owing to the withdrawal by the emergency board of a considerable portion of its appropriation, the activities of the bureau had to be

restricted. Many employees, laborers, and sailors were dropped from the service by abolition of their positions. Some of the coastguard cutters were put out of commission and the marine railway and repair shops had to curtail their operations.

MERCANTILE REGISTRY.

There were registered in the year under review 291 corporations with a total capital stock of ₱18,616,450, of which ₱7,957,616 were subscribed and ₱6,148,128 were paid up. In the city of Manila 192 partnerships with ₱13,435-106 capital were registered. Comparing these figures with those of 1920, the total investment in corporations and partnerships decreased by ₱11,405,512 although, in partnerships, there was an increase of ₱850,458. It is encouraging to note, however, that investments in corporations and partnerships began to increase in the last quarter of the year.

GOVERNMENT VESSELS.

At the beginning of the year there were in operation by the bureau the following insular government vessels: Cableship *J. Bustamante*, the cutters *Basilan*, *Corregidor*, *Negros*, *Polillo*, *Tablas*, *Ranger*, the steamship *Midget*, the launches *Jolo Ethel*, *Ilocano*, *Viola*, *Rizal*, and the scows known as *No. 3* and *No. 6*. About the middle of the year the cutter *Yacona* was added by transfer from the United States Government, and the cutter *Romblon* was returned by the bureau of coast and geodetic survey. In view of the retrenchment policy adopted by the government, the cutters *Ranger*, *Busuanga*, *Romblon*, and *Negros* have been laid up at different dates during the year, as well as the launches *Ilocano* and *Rizal*.

MARINE RAILWAY AND REPAIR SHOPS.

As in previous years, the marine railway and repair shops have undertaken miscellaneous construction and repair works for all branches of the government, the engineering department and quartermaster transports of the United States Army in the Philippines, and private parties. Its business includes construction, inspection, and repair of vessels and apparatus for lighthouse stations and miscellaneous machine work. Seven hundred and forty-two work orders were issued and executed during the year.

FOREIGN AND DOMESTIC AGENCIES.

During 1921 the bureau had two agencies in the United States, one at New York, N. Y., and the other at San Francisco, Calif. and three provincial agencies which cover the Provinces of Cebu, Bohol, Oriental Negros, Surigao, Leyte, Samar, Iloilo, Occidental Negros, Capiz, Antique, and Romblon. The agencies for the other Provinces have not been opened, due to the suspension by the emergency board of the appropriations therefor.

PARTICIPATION IN EXPOSITIONS AND CARNIVALS.

One of the most notable participations made by the bureau was that in the Fifth International Exposition of Rubber, Other Tropical Products, and Allied Industries, held in London, England, in June, 1921. Our exhibits attracted the attention of the visitors, including a member of the royal family of England, Princess Louise, and the lord mayor of London. The Philippine participation was awarded a gold-medal prize and several diplomas of honor.

The bureau also participated in the Magallanes Centennial Exposition held in Manila in conjunction with the Magallanes carnival of 1921. Its exhibition attracted the attention of the multitude of visitors and obtained for the bureau two diplomas and one medal awarded by the board of awards of the 1921 Magallanes carnival, and the commission of the fourth centennial of the discovery of the Philippines.

In the Cebu carnival exposition, in which the bureau also took part, its exhibition received the favorable comment of the press. It was awarded two diplomas for the exhibits.

MISCELLANEOUS ACTIVITIES.

The bureau is carrying on a trade-information service and undertakes investigations and researches on commercial and industrial subjects; issues daily, weekly, and monthly market reports and press notes on trade activities and opportunities; compiles statistics; and renders tourist service by giving tourists information and all possible assistance on their arrival here and arranging and conducting all the sight-seeing, shopping, and business tours these visitors wish during their stay in the country.

BUREAU OF LABOR.

PERSONNEL AND ORGANIZATION.

The personnel of the bureau of labor consisted of 74 officers and employees paid from regular fund and 71 officers and employees paid from the migration fund, a total of 145, as against 75 of the former class and 76 of the latter, respectively, or altogether 151 for 1920. The only change effected in the organization of the bureau was the conversion of the agency in Manila into a separate division, now called the employment and marine division.

EXPENDITURES.

The appropriation for 1921 was ₱291,630, which, added to the balance of the previous appropriation amounting to ₱1,522.87, aggregated a total of ₱293,152.87. This sum was reduced by the emergency board by ₱48,097.95, but was later increased with an additional allotment of ₱15,000, so that the total sum available reached ₱260,054.92. A strict economic policy consistent with efficiency was pursued so that the expenditures were reduced to ₱248,466.76, and ₱11,588.16 reverted to the insular treasury.

ACTIVITIES.

(a) *Inspection of centers of labor.*—As there were only five factory inspectors and one mechanical inspector available for the inspection work, several provincial agencies were required to give assistance in the collection and acquisition of labor statistics besides performing their regular duties.

Up to the middle of the year, when the inspection work in the Provinces had to be suspended in view of the economic program of the government, 14 Provinces had been covered and three others partially inspected. The inspection of the city of Manila was completed at the close of November. Notwithstanding the curtailment of force, 5,989 factories, industries, and plantations or haciendas were inspected during the year as against 4,428 for the year 1920.

(b) *Interisland migration labor movement.*—The activities of the bureau in this connection were suspended by the middle of the year. However, 717 homeseekers with 2,451 members of family, totaling 3,168, as against 3,045 for the previous year, were recruited.

(c) *Propaganda committees.*—At the close of the year there were constituted, for the encouragement of laborers to settle unoccupied public lands and become small landholders, 343 propaganda committees, as against 252 for the previous year.

(d) *Strikes and other industrial disputes.*—There were reported to the bureau during the year 35 strikes and other industrial disputes with 19,782 working people directly involved, as against 68 conflicts for the previous year registering a decrease of 48.5 per cent. Of this number 13 were adjusted favorably to the workers, while 22 were decided unfavorably. With nine exceptions, the workers involved belonged to labor unions.

(e) *Claims and complaints.*—The bureau handled during the year 549 claims and complaints, 392 being the number for the previous year. The aggregate amount involved was ₱46,357.53, as against ₱35,674.89 for the previous year. Of these claims and complaints, 344 were adjusted in favor of the claimants, 4 of which were adjudged in the court, and 205 were settled unfavorably to the claimants. At the close of the year there were 56 claims and complaints pending for solution, involving the amount of ₱3,962.35.

(f) *Labor accidents.*—During the year there were reported 306 labor accidents, with 246 victims, as compared with 460 with 387 victims for the year 1920.

(g) *Employment agencies.*—Registration and placement of laborers: There has been a constant decrease both in the registration and employment of laborers. During the year there were 3,765 registrations and 3,028 placements, as compared with 4,497 registrations and 3,416 placements, respectively, for the previous year. This result was due to the general economic depression.

Several firms and factories responded to the call issued by the bureau for help in favor of the unemployed, and many were consequently given employment. This helped in bettering the situation.

(h) *Emigrant laborers to the Territory of Hawaii.*—During the year, 6,814 persons emigrated to Hawaii, the greatest number on record, due to unemployment in the islands and the alluring offers made by the agents of the Hawaiian Sugar Planters' Association. On the other hand, the number of laborers returning to the islands has been increasing, particularly during the last two years, the last increase registered in 1921 being 111 per cent over the record of the previous year.

Through the efforts of the bureau of labor with the Hawaiian Sugar Planters' Association, far better conditions than formerly are now offered to Filipino laborers contracted for Hawaii.

(i) *Other activities.*—Among the activities intended to promote the economic and moral conditions of the laborers may be mentioned the thrift campaign and the campaign against Pintakasi, or the holding of cockfights, during patronal days. The first step in this direction was taken on July 23, 1921, when a convention of presidents and leaders of labor unions was held at the bureau of labor where the advantages of small savings were explained. The campaign has been extended to the Provinces through the labor agencies and post offices. Another convention was held on August 26, 1921, which was largely attended by representatives of labor, capital, and organized chambers of commerce of the city of Manila. At this convention, a committee was appointed to submit proposed legislation limiting the celebration of cockfights to Sundays. It was gratifying to note the spontaneous general desire of holding periodical conventions for the discussion of matters tending to promote the interests of both labor and capital and for the better and closer relations between these factors of production. Several conventions have already been held, and it is hoped that, with the manifest and enthusiastic willingness of all concerned to cooperate, the bureau of labor can do much to improve the commercial, industrial, social, educational, moral, and sanitary conditions of the working classes.

SPECIAL LABOR COMMISSIONER TO HAWAII.

In August, 1920, Mr. Francisco Varona was appointed special labor commissioner to Hawaii in accordance with act No. 2486, and sailed for Honolulu on the 30th of September of the same year. Mr. Varona inspected the Hawaiian plantations as regards the conditions of the Filipino laborers employed therein, heard their complaints, and looked into their needs, held conferences with the management of the Hawaiian Sugar Planters' Association, and secured for the Filipino laborers, among others, the following concessions: General free transportation; the appointment of Filipino interpreters, who are at the same time recognized leaders on the plantations, to act as intermediary between the Filipino laborers and the planters; the employment of female Filipino nurses on the plantations; and the systematic campaign for the promotion of mutual understanding between the laborers and their supervisors.

From Honolulu Mr. Varona sailed for San Francisco on February 8, 1921, to investigate the labor conditions on the Pacific coast as affecting the Filipinos, pursuant to orders given to him to that effect. Incidentally he was appointed delegate of the Philippine Government to the annual convention of the Association of Governmental Labor Officials of the United States and Canada, held at New Orleans in May, 1921. He was elected fourth vice president of the association in this convention and "made a very fine impression," according to a letter received from the secretary-treasurer of the association. The members of the Kansas Court of Industrial Relations being at New Orleans during the convention, Mr. Varona secured from them valuable information concerning the constitution and operation of that court. He returned to Manila from his mission June, 1921, and, shortly after his arrival, rendered to his excellency the Governor General, a very interesting report of his commission.

BUREAU OF COAST AND GEODETIC SURVEY.

The bureau of coast and geodetic survey had a personnel consisting of 269 officials and employees, 40 of whom were Americans and 229 Filipinos, partly paid from Federal and partly from insular funds, with the same arrangement for the division of expenses as previously existed.

The organization of the bureau has been much improved by the creation of a new branch, the division of photolithography. This addition is important in that all charts and geographical data can now be printed in Manila, and hence a delay of at least six months in having the work done in the United States is saved, and the public can be furnished this valuable information immediately.

The general plan of operations has been followed with practically no change as in former years.

Due to the economy program of the government, only three surveying vessels were left in operation during the period covered by this report, namely, the *Pathfinder*, the *Fathomer*, and the *Marinduque*.

Besides the photolithographic division, already mentioned, the bureau is divided into the computing, the drafting, the geographical, and the chart divisions.

The computing division received 143 survey records from the survey field parties during the year, classified into triangulation, hydrography, tides, and magnetic. Besides performing the routine duties this division has furnished promptly all information requested by the public and by other government bureaus.

The drafting division received from the survey parties 12 topographic and 19 hydrographic sheets. They were completed and forwarded to the Washington office for printing five chart tracings consisting of two new charts, one new edition, and two correction pieces for new editions. There were completed and retained in Manila, for reprinting in the photolithographic division 13 chart tracings. At the close of the year three new charts, one new edition, and seven correction tracings were under construction.

The geographic division completed the drawing of the topographic map of Northern Luzon and published the map of Samar and the adjacent islands. Work on the maps of Mindanao Island, of Negros and Siquijor Islands, and of the whole Philippine Islands was in progress at the end of the year. A total of 249 maps and blue prints were issued during the year and 497 sold, the receipts amounting to ₱933.70.

The chart division carried on its work satisfactorily in the correction and sales of charts and publications. The usual quarterly Notices of Mariners were prepared and distributed and a variety of nautical information furnished to persons on request.

BOARDS OF EXAMINERS FOR THE PROFESSIONS OF ENGINEER AND ARCHITECT.

Pursuant to act No. 2985, there was appointed a board of examiners composed of three members for each of the professions of civil engineer, mechanical engineer, electrical engineer, mining engineer, chemical engineer, and architect.

Due, however, to the fact that the majority of the members of the boards of examiners for mining and chemical engineers did not possess the required qualifications and to the lack of legally competent persons for the positions, these boards were abolished on June 28, 1921. With the exception of the board of examiners for civil engineers and the board of examiners for architects, the rest did not function.

BOARD OF EXAMINERS FOR CIVIL ENGINEERS.

The cooperation of the various boards for the different branches of the professions of engineering and architecture was sought for the adoption of uniform rules and regulations governing the procedure of all the boards. Four joint meetings were held and, at the last, which took place on July 7, a set of rules and regulations was approved, which was later revised in accordance with recommendations of the attorney general.

Examinations for July 11 and 12 were announced, but only one application was received, which was rejected due to insufficient qualifications of the applicant.

Forty applications were submitted for certificates without examination in accordance with section 11, act No. 2985, of which 34 were approved and 6 disapproved.

The expenses of the board for 1921 were as follows:

Certified expenditures.....	₱285.92
Obligations.....	234.00

The income amounted to ₱40. About ₱360 are still to be collected from applicants whose applications were approved during the year and who withheld their payments pending the receipt of lithographed certificates.

BOARD OF EXAMINERS FOR THE PROFESSION OF ARCHITECT.

The board adopted, on October 20, 1921, rules and regulations governing its procedure. Application forms, both to obtain a certificate without examination and to qualify in the examination, were issued.

Announcement was made for examinations on the second Monday, not a holiday, of January and July, according to the provisions of act No. 2985, but same could not be held in view of the fact that there were no applications. Up to the present time, only 16 applicants have filed applications for certificate without examination.

The board has collected, so far, for certificates of registration, ₱60.

THE POSTAL SAVINGS BANK BOARD.

The Postal Savings Bank board is composed of the secretary of commerce and communications as chairman, the secretary of finance as vice chairman, the attorney general, the insular auditor, and the director of posts. The board held 10 meetings during the year and passed 59 resolutions, most of which concerned applications for loans, both original and renewal, from private parties as well as from Provinces and municipalities.

In addition to the information contained elsewhere in this report, the following table will show the nature of the investments of the Postal Savings Bank's funds:

Investment of bank funds at close of year.

	Dec. 31, 1919.	Dec. 31, 1920.	Dec. 31, 1921.
TIME DEPOSITS.			
Philippine National Bank at 3½ per cent.....	₱1,520,000.00	₱590,000.00	₱880,000.00
Bank of the Philippine Islands at 6 per cent.....			50,000.00
BONDS.			
Philippine Railway Co. at 4 per cent.....	505,000.00	505,000.00	505,000.00
Manila Railroad Co. at 4 per cent.....	323,875.50	323,875.50	323,875.50
City of Manila at 4 per cent.....	460,000.00	460,000.00	460,000.00
U. S. Liberty Loan at 4 per cent and 4½ per cent.....	350,000.00	350,000.00	
Real-estate mortgages at 7 per cent, 8 per cent, and 9 per cent.....	2,320,431.66	3,208,535.84	2,955,278.03
Retirement gratuities discounted at 6.38 per cent and 4 per cent.....	430,524.97	378,756.12	247,071.39
Loans to Provinces and municipalities.....	50,000.00	486,457.25	587,582.00
Loan to insular government.....		185,000.00	85,000.00
Accounts receivable.....			42,910.50
Total.....	5,959,832.13	6,487,624.71	6,136,717.42

THE IRRIGATION COUNCIL.

During the year 1921 the irrigation council consisted of the undersigned, as ex officio chairman, Hon. Leoncio Grajo, chairman of the committee on agriculture of the house of representatives, Hon. Ruperto Kapunan, chairman of the committee on public works of the house of representatives, Mr. José Páez, director of public works, and Mr. Matías Gonzales, agriculturist, as members.

The council held two meetings during the year. At these meetings 145 applications for water rights were considered, 115 of which were approved and 30 disapproved. Of the applications approved, 99 were for the purpose of irrigating approximately 15,000 hectares of lands and 16 for developing a maximum of 3,083 horsepower.

The council also approved regulations submitted by the municipal council of Cabugao, Ilocos Sur, for the temporary administration of all irrigation systems from the Cabugao River pending the adjudication of water rights on this stream. Similar regulations, submitted by the city council of Baguio, were also approved for the administration of irrigation systems from the Bued River within the city of Baguio.

RECOMMENDATIONS.

The following recommendations are made:

1. That, as soon as conditions may warrant, serious consideration be given to the Agno River hydroelectric development project, the importance and advantages of which have been gone into elsewhere in this report;

2. That the policy of the government in relation to the appropriation of waters and lands valuable for water power be defined. The wisdom of retaining in the people the title to and control over these valuable properties, although permitting under certain conditions their development and use by private enterprise, is suggested;

3. That serious consideration and study be given to the road construction and maintenance problem, including their proper financing, and the adoption of a general road policy and program, so essential to an efficient road administration. If the road system is to be extended and the existing roads are to be satisfactorily conserved, the laws under which revenues for road purposes are exacted should be revised;

4. That an act be passed regulating the establishment and operation of wireless stations. The necessity for such legislation is obvious;

5. That an insurance fund be created to afford protection to laborers against old age, illness, and accidents; and

6. That an act be passed regulating strikes and lockouts; creating a board of conciliation and arbitration to prevent, avert, or settle strikes and lockouts; fixing the hours of labor in all industries, shops, factories, etc.

Very respectfully,

DIONISIO JAKOSALEM,
Secretary of Commerce and Communications.

The GOVERNOR GENERAL,
Manila, P. I.

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