

B 697,356

CENSUS OF
THE PHILIPPINE
ISLANDS: 1903
VOLUME FOUR

CENSUS
OF THE
PHILIPPINE
ISLANDS
1903



VOLUME IV

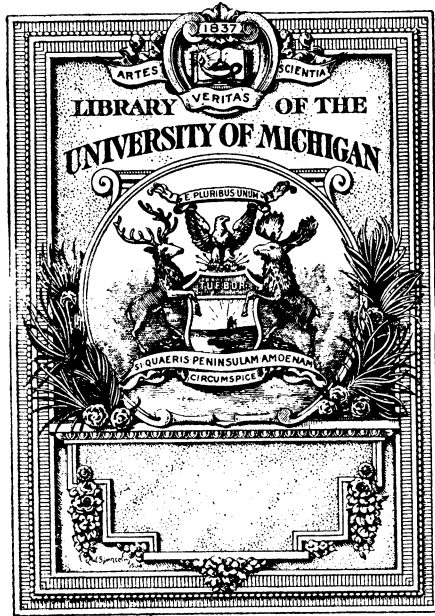
HA
1521
19036

AGRICULTURE
SOCIAL
AND
INDUSTRIAL
STATISTICS

1

1905

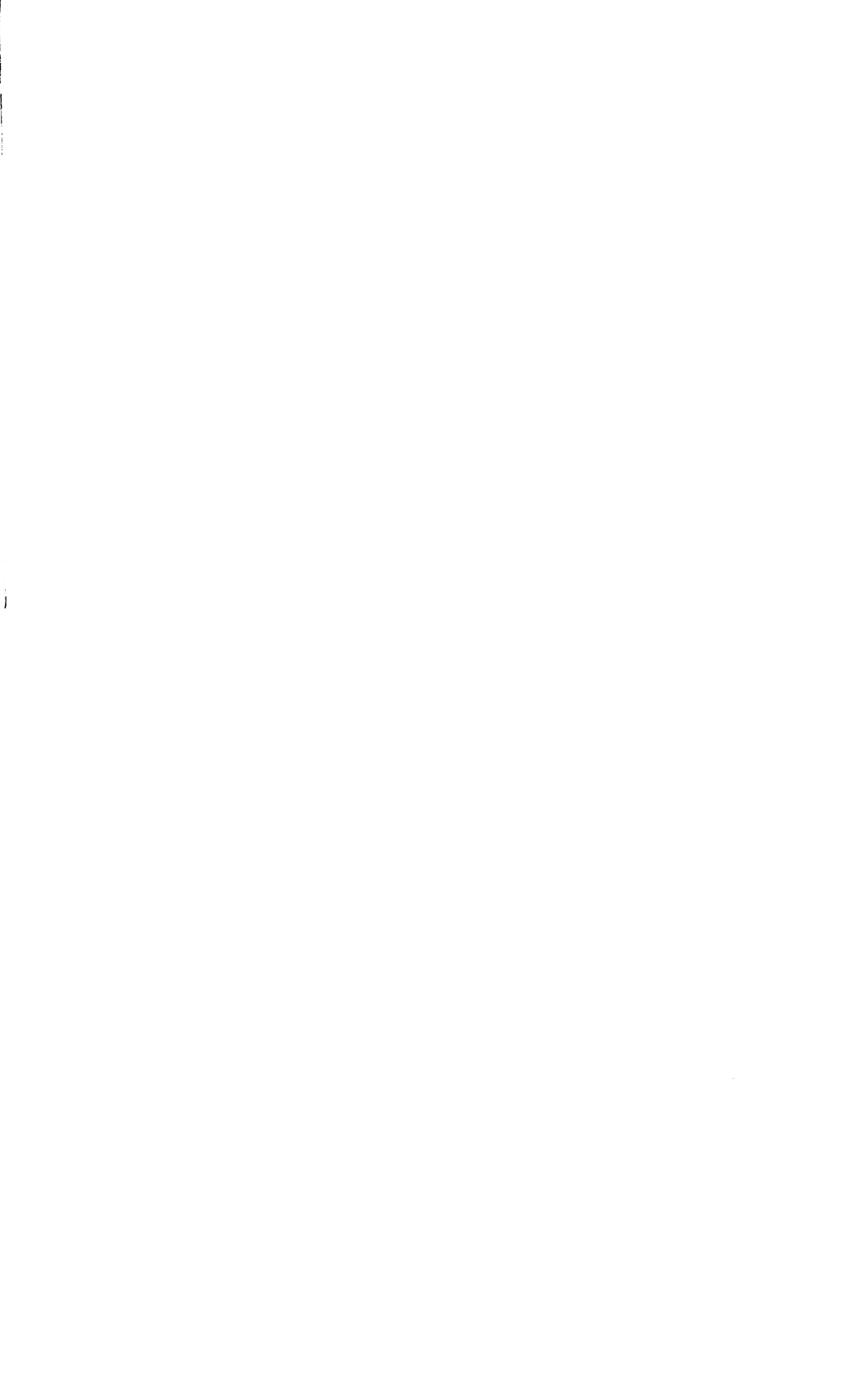
**BUILDING
USE ONLY**



H.A.
192

**BUILDING
USE ONLY**

**BUILDING
USE ONLY**





CENSUS OF THE
PHILIPPINE ISLANDS



VOLUME IV

CENSUS
OF THE
PHILIPPINE ISLANDS

Taken Under the Direction of the
Philippine Commission in
the Year 1903



IN FOUR VOLUMES

VOLUME IV

AGRICULTURE, SOCIAL AND
INDUSTRIAL STATISTICS



Director

GEN. J. P. SANGER, U. S. A.

Assistant Directors

HENRY GANNETT VICTOR H. OLMSTED



COMPILED AND PUBLISHED BY THE

UNITED STATES, BUREAU OF THE CENSUS
WASHINGTON, 1905

Government Printing Office

CONTENTS.

- VOLUME I.—Geography, History, and Population.
 VOLUME II.—Population.
 VOLUME III.—Mortality, Defective Classes, Education, and Families
 and Dwellings.
 VOLUME IV.—Agriculture, and Social and Industrial Statistics.

VOLUME IV.

AGRICULTURE.

	Page.
I. Products of the archipelago.....	11
Importance and extent, 11. Manila hemp, or abacá, 14. Sugar, 25. Tobacco, 32. The coconut, 53. Coffee, 76. Rice, 86. Indigo, 97. Dyewoods, 103. Cacao, 104. Miscellaneous products, 117. Do- mestic animals, 130. Fruits, vegetables, and fiber plants, 132.	
II. Returns of the census.....	177
The schedule, 177. Collection and tabulation of data, 178. Agri- cultural lands, 180. Number and size of farms, 183. Farm areas, 186. Color of farmer and tenure, 188. Comparison of cultivated areas, by years, 198. Products, 201. Domestic animals, 224.	

GENERAL TABLES.

Table 1.—Number of farms and other parcels of land used for agriculture, and classification of lands, by provinces and comandancias....	250, 251
Table 2.—Number of farms and other parcels of land used for agriculture, and classification of lands, by principal islands.....	252, 253
Table 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias.....	254-259
Table 4.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by principal islands.	259, 260
Table 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandan- cias.....	261-266
Table 6.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by principal islands.....	266, 267
Table 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias..	268-276
Table 8.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by principal islands.....	276-278
Table 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias.	278-286
Table 10.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by principal islands.....	287-289

	Page.
Table 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias	289-294
Table 12.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by principal islands...	295, 296
Table 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias	296-301
Table 14.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by principal islands.	302, 303
Table 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, by provinces and comandancias	303-311
Table 16.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, by principal islands	312-314
Table 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias	314-322
Table 18.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by principal islands..	322-324
Table 19.—Acreage and production of crops, by provinces, comandancias, and principal islands: 1902	325-328
Table 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias	329-339
Table 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands	340-350
Table 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias	351-361
Table 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands ..	362-372
Table 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias	373-383
Table 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands	384-394

SOCIAL STATISTICS.

I. The schedule	395-397
II. Newspapers and periodicals.....	398-402
Early censorship of the press, 398. Newspapers in 1902, 400. Tables, 401.	
III. Property values and taxes	403-406
General statement, 403. Relative values and taxes, by provinces and comandancias, 404.	
IV. Public libraries	407
Advisability of establishing public libraries, 407. Number of libraries, 407.	

	Page.
V. Hospitals	408-411
Reasons for inadequate facilities, 408. Four principal hospitals, 408. Number of hospitals and patients, 409.	
VI. Churches	412-414
Relative importance of Catholic and Protestant churches, 412. Number, value, and capacity of churches, 412.	
VII. Pauperism	415
VIII. Criminals and prisons	416-426
Number and nativity of convicts, 416. Most common crimes, 417. Prisons, 418. Penitentiaries, 421. Bilibid prison, 423.	
IX. Labor and wages	427-446
Causes of scarcity of labor, 427. The Filipino as a laborer, 427. Wage tables, 434.	
X. Systems of measurement	447-457
Metric system, 447. List of weights and measures, 448.	

MANUFACTURES.

I. Development and progress	459-470
Aptitude of people, 459. Reasons for lack of enterprise, 459. Con- ditions in 1810, 461. Principal articles manufactured, 463.	
II. Analysis of returns	471-492
Form of schedule, 471. Collection and tabulation of data, 471. In- dustries in order of importance, 473. Sugar producing industry, 487. Hemp fiber industry, 490.	

GENERAL TABLES.

Table 1.—Summary of manufacturing establishments, the value of whose products amounted to 1,000 pesos or over in each establish- ment, by provinces and comandancias: 1902	494, 495
Table 2.—Summary of manufacturing establishments, the value of whose products amounted to 1,000 pesos or over in each establish- ment, by specified industries: 1902	496, 497
Table 3.—Summary of manufacturing establishments, the value of whose products amounted to 1,000 pesos or over in each establish- ment, by groups of industries: 1902	498-501
Table 4.—Manufacturing establishments, the value of whose products amounted to 1,000 pesos or over in each establishment, by speci- fied industries for provinces and comandancias: 1902	502-513
Table 5.—Specified industries, the value of whose products amounted to 1,000 pesos or over in each establishment, by provinces and comandan- cias: 1902	514-527
Table 6.—Summary of sugar producing establishments, the value of whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902	528, 529
Table 7.—Summary of sugar producing establishments using steampower, the value of whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902	528, 529
Table 8.—Summary of sugar producing establishments using waterpower, the value of whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902	530, 531
Table 9.—Summary of sugar producing establishments using hand or animal power, the value of whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902	530, 531

FISHERIES.

Importance of industry, 533. Pearl fisheries, 534. Moro fishing, 534.

Page.

CURRENCY AND BANKING.

Monetary standard, 537. Ratio between American and Mexican currency, 538. Number of banks, 541. Spanish-Filipino Bank, 541. Banking statistics, 542.

INSURANCE.

I. Fire and marine 545-553
List of companies and kind of property each insures, 545. Rates, 546.

GENERAL TABLES.

Table 1.—Number and amount of risks written by fire and marine insurance companies transacting business in the Philippine Islands during the year ending December 31, 1902. 550, 551
Table 2.—Number and amount of risks written by fire and marine insurance companies transacting business in the Philippine Islands outstanding December 31, 1902 550, 551
Table 3.—Operating expenses, earnings, and number and amount of losses of fire and marine insurance companies in the Philippine Islands during the year ending December 31, 1902 552, 553
II. Life 554, 555
Companies, 554. Data regarding extent of life insurance, 554.

COMMERCE AND TRANSPORTATION.

I. Commerce 557-585
Early restrictions, 557. Customs duties, 558. Growth of commerce, 564. Foreign and interisland shipping facilities, 575.
II. Transportation 586-603
Condition of roads, 586. Means of transportation, 586. Steam railroads, 595. Benguet electric railway, 598. Street railways, 600.
III. Telegraph lines 604-618
List of telegraph and cable lines, 605. Number of messages, 608. Value of property, 609. Employees, 609. Telephones, 611. Army Signal Corps telegraph system in the Philippines, 611.
IV. Express companies 619, 620
Agencies, 619. List, 619. Volume of business, 619. Future of the business, 620.
Index 621

MAPS.

Production of tobacco in kilograms per hectare of cultivated land, colored map Facing page.
209
Production of cotton in kilograms per hectare of cultivated land, colored map 209
Production of abaca in kilograms per hectare of cultivated land, colored map 210
Production of copra in kilograms per hectare of cultivated land, colored map 214
Production of rice in kilograms per hectare of cultivated land, colored map 219
Production of sugar in kilograms per hectare of cultivated land, colored map 220
Distribution of carabao, expressed in the form of the number of inhabitants to one carabao, colored map 227
Death rate of carabao, colored map 229

ILLUSTRATIONS.

	Facing page.
Coffee plant, showing the remarkable luxuriance of the growth.....	16
Stripping abacá (hemp)	16
The abacá, or "Manila hemp," plant.....	16
Cacao tree, showing fruit at maturity.....	16
Fine samples of Manila hemp, Bureau of Agriculture, Manila.....	18
Hemp fiber and pulp.....	18
Hemp stripper.....	40
Tobacco fields, provinces of Cagayán and Isabela.....	40
Tobacco leaves arranged in "hands" for curing.....	40
Sugar cane, showing the luxuriant growth.....	40
Crude method of extracting the juice of the sugar cane.....	40
Teosinte, or forage plant, recently introduced into the Philippines by the Bureau of Agriculture, Manila.....	40
Climbing the coconut palm for tuba.....	53
Husking and splitting coconuts for copra.....	53
Coconut tree and fruit.....	53
Coconut raft.....	59
Germinating coconuts for planting.....	59
Typical coconut grove.....	59
Terraced rice fields, Igorot settlement, Nueva Vizcaya.....	89
Plowing for rice planting.....	89
The tugda used for planting rice.....	89
Harvesting rice.....	89
Threshing rice by beating sheaves on stones.....	91
Mill for winnowing rice by hand.....	91
Hulling rice in wooden mortar with wooden pestles.....	91
Planting rice.....	91
Hulling rice.....	91
A flight of locusts, province of Batangas.....	92
Native indigo factory, in detail.....	100
Extracting indigo.....	100
Camote.....	121
Chico.....	121
Sugar apple.....	121
Gabe.....	121
Sapote.....	121
Agricultural implements.....	128
Breadfruit.....	133
Papaya.....	133
Mangosteen.....	133
Red squash.....	133
Pomelo.....	133
Cucumber.....	203
Guava.....	203
Lanzone.....	203
Mango tree laden with fruit.....	216
Church at Santa Cruz, La Laguna.....	412
Church at Tagbilaran, Bohol.....	412
Binondo church, Manila.....	412
Santa Ana church, Manila.....	412
Church in Romblón.....	412
Franciscan church, Walled City, Manila.....	412
Church at Malate, Manila.....	412

	Facing page.
Augustinian church, Walled City, Manila	412
Church of the Recoletos, Walled City, Manila.....	412
Church at Albay, Albay	412
Fortified church at Boac, Marinduque	412
De Loma church, Manila	412
Augustinian church of Santo Niño (Sacred Child, Cebu)	414
Church in Cebú, on the barracks plaza	414
Moro mosque, Mindanao.....	414
Church, Calamba, La Laguna	414
Church, Molo, Iloilo.....	414
Church, Jaro, Iloilo	414
Interior of church at San Sinón, province of Pampanga.....	414
Fortified church, island of Cuyo.....	414
Manila cathedral, Manila	414
Interior of Recoletos church, Manila.....	414
Filipinos making rope	464
Ilocanos spinning cotton, Luzón.....	464
Primitive loom of the Ilocanos, Luzón	464
Filipino woodcarvers	466
Filipino woman weaving cloth	466
Primitive vino distillery	466
Interior of modern cotton mill in Manila.....	466
Tunnels on gold quartz veins, Benguet province, Luzón.....	469
Blacksmith shop	469
Saltmaking	469
Hauling logs with carabao	470
Ropemaking, Manila	470
Filipino sawmill	470
Fishing in the surf with a scoop net	533
Selling the catch at the beach	533
Seine fishing, with fleet of fishing boats in the background.....	533
Fish nets in position for catch.....	534
Life on the net raft.....	534
Fish weirs, mouth of Pasig river.....	534
Net raft. Net in position for casting.....	534
Poling a casco	578
Canoes made from the log of a single tree	578
Single-stick outrigger, Laguna de Bay, Luzón	578
Moro vinta.....	578
Outriggered sailing craft of Panay and Leyte	578
Moro divers, Tapul group.....	580
Double-masted outrigger, Laguna de Bay, Luzón	580
Sailing craft, Visayas	580
Moro vinta at Joló	580
Moro vinta with thatched awning	580
Old Moro pirate boat	582
Cascoes, or the common lighter of the Philippines.....	582
Passenger raft on the Magat river, province of Nueva Vizcaya	582
Single-stick outrigger.....	582
Carabao carts	586
Hemp fiber as brought to market.....	586
Trotting bull of Panay	586
Typical wooden-wheeled bull cart.....	586
Carabao with sled	586

AGRICULTURE.

I. PRODUCTS OF THE ARCHIPELAGO.

Importance and Extent—Manila Hemp, or Abacá—Sugar—Tobacco—The Coconut—Coffee—Rice—Indigo—Dyewoods—Cacao—Miscellaneous Products—Domestic Animals—Fruits, Vegetables, and Fiber Plants.

The chief source of wealth of the Philippines since their acquisition and partial civilization by Spain in the sixteenth century has been the production and exportation of agricultural commodities.

The soil of the islands consists mainly of decomposed volcanic rocks, enriched with decayed organic matter. When sufficiently watered it is extremely fertile, yielding luxuriant tropical and subtropical growths, either indigenous or exotic. The range of products is very wide; about 300 fiber plants of either commercial or local value are found in the different provinces, while food producing plants grow in great variety and profusion, as well as plants yielding valuable gums, dyes, oils, and medicines. Tropical fruits, such as the banana, mango, orange, and scores of others are produced with slight or no effort, while corn, small grains, potatoes, tomatoes, and many other vegetables respond readily to cultivation.

The principal vegetable products of the islands are hemp (*abacá*), sugar, tobacco, copra, and rice. Formerly coffee was an important product and figured largely in the insular export trade; but within the last twelve years the coffee plantations have been devastated by insects and disease and the cultivation of the berry has been reduced to very small proportions. Corn of American origin is largely produced. The *camote* (a species of sweet potato) is an important food product throughout the archipelago.

Nuts of many kinds are produced, including the *betel* nut, extensively used by the natives in a manner similar to that in which chewing tobacco is used in the United States, and the coconut, the most important of all, the dry kernels of which constitute the copra of commerce.

Spices of various kinds, such as pepper, cinnamon, cloves, and nutmegs, are found in different portions of the islands. Experiments have demonstrated that the ordinary vegetables and cereals of the United States can be successfully cultivated in many sections.

The products of the soil used for manufactures, export, or home consumption have been classified as follows:

Fruits and nuts.—There are many varieties, the principal of which are the banana, mango, coconut, and betel nut.

Fiber or textile plants.—Nearly 300 varieties, the more important of which are abacá, rattan or *bejuco*, *ramie*, agave or maguey, pineapple known as *piña*, cotton, and *pandan*.

Oil producing plants.—The most important is the coconut palm.

Grains and grasses.—The principal varieties are rice, corn, bamboo, *zacate* (grasses of several kinds used as food for cattle and horses), and *cogon*.

Dye plants.—There are many varieties, of which indigo is the most important.

Starch plants.—There are several kinds, the arrowroot being the principal one.

Saccharine plants.—Sugar cane is largely cultivated.

Plants used for the production of alcoholic liquors.—Tuba and bino are largely manufactured, principally from the *nipa* or *sasa* plant, and from liquid gathered from the coconut and *barí* palm.

Medicinal plants.—There are many kinds.

Aromatic plants.—The chief among these are tobacco, cacao, and coffee.

Gum and resin bearing plants.—Among these are rubber and gutta-percha trees and vines.

Plants from which essences or essential oils are obtained.—The *ilang-ilang* is the most important.

Vegetables.—An extensive variety is produced, including many garden vegetables commonly grown in the United States. The camote (sweet potato) is the most largely grown.

Extensive areas are devoted to pasturage, and the *carabao*, or water buffalo, the principal and most useful animal in the Philippines, is bred in large numbers, as well as other horned cattle of Indian or Australian origin, horses, hogs, sheep, poultry, and other animals.

The preponderating influence of agriculture is indicated by the following table, which shows, for the years specified therein, as far as can be gathered from existing available records, the combined values of the principal agricultural products exported from the islands, and the values of other exported products. The principal products to which the figures in the table relate consist of sugar, leaf and manufactured tobacco, raw and manufactured hemp (abacá), coconuts and coconut products (oil and copra), coffee, dyewoods, dry and liquid indigo. The per cents that these and other exports were of the value of all exports are also shown for each year covered by the table. The quantities and values of each of the above-mentioned commodities

exported during the several years embraced by this table will be found in subsequent separate tables.

Detailed statistics for the period from January, 1896, to July, 1898, inclusive, are not obtainable; but the figures presented for each of the other years clearly demonstrate the prime importance of agricultural products and the comparative commercial unimportance to the islands of nonagricultural products.

Owing to lack of detail in classification in the Philippine customs records, it is impossible to indicate the years in which copra was or was not exported prior to 1890; and incomplete reports prevent the inclusion in the principal agricultural exports of certain products for some of the years covered by the table, as indicated by footnotes.

Values of principal agricultural and other exports from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	VALUE OF PRINCIPAL AGRICULTURAL PRODUCTS EXPORTED.		Per cent of total value of exports.	VALUE OF ALL OTHER EXPORTS.		Per cent of total value of exports.	Total value of exports (dollars).
	Pesos.	Dollars.		Pesos.	Dollars.		
1854.....	5,031,451	5,329,313	79.21	1,320,897	1,399,094	20.79	6,728,407
1855.....	5,592,608	5,876,712	91.36	529,014	555,888	8.64	6,432,600
1856.....	8,150,144	8,564,171	89.24	983,173	1,033,119	10.76	9,597,290
1857.....	10,145,429	10,785,606	85.29	1,750,392	1,860,841	14.71	12,646,447
1858.....	6,572,394	6,906,272	69.79	2,844,581	2,989,085	30.21	9,895,357
1860.....	7,514,964	7,955,401	79.03	1,994,517	2,119,374	20.97	10,104,775
1861.....	6,444,102	6,763,085	79.90	1,621,428	1,701,689	20.10	8,464,774
1862.....	7,354,993	7,778,641	80.82	1,745,804	1,846,362	19.18	9,625,003
1863.....	8,534,380	9,019,133	84.86	1,522,438	1,608,912	15.14	10,628,045
1864.....	8,595,503	9,083,728	80.66	2,061,523	2,178,617	19.34	11,262,345
1865.....	16,148,423	16,978,452	77.14	4,784,194	5,030,102	22.86	22,008,554
1866.....	18,515,774	19,480,446	83.47	3,666,749	3,857,786	16.53	23,338,232
1867.....	19,677,272	20,533,233	89.41	2,329,532	2,430,867	10.59	22,964,100
1873.....	22,635,560	23,081,481	96.23	886,969	904,442	3.77	23,985,923
1874.....	15,755,217	16,800,842	91.05	1,547,760	1,555,189	8.95	17,386,031
1875.....	18,199,607	17,766,456	96.19	720,868	703,712	3.81	18,470,168
1876.....	14,095,515	12,893,168	96.00	742,281	678,964	5.00	13,572,132
1877.....	15,311,655	14,460,327	93.58	1,050,789	992,365	6.42	15,452,692
1878.....	15,887,569	14,400,492	90.94	1,582,736	1,434,592	9.06	15,835,084
1879.....	14,678,229	12,962,344	78.02	4,135,223	3,651,815	21.98	16,614,159
1880.....	21,641,217	19,472,767	92.29	1,809,068	1,627,799	7.71	21,100,566
1881.....	23,420,894	20,837,569	96.29	1,158,112	1,030,373	4.71	21,867,942
1882.....	19,956,146	17,806,869	96.53	717,187	639,946	3.47	18,446,815
1883.....	24,119,671	21,037,177	91.43	2,261,056	1,972,093	8.57	23,009,270
1884.....	17,480,632	15,086,813	76.09	5,192,201	4,740,579	23.21	19,827,392
1885.....	20,871,484	17,423,515	85.00	3,682,201	3,073,901	15.00	20,497,416
1886.....	18,672,314	14,594,281	72.60	7,048,718	5,509,278	27.40	20,103,559
1887.....	22,968,362	17,676,451	90.94	2,288,777	1,761,443	9.06	19,437,894
1888.....	25,333,942	18,706,583	96.35	959,329	708,368	3.65	19,414,951
1889.....	32,706,676	24,076,954	93.81	2,160,293	1,587,383	6.19	25,664,337
1890.....	23,104,051	18,996,151	88.14	3,109,503	2,656,633	11.86	21,652,784
1891.....	24,923,048	19,347,762	92.63	1,982,054	1,538,669	7.37	20,886,431
1892.....	27,205,559	18,680,367	97.24	771,010	527,987	2.76	19,158,354
1893.....	34,536,225	21,174,160	95.21	1,739,341	1,066,390	4.79	22,240,550
1894.....	31,580,173	15,752,190	95.26	1,569,811	783,022	4.74	16,535,212
1895.....	28,979,300	14,892,462	79.06	7,676,327	3,944,916	20.94	18,837,378
1898 ¹		² 4,962,329	96.07		203,027	3.93	5,165,356
1899.....		³ 14,186,438	95.55		660,144	4.45	14,846,582
1900.....		21,159,718	92.04		1,830,655	7.96	22,990,373
1901.....		22,854,974	93.27		1,648,379	6.73	24,503,353
1902.....		27,360,475	95.43		1,311,429	4.57	28,671,904

¹ Five months—August to December, inclusive.

² Not including coconut oil, dyewoods, and indigo, the values of which are included with those for "all other exports."

³ Not including coconut oil and dyewoods, the values of which are included with those for "all other exports."

In addition to the principal products, the combined values of which are given in the above table, other products of the soil such as vegetable oils other than coconut oil, nuts of various kinds other than coconuts, rice, fruits, plants, seeds, vegetable fibers other than hemp, and forest products of different kinds were exported from year to year in quantities and of values too small to be of importance. The relative commercial importance of these products is evidenced by the fact that, with slight exceptions, the value of each was considerably less than 1 per cent of the total value of exports during each year for which statistics are obtainable.

It may be thought that sugar (a factory product) and other products that have undergone processes of manufacture, more or less extensive, should not properly be included in the above table as agricultural. While it is true that sugar is a manufactured article, it is so closely identified with and allied to agriculture, particularly in the Philippines, where the sugar is largely produced by primitive methods and is mostly of very low grade, that its classification as an agricultural product is thought to be justified. The same is true, though to a less extent, of manufactured tobacco.

In the absence of definite statistics regarding the production of tobacco, a large proportion of which is consumed in the islands, it would be impossible to indicate the relative importance of the crop without taking into consideration the value of both the leaf and the manufactured tobacco exported. It may also be said that in the Philippine Islands the difference in value between leaf and manufactured tobacco is not nearly so great as in other sections of the world, the element of labor, in which such difference principally consists, not being as important a factor there as elsewhere in computing values, because in the tobacco manufacturing industry wages are much lower relatively than in America.

Manufactured hemp (principally cordage), coconut products (oil and copra), and dry and liquid indigo are also included as being primarily agricultural products, and as having an important bearing on the industry in question, notwithstanding the fact that they have passed through manipulative processes.

MANILA HEMP (ABACÁ).

The following table gives the quantity and value of hemp fiber and of manufactured hemp exported from the Philippines annually since 1854, for each of the calendar years for which figures are available; the per cent that the combined value of the two products was of the total value of exports is also shown:

Quantities and values of hemp exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	RAW.			MANUFACTURED.			TOTAL.		Per cent of total value of exports.
	Quantity (kilos.)	Value.		Quantity (kilos.)	Value.		Quantity (kilos.)	Value (dollars).	
		Pesos.	Dollars.		Pesos.	Dollars.			
1854.....	12,017,766	1,394,920	1,477,499	2,002,634	140,905	149,247	14,050,400	1,626,746	24.18
1855.....	18,717,270	2,567,872	2,698,320	1,192,160	102,245	107,439	19,909,430	2,805,759	43.62
1856.....	22,772,078	2,618,864	2,751,902	1,613,942	101,128	106,265	24,386,020	2,858,167	29.78
1857.....	27,909,269	2,561,746	2,723,392	1,359,171	217,933	231,685	29,268,440	2,955,077	23.37
1858.....	24,738,432	2,123,418	2,231,288	1,236,008	207,485	218,025	25,974,440	2,449,313	24.75
1860.....	26,188,615	1,787,924	1,899,848	1,362,549	326,730	347,183	27,551,464	2,247,031	22.24
1861.....	23,348,360	1,392,963	1,461,915	1,502,100	252,046	264,522	24,850,460	1,726,437	20.40
1862.....	29,922,913	1,730,853	1,830,550	1,945,885	322,355	340,923	31,868,798	2,171,473	22.56
1863.....	26,752,120	1,873,715	1,980,142	1,735,560	287,250	303,566	28,487,680	2,283,708	21.49
1864.....	28,206,817	2,543,491	2,687,961	1,110,429	161,630	170,811	29,317,246	2,858,772	25.38
1865.....	22,652,498	4,790,757	5,037,002	1,339,169	354,289	372,499	23,991,667	5,409,501	24.58
1866.....	25,089,568	6,462,951	6,799,671	723,183	270,442	284,532	25,812,751	7,084,203	30.35
1867.....	28,504,274	7,161,776	7,473,313	682,219	301,234	314,338	29,186,493	7,787,651	33.91
1873.....	140,962,419	5,283,427	5,387,511	(1)	.....	.....	40,962,419	5,387,511	22.46
1874.....	41,467,399	4,694,497	4,717,031	2,313,745	197,815	198,765	43,811,144	4,915,796	28.27
1875.....	33,785,967	3,671,592	3,684,208	657,603	106,277	103,748	34,443,570	3,787,956	20.51
1876.....	38,923,988	3,974,308	3,635,300	946,080	137,185	125,483	39,870,068	3,760,783	27.71
1877.....	37,291,312	3,411,371	3,221,699	943,164	166,229	156,987	38,234,476	3,378,686	21.86
1878.....	45,481,896	3,970,668	3,599,013	2,031,328	334,539	303,226	47,513,224	3,902,239	24.64
1879.....	39,443,414	3,773,862	3,332,698	615,498	109,500	96,699	40,058,912	3,429,397	20.64
1880.....	50,850,779	5,356,810	4,820,058	659,403	124,277	111,824	51,510,182	4,931,882	23.37
1881.....	59,388,459	8,889,372	7,908,874	570,492	137,031	121,916	59,958,951	8,030,790	36.72
1882.....	45,688,865	6,839,623	6,102,996	594,483	143,151	127,734	46,283,348	6,230,730	33.78
1883.....	49,154,803	7,547,870	6,583,252	407,383	94,037	82,019	49,562,186	6,665,271	28.97
1884.....	50,775,102	7,131,381	6,236,393	309,925	73,431	64,215	51,085,027	6,300,608	31.78
1885.....	53,072,265	6,582,774	5,495,300	261,289	51,905	43,330	53,333,554	5,538,630	27.02
1886.....	48,243,691	5,549,946	4,387,838	304,913	52,608	41,118	48,548,604	4,378,956	21.78
1887.....	74,382,803	10,599,415	8,157,310	161,881	35,542	27,353	74,544,684	8,184,663	42.11
1888.....	81,690,267	10,976,827	8,105,289	127,828	29,827	22,024	81,818,095	8,127,313	41.86
1889.....	72,210,738	14,153,216	10,399,783	3,337,060	98,857	72,640	75,547,798	10,472,423	40.81
1890.....	47,229,770	8,425,260	6,927,249	4,112,210	689,548	566,946	51,341,980	7,494,195	34.77
1891.....	84,908,002	13,304,012	10,327,905	(2)	52,107	40,451	84,908,002	10,368,356	49.64
1892.....	70,491,481	10,053,322	6,884,515	106,600	26,719	18,297	70,598,081	6,902,812	36.03
1893.....	93,742,824	12,556,548	7,698,420	148,152	39,518	24,228	93,890,976	7,722,648	34.72
1894.....	96,497,799	14,516,717	7,240,938	180,307	43,019	21,458	96,678,106	7,262,396	43.92
1895.....	107,333,951	12,690,229	6,521,509	(1)	.....	.....	107,333,951	6,521,509	34.62
1898 ¹	27,138,891	.....	3,039,767	(2)	.....	1,200	27,138,891	3,040,967	58.87
1899 ²	70,156,727	.....	7,039,574	(2)	.....	29,819	70,156,727	8,023,393	54.04
1900.....	90,874,136	.....	13,290,400	(2)	.....	410,441	90,874,136	13,300,841	57.85
1901.....	126,252,236	.....	15,976,640	(2)	.....	15,395	126,252,236	15,992,035	65.26
1902.....	113,290,393	.....	19,290,610	(2)	.....	19,489	113,290,393	19,310,099	67.36

¹The quantity of manufactured hemp is included with that of raw hemp, not having been separately reported.

²Manufactured quantity not specified.

³Five months—August to December, inclusive.

⁴Six months ending December, 1900.

Beginning with 1887, the value of raw and manufactured hemp exceeded that of any other exported product each year except 1892 and 1893, when it was exceeded in value by sugar; while for each of the years, from 1898, inclusive, its value has constituted more than half the value of all exports, having been 58.9 per cent of such value for the five months reported in 1898, 54 per cent in 1899, 57.9 per cent in 1900, 65.3 per cent in 1901, and, in 1902, 67.4 per cent. For all the years for which statistics are available it averaged 34.8 per cent of the total value of exports. Thus, within the past twenty years, hemp has become the foremost wealth producing commodity exported from the Philippines.

The fiber is extracted from a species of the plantain family, locally known as abacá and botanically designated as *musa textilis*. In appearance the growth closely resembles, and is difficult to distinguish from, the edible banana plant which grows in great variety and profusion throughout the archipelago.

Technically speaking, hemp is a misnomer; but the name is well established by commercial usage, and the fiber, produced exclusively in these islands, is known throughout the world as "Manila hemp," as distinguished from other fibers commercially called hemp with prefixes indicating their place of origin or uses, as Calcutta hemp, Bowstring hemp, Bombay hemp, and others.

Unlike other varieties of the *musa*, which are found in all tropical countries, the *musa textilis* is found only in its wild state in the Philippines, and attempts to introduce it for purposes of cultivation into other countries where species closely related to it thrive have met with slight or no success. Its production is, in fact, a Philippine monopoly.

The fiber undoubtedly has been known and used for centuries by the natives who extract it from the wild growth of plants; but it is only in comparatively recent years that its excellent qualities—great tensile strength, combined with lightness and length—have been known to the world at large, and no appreciable quantities of it were exported until within the past sixty or seventy years. The establishment of small planted fields and the systematic, though primitive, cultivation of abacá commenced when the demands of the export trade began to give the fiber a commercial value and render its cultivation financially profitable.

Its production was small, and practically none was exported prior to 1825. As the demands of trade increased, the small fields of the early cultivators gave place to larger plantations, and extensive areas were devoted to its production, though, as far as can be ascertained, the primitive methods of the producers have not shown improvement commensurate with the growth of the industry.

In 1840 the exports of Manila hemp are said to have been about 8,500 tons, which amount had not increased in 1850, but in 1872 nearly 40,000 tons were exported, and official records show that eighteen years later, in 1890, the quantity had increased to about 61,000 tons, valued at a little over seven million dollars, and that hemp exports reached their highest mark in 1901, when 124,257 tons, worth nearly sixteen million dollars, were shipped.

The territory within which the cultivation of hemp is carried on lies principally between the meridians 121° and 126° east of Greenwich and the parallels of 6° and 14° north latitude. The province of Albay in the southern part of Luzón, including the island of Catanduanes, is the principal abacá producing province of the Philippines; but large



1. COLLECTION OF DEAN C. WORCESTER.

1. COFFEE PLANT, SHOWING THE REMARKABLE LUXURIANCE OF THE GROWTH. 2. STRIPPING ABACA (HEMP). 3. THE ABACA, OR "MANILA HEMP," PLANT. 4. CACAO TREE, SHOWING FRUIT AT MATURITY. 5. FINE SAMPLES OF MANILA HEMP, BUREAU OF AGRICULTURE, MANILA.

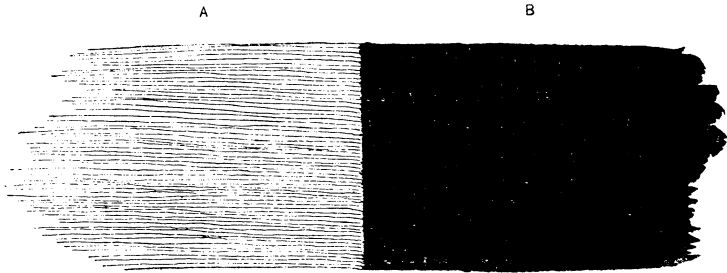
quantities are produced in the adjoining provinces of Ambos Camarines and Sorsogón. Considerable quantities are also grown in La Laguna and Cavite provinces, and to a lesser extent in the provinces of Bataún and Batangas. The islands of Leyte and Sámar are large producers, as well as the islands of Marinduque, Masbate, Romblón, Panay, and Bohol. The fiber is also grown in considerable commercial quantities in northern and southeastern sections of Mindanao, while other islands, including Mindoro, and lesser islands adjacent to those mentioned contribute small quantities to the annual commercial output.

In sections adapted to hemp production the industry is capable of great expansion, only a fraction of the areas suitable to the growth of the plant having been brought under cultivation. Suitable climatic as well as certain favorable soil conditions are essential. The land devoted to abacá must be of high fertility and so placed as to be susceptible of good drainage, which, in the present stage of the industry, must be natural, artificial drainage not being resorted to. While the plant will not thrive in wet, swampy land, a moist soil is essential, as well as a humid atmosphere, and the plant must be protected from excessive sun by shade trees and from too much wind by the location of the plantation as well as by trees. The wild growth naturally selects mountain slopes and valleys where the soil is rich and the natural drainage carries off superfluous water, and where there are enough trees to protect it sufficiently from sun and wind. The plant is not subject to injury to any serious extent by insects. It is, however, liable to damage or destruction by drought, and can only be successfully cultivated in regions having an abundant rainfall and high atmospheric humidity.

The fruit of the *musa textilis* is nonedible and bears seeds which are sometimes planted for the production of new plants. The best and usual method, however, for starting a hemp plantation (sometimes known in native vernacular as a *lati*) is to plant the small suckers which spring from the roots of parent plants. Plants thus started reach maturity and are ready for cutting at least six months earlier than those grown from seed. The plants are set in rows from 5 to 8 feet apart, and until ready for cutting should be cultivated sufficiently to keep down the weeds which would otherwise choke out the growing plants. A certain amount of herbage between the plants is, however, desirable to bind the soil and keep it from washing. After the plants have matured, in from two and one-half to three and one-half years, no further cultivation is given the hemp field other than keeping out the coarser weeds. In order that the plants may be to some extent shaded and protected from the force of winds, which otherwise might tear the leaves and retard the growth, trees are left standing in the field or are planted.

When the plants are ready for cutting, which is when the flower-buds appear, the entire stalk is cut as close to the ground as possible. The crop constantly renews itself by means of the suckers that spring from the roots of the old plants, so that harvesting can be carried on almost continuously.

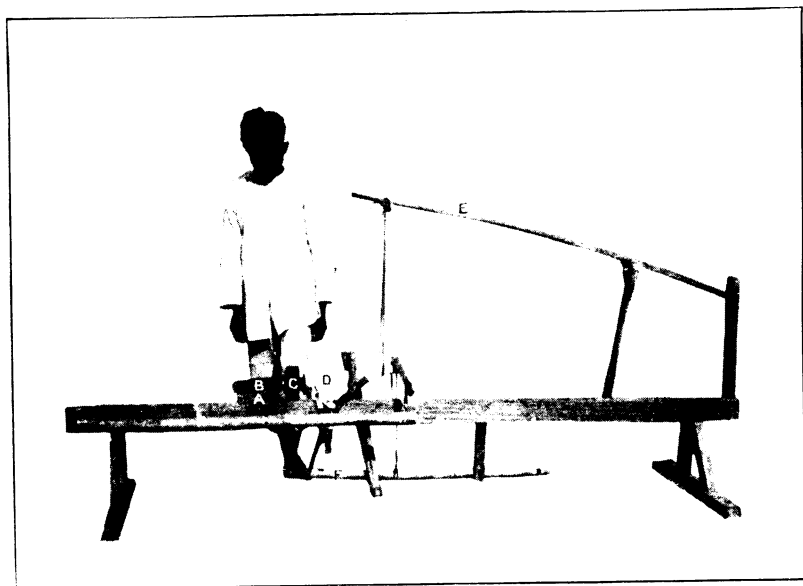
The fiber is in the leaf sheaths, which surround the central flower-stem or stalk of the plant from the ground to the expansion of the leaves, and are thicker along their centers than at their sides. Each leaf sheath is split into strips 2 or 3 inches wide, and their thicker inner portions, which are mainly useless pulp, are torn away to render easier the extraction of the fiber.



A SHOWS FIBER OF HEMP AFTER PULP B HAS BEEN SCRAPED OFF BY KNIFE OF STRIPPING MACHINE.

If, after cutting, the stalks or strips are permitted to remain on the ground in the sun for more than a few hours before removing the fiber, the latter becomes discolored and its value considerably diminished. The fiber is extracted from the strips prepared as described above by means of a simple, crude mechanism, which, as far as is known, has been used almost universally for the purpose by the natives since the beginning of the industry, and the efforts of inventors have thus far failed to improve upon it. The method used is substantially as follows: The strips are drawn manually between the edge of a knife blade and a smooth surface of hard wood. The blade is hinged at one end by its handle to the upper side of the block of wood, which is supported by uprights set in the ground, or upon movable framework. The handle is connected with a treadle, by means of which the operator can regulate or release the pressure of the blade edge upon the abacá strips as they are drawn between it and the surface beneath. The handle is also attached to or connected with a bamboo spring fixed above it, either in the framework of the machine or attached to the roof of the shed or the branch of the tree under which the work is carried on, by means of which an even pressure is maintained while the strips are drawn by hand between the blade and the surface beneath it.¹ By this process the watery pulp of each strip is scraped from

¹ See illustration No. 2 on plate facing page 16.



HEMP STRIPPER.—A, BLOCK ON WHICH KNIFE BLADE HOLDS THE HEMP FOR STRIPPING. B, KNIFE BLADE. C, PIVOT ON WHICH KNIFE BLADE REVOLVES. D, HANDLE OF KNIFE. E, BAMBOO (SPRING) WHICH ELEVATES KNIFE HANDLE AND PASSES BLADE ON HEMP. F, FOOT LEVER USED TO PULL THE KNIFE HANDLE DOWN, RAISE BLADE, AND RELEASE HEMP.

the fiber. If not cleaned to the satisfaction of the stripper, the operation is repeated, each redrawing producing a cleaner, finer, and consequently more valuable fiber, but of course diminishing the weight of the product.

The whitest and cleanest fiber is secured by using a blade with a smooth edge, but serrated edged blades are frequently used, which render the operation easier but less thorough, as such blades do not scrape off as much of the pulp as those having straight or smooth edges. The juicy pulp left on the fiber by this method, while materially increasing its weight, discolors it and injures its strength, thereby reducing its market value.

It is said that the waste resulting from the crude methods of extraction in vogue amounts to from 20 to 30 per cent of merchantable fiber of good quality. The necessity for a machine that can be operated economically and rapidly without material waste of product should stimulate invention along this line.

The extracted fiber is exposed to the sun for a few hours, either by hanging on horizontal poles or by any other convenient method, and after it has sufficiently dried is loosely packed in bundles and carried to the nearest market, where it is sold to the hemp buyers or their agents, several of whom are located in each hemp producing district. Before final shipment the loose bundles are opened and the fiber exposed for a short time to the action of the sun and air. The hemp is classified by grade or quality, and is then packed in compact bales, ready for export.

There are three principal commercial grades of hemp, "current," "second," and "colored." The two lower grades usually sell for from 25 to 40 per cent below the price given for the first or "current" grade, which is of a very light yellow color, and has a silken, glossy appearance. The "second" grade is coarser than the first, is darker in color, and less lustrous; while the "colored" grade is dark, quite coarse, and not as clear of pulp as the two higher grades.

Nearly all hemp exported from the islands goes to the United States and Europe, where it is used principally in the manufacture of cordage. In the Philippines the fiber is also used to some extent for cordage, but its principal domestic use is in the production of native fabrics, universally used for clothing purposes by the people of the islands. The cloth locally known as *sinamay* is made from the hemp fiber, and *jusi* cloth is made from a mixture of fine hemp and pineapple-leaf fiber, to which silk is sometimes added; while a beautiful diaphanous cloth, called *lupis*, is made in small quantities from specially selected hemp fibers, much finer and more difficult to extract than commercial hemp or that used in making other cloths.

CULTIVATION OF ABACÁ.

By MARIANO ABELLA, Ambos Camarines.

Abacá is one of the principal plants of the Philippines, and constitutes one of its most important products. It is an article of general exportation and a real source of wealth to the sections producing it. It has acquired an extraordinary importance during the past few years by reason of the high market price for this fiber, which has never been exceeded since the beginning of its production. It should be taken into consideration, furthermore, that the employment of animals is not necessary in its cultivation, as in the cultivation of rice, and therefore it has not suffered so much from the consequences of the rinderpest which has decimated the cattle of the archipelago.

Abacá is a species of banana, the flower of which has the lower lip of the corolla almost without *escutadora*, and five stamens without rudiments of the sixth. The fruit is not edible, the leaves are 2 meters long and 30 centimeters wide, and the stalk is about 4 meters high and 1 decimeter thick.

The leaf sheath is composed of many fibro vascular bundles, which contain the fiber, about 1.80 meters in length. The commercial fiber, which is about 2 meters long, is of a whitish yellow or dark yellow color and is used in the manufacture of cordage and in the weaving of cloth.

The cultivation of abacá has become very extensive in the provinces of Albay, Ambos Camarines, Sorsogón, Leyte, Sámar, Marinduque, Masbate, Cebú, Mindoro, on the Catanduanes Islands, and some points on the island of Mindanao. It rivals hemp in its whiteness, flexibility, and brilliancy. If the abacá is macerated, the cloth and cordage are much stronger, although they are sufficiently strong without this.

The following varieties are known in the municipalities of Iriga, Buhi, and Lagonoy, Ambos Camarines:

Samoro, red, white, and black.

Binagakay, red.

Sinalampayo, black, red, and white.

Zamuquid, red, white, and black.

Sinab-a, white.

Pinacol, similar to the wild banana, which the natives call *butohan*.

Ynagutay, red, of a smaller size; this is a bad quality.

In Lagonoy there are the following varieties:

Layason, wild abacá.

Torotagakan.

In view of the fact that abacá is the only source of wealth in this section, we take pleasure in calling the attention of the public in general to the cultivation of this valued textile plant, and to the fact that

we have an abundance of level and high lands, assuring them that the farmers who engage in this industry will receive from mother earth a bountiful reward for their efforts.

The source of abacá is unknown, and the efforts which have been made to discover it have been in vain. Some historical documents have been consulted, but nothing has been found from which the origin and source of abacá can be deduced, the general opinion being that, as it belongs to the banana family, it is native to the country.

The writer is of the opinion that our ancestors, or those who governed these islands before the Conquest, were already acquainted with the method of cultivating abacá and other articles of prime necessity, although nothing has been found in Philippine history or tradition in support of said opinion.

When it is desired to make an abacá plantation in a place to which it is too far to carry the shoots, it is necessary to sow the seed.

In such case the seed is prepared by cutting and drying the fruit of the abacá of the variety desired. It is not left to ripen too much, as otherwise the seeds would lose their germinative virtues.

These seeds are slightly smaller than a pepper pod. Two days before the sowing, two or three racemes of those which first sprouted from the fruit are removed therefrom, soaked in water over night, and on the following day placed in the shade. On the third day they are sown in holes 1 inch deep, at intervals of one palm, in shady, high land.

A year after the seed has been sown the small plants are of sufficient height and consistency to be treated exactly as if they were shoots or sprouts. Before transplanting it is necessary to clear the ground to which they are to be transferred.

If the planting is to be made in ground covered with bushes, it is necessary to cut them, together with the trees which are not to be used for the protection of the plantation.

The ground must be cleared during the dry season, and when the brush and leaves are dry, they should be burned. When the ground has been thus prepared, and the plants have the proper growth, the transplanting takes place. At the same time rice or sweet potatoes, and later, corn is planted, in order to prevent the growing of weeds; the sweet potato is especially favorable, as its close viny growth covers the ground with its leaves and retains the humidity necessary for the germination of the seed.

When the planting is to be made in virgin or rolling ground having large trees which can serve as protection to the plantation, the ground is cleared by laborers with bolos; holes are then made about two palms in depth, and are left to air for three or four days. The distance from hole to hole is about three yards, and the rows are so made that

every four holes form a square. When the holes have been thus prepared, the transplanting takes place in the following manner:

Shoots are separated from the old plants, care being taken to leave them attached to a section of the trunk, in order that it may serve as a basis for the roots. These are placed in the holes which have been previously made. Care should also be taken not to separate the shoots from the main plant in a rough manner, because the slightest injury is sufficient to prevent their growth. These shoots may be left in the shade on damp ground for a few days without injury.

When the shoots are placed in the holes, the latter are filled with loose earth and pressed down with the foot or a stick. After this has been done, the work necessary at first is confined to a light weeding. Later, as they gain strength, the plants require no protecting trees, the abacá field becoming so dense that it shuts out the rays of the sun by reason of the many and wide leaves of the plant.

A level or slightly inclined piece of land is always to be preferred. Planting may be effected on land with a certain number of trees and sufficiently high to assure the development of the abacá. Lands surrounded by rivers or creeks are very good, but swampy lands and those upon which rain water stands for one or two weeks are bad. Rains continuing for days or a month do not injure the abacá, but on the contrary, benefit it. Sections where the rains are uniformly distributed throughout the year and those having the most intense relative humidity are the most advantageous ones.

The most suitable lands for the cultivation of abacá are those known as *laderas* on the brows of the mountains and of volcanic character, or clearings in woods which are well shaded. The soil which is most preferred is that in which a pointed stick can be easily thrust to a depth of a palm. Loose, sandy soil is also desirable. Land situated near rivers is suitable for planting, but stony soil is not.

The abacá plant does not require as much water as it does humidity, but nevertheless it does not thrive on marshy land.

The proper time for planting abacá is from May to the end of July, and from September to the end of November, as this is the rainy season, which contributes to the growth and development of the plant.

Experienced cultivators and growers of abacá have observed that it never thrives if planted in August, January, February, or December.

The ground for the statement that these months are not suitable for planting is that the rays of the sun fall with more intensity than during the other months of the year, thus killing the plant.

The tree commonly called *ilang-ilang*, as well as the *ansi*, *boluang*, *rao*, *taluto*, and *naga*, or *narra* are the trees best suited for shading abacá. The leaves of the first and last named trees drop off and renew yearly.

If the sucker or shoot was sufficiently developed when it was

planted, it may be harvested a year thereafter; four or five months after the first harvest the suckers have developed sufficiently to be harvested again.

Only one stalk is cut at the first harvest and thereafter the harvesting is usually effected every eight months.

In a suitable soil, with good protecting trees of the character mentioned above, 9 or 10 shoots grow from a stalk during the first year; if the abacá be of the *binagacay* variety, which is the best of all, it produces from 20 to 30 shoots. The number of shoots increases during subsequent years more and more, provided the plant is kept free from leaves and other foreign growth.

There are some small trees called *bogos* and *minogna* by the natives of Iriga and Buhí, which are injurious to abacá.

When three laborers are employed, one cuts the stalk even with the ground after it has been cleared of all the weeds which usually cover it, and after the outside leaves have been stripped off the stalk the inside ones are separated. The second laborer, who is usually a woman, has an implement consisting of a piece of bamboo or bone, one palm and three fingers long, with a pointed and sharpened end, with which she begins to strip off the leaf sheaths until the more tender portions are reached, which contain no fiber. The third one, who has in the meantime put up the portable apparatus for separating the fiber from its surrounding pulp underneath a shed with a roof of abacá leaves, carries on the operation of such separation. * * * By the method mentioned, three laborers can harvest two or three *arrobas* of hemp, more or less, per day.

The fiber should be nearly white, long, dry, and clear of the pulpy portion of the leaf. There are naturally both coarse and fine fibers in a roll of hemp. The coarse kind is used in the manufacture of cordage, the thinner and finer for the fabrics called *sinamay* and the finest for textiles mixed with silk.

About one hundred stalks of abacá, cut ready for the extraction of the fiber, are necessary to make up an *arroba*. This includes large and small stalks which are commonly called *yupas*.

One *arroba* of abacá, more or less, may be gathered in one day, by one laborer. It should be exposed to the air for half a day if the day is sunny, or not more than one day if it is cloudy. If three laborers are employed, as has been stated above, three *arrobas* can be harvested, while the period for airing remains the same.

As 3 yards are necessary between the plants, when abacá is planted on mountainous or rolling land, six or seven thousand plants can be placed in 1 *quinon*. In lands which have little shade, the distance should be 2 yards, permitting the planting of eight or ten thousand plants. The reason for this difference is that the plants develop more

in fertile lands and require therefore more space, as the number of shoots which grow is greater; while if the land is not fertile, a distance of 2 yards is sufficient. One quinon of land will produce from 18 to 25 *piculs* of hemp, more or less, per annum. Nevertheless, it is difficult to fix this, even approximately, as every planter employs his own methods: some are more careful than others and do not have the stalks cut until they flower. This method admits of much greater development, in addition to preserving the plantation. On the other hand, others hasten the harvest, in order to take advantage of good prices, and thus injure their plants.

Those who take good care of their plantations can harvest double the number of *piculs* as those who do not. Persons who own from two to three hundred quinones of abacá land, well cared for, in addition to constituting a source of wealth at present prices, are continually harvesting and extracting the fiber, by reason of the great extent under cultivation.

In one quinon of land, well cultivated and fertile, in which from six to seven thousand plants can be planted, the cost of production to the owner until harvest time, including weeding and care, amounts to about 100 pesos.

If we consider that this quinon will yield about 25 *piculs*, the owner's profits are good. Nevertheless, this is an approximate estimate, as I have stated above. It applies to those who harvest the matured plants only.

Wages vary also according to the locality. In the province of Albay wages are high, while in Ambos Camarines they vary between 50 and 60 cents per diem, with board.

The abacá is harvested on shares: Thus, if two arrobas of abacá are produced, the harvester keeps one and the owner of the land receives the other. It is customary for the harvester to sell his share to the owner at the current market price.

Notwithstanding the fact that the harvester undertakes the cutting of the stalks, an owner who takes an interest in his plantation usually employs some laborers, in whom he has confidence, to cut them, because the harvesters cut only those they please and leave uncut such as present any difficulties.

The price of the shoots of abacá for planting purposes is from 30 to 40 cents per hundred.

One *picul* of abacá may cost the owner when ready for market 5 pesos. It should be taken into consideration that the owner receives only one-half *picul*, while the other half goes to the harvester, the latter half being sold to the owner at the market price.

SUGAR.

For many years prior to 1887 sugar was the most important commercial product of the Philippines. Since that year, except in 1893, it has ranked second in importance to hemp, the value of its exports not having been exceeded by those of any other commodity, except in 1898; during the five months for which figures are obtainable tobacco exports were considerably larger, the sugar being only 7.6, while the tobacco was 27.9 per cent of the value of all exports; in 1901 it was exceeded by tobacco by less than one-half of 1 per cent, its percentage of total exports having been 10.4. Its average percentage for all the years for which statistics are given was 34.9.

The annual quantity and value of sugar exported during certain calendar years since 1854, and the percentage of such exports of the total value of exports, for each year, are shown in the following table:

Quantities and values of sugar exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854	47,704,105	2,100,663	2,225,022	33.07
1855	35,570,206	1,642,206	1,725,630	26.83
1856	48,157,225	3,526,298	3,705,434	38.61
1857	36,644,895	4,304,892	4,576,531	36.19
1858	27,288,637	2,140,460	2,249,195	22.73
1860	49,799,815	3,892,618	4,136,296	40.93
1861	46,043,438	3,017,321	3,166,678	37.41
1862	61,934,858	3,367,331	3,561,289	37.00
1863	52,061,920	3,161,484	3,341,056	31.44
1864	45,036,305	3,324,757	3,513,603	31.20
1865	46,831,637	6,071,651	6,383,629	29.01
1866	41,288,259	5,740,420	6,039,496	25.88
1867	56,080,800	6,254,289	6,526,351	28.42
1873	85,210,319	13,700,346	13,970,243	58.24
1874	101,371,178	6,075,566	6,104,729	35.11
1875	128,112,022	9,248,899	9,028,775	48.88
1876	130,547,168	7,404,807	6,773,177	49.91
1877	122,994,279	8,798,798	8,309,585	53.77
1878	122,023,223	8,270,988	7,496,824	47.34
1879	131,859,429	7,752,814	6,846,510	41.21
1880	181,190,277	11,408,966	10,265,788	48.65
1881	208,805,946	12,403,993	11,035,833	50.47
1882	150,422,377	8,935,089	7,972,780	43.22
1883	196,834,584	12,091,476	10,546,185	45.83
1884	122,128,325	6,877,052	6,013,982	30.33
1885	204,222,480	10,357,852	8,646,735	42.18
1886	184,939,549	8,976,904	7,016,348	34.90
1887	171,752,248	7,995,726	6,153,511	31.66
1888	160,987,894	8,497,271	6,274,385	32.32
1889	228,468,873	12,382,346	9,098,548	35.45
1890	144,841,483	8,838,236	7,266,798	33.72
1891	138,217,635	7,341,168	5,698,949	27.29
1892	252,798,196	11,341,014	7,766,326	40.54
1893	261,522,201	16,914,980	10,370,574	46.63
1894	210,646,386	10,975,185	5,474,422	33.11
1895	341,469,556	11,808,688	6,068,485	32.22
1896	8,465,218	.....	394,680	7.64
1898	85,827,665	.....	3,458,375	23.29
1899	65,190,951	.....	2,397,144	10.43
1900	56,872,592	.....	2,549,147	10.40
1901	98,596,473	.....	3,342,473	11.66
1902	.....	.....	.....	.....

¹ Five months—August to December, inclusive.

The quantity of sugar produced annually prior to American occupation was much larger than it has been since. In 1881 over 460,000,000 pounds (208,805,946 kilograms) were exported, and in 1895 the quantity had risen to over 750,000,000 pounds (341,469,556 kilograms); but in 1899, the year immediately following American occupation, the quantity exported was not quite 190,000,000 pounds, which quantity was not again equaled until 1902, when it reached 217,000,000 pounds.

SUGAR CULTURE.

By Hon. JOSÉ R. DE LUZURIAGA, Philippine Commission.

According to a version accepted in some districts of Luzón and the Visayan Islands, the introduction of the sugar cane into the Philippines is attributed to Chinese immigrants who probably brought it from the island of Formosa, although opinions differ in regard to this particular; it being also said that the purple cane of the Visayan group was brought from Batavia, and that the kind cultivated in Luzón came from Tahiti, the presumption being in the latter case that its introduction was due to the Spanish Government which, at that time, ruled in these islands.

The similarity, however, of the method of cultivation followed here to that in Formosa, when that island formed an integral part of the Chinese Empire, and the fact that in spite of the length of time which has transpired, some Chinese names of certain implements and manufactures used in sugarmaking in many communities of Luzón and the Visayan group are yet current, suggest that the Chinese must have played some part in the introduction of the sugar industry to these islands, and yet it is not possible to vouch for the exactness of this presumption because of the lack of historical data from a reliable source which would place it in the realm of certainty.

Of the many known species of sugar cane, but six occur at the present time in these islands—the purple, white, red, green, striped, and the black with white rings at the joints. The first named is the most generally cultivated in the Visayan Islands on account of its acknowledged superior properties and the advantages it possesses over all the others mentioned from an agronomic, industrial, and economic standpoint. The white cane, and the green as well, have been grown on a small scale in the group referred to, their cultivation being restricted almost exclusively to some provinces of Luzón and the rural districts near Manila, where a taste for the juice of the cane extracted by chewing the stalk is responsible for a considerable consumption of these species. The striped variety is cultivated in very small quantities, a few specimens occasionally being found mixed in with plantations of the purple, and, lastly, the black is wont to be found in rare instances in a few gardens in isolated clumps near the house, it being raised more as a botanical curiosity than for any other purpose, as this vari-

ety grows slowly and requires great care for its tardy development, although at maturity it is of extraordinary size with a stalk 2 inches in diameter and from 24 to 30 feet in height. Its juice, which is used as an agreeable or medicinal beverage, is extracted by making an incision in the lower part of the stalk and allowing the sap to drain into a receptacle.

In the Philippines the cane is planted, as a general thing, in high level ground, sufficiently moist and well worked and prepared. In most plantations the cane is put in during November, December, and January, the same months in which the grinding takes place. In alluvial soils, such as are found in some parts of the island of Negros, planting takes place but once every five, six, seven, or even up to ten years, though the same crops are gathered annually, providing care is taken after the cane is harvested not to injure the stalk which is allowed to remain in the ground, and in the proper cultivation of the sprouts or shoots newly put forth by it.¹ The plantation must then be worked and the soil must be sufficiently broken up and kept clean of weeds during the first ensuing six months, or until the same is thickly sown.

Cane must be allowed to grow for twelve, thirteen, or fourteen months, according to the soil in which it is planted. On virgin or newly cleared land the period is eighteen months, after which time it must be gathered without delay if it is desired to avoid detriment to the crop.

Philippine sugar is of two kinds, classified according to manufacture and packing—that made in *pilones* (which includes nearly all from Luzón), and the granulated, which is the kind that has been adopted in the Visayan Islands and in some Luzón plantations.

The *pilón* is a quantity of sugar generally solidified in a receptacle made of baked clay, which serves as a package, having the form of an inverted cone; it weighs one quintal. The granulated is put up in sacks, or what are known as *bayones*, made from the leaves of a palm called *burí*, containing from two and a half to five arrobas of sugar, according to the place from which it comes. The *bayón* is reenforced by a covering of rattan, the entire package being as marketable as is the *pilón*, although the latter is practicable so far only as Manila is concerned, while the use of the former package is more general, as it is employed with reference to all sugar exported to the markets of foreign lands.

Sugar manufactured in *pilones* is, by reason of its quality, classified as first, second, and third grade, while the granulated has a different classification, which is, superior No. 1, No. 2, and No. 3, good current and ordinary current. Superior No. 1 corresponds to Dutch No. 16 and generally contains from 93° to 97° polarization.

Further, the classifying term “assorted sugar” is frequently used in contracts. This applies to a quantity of sugar of superior quality

¹ See illustration No. 4 on plate facing page 40.

made up of three classes or numbers in the quantitative proportion commonly established by the market.

Except in a very few cases, sugar is generally sold as the crop is being gathered. In addition to sales made by planters in the producing districts, a large part of their sugar is placed in the hands of jobbers, who sell it at a higher price in the markets of Manila, Cebú, and Iloílo, ports that are open to general commerce and, as such, having each a custom-house. At each of these places there are firms engaged in the business of buying and exporting sugar, and they fix the price of that article based on the law of supply and demand as shown by market quotations received from the principal commercial centers of the world. The best prices are paid in Manila, Iloílo, and Cebú, but a large number of planters are obliged to yield to temporary financial distress and sell their product to jobbers on the plantations at a price always detrimental to their best interests.

During a period covering many years, cultivation of the sugar cane remained stationary and was conducted on a very small scale. This was due, in the first place, to the inexperience of most planters who were able to produce sugar only of the current class and of inferior quality; second, to the inferiority of the implements used in the cultivation of the cane and manufacture of the sugar;¹ third, to the defective methods of transportation, which impeded when they did not entirely prevent the flow of trade; and, last, to the lack of freedom and immunities that would help business transactions in the provinces, for which reasons Philippine sugar could not prosper at that time in the markets of the world.

However, in 1855 and the following year, during the Crimean War, which involved England, France, and Russia, there was a rise in the price of sugar, which reached \$13 and \$11, respectively, for a picul of 137½ Spanish pounds. Owing to this incentive the cultivation of cane increased in the provinces of Pampanga, Batangas, and Cavite, in Luzón, and in Cebú, Iloílo, and the island of Negros, in the Visayan group, and at the same time was extended to other provinces, so that in a few years, with the help rendered by the opening of some ports to international commerce, such as Iloílo and Cebú, sugar production in the islands increased fivefold, particularly that of the island of Negros, where it appeared that persons of all classes and conditions had agreed to devote their best energies to the then arduous work of cultivating those lands, the majority of which were heavily covered with timber, there being but a few clearings in the forests where the plow had been used. These pioneer planters were unprovided with sufficient funds, and were exposed to the dangers of swamp fevers and other diseases of like character, which, during the operations of clearing and the first plowing of the land, caused considerable loss of life among their num-

¹ See illustration No. 5 on plate facing page 40.

ber. But these difficulties were not great enough to discourage them. They had great faith in the future, in view of the valuable assistance lent them by two commercial firms of Iloilo. One of these was the English house of Loney & Co. and the other the American firm of Russell & Sturgis, both of which advanced them money for operating expenses and the purchase of machinery. The advances made were returnable in sugar. Other circumstances that contributed in no small measure to the success of these pioneer planters were cheap labor, an abundance of cattle suitable for plantation work, and the absolute security enjoyed by everyone in the island of Negros at that time as regards person and property.

Under such favorable auspices production naturally increased rapidly, so that the 6,000 tons produced in 1855 were increased to 30,000 in 1860, to 100,000 in 1870, to 180,000 in 1880, and 300,000 in 1893—the largest known production in the Philippines—distributed among the different provinces as follows:

Crop of the year 1893.

PROVINCE.	Piculs of sugar.	PROVINCE.	Piculs of sugar.
Island of Negros	2,000,000	Bataán	30,000
Pampanga and Tárlac	700,000	La Laguna	30,000
Batangas	650,000	Bohol	20,000
Iloilo and Concepción	600,000	Tayabas	20,000
Cebú	300,000	Ilocos Norte	20,000
Cavite	180,000	Ilocos Sur	10,000
Cápiz	100,000	Nueva Ecija	10,000
Antique	80,000		
Pangasinán	50,000	Total	4,800,000

The following tables taken from the annual report of the Manila Chamber of Commerce, compiled by a committee of the same in December, 1901, complete the statistics given for the purpose of demonstrating the importance of the production of sugar in the Philippines:

Exports of sugar from Philippine ports: 1891 to 1901.

[Piculs.]

	1891	1892	1893	1894	1895	1896
Manila city	1,174,374	1,089,054	1,712,054	1,577,523	1,729,665	1,563,277
Cebú	140,200	294,220	271,405	163,172	213,352	123,228
Iloilo	1,357,685	2,571,989	2,203,523	1,369,507	1,754,315	1,984,519
Total	2,672,259	3,955,263	4,186,982	3,110,202	3,697,332	3,671,024

	1897	1898	1899	1900	1901
Manila city	918,114	251,169	80,374	404,813	68,523
Cebú	247,110	159,469	210,780	51,936	126,604
Iloilo	2,066,786	2,249,023	1,197,700	540,078	691,261
Total	3,232,010	2,659,661	1,488,854	996,827	886,388

Exports of sugar to different countries: 1891 to 1901.

[Piculs.]

	1891	1892	1893	1894	1895	1896
Great Britain	731,507	1,181,392	1,577,155	978,719	1,373,433	901,256
United States and Canada	1,604,072	1,505,872	1,291,421	910,155	1,055,237	1,305,828
Continent of Europe	37,394	48,512	69,493	68,666	63,149	55,946
China and Japan	299,286	1,219,487	1,248,913	1,152,662	1,205,513	1,407,994
Total	2,672,259	3,955,263	4,186,982	3,110,202	3,697,332	3,671,024

	1897	1898	1899	1900	1901
Great Britain	799,548	675,670	132,792	203,970	.....
United States and Canada	342,540	520,752	353,680	33,600	81,600
Continent of Europe	28,862	2,887	164,033	.....	.....
China and Japan	2,061,060	1,660,352	838,349	759,257	804,788
Total	3,232,010	2,859,661	1,488,854	996,827	886,388

As may be seen from the above statistics, exports of sugar from the Philippines reached 4,186,982 piculs in 1893, equivalent to 261,686 tons. If to this be added the amount used for domestic consumption, including that refined at Malabón and Manila, and that used by distilleries in the capital city and the provinces which use current grades of sugar in the making of spirits, we will have a total production of 300,000 tons.

After the period of progress in the cultivation of the sugar cane in the Philippines, which, as has been seen, reached its greatest development in the year 1893, had passed, a decline set in from the year following that mentioned, which continued until 1895, when there was a favorable reaction lasting two seasons. In 1897 the depression set in, from which it has been unable to recover up to the present day. This depression is due to the vicissitudes agriculture has experienced in this country during the past few years, caused first, by the competition of beet sugar in the great centers of consumption; second, by the growth of hemp and coconut plantations which have taken away a considerable number of laborers from sugar estates; third, to the continual fluctuations in the price of sugar brought about by the financial crisis and the rate of exchange that resulted in the failure of many planters; and last, to the war, the rinderpest, the cholera, miasmatic fevers, famine, and the locusts which brought ruin to many plantations and caused a complete depression in the cultivation of the cane in nearly all of the sugar producing provinces, the exceptions being Negros Occidental and Negros Oriental, Iloílo, Cebú, Pampanga, Batangas, and La Laguna, where work has been carried on under great difficulty.

Last season's crop has been estimated at some 2,000,000 piculs for the entire archipelago, of which 1,500,000 piculs were produced by

Negros Occidental, and the balance by all of the other provinces mentioned. Thanks to extraordinary efforts, and at the cost of great sacrifices at the beginning of the present year, good and extensive plantations of cane were made in Negros Occidental, which gave promise of a yield still greater than that of last season, but considering the ravages made of late by the locusts, in spite of the efforts of the government to exterminate them, it is impossible to estimate at present the amount of next season's crop.

The sugar industry in these islands is considered as the most costly among all those derived from the Philippine soil. To-day it is not possible to consider the establishment of a plantation—commonly called *hacienda* in this country—without going to great expense in the purchase of land, work cattle, and agricultural implements, and the construction of buildings, installation of the machinery plant, repair shops, and the providing of means of transportation, as well as all other accessories necessary for an undertaking of this character. Besides all this, the expenses of operation, which are high in a plantation of any importance, have to be taken into account, as the number of native agricultural laborers is relatively small, and wages are not in proportion to the profits ordinarily derived from the business, especially now that there is so great a depression in agriculture in so far as the cultivation of the cane is concerned.

Prices of available land vary according to the quality and location from \$2 to \$2.50 Mexican currency per hectare, approximately 2½ acres.

Cattle and horses used in this country for agricultural and draft purposes are very dear, owing to the dire effects of the rinderpest; but thanks to the measure adopted by the government for the importation of cattle, carabao can be purchased at \$70, \$81, \$93, and \$100 Philippine currency per head, according to the terms provided by act 828 of the Philippine Commission.

The price of building lumber has increased threefold, due to the forestry taxes imposed by the Government for the cutting of timber on public lands; and lime, brick, and other materials used in the construction of buildings on a sugar plantation have also increased proportionately in price. Last, the laborer, who prior to 1898 earned 20, 25, or 50 cents Mexican currency and subsistence, according to the class of labor performed, now demands twice as much before he will work.

The prices of all articles which go to make up a plantation and enter into the manufacture of the sugar having increased, the financial problem is one very difficult of solution to most planters. A scarcity of money and an absolute dearth of loan companies willing to make advances on agricultural lands and standing crops add to this difficulty to a not inconsiderable degree. Formerly the cost of production of a

picul of sugar ready for market did not fall below \$1.50 Mexican currency, according to the class of land and distance from nearest provincial market center. Since the war, however, and the train of evils succeeding it that have wrought so much damage to the sugar plantations, operating expenses have considerably increased. It is estimated that at present the cost of producing a picul of sugar ready packed for market is all the way from \$2.50 to \$3 and even \$3.50 Mexican currency, not including the expenses incurred in the destruction of locusts which at times are great and of themselves may cause a loss in the year's business.

According to data which have been obtained relative to the price of sugar in the markets of Manila, Iloilo, and Cebu, the principal sugar centers in the islands, quotations have fluctuated, as a general rule, between \$3 and \$5 per picul for superior, \$2 and \$3 for current, and from \$4 to \$6 per pilon. The prices paid during 1855, \$13; 1856, \$11; 1878, \$7.50; and \$6 at the beginning of the present year, when \$8 was paid per pilon sugar, are exceptional. All prices given are in Mexican currency.

From the foregoing data it may be seen that under the auspices of peace, and when backed by the financial help extended in the manner formerly done by such houses as Loney & Co., and Russell & Sturgis, of Iloilo, which lent money and furnished machinery on the crops, the cultivation of the cane made rapid progress during a period of not quite thirty years. During that period some three thousand plantations, large and small, were established. The former were 1,000 hectares and over in extent, while the latter were 200 and under. All these plantations were provided with sugar mills, the majority of which were operated by steam and the balance by hydraulic motors and animal power; some of them were also provided with tramways for the transportation of the cane to the mill and the manufactured product to the ports or market towns.

If the sugar industry has fallen into decay after having reached a high degree of prosperity in these islands, it is undoubtedly because of the overwhelming misfortunes which the planter is unable to withstand, in view of the fact that there are no banking or loan institutions here to which he can turn for relief.

TOBACCO.

In point of commercial importance, tobacco is the third agricultural product of the islands. The quantity, value, and percentage of value of total exports of this commodity are shown in the following table for each of the years covered by the preceding tables relating to hemp and sugar:

Quantities and values of tobacco exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	LEAF.			MANUFACTURED.			TOTAL.		Per cent of total value of exports.
	Quantity (kilos).	Value.		Quantity (kilos).	Value.		Quantity (kilos).	Value (dollars).	
		Pesos.	Dollars.		Pesos.	Dollars.			
1854	4,205,163	745,582	789,720	185,314,000	341,301	361,506	24,205,163	1,151,226	17.11
1855	2,523,484	445,004	467,610	(3)	390,921	410,780	22,523,484	878,390	13.66
1856	5,476,729	1,081,234	1,136,161	4150,083	336,858	353,970	25,476,729	1,490,131	15.53
1857	6,298,243	1,368,800	1,455,171	1131,562,000	1,072,609	1,140,291	26,298,243	2,595,462	20.52
1858	3,838,303	831,175	876,551	197,512,000	796,466	836,926	23,838,303	1,713,477	17.32
1860	938,663	148,110	157,382	1117,396,000	965,330	1,025,760	2,938,663	1,183,142	11.71
1861	1,232,501	216,258	226,963	(3)	927,363	973,267	21,232,501	1,200,230	14.18
1862	3,326,731	1,026,870	1,086,018	157,556,000	465,298	492,099	23,326,731	1,578,117	16.39
1863	3,791,830	1,027,648	1,086,018	1214,354,000	1,718,510	1,816,121	23,791,830	2,902,139	27.31
1864	2,804,577	1,175,224	1,241,977	164,569,000	697,880	737,520	22,804,577	1,979,497	17.58
1865	3,168,431	2,108,468	2,216,843	172,862,000	1,547,582	1,627,128	23,168,431	3,843,971	17.47
1866	3,951,629	2,414,762	2,540,517	180,709,000	2,052,781	2,159,731	23,951,629	4,700,302	20.14
1867	4,805,023	2,874,094	2,999,117	167,612,000	1,714,862	1,789,458	24,805,023	4,788,575	20.85
1873	2,685,029	1,387,355	1,414,686	1108,580,000	882,677	900,066	22,685,029	2,314,752	9.65
1874	4,541,889	2,200,073	2,210,633	195,027,000	1,260,134	1,266,183	24,541,889	3,476,816	20.00
1875	5,641,968	2,531,686	2,471,432	183,287,000	963,588	940,655	25,641,968	3,412,187	18.47
1876	701,514	404,474	369,972	(3)	786,974	719,845	27,015,514	1,089,817	8.02
1877	2,165,734	377,422	356,437	(3)	867,481	819,249	22,165,734	1,175,686	7.61
1878	954,600	550,344	498,832	112,051,000	1,526,530	1,383,647	22,954,600	1,882,479	11.89
1879	10,706,001	146,110	129,030	1194,654,000	1,202,298	1,061,749	210,706,001	1,190,779	7.17
1880	416,115	368,373	331,462	1,702,456	2,107,824	1,789,458	22,118,571	2,228,082	10.56
1881	1,513,185	667,574	593,941	1,271,149	138,354	123,090	22,784,334	717,031	3.28
1882	5,658,615	2,196,708	1,960,123	1,684,775	434,875	388,039	7,343,390	2,348,162	12.73
1883	3,366,139	1,424,143	1,242,138	793,945	1,543,006	1,345,810	4,160,084	2,587,948	11.25
1884	1,246,470	552,962	483,565	800,093	1,260,651	1,102,439	2,046,563	1,586,004	8.00
1885	5,831,379	1,539,970	1,285,567	972,975	1,204,783	1,005,753	6,804,354	2,291,320	11.18
1886	5,099,618	971,779	759,542	816,448	1,598,712	1,249,553	5,916,066	2,009,095	9.99
1887	4,289,043	832,077	640,366	727,719	1,192,690	917,894	5,016,762	1,558,260	8.02
1888	9,741,651	1,816,143	1,341,040	1,687,805	1,502,590	1,109,512	11,429,456	2,450,552	12.62
1889	9,138,661	1,911,230	1,404,372	1,230,133	1,157,470	850,509	10,368,794	2,254,881	8.79
1890	8,819,589	1,606,754	1,321,073	1,385,537	1,396,936	1,148,561	10,205,126	2,409,634	11.46
1891	9,068,318	1,622,092	1,259,230	1,246,837	1,148,921	891,907	10,315,155	2,151,137	10.30
1892	12,136,370	2,268,999	1,553,811	1,596,363	1,432,811	981,189	13,732,733	2,535,000	13.23
1893	10,744,593	2,388,014	1,464,091	1,285,093	1,581,486	969,609	12,029,686	2,433,700	10.94
1894	7,019,117	1,408,662	702,641	1,144,365	1,750,006	872,903	8,163,482	1,575,544	9.53
1895	10,059,422	2,163,292	1,111,716	1,322,499	2,265,764	1,164,376	11,381,921	2,276,092	12.08
1898 ⁵	2,016,757	.....	450,750	(3)	.....	948,458	22,016,757	1,399,208	27.09
1899	6,373,179	.....	776,841	(3)	.....	1,154,412	22,637,179	1,931,253	13.01
1900	9,992,083	.....	1,033,900	(3)	.....	1,227,332	29,992,083	2,261,232	9.84
1901	7,888,776	.....	748,485	(8)	.....	1,883,456	27,888,776	2,631,941	10.74
1902	9,160,974	.....	955,166	(3)	.....	1,007,458	29,160,974	1,962,624	6.85

¹ Cigars.

² Kilos of raw tobacco only.

³ Quantities not specified.

⁴ Boxes.

⁵ Five months—August to December, inclusive.

The relative value of tobacco exports, leaf and manufactured, varied year by year, ranging from 3.28 per cent in 1881 to 27.09 per cent for the five months in 1898 for which statistics are in existence, and averaged, for all the years reported, 12.43 per cent of the total value of exports.

The plant is of American origin and was originally introduced into the Philippines from Mexico by Spanish missionaries in the latter part of the sixteenth century shortly after the establishment of Spanish sovereignty; recently, certain varieties are supposed to have been introduced from the United States.

The species (*nicotiana tabacum*) embraces a wide range of varieties, a large number of which are produced in the Philippines, which are classified into two groups known, respectively, as "tobacco from old

seed" and "tobacco from new seed." The first group consists of varieties having elliptical or ovate, wide or heart-shaped leaves, and the second of the kinds bearing lanceolate, narrower leaves than those of the first group. The tobaccos of the second group are believed to be from seed imported from the United States.

From the time of its introduction until 1781 slight attention was paid by the Spanish Government to tobacco production in the islands, and its exclusive right to traffic in the product was not enforced until that year, when the production and sale of the article were formally made a state monopoly, as far as the island of Luzón was concerned. The Visayan and other islands south of Luzón were not affected by the government monopoly, and their tobacco growers were always free to sell their product either to the government or privately, as they saw fit.

The monopoly of the government in the island of Luzón remained in existence for one hundred and one years, and was terminated December 31, 1882. During its existence it became an important source of revenue, and in its last year, 1882, yielded profits amounting to about 50 per cent of the total budget expenditures of the Philippine Government.

Notwithstanding the maladministration, crying abuses, and practical slavery that had grown up under the monopoly system, which finally led to its abolition, the native tobacco growers opposed its discontinuance, having become accustomed to its workings and fearing that a private monopoly of tobacco speculators would result in the imposition of evils harder to bear than those to which they were already subjected. For several years prior to 1882 the question of abolishing the monopoly was under consideration by the government; the clergy joined with the growers in opposing the measure, and were able to defeat its adoption for a time, but the evils of the system were so overwhelming as to finally secure its termination in spite of all opposition.

With the inauguration of freedom of production and sale, the tobacco industry took on a new impetus, and since 1882 the annual shipments of both leaf and manufactured tobacco have considerably exceeded those of the monopoly period; the number of cigar factories has increased, as well as the number of persons employed in tobacco production and manufacture. There is an enormous home consumption of cigars and cigarettes throughout the archipelago, and this, added to the demands of the export trade, renders the industry one of the most important of the islands.

The best qualities of tobacco are grown in northern Luzón, particularly in the provinces of Cagayán and Isabela, where the production is larger than elsewhere. Considerable quantities are also grown in other provinces of Luzón--Ilocos Norte, Ilocos Sur, Nueva Écija,

Nueva Vizcaya, Pampanga, and elsewhere—while the Visayan and other southern islands yield the plant in appreciable quantities, though of generally inferior qualities.

A description of the cultivation and preparation of tobacco for market, together with other data regarding the handling and marketing of the crop in the province of Cagayán, Luzón, where the largest quantities of the higher-grade qualities are produced, are given in the following special report:

CULTIVATION OF TOBACCO IN THE PROVINCE OF CAGAYÁN.

By Hon. G. GONZAGA, Governor of Cagayán.

Cagayán, situated in the extreme north of the island of Luzón, enjoys a more temperate climate than the other provinces of the Philippine archipelago. Surrounded by mountains covered with vegetation and crossed in all directions by rivers and estuaries, there is maintained in the soil by the frequent overflows an accumulation of those fertilizing agencies essential to agricultural purposes.

The implements and methods of agriculture used by the inhabitants of Cagayán for the cultivation of rice, wheat, tobacco, corn, cotton, vegetables, etc., are of the most primitive kind, as is the case in all the provinces of the Philippine archipelago.

The plow used in the preparation of the fields is of Chinese model and origin, with narrow shares, shaped like wings, of a smaller size than those used in Europe. To this a carabao is hitched, the only work animal used by the Filipinos, perhaps by reason of its greater strength and endurance as compared with all other cattle of the country. In spite of this, the plow hardly penetrates the soil more than 10 centimeters in making furrows in irrigated lands used for the cultivation of rice, while in dry lands and fields intended for tobacco the farmer finds it necessary to cross the ground three, four, or even more times in different directions in order to turn the earth over to a depth of 25 or 30 centimeters.

The Spanish Government, in creating a state monopoly of the sale of tobacco, extended the cultivation of this article throughout this province at the expense of all other agricultural products, the cultivation of which was greatly restricted; at the same time subjecting all agricultural labor connected with the production of tobacco to a strict accounting, without regard to private property or the climatological conditions of each locality.¹

Such action was a useful lesson in agriculture to the inhabitants of Cagayán, because it proved that in sections within the influence of the seas, although tobacco grows and develops, it is of bad quality and of

¹ This monopoly was established by royal decree, 1781, and was terminated December 31, 1882.—*Director*.

a disagreeable flavor. For this reason the districts on the seacoast as far as Lallo were not forced to engage in the cultivation of this article, which was confined, as it still is, to the interior districts—such as the Gattaran, Nassiping, Alcalá, Baggao, Amúlung, Iguig, Peña-Blanca, Tuguegarao, Enrile, Solana, Córdoba, Santo Niño, Piát, Tuao, Manauanan, and Malaúeg—situated on both sides of the Río Grande de Cagayán, of the Río Chico de Itaves, and the estuaries of the same. These municipalities, being at some distance from the sea, produced a tobacco of good quality and pleasant to the taste, although the quality varies according to the soil properties peculiar to each site and locality. The other municipalities, such as Lallo, Camalaniugan, Aparri, Buguey, Abúlug, Pamplona, Sánchez Mira, and Clavería, by reason of the influence of the sea, which borders or is near them, yield a tobacco of a very poor quality.

Furthermore, in the municipalities and sections which produce tobacco, there is a notable difference between the high and low land product, both in the strength and development of the plants and in the quality of the leaves. An explanation of this may be found in the fact that high land is considered such land as is separated from the rivers and estuaries and is not covered by the waters of the overflow, and low land such fields adjoining the rivers and estuaries as are frequently inundated. Thus, the high lands do not receive the fertilizers which the waters deposit in the low fields or lands, so that the nutritive components which the former contained are gradually consumed, until in time they become exhausted and the land unproductive.

Nevertheless, there is an advantage in the high lands, originally wooded and volcanic, over the low lands during the period of their full productive vigor and force, as a crop is always assured the grower, and there is no fear of an abnormal overflow of the rivers before the crop is harvested. This sometimes occurs in the low lands, destroying plantations, houses, and tobacco storehouses, or covering the plants with water for a period of three, four, or five days, leaving the leaves rotten and worthless.

There are, therefore, different kinds of lands used in the cultivation of tobacco, such as high, argillaceous, and calcareous lands; high lands, originally wood lands, which are volcanic and sandy; fairly high lands, near rivers and estuaries; and low lands. The last named, with the exceptions noted, are the most suitable lands for tobacco, producing the best plants, with exuberant foliage, of good quality, color, and agreeable flavor; next in quality come the fairly high lands, then the cleared wood lands; and then, in the last place, the high, loamy, or calcareous lands. The last two classes of land require artificial fertilization in order to be profitable, while the low lands receive fertilization naturally from the sediment which the waters deposit during inundation.

The Cagayanes have never used fertilizer of any kind in their fields. On several occasions attempts have been made on the San Antonio, Santa Isabel, and Maluno plantations to use artificial fertilizers, but they were unsuccessful on account of the opposition of the Filipino laborers. Up to the present time the ordinary Filipino does not understand the necessity or advantage of using fertilizers.

The growers on high lands usually fertilize them with carabao or cow manure, which is mixed with the earth in plowing, or, when they have no manure on account of a lack of animals, as is the case at the present time, they use cornstalks, which they permit to rot.

SEED BEDS.

Seed beds are the places in which tobacco seed is sown, and from which the shoots are transplanted to land properly prepared, where the plants develop fully. These seed beds must be on high land, protected from the overflow of the rivers and close to the house of the farmer, in order that the great care which the tender plants require may be given them. Usually a place is selected for the seed bed which is not shaded by trees or houses in order that the seeds may receive the benefit of the winds and of the sun, which they require for their germination, and to prevent the new plants from being weak and delicate. These seed beds are usually made on level land from 40 to 50 feet square, or sufficiently large for double the number of plants which are required. It is surrounded by a small ditch containing water for sprinkling, the earth from which is placed in the middle of the inclosed section for the purpose of elevating it so that the water may drain off. The farmer works this section of land carefully until the soil is pulverized, and sometimes fertilizes it with rather dry manure. It is divided into beds 3 or 4 feet wide, separated from each other by small longitudinal ditches of little depth, in order to avoid the retention of the rain or sprinkled water, which might rot the seed or injure the delicate roots of the tender plants. After the land for the seed beds has been prepared the seed is scattered in the beds when the land is somewhat moist, either from previous rains or a moderate sprinkling.

Tobacco seeds are taken from the flowers of the strongest and most vigorous plants, which are reserved without topping and left to flower and go to seed. The pods are cut when ripe and placed in the sun to dry in order that the seeds may be easily removed from them. The seeds are kept in earthen vessels in order to protect them against such humidity as would be injurious until the time comes to prepare the seed bed.

Before scattering the seed it is mixed with fine, dry sand or ashes in order that it may be properly distributed and separated, and is lightly pressed into the ground with the foot.

Different kinds of tobacco leaves are known, which are the product of several kinds of seed. The common varieties known in this province are Catabacuan, Espada, American or Habana, also known as Isabela, Decorazon, and Vizcaya. The first named, which produces leaves barely 35 to 38 centimeters long, but of an agreeable aroma, has been abandoned, because the plant hardly reaches the height of a meter, giving in proportion to its height a small number of leaves, requiring, in addition, great care, because it is the variety most subject to the ravages of worms. At the present time the only varieties cultivated are Habana or Isabela and Vizcaya, which grow to a height of $1\frac{1}{2}$ or 2 meters, while the leaves are 1 meter or more in length and 50 centimeters or more in width. They produce leaves in proportion to their height and yield more leaves than other varieties without suffering in aroma or flavor, although they are different from the Catabacuan variety.

The season for the preparation of seed beds is governed by the character of the soil to which the shoots are to be transplanted. For high land, with regard to which there is no possibility of inundation, the seed beds are prepared in July and August and the transplanting takes place in September and October, while with low land the seed is sown in October or November and transplanting takes place in December or January.

Careful growers prepare the seed beds from which transplanting is to take place in high lands, in soil of the same character, an effort being made to have the soil of the seed bed and that to which the transplanting is to take place identical in quality, in order that the roots may not suffer from a different soil on being transplanted. But unskilled or careless growers do not observe this detail, which is essential to the acclimatization and development of the plants.

After the seeds have been sown, the grower protects them against excessive heat and rain, by means of shelters or covers made of bamboo or palm, or banana leaves, with which the seed beds are covered from 10 o'clock in the morning until 4 or 5 in the afternoon, on very sunny days, or when the rains are heavy and abundant. When the weeds have sprouted, the family of the grower begins to remove them and also the worms from the tobacco plants. This must be done daily, morning and evening, until the time of transplanting.

During the period of the tobacco monopoly these shelters were prepared, because the employees of the government forced the natives to do so. When they were free, in so far as the cultivation of tobacco was concerned, they immediately abandoned the shelter of the tobacco in the seed beds, and at the present time properly cared-for seed beds are seen only on plantations managed by Europeans.

Nor does the native take the trouble to irrigate the seed beds; he simply sows the seed and leaves the rest to Providence.

On very hot and dry days the seed beds should be carefully sprinkled, in order that they may not bake, and if, after they have sprouted, it is noticed that the plants are rather thick or close together, they must be thinned in order to permit the remainder to have sufficient room for development.

Tobacco seed beds should be plowed four times, but the Cagayanes seldom do so more than twice; it would be too much work for them.

A grower who leaves the care of the seed bed to his family, is not free from work himself, because after the seed bed has been prepared he begins the preparation of the field to which the plants are to be transplanted, and is obliged to plow the ground two or three times a week for a month until the surface soil is well mixed and almost pulverized.

After forty-five days, or, at the furthest, sixty, when the plants have attained a height of 25 or 30 centimeters, the plants are ready to be transplanted from the seed beds. The plants are pulled with care, not much before or after the period mentioned, because if done before, the roots are weak and have not sufficient strength to develop in foreign soil; and if it be done much later the vertical roots would be injured when the plants are pulled.

The method observed for pulling the plants to be transplanted is to moisten the soil, if the weather be dry, in order that the roots free themselves easily. The most flourishing plants are selected, and with a small stick in the right hand, which is inserted beside the plant to be pulled, it is pressed in the direction of the root, and with a slight effort with the hand in order that the end of the stick may rise toward the surface, the plant, which is held in the left hand, comes out without resistance, together with its vertical root and horizontal rootlets, without the slightest injury. This work is done during the coolest hours of the day, as, for example, between 4 and 9 o'clock in the morning and 4 and 7 at night, and on moonlight nights it usually takes place between 5 and 10. When a sufficient number of plants for the transplanting in one day has been pulled, during the hours mentioned, the plants are well arranged in a basket and covered with banana leaves, and taken to the ground which has been prepared for the transplanting.

TRANSPLANTING AND CULTIVATION.

Before transplanting, the grower plows longitudinal furrows on the ground, making them deep in high and chalky lands and not so deep in loose soil, with a distance of a meter, more or less, between furrows. Behind the plow usually follows a member of the family, who carries the basket of plants and drops the plants in the furrows one by one, at intervals of 1 meter or 1 *vara*. He is followed by another member of the family with a sharp stick, with which he makes holes in which

he places the plants, leaving all the leaves above the ground, and taking care that the roots and the stalks enter the holes without bending, in order to keep the plants from dying or having a sickly growth. If the ground is quite dry, it is customary to water the plant, taking care not to let the water fall on the leaves, thus breaking them by the weight of the water.

After the tobacco has been transplanted, dead plants are replaced in order that the rows may have the same number of plants and no space be left unoccupied.

Three weeks after the planting it may be ascertained from the vigor and strength of the plants whether they have perfectly taken root in the soil. In such case the farmer passes with the plow in the space between the rows of plants, in order to cast up the soil on the portion of the stalk uncovered by the earth.

When it is observed that the leaves which form the top of the plant are beginning to grow, which will be about two and a half months after the plant has taken root in the new soil, it is topped by cutting the buttons, in order to prevent it from developing vertically, and at the same time the lowest leaves near the ground are removed, in order that the nutritious juice shall concentrate in the remaining leaves, and the soil is again gathered around the stalk of the plant. This work leads to the sprouting of suckers, to which a careful grower gives much attention, removing them when the leaves of the plant have been removed, leaving only two or three of the strongest and most vigorous which will give good leaves like the plant. With this care the leaves of the mother plant, as well as of the suckers, are gummy and of excellent quality.

Notwithstanding what has been said regarding topping, it must be remembered that the grower does not do this to all the plants, because were he to do so he would be left without seed. When the topping is done some plants are left to grow and blossom, from which the seed is taken, as has been mentioned.

After this comes the hardest work for the family of the farmer: The removing of the worms which attack the leaves and destroy the plants. This is carried on through the entire field from plant to plant and from leaf to leaf every day from daylight until about 8 or 9 o'clock in the morning, and after sunset until about 8 o'clock, or even later on moonlight nights. This terrible tobacco plague, by a fatal instinct, selects the best plants and attacks the most healthy and juiciest or gummiest leaves, and sometimes, notwithstanding the zeal and activity of its exterminators, makes great ravages at night when it is impossible to combat them. Some of the more careful growers sacrifice their hours of rest and work at night by the light of torches; but such growers are very few in number, and rich planters usually have this done by their servants and laborers.



1. 2. TOBACCO FIELDS, PROVINCES OF CAVAYAN AND ISABELA. 3. TOBACCO LEAVES ARRANGED IN "HANDS" FOR CURING. 4. SUGAR CANE, SHOWING THE
 LUNARDO'S GROWTH. 5. CRUDE METHOD OF EXTRACTING THE JUICE OF THE SUGAR CANE. 6. TEGOSINLE, OR FORAGE PLANT, RECENTLY INTRODUCED
 INTO THE PHILIPPINES BY THE BUREAU OF AGRICULTURE, MANILA.

Three varieties of these insects are known—the green, which eat the top or crown of the plant; the yellow, which attack the leaves; and the black ones, which perforate the trunk, causing the strongest plant to fall to the ground. As yet the origin of these insects or a remedy to prevent their ravages has not been discovered.

A small white moth, flying around at night, deposits its eggs on the tobacco leaves. These bear the worms which feed on the green tobacco. It would be easier to kill the moths at night with the aid of lights, but this is too much trouble for the Cagayanes.

CUTTING AND CURING THE LEAVES.

When the tobacco leaves are ripe, which is known by their yellowish color, they are ready for cutting. The upper leaves ripen first. The method employed for cutting or pruning the leaves of the plant is to take the leaf by the stem with the three principal fingers of the right hand and with a small downward effort, supporting the plant with the left hand, to detach it without injury. This is done between 8 and 12 o'clock in the morning and 3 and 5 or 6 in the afternoon. It is not advisable to do the cutting earlier or before the dew which has settled on the leaves during the night has evaporated, as this would cause dark green spots to appear on the leaves and injure their quality.

When the cutting takes place the grower, together with his family, goes into the field with a carabao cart, in which the cut leaves are placed in regular order in a vertical position with the stems downward, so that the points may not be injured. When the cart has been filled, the leaves are covered with palm or banana leaves and taken in this condition to the drying shed or to the house of the grower, where they are placed in piles, care being taken that the leaves receive no blow or injury which would leave a spot and deteriorate their quality. The family of the planter places them on sticks or inserts them by the stem in split bamboo about half an inch thick and two or more meters long, which come to a point. A space of a centimeter is left between the leaves, so that when they are placed in the curing shed they may all have equal ventilation, as the leaves which do not receive this would mildew, thus injuring their quality and giving the tobacco a disagreeable flavor. When the leaves have been placed on the sticks they are hung from the roof of the shed, with ample space between the rows. No space at all is left between the leaves, but on the contrary as many leaves as possible are squeezed on one stick.

As a general rule curing sheds are not used. About 10 per cent of the growers of tobacco have curing sheds, the others drying their tobacco in the sun until it loses its green color, after which it is hung in the house until sufficiently dry. But there are many who do not wait for it to dry completely, the consequence of which is that it rots

and the leaf loses its consistency. Bad and irregular coloring prevails at the present time in Philippine tobacco, due to a great extent to the drying in the sun.

As is known in all tobacco producing countries, the drying and curing must take place in a dark, shady place, in order that the color may be uniform.

The drying shed has a nipa or cogon roof supported by wooden posts, well raised above the ground and usually without floor or walls, although some have movable walls of woven bamboo, which may be opened or closed under certain conditions. The dimensions of the drying sheds vary according to the amount of tobacco and the activity and resources of the farmer.

During the time of the tobacco monopoly under Spanish domination the tobacco grower was obliged to build a drying shed at his own expense, in addition to those which the government built in certain populous barrios. But since the cessation of the monopoly, by which the cultivation of tobacco has become entirely optional with the planter, curing or drying sheds have been disappearing to such an extent that at the present time there are but very few farmers who build drying sheds, supplying the lack thereof with the lower floor of their houses and their porches, and when these are not sufficient, they use the upper floors of their dwellings and their kitchens.

The advantages of special drying sheds are the orderly arrangement of the leaves, good ventilation, and the protection afforded during the season of heavy rains.

Sheds without walls, during rainy periods, give the family of the grower work in wiping the leaves with a cloth in order to remove the moisture they may have received. But if the tobacco is cured in the house, the leaves suspended beneath the floor receive all the dust which sifts through; those on the upper floor, on account of the constant movement of the people dwelling therein, frequently receive violent blows which produce spots and defects: while those hung beneath the eaves are exposed to the sun and rain, which destroy their special quality. It is advisable, according to some planters, that the tobacco leaves be exposed to the sun for two or three days before being hung up for curing, because they thus get a better color later when they dry, but expert growers think this is injurious because it gives them a disagreeable flavor.

The time required for curing the tobacco leaves varies according to their size, the season, and place. Small leaves in drying sheds and those hung under a roof take from fifteen to twenty days, and the large leaves from twenty-five to thirty days; those exposed to the sun dry in a relatively shorter time. But during rainy weather, the process takes longer, because the humidity prevents the leaves from drying

well, and if they are not completely dry, fermentation progresses too rapidly, exposing them to burning, when they become a total loss to the planter.

When the leaves are quite dry the sticks are carefully taken down and placed in piles from 6 to 8 meters square, and of 2 or more meters in height, according to the quantity of tobacco, which also regulates the number of piles. The latter are covered with mats 1.25 meters long and 1 meter wide, which are placed on the sides and tops. These mats are made of *basta*, the bark of the banana trunk, divided into strips of 8 centimeters in width, which are dried in the sun, made into mats, and used for the wrapping of tobacco.

Every four days the piles are turned—that is, the sticks are turned so that fermentation may be equal in all the leaves.

As it is impossible to judge of the quality of the leaves when they are strung for drying by reason of their freshness and greenness, the persons who do this look only at the size, stringing on the same stick the leaves of one size. After the second turning over the leaves are removed from the stick and are sorted, when they are placed on sticks of a shorter length—1 meter or less long—and are again placed in piles in the manner mentioned, but are turned over every six or eight days until this has been done three or four times.

While the leaves are being piled and turned over they acquire their color gradually, but before they have the desired color the leaves are again taken from the sticks and tied in bundles of ten by their stems, every ten bundles forming a pack, commonly called a “hand.”¹ This is a simple but delicate operation, because in forming the bundles, which are tied with thin strips of *basta*, without separating the ten sets of ten leaves which the stick contains, they are gently smoothed in order to cause the creases to disappear, the stick is withdrawn, and the hundred leaves are carefully rolled, care being taken to keep the borders of the leaves inside. Then the roll is tied with strips of *basta* at three points, one in the middle and one at either end of the hand.

These hands or packs are again piled, and in order to cause them to ferment large piles are made, with the stems of the leaves on the outside, so as to prevent the points of the leaves from being injured. If the piles are square they are left with openings at regular intervals, which are called *troneras*, and serve as ventilators to prevent a too rapid fermentation, which would burn the tobacco; if the piles be round or circular, a hole is left in the center.

The number of times these piles, which are known by tobacco planters as *mandalas*, should be turned over is regulated by the quality of the tobacco leaves; if the leaves are thick or juicy and gummy and the weather is quite dry the pile is turned after six or eight

¹ See illustration No. 3 on plate facing page 40.

days, and if it be damp or rainy weather, after ten or eleven days. Fine leaves require two days more, and are turned over two or three times more until the leaves acquire a more or less dark chestnut color.

Tobacco planters and those engaged in the tobacco trade in this province who are familiar with the work of curing the tobacco do not need to know the age of the piles in order to know when they should be turned, because the odor of the tobacco indicates the proper time. When fermentation begins more heat than usual is noticed in the spaces between the leaves when the hand is inserted therein, the degree of heat increasing daily; after four or five days the tobacco gives out an agreeable odor, which becomes accentuated day by day until it becomes almost repugnant. Then turning should take place and not a single day should be permitted to elapse, because of the danger of burning the bundles in the lower part of the pile. After the hands of tobacco have been turned three or four times in the pile they are ready for the market.

We have spoken of the suckers which grow from the plant after it has been topped. In order that these suckers may yield large leaves of good quality, after the leaves have been removed from the stalk the grower cuts or removes all the suckers but two of the strongest and healthiest ones, selected beforehand, one near the bottom and another about a third of a yard higher; then the stalk is cut at the joint where the sucker grows, in order that the fertilizing juices may properly nourish the leaves and hasten the ripening.

EXPENSES AND PROFITS.

The opinion is general that tobacco is the most profitable crop to the planter in the Philippines. This opinion is confirmed by the high price which this product has brought some years in the Manila market. The high prices which have obtained for two consecutive years, 1900 and 1901, and which will not return in view of the state of the foreign markets, can not serve as a basis for a calculation of the profits. Such a calculation, to be approximate, should be based on the ordinary prices which tobacco brings in the locality where the growers sell their products. The expenses they incur must also be considered, because without this data it would be impossible to judge of the profits.

In order to ascertain these facts—that is, expenses and profits—it is necessary to look into the manner in which the grower or planter of tobacco places his product on the market.

It has already been said that the last work connected with the tobacco leaves is to make bundles of every 100 leaves tied together. Every 40 bundles form a bale, in which form the tobacco is offered for sale.

The price of the tobacco bales is fixed according to the class of the article, or is agreed upon between the purchaser and vender. For-

merly, after the cessation of the monopoly it was lower, but has increased notably and is being maintained at the present time.

Tobacco is divided into five classes, depending on the length of the leaf, absence of spots, and defects such as breaks or holes made by worms.

The leaves of the first class should be 45 centimeters in length from the stem to the point. Those of the second are 39 centimeters in length, clean and sound, as those of the first. Those of the third class are leaves without spots and defects, 26 centimeters in length. Of the fourth class, the leaves contain some spots, breaks, or perforations made by worms, and are 24 centimeters long, while the fifth class consists of leaves of the same character 22 centimeters long. It should be noted that bundles of leaves having the length of the first class or a greater length, but with six or more leaves having black or greenish spots, or breaks or perforations, are put in the next lower class; if the number of defective leaves exceeds 12, the bundle goes to the third class, and if the number of the defective leaves reaches 20, it descends to the fourth class.

This was the classification under the Spanish monopoly, but at the present time no one pays any attention to it, and the tobacco is classified as the grower may wish. This is due, to a great extent, to the competition in the market. According to a former agreement, fixed prices have been set for each class of tobacco, and these have not apparently changed, but in reality they are changing continually, because if there are few purchasers the tobacco is classified as it should be; but as soon as the demand increases the purchasers do not observe the classification so strictly, and tobacco of the second class is classified as of the first, that of the third class as of the second, and so on. By this means the grower receives a higher price than the customary one.

With the data mentioned, the expenses and profits may be shown, taking as a basis 1 hectare of land.

One hectare of low land is valued at \$200 at the lowest, and of high land at \$100.¹

In order to properly prepare the land for the seed beds it should be plowed several times. This necessitates the labor of 1 person with a carabao for two days, at \$1 per day.

The preparation of a hectare of land, by plowing several times in different directions, requires the labor of 1 man with a carabao for twelve days, which, at 1 peso per day for the man with his carabao, would amount to \$12 Mexican.

¹All money values are expressed in Mexican dollars (or pesos), the local currency in the Philippines.—*Director*.

For sowing or transplanting seeds in 1 hectare of land, 3 men and 1 carabao are necessary for five days, which, at 50 cents per day per man and carabao, amounts to \$10 Mexican.

As has been already stated, the tobacco plants require great care on the part of the grower, if he wishes to see his hopes realized. This care must be continuous and varied during development, beginning with the removal of foreign growths, which might deprive them of some of the fertilizing juices, then the hilling of the plants, afterwards the extermination of the worms, the last work being the most laborious one, but of the greatest importance to the grower. Supposing that 4 men are employed on this work five hours per day for a period of forty days, each one earning $31\frac{1}{4}$ cents per day, the amount would be \$50 Mexican. This would not include the work of topping the plants, the removal of the suckers which grow after the topping and of the leaves which are on the stalk and touch the ground.

For the gathering of the leaves 4 men are necessary, with 1 carabao and wagon or cart. They are engaged for three days each during three seasons at the rate of 50 cents per day per man and 50 cents for the carabao, the total amounting to \$22.50 Mexican.

As the leaves are cut from the plants they are placed in the cart, covered with palm or banana leaves, and transferred to the house, where they are received by 4 women, who sort them according to size. After they have been sorted they are placed on sticks or on split bamboo 1 centimeter in thickness with a pointed end, and after a sufficient number of leaves have been placed thereon, with the spaces between them which are necessary for ventilation, the stick is hung in the place set aside for the curing. This work takes as long as the gathering, and estimating the daily wage of each workwoman at half a peso Mexican, the sum total of the wages for the four women during the nine days would be \$18 Mexican.

When the sticks are taken down from the drying shed they are placed in piles. For the piling of the leaves of 1 hectare of land it is necessary to employ 4 persons for three days each, whose wages, at 50 cents per day, would amount to \$6 Mexican. We do not consider the work of turning the piles, which is done once, twice, or oftener, according to the care and diligence of the grower.

After the turning comes the laborious and delicate task of selecting and separating the leaves into classes. This operation is one for women exclusively, and supposing that in one day 25 women are engaged, and that in addition to the classification of the leaves they tie them by tens by the stem and string each ten bundles on another shorter stick, the wages would be 50 cents each, or \$12.50 Mexican.

In order that the tobacco may be in proper condition for the market another operation is necessary. This consists in dampening the leaves to give them some elasticity, so they will not break, when smoothed and ironed. The hundred leaves contained on each stick are removed and fastened in three parts, in order that they may not become untied in turning. If it be supposed that 25 women are sufficient on this work for one day, at 50 cents each per day, which is a low estimate, the amount would be \$12.50 Mexican.

The hands are again piled and the piles turned over, two, three, or four times in order to avoid a rapid fermentation, which would result in burning the tobacco. Supposing that four turns are given to the piles, which is the usual number necessary, and each turning be done by 2 men in two days, the wages would be \$8 Mexican.

These expenses are incurred by a tobacco grower in cultivating 1 hectare of land, and do not include the interest on the estimated value of the land.

In order to ascertain the profit to the tobacco grower the following high estimates are made: It is first considered that 10,000 plants have been transplanted to 1 hectare of land; second, that 20 leaves have been gathered from each plant—that is to say, 12 from the plant and 8 from the two suckers which ought to be left—giving a total of 200,000 leaves gathered from the 10,000 plants, which, reduced to bales containing 40 hands, and the hand 100 leaves, would make 50 bales of the 200,000 leaves from the 10,000 tobacco plants.

The price of a bale of tobacco, according to class, is determined and fixed by custom, which is changed with difficulty; so that in the deal for the sale of this article, the purchaser and vender do not speak of the price because it is taken for granted that it is the market price and consequently the agreement is confined to the classification and amount.

An explanation having been made of the classification of tobacco leaves, their prices per bale are: For first class, \$14.25; second, \$9; third, \$4.12½; fourth superior, \$2; fourth current, \$1.50; and fifth, \$0.50.

Supposing that 200,000 leaves gathered would yield 50 bales of 40 hands, and supposing that of these 50 bales, one is of the first class, three of the second, six of the third, twenty of the fourth superior, twelve of the fourth current, and eight of the fifth class, and that the leaves of the fifth class are raised to the fourth current in order to increase the value of the crop, nevertheless, if it is desired to ascertain the exact and true value at 50 cents per bale of the 20 bales of the fourth class above mentioned, an exact proportion must be secured.

Expenses and income are summed up in the following table:

Expenses and income to the grower of tobacco for 1 hectare of land.

EXPENSES.

Wages of 1 man and 1 carabao for 2 days, for the preparation of the seed bed, at 50 cents per day for the man and the same amount for the carabao....	\$2. 00
Wages of 1 man and 1 carabao for 12 days' labor in preparing 1 hectare of land, at the rate of 50 cents per day for the man as well as the carabao....	12. 00
Wages of 3 men and 1 carabao for 5 days, for sowing or transplanting, at 50 cents each per day	10. 00
Wages of 4 men, for the cleaning and care of the plants, at the rate of 31½ cents for 5 hours' work per day	50. 00
Wages of 4 men and 1 carabao with a wagon, for 9 days for the gathering of the leaves, at 50 cents per day, each, as also the carabao	22. 00
Wages of 4 women, at 50 cents per day, for the sorting, placing on sticks, and in the drying shed of the tobacco leaves, for 9 days.....	18. 00
Wages of 4 women, at 50 cents per day, for 3 days, in piling the sticks of tobacco after curing	6. 00
Wages of 25 women, at 50 cents per day, for classifying and making of bundles, for 1 day.....	12. 50
Wages of the same, at 50 cents per day, for ironing and formation into bundles, for 1 day.....	12. 50
Wages of 2 men, at 50 cents per day, for turning the piles four times, at the rate of 2 days for each time	8. 00
Total	153. 00

INCOME.

Proceeds from tobacco leaves from 1 hectare of land:	
Of the first class, 1 bale.....	\$14. 25
Of the second class, 3 bales.....	27. 00
Of the third class, 6 bales.....	24. 00
Of the fourth superior class, 20 bales	40. 00
Of the fourth current class, 12 bales.....	18. 00
Of the fifth class, 8 bales.....	4. 00
Raising to the fourth class current the 8 bales of the fifth class, the increase is	8. 00
Balance in favor of the expenses.....	17. 75
Total	153. 00

The calculation regarding the cost of the amount of tobacco cultivated on 1 hectare of land is entirely misleading, because in no place in the province of Cagayán is there a planter who works his lands with paid labor; furthermore, it would be absolutely impossible to cultivate tobacco in this manner and obtain positive results—that is to say, as long as the necessity exists of employing native laborers. The reason for this is that the native does not work for less than 75 centavos, or 1 peso, per day, and as he is so lazy, he works only two or three hours in the morning and a similar period in the afternoon.

The grower usually prepares his seed beds without assistance, and when the time for plowing comes he calls upon five or six of his neighbors, all of whom come with their plows and carabao, and in a few hours in the mornings and afternoons, for a few days, prepare the beds for the reception of the small plants. For the purpose of effecting the transplanting, they call upon the women and children of neighboring families, and this work is also done in a few days. They thus assist each other, but without spending a cent. Upon the conclusion of the transplanting, the man does nothing more, leaving the care of the field to his wife and children. The cutting of the ripe leaves is also left to them. At the cutting period all the man does is to transport the cut tobacco to his house by wagon, where all the other work of piling, curing, etc., is done by the women.

The grower pays nothing for help and the money that he receives from the sale of his tobacco is considered by him as clear profit, as indeed it is.

It is very rarely the case that a hectare produces 50 bales. This result may be obtained only by using the shoots, but as their leaves are very small they have hardly any value and are never classed above the fifth class. In well-cultivated lands, where the plants receive the proper care, a plant does not yield more than 15 leaves, and one hectare would thus yield 37 bales and 20 hands.

In the crop of 1903 the proportion of the different classes of tobacco produced in the province of Cagayán was as follows:

- First class, 1.2 per cent, or in a crop of 50 bales, 0 bale 24 hands.
- Second, 3.1 per cent, or in a crop of 50 bales, 1 bale 22 hands.
- Third, 6.5 per cent, or in a crop of 50 bales, 3 bales 10 hands.
- Fourth superior, 11.7 per cent, or in a crop of 50 bales, 5 bales 34 hands.
- Fourth ordinary, 31.1 per cent, or in a crop of 50 bales, 15 bales 22 hands.
- Fifth, 46.4 per cent, or in a crop of 50 bales, 23 bales 8 hands.

If the tobacco is cultivated as it should be, it is an easy matter to secure in 50 bales—3 bales of the first class, 5 of the second, 8 of the third, 10 of the fourth superior, 19 of the fourth current, and 5 of the fifth. During the last year of the monopoly, 1882, the Spanish Government sold the first class in Manila at \$112 per quintal, when exchange on London was at 4.01; now a quintal of the first class brings hardly \$30 Mexican. All this is due to the great carelessness of the grower.

In the above estimate it has been indicated that the number of leaves of tobacco for 1 hectare of land is 200,000, equivalent to 20 per plant; but this is rarely the case, because the plants do not all attain the same height, nor do they all have the same number of leaves, and even if this were so it would be impossible to avoid some being injured and

rendered useless. A more correct estimate would be 15 leaves per plant, in which case the result would be $36\frac{1}{2}$ bales.

The estimate is also high regarding the classification, because ordinarily in a crop of 50 bales there is not found one of the first class nor three of the second, although the proportion of the other grades is frequently found in a number of bales of this size.

After the growers have sold their tobacco, the buyers, in order to increase their profits, are obliged to incur other expenses for the purpose of improving the quality of the tobacco, or at least to preserve the quality it had when bought, as also the expense of packing it for transportation.

This work consists in making piles which are covered with mats, so that the tobacco may ferment and get a better color. The piles are turned two or three times, according to the condition of the leaves, in order to dry them sufficiently before packing to prevent fermentation after packing.

When the tobacco is ready for packing, the merchant or trader again sorts and grades it to suit himself, but always endeavoring to improve the class, because if he retains the grades as he bought them, a loss would be inevitable.

After classification, the tobacco is again piled according to classes, and the packing is proceeded with, every 3 quintals or $2\frac{1}{2}$ hands of tobacco being wrapped in two mats and pressed into a bale of a quadrilateral shape 1 meter and 10 centimeters long, by 70 or 80 centimeters high, and tied with split bamboo from end to end and crossways.

After the packing is completed, the bales are either stored or hauled to boats for transportation to the port of Aparri, where they are loaded on ships for Manila.

In brief, all the expenses of the trade, including the improvement and packing of the tobacco purchased, the transportation of the bales from the warehouse to the river and to Aparri, the unloading at that point, and storage if there should be no vessel in port for Manila; transportation to the vessel, freight from Aparri to Manila, cost of marine insurance, unloading and storage in Manila, fire insurance and sale commission, if the tobacco is not sold on board, are estimated at \$7 per bale of $2\frac{1}{2}$ or 3 quintals.

The weight of the tobacco depends on its quality, so that tobacco of the first class has more weight than that of the second, and so on.

Thus, a bale of 40 hands of tobacco of the first class varies between 50 and 60 pounds; of the second class, between 40 and 50 pounds; of the third class, between 35 and 40 pounds; of the fourth superior class, almost the same as the third class, because the defective leaves of the superior grade are included in it; of the fourth current class, between 30 and 35 pounds; and of the fifth class, between 20 and 30 pounds.

The weight varies according to the quality of the crop and according to the classification and competition. The weight of the crop of 1903 gave the following results: One bale of the first class, 50 pounds; second class, 45 pounds; third class, 34½ pounds; fourth superior, 34 pounds; fourth current, 20 pounds; and fifth, 11 pounds.

When 50 bales of the best qualities of tobacco (from first to third grade, inclusive) represent a third part, more or less, of a crop, it can be estimated at 5 bales per quintal of one class or another (from first to fifth grade), and, therefore, from the 50 bales 10 quintals are secured, which, sold at \$20 per quintal, amounts to \$200; but the price of tobacco in the Manila market fluctuates according to the demand. At the present time it barely brings \$15 per quintal.

Due to the depreciated value of tobacco in the Manila market, there is a scarcity in the province of dealers in the article, and although there still remain here the agents and buyers for the mercantile houses, who engage in the purchase of tobacco from the growers, the absence of other buyers injures the interests of the growers to a notable extent, not on account of the reduction in price of the article (which, being fixed and standard, can not be changed), but due to the low classification of the tobacco, on account of lack of competition, which is more prejudicial than the reduction in price, by reason of the great difference in the value of one grade as compared to another.

The growers or planters of tobacco are convinced that the cultivation of tobacco brings them more profit than any other agricultural product, because they take no account of the money invested in the land or its exhaustion from continued planting, or the work of the carabao, or that of the members of their families or the relatives, neighbors, and friends who assist them, because such work is repaid in kind. When their carabao die, or when they have none, or when they have no money for their necessities, they apply to Chinese or Filipino traders for a loan of money at an interest of 50 per cent, payable in tobacco at harvest time. They do not consider the high interest, provided they satisfy their necessities, no matter how puerile they may be, because they expect to pay both the loan and interest with the proceeds of their next crop; but sometimes the crop is lost through accident, and at other times it is small, and the creditor does not wish to extend the time of payment, hence this expectation is not realized, and the tobacco grower is obliged to give up his lands in liquidation of his debts. From this it may be inferred that the tobacco farmers are not always intelligent in regard to their financial interests, because there are other products which are easily cultivated, such as abacá, cacao, coffee, maguey, cotton, coconuts, corn, wheat, and potatoes, and which, even if they do not yield very large profits, give at least something in remuneration for their work.

Hemp, cacao, maguey, and coconuts can not be cultivated in Cagayán on account of existing conditions. Coffee grows well. Corn also grows well, and constitutes practically the only food of the natives. Wheat and potatoes may be grown during the winter months, but they require here much more care than in cold climates, and the Cagayán is not fond of work.

It would be regrettable were the cultivation of tobacco, which figures among the valued products of the Philippines, such as sugar and coffee, to disappear from Cagayán, and before the day comes for its abandonment it is urgently necessary that efficient measures or remedies be adopted tending to alleviate the present painful situation.

Never as at the present time have so many misfortunes joined together, each of which threatens to exterminate the Philippine planters in general, and the grower of tobacco in Cagayán in particular. The rinderpest, which has been prevalent in the province for some years, has visited all the townships and exterminated the carabao and other cattle. Horses were similarly attacked by surra, and between the two diseases the cattle of certain districts were gradually destroyed, and if any carabao are found it is due to the fact that they have been purchased recently. Then came the drought, which cracked the earth and burned the plants; then the locust plague, which visited all the districts and plantations, cleaning out all vegetable growth; and finally, to supplement these misfortunes, came smallpox, dengue, and cholera.

A remedy suggested is the establishment of an agricultural bank, to lend money to the farmers on mortgages at a moderate interest of, say, 6 or 8 per cent per annum. This bank could engage in the tobacco industry, both as a means to assure payment of its credits as well as to improve the price of the article and destroy the monopoly of the commercial companies. For this purpose the bank should have agents and branches in the markets of Europe and America, for the exportation of tobacco and for the importation of rice and other articles needed by the inhabitants of the province.

In order to supply the lack of work animals, and to provide against droughts, the bank could engage in the work of irrigating the fields to be used in the cultivation of tobacco and cereals, of bringing in plows and portable irrigation pumps, and of working the fields for a small compensation in money or crops.

The only purpose of these brief suggestions is to indicate the remedy considered efficient to alleviate the infinite number of misfortunes which the farmers suffer, but no doubt is entertained that other and better methods could be found by persons more expert on the subject.

In conclusion, it may be said that the province of Cagayán, according to the last official guide of 1896, has an area of 1,438,000 hectares, without including the Batanes Islands. This vast area is inhabited





1. CLIMBING THE COCONUT PALM FOR TUBA. 2. HUSKING AND SPLITTING COCONUTS FOR COPRA.
3. COCONUT TREE AND FRUIT.

by 133,839 Christians, according to the census, without counting the Batanes Islands or the non-Christian tribes of Igorots and Negritos, who live in small settlements on the mountain sides, their number being estimated at 13,414.

Owing to this small number of inhabitants agriculture has remained stationary. For the development of this source of wealth it is advisable to encourage the immigration of the inhabitants of Ilocos Norte and of other populous provinces where suitable land is scarce. In this manner the cultivation of various products would become more extended, and the civilized towns would increase and encroach upon the territory of the savage tribes until the latter are reduced to civilization.

The building of a road in the central range which separates Cagayán from Ilocos Norte will be a valuable factor toward the immigration of natives of that province who have no land to work nor woodland, and who would be very glad to come to Cagayán were it not for the expense of the journey via Laoag and the port of Aparri.

Another means which, if it will not promote immigration, will at least attract people, is the establishment of a railway traversing the province of Cagayán from south to north. With the influx of strangers agriculture would flourish, the markets of this province would become more active, industry and commerce would rise from their state of prostration, while the culture and experience which the natives of this province would derive from their contact with people of different provinces would no doubt create many new necessities, and would in that way stimulate the sources of wealth.

THE COCONUT.

The coconut palm constitutes a highly important factor in the domestic economy, welfare, and commerce of the Philippine Islands. It thrives luxuriantly and yields its products bountifully in all the islands of the archipelago. When grown in plantations and its products systematically harvested it is a source of unfailing revenue and profit.

The nuts yield a nutritious and palatable food and the milk or water from the inside of the nut is a healthful and refreshing beverage; while the demand for copra, as an article of commerce, is constantly increasing.

The sap, extracted daily from the flowering, fruit-bearing stalks of trees devoted to the purpose, affords a drink called *tuba*, highly prized and extensively used by the natives. But while the collection of this sap gives regular occupation to a large number of people, its extraction destroys the nut bearing capacity of the tree. The sap, when allowed to ferment, becomes an intoxicant, and a spirituous liquor, known as coco wine, is distilled from it.

Copra is the meat of the coconut dried by means of the sun or by the action of fire. While ranking fourth in value of exported commodities, it is a comparatively new product, and bids fair to become of much greater relative importance than at present. Formerly the dried meat of the coconut was not exported, but the nuts themselves were shipped in limited quantities. Owing to lack of detail and faulty classification in the Spanish custom-house records of the Philippines, the years in which shipments of copra as well as of coconuts were made prior to 1890 can not be determined. It is certain, however, that shipments of copra as well as of coconuts were made annually from that date, and that trade in the former has increased heavily year by year, while in the latter it has greatly fallen off. Prior to American occupation no distinction was made in the custom-house records between exports of the nuts and of the dried meat, but the combined quantities and values of the two products were recorded as presented in the following table, which gives such quantities and values, and the percentage that the values were of all exports, for the years specified:

Quantities and values of copra and coconuts exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854	(1)	17,446	18,479	0.27
1855	(2)	92,775	97,488	1.52
1856	(2)	13,475	14,160	0.15
1857	(2)	77,114	81,980	0.65
1858	(2)	50,675	53,249	0.54
1860	(2)	19,939	21,187	0.21
1861	(2)	28,553	29,966	0.36
1865	³ 55,807	1,632	1,716	0.01
1866	³ 36,807	2,880	3,030	0.01
1867	³ 52,405	4,554	4,752	0.02
1873	³ 379,000	3,887	3,964	0.02
1874	³ 1,056,000	13,540	13,605	0.08
1875	(4)	3,251	3,174	0.02
1876	(4)	3,436	3,143	0.02
1877	(4)	1,389	1,312	0.01
1878	³ 488,495	8,200	7,432	0.05
1879	³ 1,304,299	15,445	13,639	0.08
1880	³ 1,362,825	14,763	13,284	0.06
1881	³ 1,559,947	14,154	12,593	0.06
1882	³ 763,000	8,760	7,817	0.04
1883	³ 1,314,892	16,245	14,169	0.06
1886	³ 584,851	7,392	5,778	0.03
1887	³ 2,367,503	47,074	36,228	0.19
1888	³ 6,560,282	177,977	131,418	0.68
1889	³ 8,377,983	285,469	209,763	0.82
1890	(4)	104,336	85,785	0.40
1892	(4)	1,086,011	743,700	3.88
1893	(4)	676,431	414,720	1.86
1894	(4)	2,349,080	1,171,721	7.09
1898 ⁶	⁶ 2,494,082	.....	⁷ 126,637	2.45
1899	⁶ 15,353,629	.....	⁷ 727,256	4.90
1900	⁶ 64,890,999	.....	73,184,853	13.85
1901	⁶ 32,517,773	.....	71,627,200	6.64
1902	⁶ 59,226,854	.....	72,701,783	9.42

¹ Quantity not reported.

² Quantity in doubt.

³ Number of nuts.

⁴ Kilos of copra.

⁵ Five months—August to December, inclusive.

⁶ Kilos of copra. Quantities of coconuts not reported.

⁷ Includes values of copra and coconuts.

This table shows that from 1865 to 1886 the value of shipments (which, it is believed, then consisted almost wholly of the nuts) constituted less than one-tenth of 1 per cent of the value of all exports; in 1887 they were two-tenths of 1 per cent, and in each succeeding year, except 1890, their relative value increased until in 1892, when copra was exported more largely, they amounted to 3.9 per cent. Since then the shipments of copra have very largely increased; in 1893 the combined value of copra and nuts exported (which are not separately reported) amounted to 1.9 per cent of the total exports, and in 1894 to nearly 8 per cent.

During the subsequent years for which figures are available the shipments consisted almost wholly of copra, and for the five months reported in 1898 were 2.5 per cent; for 1899, 4.9; for 1900, 13.9; for 1901, 6.6; and for 1902, 9.4 per cent of the value of all exports. The average percentage was 1.9 for all the years covered by the table.

Throughout the islands generally the oil is extracted from the nuts by crude and wasteful methods. For many years coconut oil has been exported in small quantities; in the islands it is consumed in enormous quantities, principally as an illuminant; although it gives a light much inferior to that of kerosene, it is used nightly by nearly all the people because of its greater economy. It is also largely used as a lubricant and in the manufacture of soap, and for cooking and medicinal purposes.

The following table shows the quantities and values of shipments of coconut oil during the calendar years for which figures are obtainable, with the percentage that the value of such shipments constituted of the total value of exports each year:

Quantities and values of coconut oil exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854	154,900	8,680	9,194	0.14
1855	(2)	3	3	(3)
1856	45,390	14,100	14,816	0.15
1860	(5)	18,688	19,858	0.20
1861	(5)	1,829	1,920	0.02
1862	(5)	10,831	11,455	0.12
1863	349,606	12,996	13,734	0.13
1864	91,244	6,663	7,041	0.06
1865	(2)	6,490	6,824	0.03
1866	65,427	1,544	1,624	0.01
1867	5,791	1,864	1,945	0.01
1873	7,198	430	438	(8)
1874	1,972	696	699	(8)
1876	7	16	15	(8)
1877	23,012	2,273	2,147	0.01
1878	371,864	40,429	36,645	0.23
1879	1,274,253	185,581	163,887	0.99
1880	342,722	40,921	36,821	0.17

¹ Gantas.

² Quantity not specified.

³ Less than one-hundredth of 1 per cent.

⁴ Tinajas.

⁵ Quantity in doubt.

⁸ Liters.

Quantities and values of coconut oil exported from the Philippine Islands during each calendar year specified: 1854 to 1902—Continued.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1881	64,628	5,628	5,007	0.02
1882	799	159	142	(¹)
1883	380	50	44	(¹)
1884	32,813	3,055	2,672	0.01
1885	143,999	13,574	11,332	0.06
1886	267,064	18,812	14,708	0.07
1887	340,495	27,438	21,116	0.11
1888	573,172	29,541	21,813	0.11
1889	1,527,756	99,650	73,223	0.29
1890	415,149	33,190	27,289	0.13
1892	852,804	74,084	50,733	0.26
1893	146,573	16,861	10,337	0.05
1894	456,830	60,787	30,321	0.18
1898 ²	³ 414,733	.....	⁴ 5,415	0.10
1899	³ 416,705	.....	⁴ 4,923	0.03
1900	837	.....	105	(¹)
1901	865	.....	20	(¹)
1902	803	.....	346	(¹)

¹ Less than one-hundredth of 1 per cent.

² Five months—August to December, inclusive.

³ Gallons.

⁴ Includes all oil exported. Coconut oil not separately reported.

The outer fibrous covering of the nut is a valuable product, commercially known as *coir*, which in the Philippines is very slightly utilized and is not exported. Coir is used in other countries in the manufacture of coarse brushes, brooms, mats, rope, etc., and in the future will undoubtedly yield heavy additions to the revenue derived from coco palm plantations in the Philippines.

The hard shells of the nuts are used by the natives as cups, ladles, and other household utensils, and when converted into charcoal yield a black dye. The tree itself is converted into lumber, used in various ways; the foliage is used for thatching roofs or for making mats, and for other purposes. In fact, there is no portion of the growth that is not capable of utilization and which does not, to a greater or less extent, contribute to the wants of the people.

THE COCONUT IN THE PROVINCE OF LA LAGUNA.

By Hon. JUAN CAILLES, Governor of La Laguna.

The implements used in the cultivation of the coconut are the *tactac* (small bar), the *patik* (spade), and an instrument for taking down the coconuts which is made of various sections of bamboo, attached to each other and reaching the height of the tree.

For the purpose of planting the coconut a seed bed, upon which the seeds are placed next to each other, is first prepared. This is done by removing or turning the surface of the ground with the *patik* to a depth of 10 centimeters. Preference is given to a place which is shaded by some plant, in order not to expose it to the heat of the sun.

After a period which varies between three months and a year, and when the first leaves of the coconut seed have sprouted, it is removed from the seed bed and is permanently planted in round holes 35 centimeters deep and 20 centimeters in diameter. After this has been done and the seeds properly covered with earth, it is necessary to build a fence in order to protect the seed against animals. This fence must be left standing for four years at least, the time required for the trees to reach the proper height, after which there is no danger.

During this period of four years it is customary to plant rice or something else of the same character in the spaces between the coconut trees in order to utilize the land during the long time which the coconut trees require to produce fruit, which is usually about seven years.

The coconut is gathered throughout the year. The first six months the yield is rather small, while during the next six months it is abundant. The nuts are taken down seven or eight times per annum, at intervals of a month and a half. The products derived from the coconut are copra, oil, and milk.

COPRA.

Copra which is dried in the sun produces better quality with more weight under the same conditions, but the method of drying by the action of fire is usually adopted on account of the facility and rapidity possible, especially during the rainy season. As a general rule it may be stated that the cost of production is one-third the sale price; thus, the laborer who gathers the coconuts from the tree takes them by wagon to the proper place, dries them by the sun or by fire, takes the copra to market, and receives for all his work one-third of the price the product brings. From 3 to 3½ piculs of copra are extracted from 1,000 coconuts, a picul being the equivalent of 137 pounds.

The coconut is stripped from the husk by means of a sharp iron set in the ground. The operator holds the nut in his hands, and, backed by his weight, removes the husk in pieces.¹ An active workman can husk 2,000 coconuts per day, removing the milk which they contain, and then exposing them to the rays of the sun or directly to the action of the fire on grills about 2 meters above the coals. If the former method be adopted the operation takes four to five days, and two days by the latter. Hence, most people prefer the second method, especially as on grills 9 meters long and 2 meters wide as many as 6,000 coconuts can be placed.

. After the copra has been dried and is in condition for the market, it is sent to the commercial houses of the capital, which receive it in piculs, paying for each from 7 to 8 pesos Mexican. Then it is packed in sacks and sent to Manila in cascoes.

¹ See illustration No. 3 on plate facing page 53.

OIL OF THE COCONUT.

The manufacture of coconut oil is effected by means of an imperfect apparatus constructed of wood, rattan, and bamboo. After the coconut has been husked a wooden press is used in which is deposited the meat from which the oil is obtained. It is then drawn into large boilers (*cawas*) prepared for the purpose, and after boiling down, the process of manufacture is complete.

Two tinajas of 16 gantas each can be manufactured from 1,000 coconuts. The oil is sold in the same manner as copra and is transported to Manila in tinajas.

MILK OF THE COCONUT.

In order to secure the milk an apparatus 5 decimeters long, called a *cayuran*, is employed, having a wooden handle with a ring at the end and sharp points. The operator supports it with the weight of his body, taking a coconut in both hands, and, with a blow given with a bolo, splits it in half. He works the meat into a pulp, from which the juice is obtained.

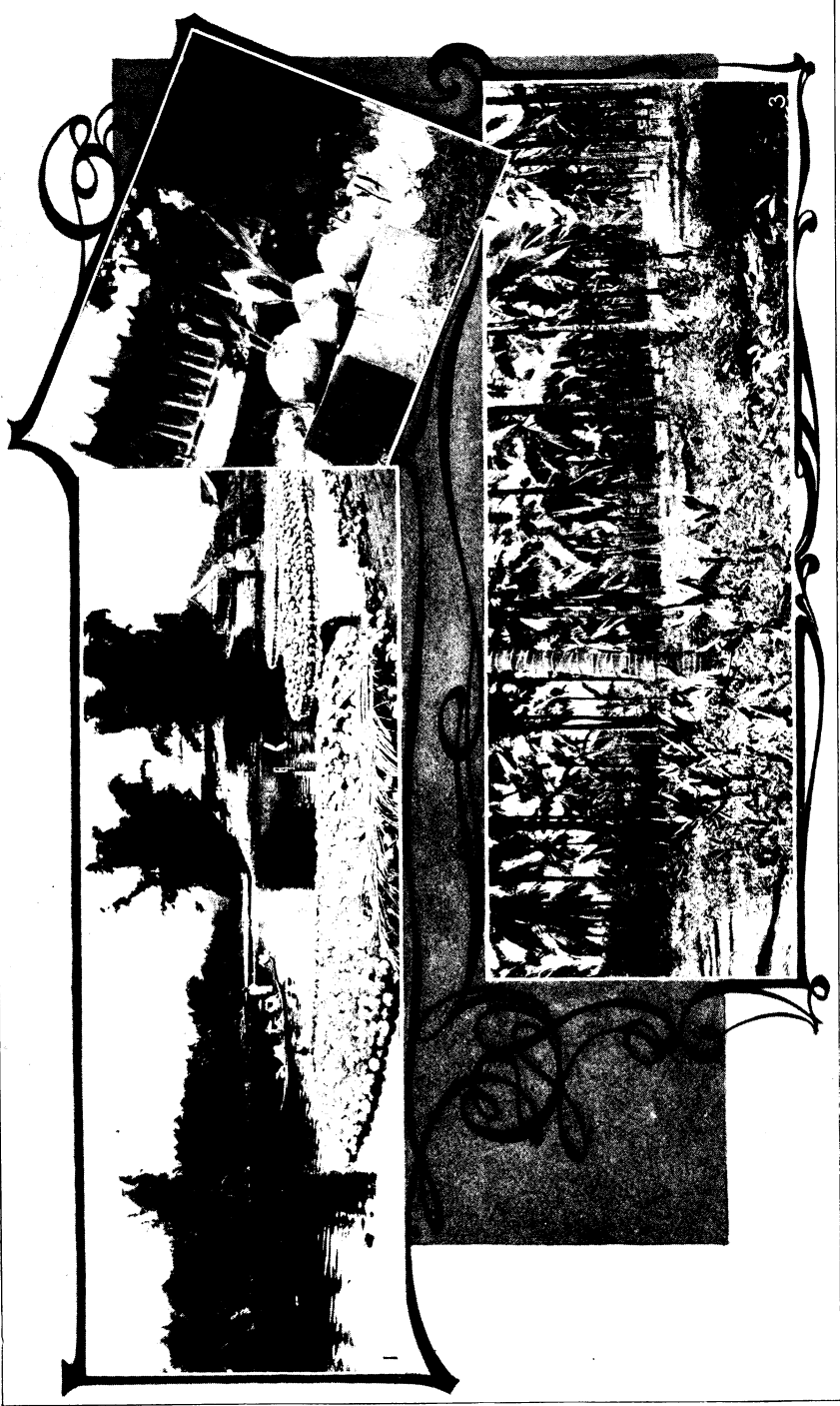
Coconut milk is used in sweetmeats and other native food products, such as *quinatan*, *bibinea*, and *calamao-hati*. It is not exported. Less than a quarter of a liter of milk is secured from an average-sized coconut.

The number of coconut trees planted in the province of La Laguna is shown in the following statement:

MUNICIPALITY.	NUMBER OF TREES.		MUNICIPALITY.	NUMBER OF TREES.	
	Bearing.	Not bearing.		Bearing.	Not bearing.
Alaminos	31,671	9,000	Nagcarlán	397,223	97,925
Bay	100	500	Paete	100	631
Biñan			Pagsanján	250,000	50,000
Cabuyao			Pañgil	58,000	20,200
Calamba	500	1,000	Paquill		3,600
Calauan		12,000	Pila	51,566	46,873
Cavinti	40,788	53,958	Rizal	150,000	45,000
Famy	38	246	San Antonio	3,118	1,266
Lilio	155,300	35,853	San Pablo	933,465	592,718
Loños	1,500	5,000	San Pedro Tunasán	25	75
Los Baños	10,500	4,800	Santa Cruz	114,844	39,149
Luisiana	33,162	30,959	Santa Maria		2,500
Lumban	67,463	51,653	Santa Rosa		70
Mabítac	25	8,700	Siniloan	15	5,700
Magdalena	218,617	112,485			
Majayjay	150,000	60,000	Total	2,668,025	1,291,291

A majority of the trees mentioned as not bearing have been planted recently, while others are from 3 to 5 years old. The hope is entertained that during the next three years the number of coconut plantings will increase.





1. COCONUT RAFT. 2. GERMINATING COCONUTS FOR PLANTING. 3. TYPICAL COCONUT GROVE.

CULTIVATION OF THE COCONUT.

By W. S. LYON, Bureau of Agriculture.

The description of coconut culture which follows covers especially the cultural methods followed in the more temperate regions of the archipelago, and presents also an estimate of the cost and profits of coconut culture, which it is hoped will prove of interest. The Filipinos themselves rarely do more than plant the seeds and gather the crop.

Whether the coconut is of American or Asiatic origin is a question which has caused much controversy. (See De Candolle, "Origin of Cultivated Plants," page 574.)

It is widely and generally distributed through both hemispheres, rarely passing beyond the limits of the two tropics,¹ and usually attaining its maximum of perfection as we approach the equator. De Candolle's review of the story results in the nature of a compromise, assigning to our own islands and those to the south and west of us the distinction of having first produced the coconut, and that thence it was disseminated by ocean currents.

Not less than nineteen varieties of *C. nucifera* are described by Miguel and Rumphius, and all are accepted by Filipino authors.

Whether all of these varieties deserve recognition need not be considered here. Many are characterized by the fruits being distinctly globular; others by fruits of a much-prolonged oval form; still others by having the lower end of the fruit terminating in a triangular point.

In the Visayas there is a variety in which the fibrous outer husk of the nut is sweet and watery instead of dry and astringent, and is chewed by the natives like sugar cane. Another variety occurs in Luzón, known as *pamocol*, whose fruit seldom exceeds 20 centimeters in diameter. There is also a dwarf variety of the palm, which rarely exceeds 3 meters in height, and is known to the Tagálog as *adiavan*.

These different varieties are strongly marked, and maintain their characters when reproduced from seed.

The coconut grows in all provinces of the archipelago. The best site for a grove is one well watered or easily irrigated, and fully exposed to the prevailing winds at all seasons. Sites in which the water remains stagnant, and marshy sites, should be avoided.

Strong confirmation of the benefits due to wind exposure may be found within the artificial environment of a plant conservatory, where it has been found feasible to reproduce, in the minute detail of soil, water, temperature, and humidity, every essential to its welfare except a good, strong breeze. As a consequence, the palm languishes and it

¹The coconut palm has been grown as far north as Indian river, Florida, latitude 28° north, but has not proven a profitable commercial venture.

has long been deemed, on this account, one of the most rebellious subjects introduced into palm house cultivation.

The soils best adapted for coconut growing are the alluvial or sedimentary loams, commonly found along waterways which are subject to occasional inundation.

As the thick, fleshy, worm-like roots of this tree are only adapted to exploring soils of free, open texture, it is obvious that stiff, tenacious, or waxy soils, however rich, are unsuitable. Equally objectionable are lands that break up into refractory lumps or are underlaid near the surface with bed rocks, impervious clays, or conglomerates. All others that are susceptible of drainage may be considered appropriate to the growth of the palm.

The preparatory work of establishing an orchard is light, provided the location is not one demanding the opening of drainage canals, and on lands of good porosity it involves neither subsoiling nor a deeper plowing than to effectually cover the sod or any minor weed growths with which it may be covered.

It has long been the reprehensible practice of coconut growers to merely dig pits, manure them, set the plants therein, and permit the intervening lands (except immediately about the tree) to run to weeds or jungle.

In the Philippines the native planter has not yet progressed beyond the "pit" stage, nor do his subsequent cultural activities include more than the occasional removal of such weeds as threaten to choke and exterminate the young plants.

Fortunately, it will not be long before the force and influence of more modern orchard methods are sure to be felt.

With an intelligent study of the plant and its characteristics, it is believed that our native planter will put into practical use the knowledge which the veteran Indian planter has in fifty years failed to utilize. He will learn that in time the entire superficies of his orchard will be required by the wide-spreading, surface-feeding roots of the trees; that pasture crops of any kind grown for any purpose other than soiling or for green manuring are injurious, and that the preparation and maintenance of his orchard in good cultivation are essential to the future welfare of his trees and to a judicious intermediate crop rotation.

Seed selection is an important step, calling for good judgment on the planter's part.

Only well formed, round, and perfectly matured nuts, taken from trees of mature age that are known to bear continuous crops of good quality, should be used. The coconut reproduces itself with remarkable freedom from variation, and the perpetuation of good traits by means of careful seed selection is therefore most important.

Freshly collected seed nuts contain in the husk more moisture than is required to effect germination, and if planted in this condition decay is apt to set in before germination occurs. To avoid this the natives tie them in pairs, sling them over bamboo poles where they are exposed to the air but sheltered from the sun, and leave them until well sprouted. It is, however, more expeditious to pile the nuts up in small heaps of eight to ten nuts, in partial shade, where the surface nuts may be sprinkled occasionally to prevent complete drying out.

Germination is very erratic, sometimes occurring within a month and sometimes extending over four, five, or more months. When the young shoot or plumule¹ has fairly thrust its way through the fibrous husk, it is a good practice to go over the heaps and segregate those that have sprouted, carefully placing them so that the growing tip will not be deformed or distorted by the pressure of superincumbent nuts. When these sprouts are 30 to 50 centimeters high, and a few roots have thrust through the husk, they are in the best possible condition for permanent planting.

PLANTING.

The original preparation of the land should be good, and the surface tith at the time of planting irreproachable, i. e., free from weeds and so mellow that the soil can be closely and properly pressed around the roots by hand.

The grove should be securely protected from the invasion of cattle, etc. If these precautions can not be assured, then the nuts had better be grown in a closely protected nursery until they are about a year old, when they will no longer attract vermin, and when the larger size of the plant will give it better protection from stray cattle.

In either case planting should be made concurrently with the opening of the rainy monsoon, during which season further field operations will not be required except when an intermittent drier period indicates the advisability of running the cultivator.

If stable manures of any kind are available, a good general application at the time of planting will effect wonders in accelerating the growth of the young plants.

Where the necessary protection is assured, the young seedling, planted out as above recommended, should start at once without check of any kind into vigorous growth.

The history, habits, and characteristics of the coconut tree indicate that it needs a full and free exposure to sun, air, and wind; and as it makes a tree, under such circumstances, of wide crown expansion, these indispensables can not be secured except by very wide planting.

¹ See illustration No. 2 on plate facing page 59.

A space of not less than 9 meters, and, in good soils, preferably 9.5 meters, should be preserved between trees no matter how planted.

The former distances will allow for 123 and the latter 111 trees to the hectare. They should be lined out with the greatest regularity, so as to admit at all times of cross plowing and cultivation as desired.

From this time forward the treatment is one of cultural and manual routine.

Annual plowings should not be dispensed with during the life of the plantation. These plowings need be no more than sufficient to cover under the green manures and crops that are made an indispensable condition to the continued profitable conduct of the industry. Nothing is to be gained by the removal of the earliest flowering spikes. Flowering is the congestion of sap at a special point, which, if able to control it, the grower would wish to direct in the case of young plants to the building up of leaf and wood. Cutting the inflorescence of the coconut results in profuse bleeding, and unless this be checked by the use of a powerful styptic or otherwise it is doubtful if the desired end would be accomplished.

IRRIGATION.

Occasional irrigation during the dry season may be quite important, depending on locality, as it strongly increases growth and early maturity.

Though it is true that the evil effects of drought may be modified, if not altogether controlled, by cultivation, the assistance of irrigation places the cultivator in an impregnable position. If evidence in support of this statement were called for, it might be found to-day in the condition of those groves that have been permitted to run to pasture, as compared with those in which some attempts have been made to remove the encroaching weeds and grasses.

On the eastern coast of the archipelago, where the rainfall is generally great and well distributed, irrigation would be unnecessary; but upon the west coast, where there are normally five months each year of scanty and insufficient rainfall, it is conservative to estimate a crop increase of not less than one-third by the judicious application of irrigation. In low-lying, well-watered valleys the expense of irrigation would be inconsiderable. On rolling uplands, and in particular those whose water supply is drawn from deep ravines, the expense of conducting water upon the plantation would have to be considered, and the planter governed by the ratio that an annual crop increment of one-third bears to the cost of such water conduction.

HARVEST.

Harvest of the crop requires but a brief discussion. The nuts should be plucked when ripe. The phenomenon of maturity can not be readily described in print. It frequently is as evident in nuts of a bright green color as in those of a golden yellow color, and the recognition is one of those things that can be learned only by experience.

The practice, so general in the Seychelles, of allowing the nut to hang till it falls to the ground, is certainly undesirable in these islands. On the contrary, the overripe nuts will seldom fall until dislodged by a storm, and it is no uncommon thing to see nuts that have sprouted and started to grow in plantations where the harvest is left to the action of natural causes. Such nuts, of course, are entirely worthless for the manufacture of oil or copra, and even the husk has depreciated in value, the finest coirs, in fact, being derived only from the fruits that have not attained full ripeness. The earlier crops of nuts should all be taken with extension cutters or from ladders. No shouldered for climbing should be cut in any tree the stem of which has not become dense, hard, and woody. Cut when the least bit succulent, they become inviting points of attack for borers.

With these reservations there is everything to commend the practice of shouldering the tree as offering the safest, most expeditious, and economical way of making it possible to climb and secure the harvest. It is of course understood that the cuts should be made sloping outward, so as not to collect moisture and invite decay, but no larger than is strictly necessary for the purpose. In any case, the nuts should be picked and the crop worked up before any considerable enlargement or swelling of the embryo occurs. From this time onward physiological changes arise, which injuriously affect the quantity and quality of what is called the meat.

The heaping up of the nuts for some time after harvest favors some milk absorption, which seems to facilitate the subsequent easy extraction of the endosperm.

ENEMIES.

Outside of certain insects of the order coleoptera, coconuts in the Philippines are reasonably free from enemies. In some districts, close to forest-clad areas, the raids of monkeys do some damage. A tree-nesting rat, which nibbles the young nuts, is also a source of some loss. The rat is best overcome by frequent disturbance of his quarters, which involves the removal of the dead leaves and thatch that form constantly about the base of the crown. The wisdom of this recommendation will depend entirely upon circumstances, as the

planter must decide whether rats or the rhinoceros beetles are the lesser evil.

There are localities in the archipelago where the plague of rats is unknown, and where beetles abound. In that case it would be unwise to disturb the leaves which are very tardily deciduous, and do not naturally fall till the wood beneath is hard, mature, and practically impervious to the attacks of insects.

Where rats are numerous and insects few, which is the case in some localities, the dead and dying leaves, among which the rat nests, may be advantageously cleared away whenever the tree is climbed to harvest the fruit.

Among serious insect enemies may be mentioned the black beetle, and, fortunately, to a less extent, the red rhinoceros beetle. However different their mode of attack, the general result is the same, and their presence may surely be detected by the appearance of deformed, badly misshapen, or lacerated leaves.

The attacks of all species are usually confined to the growing point and as far downward as the wood is tender and susceptible to their powerful mandibles, eating their way into the soft tissues and generally selecting the axil of a young leaf as the point of least resistance. Others simply deposit their eggs, which hatch out, and the resulting grub is provided with jaws powerful enough to do the same mischief. Two or three of these grubs, if undisturbed, are sufficient, in time, to completely riddle the growing tip, which then falls over and the tree necessarily dies.

Most of the beetles attacking the palm are known to select heaps of decomposing rubbish and manure as their favorite breeding places, and these should be removed by promptly spreading and plowing under all such accumulations as fast as they are made, or, if this be impracticable, by forking or turning over or otherwise disturbing the heaps.

A sure preventive and simple remedy is the application of a handful or two of sharp, coarse, clean sand in the axils of the young leaves. The native practice is to mix this with ashes, salt, or tobacco dust; but it is questionable if the efficacy of the remedy lies so much in these additions as in the purely mechanical effect of the sand, the constant attrition of which can not be other than highly objectionable to the insect while burrowing.

Probing with a stout hooked wire is another form of warfare carried on in these islands; but, as the channel of the borer is sometimes tortuous and deep, this is not always effective. Carbon bisulphide applied to the hole is a good remedy. The hole should be sealed immediately with a pinch of moist clay.

It is likely that this remedy and probing with a wire are the only successful ways of combating the red beetle, whose grub strikes in

wherever it finds a soft spot; but for those species which attack the axils of the leaves, great faith may be had in the efficacy of the "sand cure," and no nut picker should go aloft unprovided with a small bamboo tube of dry sifted sand, to protect the bases of recently expanded leaves.

Experience has shown the advantage of clean cultivation in subduing beetles, that it is rarely anything but the neglected plantation that suffers, and that the maintenance at all times of a healthy, vigorous growth is in itself almost a guarantee of immunity from attacks of these pernicious insects.

Many trees in old plantations have ceased to bear. Whether this is due to exhaustion from old age or from soil exhaustion is immaterial; each tree should be eradicated, and the time-honored custom of replanting a fresh tree in its place abandoned. Renewals are difficult enough in any fruit or nut orchard where the scientific cultural conditions have been of the best. But in a coconut grove, unless the vacant space is abnormally large and can be subjected to some years of soil improvement, renewals are unprofitable.

There is a wide range of opinion as to the bearing life of a coconut tree. It is said to vary from thirty to one hundred and thirty years. If more than forty, or possibly fifty years old, one should hesitate to undertake the improvement or renewal of the grove.

Palms, unlike exogenous trees, afford no evidence by which their age may be determined. In general, with advanced years, come great height and great attenuation. In the open, and where fully exposed to atmospheric influences, these form an approximate criterion of age. The so-called annular scars, marking the earlier attachments of leaves, furnish no clew to age.

PRODUCTS.

The coconut furnishes two distinct commercial products—the dried meat of the nut, or copra, and the outer fibrous husk. These products are so dissimilar that they should be considered separately.

Copra and coconut oil.—Until very recent years the demand for the "meat" of the coconut or its products was limited to the uses of soap boilers and confectioners. Within the past decade chemical science has produced from the coconut a series of food products whose manufacture has revolutionized this industry and placed the business of the manufacturer and of the producer upon a plane of prosperity never before enjoyed. The United States took the initiative with the first recorded commercial factories in 1895. In 1897 the Germans established factories in Mannheim, but it remained for the French to bring the industry to its present perfection.

According to the latest report of the American consul at Marseille, the conversion of coconut oil into dietetic compounds was undertaken in that city in 1900 by Messrs. Rocca, Tassy & de Roux, who, in that year, turned out an average of 25 tons per month. During the year just closed (1902) their average monthly output exceeded 6,000 tons, and, in addition to this, four or five other large factories were working together to meet the world's demand for "vegetaline," "cocoline," and other products with suggestive names belonging to this infant industry.

It was necessary to disguise the earlier products by subjecting them to trituration with milk or cream, but so perfect is the present emulsion that the plain and unadulterated fats now find a ready market as butter. These "butters" have so far found their readiest sale in the Tropics.

The significance of these great discoveries to the coconut planter can not be overestimated, for to none of these purely vegetable fats do the prejudices attach that so long and seriously have handicapped those derived from animal margarin, or margarin in combination with stearic acid, while the low fusion point of pure dairy butters necessarily prohibits their use in the Tropics, outside of points equipped with refrigerating plants. The field, therefore, is practically without competition, and the question will no longer be that of finding a market, but of procuring annually the millions of tons of copra or oil that this one industry will absorb in the immediate future.

Local uses of the oil.—Coconut oil was once used extensively in the manufacture of fine candles, and is still occasionally used for this purpose in the Philippines, in combination with the vegetable tallow of a species of *stillingia*. It is largely consumed in lamps, made of a tumbler, or drinking glass, half filled with water, on top of which float a few spoonfuls of oil, into which the wick is plunged. In remote barrios it is still in general use as a street illuminant, and so perfect is its combustion that under a constant flicker it emits little or no smoke.

When freshly expressed, the oil is an exceptionally good cooking fat, and enters largely into the dietary of the people. The medicinal uses of the oil are various, and in the past it has been strongly advocated for the cure of eczema, burns, as a vermifuge, and even as a substitute for cod liver oil in phthisis. Its medicinal virtues are now generally discredited, except as a restorative agent in the loss of hair resulting from debilitating fevers. Its value in this direction may be surmised from the splendid heads of hair possessed by the Filipino women, who generally use the oil as a hair dressing.

Manufacture of the oil.—Coconut oil is derived from the fleshy albumen or meat of the ripe fruit, either fresh or dried. The thor-

oughly dried meat is variously known as copra, *coprae*, and *copraz*. The exportation of copra is detrimental to the best interests of the planter, tending to enrich the manufacturer and impoverish the grower. The practice, however, is so firmly established that the writer can only record a probably futile protest against its continuance.

The causes which for a long time will favor the exportation of copra instead of oil in this archipelago may be briefly stated as follows:

(1) An oil milling plant, constructed with due regard to economy of labor and the production of the best quality of oil, would involve an outlay of capital of about \$2,500 gold and upward, according to capacity. The production of copra requires the labor of the planters' hands only.

(2) The oil should be packed in well-made barrels or cans. The first cost of the packages is consequently great, their return from distant ports impracticable, and their sale value in the market of delivery not sufficient to offset the capital thus locked up in an unproductive form. On the other hand, copra may be sold or shipped in boxes, sacks, and bales, or it may even be stored in bulk in the ship's hold.

(3) When land transportation has to be considered, the lack of good roads still further impedes the oilmaker. He can not change the size and weight of his packages from day to day to meet the varying passability of the trail. On the other hand, packages of copra may be adjusted to meet all emergencies, and the planter can thus take advantage of the market conditions which may be denied to the oilmaker.

(4) The last and most serious difficulty that the oilmaker encounters is the lack of a market for the press cake that results as a by-product of the manufacture of oil. Its great value as a food for cattle or swine, and its secondary value as manure, are unknown in this country, and the product is practically neglected. This fact is promptly taken advantage of by the buying agents of foreign manufacturers who can afford to bid in the open market up to the full oil contents value of the copra, knowing that the residue will pay all transportation charges and an ample manufacturer's profit as well. So active are copra buyers in controlling this important branch of the industry that they refuse to buy the press cake at any price, and in some instances they have thereby effected the closure of oil milling.

The process of copra making employed in the Philippines consists in first stripping the ripe fruit of the outer fibrous husk. This is effected by means of a stout, sharp spearhead, whose shaft or shank is embedded firmly in the soil to such a depth that the spear point projects above the ground rather less than waist high. The operator then holds the nut in his hands and strikes it upon the spear point, gives it a downward rotary twist, and thus, with apparent ease, quickly removes the husk. An average operator will husk 1,000 nuts per day,

and records have been made of as many as 3,000 per day. The work, however, is exceedingly hard, and involves great dexterity and wrist strength.

Another man now takes up the nut and strikes it a smart blow in the middle with a bolo, dividing it into two almost equal parts. These parts are spread out and exposed to the sun for a few hours, or such time as may be necessary to cause the fleshy albumen to contract and shrink away from the hard outer shell, so that the meat may be easily detached with the fingers.

Weather permitting, the meat thus secured is sun dried for a day and then subjected to the heat of a slow fire for several hours. In some countries this drying is now effected by hot-air driers, and a very white and valuable product secured; but in the Philippines the universal practice is to spread out the copra upon what may be called a bamboo grill, over a smoky fire made of the shells and husks, just sufficient heat being maintained not to set fire to the bamboo. The halves when dried are broken by hand into still smaller irregular fragments, and subjected to one or two days of sun bath. By this time the moisture has been so thoroughly expelled that the copra is now ready to be sacked or baled and stored away for shipment or use.

All modern coconut oil mills are supplied with a decorticator armed with revolving disks that tear or cut through the husk longitudinally, freeing the nut from its outer covering and leaving the latter in the best possible condition for the subsequent extraction of its fiber. This decorticator is fed from a hopper and is made of a size and capacity to husk from 500 to 1,000 nuts per hour.

Rasping and grinding machinery of many patterns and makes, for reducing the meat to a pulp, is used in India, Ceylon, and Indo-China; and, although far more expeditious, offers no improvement, so far as concerns the condition into which the meats are reduced, over the methods followed in the Philippines. Here the fleshy halves of the meat are held by hand against a rapidly revolving, half spherical knife blade, which scrapes and shaves the flesh down to a fine degree of comminution. The resulting mass is then macerated in a little water and placed in bags and subjected to pressure in a primitive hand press, and the milky juice which flows therefrom is collected in receivers placed below. This is now drawn off into boilers and cooked until the clear oil is concentrated upon the surface. The oil is then skimmed off and is ready for market.

The process outlined above is very wasteful. The presses in operation are very inadequate, and it is estimated that not less than 10 per cent of the oil remains in the press cake. This does not occur when the best hydraulic presses are used. It is true that very heavy

pressure carries through much coloring matter not withdrawn by the primitive native mill, and that the oil is consequently darker and sooner undergoes decomposition; but modern mills are now supplied with filtration plants, through which this objection is practically overcome.

These operations in miniature are daily reproduced in thousands of Filipino homes, where the hand rasping of the nut, the expression of the milky juice through coarse cloth, its subsequent boiling down in an open pan, and the final skimming off of the oil are in common practice. Notwithstanding the cheapness of labor, it is only by employing a mill well equipped with decorticating, rasping, hydraulic crushing, and steam-boiling machinery, and with facilities to convert the residue to feeding or other uses, that one may hopefully enter the field of oil manufacture in these islands in competition with copra buyers.

Coconut fiber.—The fiber of the coconut husk, or coir, as it is commercially known, has never yet been utilized in the Philippines, except occasionally for local consumption.

Second in value only to the copra, this product has been allowed to go to waste. The rejected husks are thrown together in immense heaps, which are finally burned, and the ashes, exceedingly rich in potash and phosphoric acid, are left to blow away.

As the commercial value of the fiber is greater than the manurial value of the salts therein, it is economy to utilize the fiber and purchase the potash and phosphoric acid when needed to enrich the soil. Highly improved and inexpensive power machinery for the complete and easy extraction of the fibers of the husk, either wet or dry, is now rapidly superseding in most coconut producing countries the tedious hand process once in such general use. Good patterns of machinery that could with much advantage be introduced into the Philippines are shown in the "husk-crushing mill" and in the "fiber extractor." The first breaks, crushes, and flattens out the husks by means of powerful fluted metal rollers, and in the second the broken husks are fed over a revolving drum set with teeth especially devised for tearing out the fiber from the entire mass. Finally it is fed into one of the many forms of "willowing" machines, which reduce the mass to clean fiber, which is now ready for grading, baling, and shipment. The residual dust and waste from this operation may be used as an absorbent for liquid manures and ultimately returned to the plantation. The yield of fiber varies from 12 to 25 quintals of coir and 4 to 7 quintals of brush fiber per 10,000 average husks. In the Philippines the nuts yield a large amount of fiber and a relatively small percentage of chaff and dust. With improved

machinery and careful handling 16 quintals of spinning coir and 5 quintals of bristle fiber from every 10,000 husks is a fair estimate of the product.

As the cost of manufacture is generally rated at one-half the selling price, and as we must add a further charge of 20 per cent to cover freight and commission, we have resulting from the sale of the 23 quintals, or 2,300 kilos, at \$80 per English ton, a balance of \$55.63 per hectare.

But there are other considerations which should not be overlooked. The husks of 10,000 coconuts will withdraw from the land 61.5 kilos of potash and 3 kilos of phosphoric acid, and the restoration of the full amount is called for to compensate for the growing wants of the tree, in addition to that withdrawn by the crop. The necessary fertilizers are worth, approximately, 11 cents per kilo, making a further reduction of \$7, and leaving as a net profit nearly \$50 per hectare.

The machines above referred to will cost \$800 gold, and \$1,200 additional will purchase and house the power necessary to operate them. Such a plant will work up 1,000 nuts a day, and handle in a year the output of a grove of 4,000 trees. With the addition of two or more fiber extractors, the capacity of the plant may be doubled without material increase in operating expense, and should rather more than pay its entire cost in one year.

Tuba.—Tuba is the fresh or mildly fermented sap drawn from the inflorescence of the coconut.

There are no figures or data of any kind available as a basis for an estimate as to the importance of this product, but its extent may be inferred from the fact that the outlying groves about Cebú, Iloílo, and the larger Visayan towns are practically devoted to the production of tuba, and not to the manufacture of copra. Tuba is collected from the unexpanded blossoms as soon as they have fairly pushed through the subtending bracts. To prevent any lateral expansion, the flowers are tied with strips of the green leaf blade and then, with a sharp knife, an inch or two of the extreme tip is removed. The whole flower cluster is now gently pulled forward until it arches downward. In a day or two the sap begins to drip and is then caught in a short joint of bamboo, properly secured for the purpose.

As a healthy tree develops at least one or more flowering racemes every month and the flow of sap extends frequently over a period of two or more months, it is not uncommon to see a number of tubes in use upon one tree. The workman usually visits the tree twice daily, to collect in the larger tube, which he carries upon his back, the liquor drawn during the preceding twelve hours.¹ He slices daily a thin shav-

¹See illustration No. 1 on plate facing page 53.

ing from the tip of the flower in order that the wound may be kept open and bleeding. This process is kept up until nearly all of the flower cluster has been cut away or until the sap ceases to flow. More than a liter a day is sometimes drawn from one tree, and 5 hectoliters is considered a fair annual average from a good bearing tree.

In its fresh state tuba has a sweetish, slightly astringent taste; but as the vessels in which it is collected are rarely cleansed they become traps for many varieties of insects, etc., and it is, therefore, not a very acceptable beverage to a delicate stomach. When purified by a mild fermentation, it is far more palatable.

A secondary fermentation of tuba results in vinegar and on this account, chiefly, so much space has been devoted to this feature of the industry. The vinegar so produced is of good strength and color, of the highest keeping qualities, and of excellent flavor. This is so pronounced that upon its inherent merits it would readily find sale in the world's markets; and, although the local demand for the tuba now exceeds the production, its conversion into vinegar will probably prove the more profitable industry in the future.

Spirits are distilled, and in some places sugar is still made from the tuba, and, while the importance of these articles may not be overlooked, their commercial value as products of this tree are relatively insignificant.

In addition to 83 utilities described by Mr. Pereira¹ it is in very common use in the Philippines for coconut cream; the freshly ground fruit, reduced to a pulp and strained, is consumed in that form or made into cakes with rice. It makes a delicious and nutritious food. According to Dr. W. J. Gies, in experiments lately published, its nutritive value is due to 35.4 per cent of oil, about 10 per cent of carbohydrates and 3 per cent of protein.² The amount of cellulose (fibrous matter) is only 3 per cent, and its digestibility is easy when the mass, by grating, is reduced to a fine degree of comminution; the milk, or water, is used sparingly as a beverage. It is also fermented and converted into inferior vinegar; the hard shell is used as fuel. When calcined, it produces a black, lustrous substance, used for dyeing leather; the same shell, aside from many uses quoted by Pereira, is used here for every conceivable form of cup, ladle, scoop, and spoon; from the tough midrib of the leaf, strong and beautiful baskets of many designs are made; also excellent and durable brooms; and, from the part where the midrib coalesces with the petiole, pot-cleaning brushes are made; the roots are sometimes used for chewing, as a substitute for *abreca*. They also furnish red dyestuff, and with one end finely subdivided, may be used in making toothbrushes. The leaves and

¹ Quoted in Watts's Dictionary, Vol. II, page 456.

² Bulletin Torrey Botanical Club, 1902.

midribs, when burned, furnish an ash so rich in potash that it may be used alone in water as a substitute for soap, or when a powerful detergent is required; the fiber of the husk is used extensively by the natives for calking boats. The milk is used in the preparation of a native dish of rice, known as *casi*. It is an excellent and highly prized dietary article, prepared with rice or in combination with chicken or locusts; the oil, melted with resin, is an effective and lasting covering for anything desired to be protected from the ravages of white ants; the timber is used to bridge streams and bog holes, and the slowly decaying leaves to fill them up and render them temporarily passable; the fiber is used in cordage and rope making, but to a far less extent here than in India.

Its further uses are, in general, those current in the Orient. Briefly summed up, its timber can be employed in every form of house construction; its foliage in making mats, sacks, and thatches; its fruit in curry and sweetmeats; its oil for medicine, cookery, and illumination; its various uses in the manufacture of wines, spirits, sugar, and vinegar; while, not to overlook a final and not inconsiderable Filipino product, the splinters of the midrib are used in making toothpicks.

In conclusion, it may be said that there are large areas throughout the littoral valleys of the Philippines as yet unexploited, which, in the essentials of soil, climate, irrigation facilities, and general environment are suitable for coconut growing. The present conditions present especially flattering attractions to coconut growers capable of undertaking the cultivation upon a scale of some magnitude. By cooperation, small estates could combine in the common ownership of machinery, whereby the products of the grove could be converted to more profitable purposes than copra. The present production of copra (estimated at 278,000 piculs in 1902) is an assurance of a sufficient supply to warrant the erection of a high-class modern plant for the manufacture of the ultimate (the "butter") products of the nut. The products of such an enterprise would be increased by the certainty of a local market in the Philippines for most of the output. The average market value of the best grades of copra in the Marseilles market is \$54 gold per English ton. The jobbing value, of January 1 of this year, of the refined products were, for each ton of copra:

Butter fats	\$90.00
Residual soap oils	21.00
Press cake	5.20
Total	116.20

The difference represents the profit per ton, less the cost of manufacture.

The minimum size of a plantation on which economical application of oil and fiber preparing machinery could be made is 60 hectares.

There is no other horticultural tropical product which may be grown in these islands where crop assurance may be so nearly guaranteed, or natural conditions so nearly controlled, by the planter who, knowing correct principles, has the facilities for applying them. The natural enemies and diseases of the plant are relatively few, easily held in check by vigilance and the exercise of competent business management. The labor situation is bound more seriously to affect the small planter wholly dependent on hand labor, than the estate conducted on a large enough scale to justify the employment of modern machinery.

In view of an ever expanding demand for coconut products, and in the light of the foregoing conclusions, the industry, when prosecuted upon a considerable scale and subject to the requirements previously set forth, promises for many years to be one of the most profitable and desirable enterprises which command the attention of the Filipino planter. The greatest mine of horticultural wealth which is open to the shrewd planter lies in the heaps of waste and neglected husks that he can procure from the adjoining estates for the asking and cartage. With labor at 1 peso per diem, and at the present price of potash and phosphoric acid, all the husks in excess of 300 per diem which could be hauled would be clear profit. The ashes of these, when burned and applied to the old grove, would have an immediate and revivifying influence.

ESTIMATES OF COST AND PROFIT OF A COCONUT PLANTATION.

The conditions of soil, climate, cost of land and labor vary so widely in different parts of the Philippines, that it is impossible to prepare any estimate of receipts and expenditures from a coconut grove whose application shall be universal.

There are, however, two coconut producing districts in the provinces of La Laguna and Tayabas where these conditions approximate sufficiently to permit of the preparation of estimates accurate enough to serve as a helpful guide to prospective planters in those provinces. There, too, is observed the nearest approach to a cultural system found anywhere in these islands, and from there also reliable data of the income and outgo of a coconut plantation is to be obtained.

The coconut lands of these provinces are graded as first, second, and third class, the classification being based upon yield of copra per hectare, and this classification serves both as a basis of taxation and of selling prices. Their average value may be stated roundly at \$25, \$12.50, and \$5 per unimproved hectare, respectively, for lands of the first, second, and third grades.¹

¹ These values and all that follow are expressed in United States currency.

All the older bearing groves in these districts, and on which the following estimates are based, are planted very densely, the average being 5,000 trees per grove of 20 hectares; and although recent plantings generally do not exceed 3,500 trees to this area, the former number of trees and land area are selected as the units of expenditures and receipts.

Whenever plantations upon a scale as large as 20 hectares are undertaken, the almost invariable custom is to effect them on a system somewhat similar to the "share" method often followed in orchard planting in the United States, the chief difference being that here title to none of the realty ever passes to the tenant. His title, however, remains in one-half of the trees until he is paid for them at an agreed price, generally 25 cents apiece, at the expiration of an agreed term of years, which is generally seven, and from thence on, full ownership is with the proprietor of the land.

Under the terms of the customary agreements, the proprietor furnishes the seed, the land, and the number of work animals required to operate it; the tenant on his part preparing the land, planting the seed, and maintaining the grove until it comes into bearing. During the interim the tenant has the use of the interplanted land on which he grows crops of sweet potatoes, mangoes, native lentils, corn, peanuts, or arrowroot. In addition, for the first two seasons, he generally grows upland rice. In this crop the landowner participates to the extent of one-third as an equivalent for the use of the animals he furnishes. All minor crops inure to the sole benefit of the tenant.

When the plantation comes into bearing the relations between planter and proprietor are generally continued under a new agreement that is framed to conform with the uses to which the crop is put. If the nuts are sold in the fresh state and the only expense incident thereto is the harvest, one-fifth of the crop goes to the tenant and four-fifths to the landlord. If converted into copra, always as much as one-fourth, and in most cases one-third, is apportioned to the tenant and two-thirds to the owner. In both cases all transportation charges are invariably at the cost of the proprietor.

Briefly summed up, capitalization in the way of land values, purchase of all seed, one-half of the grown trees, farm animals, and interest upon the investment falls upon the proprietor; while planting, maintenance, harvesting, and manufacture devolve upon the tenant.

Exclusive of the cost of labor and management the investor's outlay therefore, assuming that he purchased lands of the first class, would be as follows:

20 hectares of land, at \$25.....	\$500
5 carabao, at \$50	250
5,000 seeds, per thousand, \$10.....	50
Interest on investment for seven years ¹	560
Taxes ²	15
Purchase of 2,500 trees, at 25 cents	625
Total investment.....	2,000

Investments in 20 hectares, plantations of the second and third class at the expiration of seven years would respectively represent a capital outlay of \$1,568 and \$1,305.

Harvest crops will normally occur in the seventh year, and will continue on a slow but steadily increasing scale up to and including the fourteenth. The yield and income will consequently vary with each of the included eight years. Nevertheless, the yield of the eleventh year may be taken as a safe mean of the product of each and may, therefore, be used as a basis for determining the annual income over the whole period.

In the eleventh year 50 nuts per tree will be the harvest from an average plantation, and this on 20 hectares and from 5,000 trees will amount to a total crop of 250,000 nuts.

If sold in the fresh state at the current local price of \$10 per 1,000, and deducting the one-fifth share of the tenant, there would remain for the proprietor an annual income of \$2,000 derived from the original investment of a like sum. In the fifteenth year the tree will have reached its full fruiting age, and from that time onward should yield on an average 6 annual harvests of 15 nuts each. This rate will bring the total yields of the plantation up to 450,000 nuts, having a gross value of \$4,500.

As this average is only produced upon lands that are subject to inundation during flood times, and consequently to receiving rich, sedimentary deposits, it is equivalent to saying that such crops are produced only on well-manured soils.

On lands of the second quality, and not subject to occasional overflow, 60 nuts per tree, or 300,000 per 20-hectare tract, is an average yield, while uplands of the third grade will not produce more than one-half of this amount.

Converted into copra, the results are as different as is the varying yield of copra per 1,000 nuts.

This product has a range between the extremes of 450 and 750 pounds of copra per 1,000 nuts, according to locality, where grown, and methods of treatment. Four piculs of 137½ pounds each, or a

¹ Interest computed on the current 10 per cent value of money in these provinces upon real estate security.

² Computed on a tax rate of about three-eighths of 1 per cent on the generally followed full valuation assessment.

total of 550 pounds, per 1,000 nuts is, however, a conservative estimate of average yields over these two provinces.

Upon this basis 1,800 piculs, having a present local value of \$4 per picul, or \$7,200, would be the product from 20 hectares of the first class. From this the tenant's one-third would be deducted, leaving \$4,800 as gross income for the proprietor.

In the same proportion receipts from second and third grade lands would be 1,200 and 600 piculs, worth, respectively, to the proprietor \$3,200 and \$1,700 per 20-hectare plantation.

These returns are gross, as the transportation charges must be deducted to arrive at net income. As these vary in every barrio, it is obviously impossible to include them in the estimates here presented. In most cases they are serious enough, as, owing to lack of roads, all copra from the interior must be brought down to the lake or to sea-ports by pack animals. As some of the finest plantations are 15 or 20 miles from a port, the cost of this kind of transportation sometimes amounts to more than one-fourth the value of the manufactured article.

In the labor required upon a coconut grove one man, with the help of that altogether indefinite quantity known as "his family," is presumed, with the aid of one carabao, to be sufficient to plant, operate, and maintain in good condition 4 hectares of land, and, in consequence, the proprietor of a 20-hectare grove usually contracts with five tenants as the necessary number to operate the whole plantation. The practice of planting, rearing, and operating a grove by the owner, through the instrumentality of hired labor, is a method practically unknown in these coconut districts, and, owing to labor conditions and the present scarcity of farm animals, it is doubtful if such a method would prove as profitable to the owner as the system now followed. With an unstinted supply of work animals and the use of improved labor-saving farm tools, the area that one man could properly control would be quite double that which he now imperfectly operates. In that event increased profits would undoubtedly follow the employment of farm labor.

COFFEE.

Prior to 1891 coffee was an important and remunerative product of certain provinces, and constituted a source of considerable wealth in the sections in which it was cultivated. In 1890 and for several preceding years the values of exports of coffee ranked fourth in order of importance, and did not fall far below those of tobacco, having been 7.4 per cent in 1890, 7.1 per cent in 1889, 7.7 per cent in 1888, 8.3 per cent in 1887, and 5.3 per cent in 1886, of the entire value of exports.

Subsequent to 1890, due to the devastation of coffee plantations by insects and disease, the production of the berry rapidly diminished and finally almost ceased. Thus the value of its exports dropped to one-half of 1 per cent of all exports in 1893, and to 1.1 per cent in 1894, since when its production and exportation have been merely nominal.

The table which follows gives the quantities and values of coffee exports for such years since 1854 as statistics can be secured, with the percentage that its value was each year of the value of all exports:

Quantities and values of coffee exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854	852,571	137,221	145,344	2.16
1855	565,399	103,989	109,272	1.70
1856	1,198,102	204,720	215,120	2.24
1857	1,225,312	192,884	205,056	1.62
1858	1,470,217	298,725	308,646	3.12
1860	904,863	181,446	192,805	1.91
1861	2,086,640	412,024	432,419	5.11
1862	1,177,331	251,986	266,500	2.77
1863	1,167,991	309,391	326,964	3.08
1864	1,803,935	500,105	528,511	4.69
1865	1,865,430	824,202	866,566	3.94
1866	1,700,547	836,170	879,734	3.77
1867	2,237,530	1,072,781	1,119,447	4.87
1873	3,097,368	1,079,201	1,100,461	4.59
1874	2,854,270	985,842	990,574	5.70
1875	4,193,218	1,223,376	1,194,260	6.47
1876	3,791,679	1,113,269	1,018,307	7.50
1877	4,509,738	1,428,606	1,349,176	8.73
1878	2,431,845	785,489	711,967	4.50
1879	3,879,260	1,117,291	986,680	5.94
1880	5,129,777	1,863,967	1,677,198	7.95
1881	5,565,754	959,347	853,531	3.90
1882	5,602,941	1,167,003	1,041,317	5.64
1883	7,622,789	1,284,485	1,120,328	4.87
1884	7,529,564	1,471,014	1,286,402	6.49
1885	5,467,830	980,418	818,463	3.99
1886	7,156,388	1,354,247	1,058,479	5.27
1887	4,947,947	2,093,518	1,611,171	8.29
1888	6,289,255	2,033,097	1,501,239	7.73
1889	6,218,655	2,474,210	1,818,050	7.08
1890	4,479,868	1,932,380	1,588,803	7.37
1891	2,841,530	1,232,022	956,419	4.58
1892	1,358,374	634,380	434,423	2.27
1893	291,479	168,742	103,456	0.47
1894	603,156	355,890	177,518	1.07
1895	173,270	24,420	12,549	0.07
1898 ¹	1,898	.....	837	0.02
1899	34,313	.....	12,132	0.08
1900	13,529	.....	3,142	0.01
1901	30,948	.....	5,437	0.02
1902	7,466	.....	2,432	0.01

¹ Five months—August to December, inclusive.

The coffee of the Philippines has a fine aroma and excellent flavor, and will compare favorably with either Java or Mocha coffee. It is said to have been brought to the islands by Spanish missionaries during the latter part of the eighteenth century and its systematic cultivation to have commenced early in the nineteenth century. It was first cultivated in the province of La Laguna; subsequently in other

provinces, notably Batangas and Cavite, coffee growing became an extensive industry. Most of the coffee was produced in the provinces named and in Tayabas, on Luzón Island, and in Misamis and the district of Cottabato, on Mindanao, though appreciable quantities were grown in other provinces. The highest grades of the berry were grown in Batangas province and the most inferior on Mindanao Island.

CULTIVATION OF COFFEE IN THE MUNICIPALITY OF LIPÁ,
PROVINCE OF BATANGAS.

By Hon. SIMEON LUZ, Governor of Batangas.

Nothing appears of record in the official archives of the province of Batangas nor on the parochial books of the municipality of Lipá regarding the history of the introduction of the first coffee plants in this section; popular versions speak of its propagation by means of spontaneous growth.

It is also said that about 1808 there were only a few specimens of this plant in the orchards and gardens of some of the houses of the residents, which served as ornaments on account of their beauty while in blossom, and that the foxes would enter these gardens on their nocturnal expeditions to feed on the ripe berries of this little tree, and leaving their excrements with the grains in the mountains and woods which were their haunts, the berries would there germinate and sprout. These served later as seed beds or nurseries for subsequent plantings made by the residents, when the local authorities obliged each resident to plant a certain number of square feet of his land with coffee.

Don Galleo Reyes, a prominent native and resident of Lipá, coming, as he did, in frequent touch with the Spanish authorities and many foreigners who would stay at his house when visiting the celebrated Taal volcano, received information from them regarding the importance of this product in the commerce of the world. He took steps to encourage the propagation of this valuable plant among the natives, availing himself of his authority as petty governor. He continued the work of propagation during the years of 1812, 1822, and 1825, when he was elected petty governor of the town. His son, Don Santiago de los Reyes, elected petty governor in 1832, continued the work of his father and extended the area of coffee planting more and more, the residents securing seed with more facility as the plantations increased.

But the cultivation of coffee on a large scale did not begin in Lipá and in the adjoining municipalities (where many residents of Lipá own property) until the year 1859, increasing gradually until 1889, when the disease occurred which completely destroyed the coffee plantations. The importance of this product was appreciated a few years before 1889, when the price on the market of Manila reached 20 pesos to 25

pesos per picul, having brought during previous years not more than 3 pesos, 5 pesos, 8 pesos, or 10 pesos per picul. The most active and enthusiastic planter on a large scale, who by his example gave a great impetus to the growing of the berry, was Don José Luz (my father), who, at various expositions and fairs in this province during the years from 1867 to 1880, received the highest premium in this branch of agriculture.

While no method was observed in the beginning in the planting of coffee, in time the planters learned the good results to be obtained from planting the *madre de cacao* or *anii* in rows as a protection to the coffee trees.

The seed of the *madre de cacao* or *anii* is sown in rows at intervals of one step and a distance of one *braza* between the rows. The best season of the year for the planting thereof is during the months of May and June. About a year after the *madre de cacao* has been planted it has developed sufficiently to shade the spaces between the rows. Then the coffee plant is set out between the rows in parallel lines, leaving a distance of one *braza* between the plants. The shoots are obtained from the natural seed bed, as has been stated above. The *madre de cacao* is planted in this close manner so that, covering the earth almost completely with its shade, it will prevent the spontaneous growth of weeds, etc., which would interfere with the development of the coffee plant and the removal of which would be very expensive to the planter. Every year, between March and August, a clearing up takes place. The first year the lower branches of the protecting trees are removed; the second year, some trunks, and the third year, entire rows of the protecting trees, according to the development of the coffee plant.

Opinions of planters do not agree as to the time intervening between the planting of the protecting tree until the coffee plant begins to bear. The opinions vary between four, five, six, and seven years after the planting of the coffee plant. It is my belief that this varied experience of planters depends on many causes which have contributed to the more or less rapid development of the plant. There is no doubt that soil conditions, care in the reduction of the shade, and in the removal of weeds and undergrowth which choke the coffee plant contribute to its rapid development. But it may be asserted that six years must elapse before the profit from 1 hectare of planting would offset the cost of cleaning and care for one year, although I believe that by adopting modern methods the time of fruition may be advanced one or two years. Many skilled planters agree that the average time required for the development of coffee is twelve years. A plantation of average fertility will yield from 12 to 20 piculs per hectare, provided it is given the greatest possible care and attention according to the methods

observed by the natives in the cultivation and preservation of this plant.

The cost of planting the madre de cacao and coffee in 1 hectare of land represents an average of \$30, more or less, distributed as follows:

To plowing the land three times by one laborer in nine days	\$8.46
Planting of madre de cacao, two men, two days	1.25
Cost of 7 gantas of madre de cacao seed, at 25 cents	1.75
Cost of coffee plants, 3,333 plants, at 50 cents per 100	16.67
Wages of five laborers for the planting of coffee in two days, at 30 cents per day	3.00
Total	31.13

The blossoming of the plant depends on the last rains of the preceding year or the first rains of the following year. It is also governed by the condition in which the plant was left after the last crop with regard to the bruising and injuries to the axils.

Coffee blossoms three times: First, in January or February; second, in March or April; third, in May or June. Hence there are three crops—between August and September, in October, and in November, the maturity of the berry lasting seven months.¹

If the rains are heavy in November or December, the coffee will begin to blossom in January or February. If there be no rain in the first-named months, nor in January or February, neither the first nor the second crop will mature, as the night dews are not sufficient for the purpose. Many planters are of the opinion that the abundance of the annual crop would be greatly improved by irrigation.

The method observed in harvesting the crop is very primitive. It consists in picking the berries with the hands and placing them in a basket hanging from the waist. As it is not possible in a majority of cases to reach the upper branches, each picker provides himself with a hook, made of a branch of the madre de cacao, with which he draws down the branch, holding the latter down with his feet, and thus leaving both hands free for picking the ripe berries. The coffee picker receives no wages for his work, but retains one-fifth of the coffee picked during the day. Hence, being anxious to pick as much as possible, he does not care what damage he does to the plant, usually breaking and destroying the most vigorous branches of the bush. One of the hardest tasks of the planter is to watch out for this during the time of the harvest, as reduced crops are sometimes due to the damage done to the plants.

The process of drying consists in leaving the grains in small piles to ferment for twenty-four hours and then spreading them out in an inclosure specially constructed for the purpose, called a *bilاران*, made of clay and cement well leveled and polished, until the grains have

¹See illustration No. 1 on plate facing page 16.

acquired a hardness sufficient to resist the action of the cleaning instruments, which consist in the primitive mortar and pestle usually used for the cleaning of rice.

This method of drying takes much time and work. If it be done during the rainy season, in most cases the grain does not acquire sufficient hardness, nor does the outside covering become sufficiently brittle until thirty and sometimes fifty days have elapsed after they have been spread out in the bilaran for drying. This causes not a small loss to the planter, as many of the berries rot.

The cost of cleaning, airing, sifting, and sorting 1 picul of coffee is about \$1 Mexican.

There is another method for drying coffee, which is used by planters on a small scale. This method consists in removing the outside pulpy rind of the grains, which, after being carefully washed, are placed in the sun to dry. After four or five days they have become sufficiently hard for the operation of cleaning. A machine moved by a hand winch is used for removing the outside hull. This tritulates the first rind without doing injury to the second. The machine is made of wood and is called *pipisan*. This method saves much time, but the washing operation is very laborious, and in places at a distance from springs and rivers it is practically impossible to do the washing on a large scale. The coffee with the inside skin or rind prepared according to the last-named method is called *butil*, while that prepared according to the first-named method is called *bayate*.

The cost of weeding and caring for a hectare of a coffee plantation varies according to the method adopted by the planter. Many who consider only the preservation of a clear soil leave the protecting trees with all their branches which cover the ground completely with shade and do not permit weeds to grow. This method is very cheap. On the contrary, a planter who understands that too much shade, while it favors the preservation of a clear soil, injures the florescence and maturing of the plant, takes special care to remove part of the branches of the protecting tree and spends much more in the care of his plantation.

The average cost of caring for 1 hectare of a coffee plantation may be estimated at \$10 Mexican per annum.

As I have stated above, the average crop from 1 hectare of a coffee plantation, carefully attended to and without sparing expense for weeding and thinning out of the branches of the protecting tree, is from 12 to 20 piculs, but most plantations have yielded only an average of from 6 to 10 piculs per hectare on account of various causes which have affected the crop. One of the principal causes is the failure to reduce the shade in order to save expense in weeding the soil. Coffee requires shade, but not too much. It requires breathing space. It needs the

sun, without receiving its direct rays. Hence, the branches of the protecting tree should be thinned out and cut down for 3 yards above the highest branch of the coffee, in order to permit the humid air to have free access to the plant.

The duration of the bearing life of the coffee plant is unknown, although some old inhabitants of the locality relate that among the plantations destroyed in 1889 there were some which had been in existence for more than fifty years, and which still bore when in a dying state.

The highest prices which this article brought in the Manila market in 1899 were 25, 30, and 35 pesos per picul.

The total crop of the territory comprised in the municipality of Lipá in 1887, 1888, and 1889 reached approximately 60,000, 80,000, and 100,000 piculs, respectively, according to reasonable estimates made by the principal merchants and planters of this town.

The lands most suitable for the growing of coffee, in the opinion of the most skilled planters in Lipá, are high and inclined lands which do not retain the water, although it is believed that nine-tenths of the territory of Lipá is excellent for coffee.

Two kinds of worms caused the total destruction of the coffee plantations of Lipá and of the other townships of the province—the *hunun* and the *bagumbung*. The *hunun* attacks the main trunk and the roots of the tree and the *bagumbung* the branches. These two worms are almost identical in form, although very different in the residuum they leave and in the method of destruction. They have been made the subject of study by a Spanish expert, Mr. Domingo Sanchez, civil engineer, sent by the former Spanish Government to investigate this evil. He published a pamphlet, giving the result of his studies, which was printed at the expense of the Spanish Government and which contained a description of the life and development of these insects. This pamphlet should be on file in the archives of the present government. These worms were known to all the planters from the time of the introduction of coffee into the province, and every year they did some damage to the plantations. This damage was so small, however, that no one bothered about seeking a remedy for an evil which he did not believe could cause a complete destruction of all coffee plantations. But in 1889, to the great surprise and fear of all, it was observed that all the plantations of the province were attacked. That year saw the total loss of the crop and the death of almost all the coffee plants throughout the territory which Lipá comprises.

From the trunks which remained new healthy branches grew, and two years later, as if by enchantment, the *hunun* and the *bagumbung* disappeared; but another more terrible and persistent enemy appeared (as up to the present time no other disease is known) in the form of

yellowish-red spots which appear on the leaves after the blossoming period and at the beginning of fructification.

In the months of May and June, if the rains are plentiful, the coffee plant presents a luxurious aspect, which at first sight pleases the planter, reminding him, as it does, of the times when no disease was known to affect the plant. But with the increase of the rains the spots begin to appear, which increase in size until they attain the dimensions of a Philippine peseta, and have a dust which bears a resemblance to the description of the French mildew, recognized as a true microscopic vegetable fungus. As the spots increase the leaves become yellow, dry up, and finally drop off, leaving the branches in December or January entirely bare until the months of March and April, when the plant blossoms. No one has as yet made a study of the last-named disease nor sought a suitable remedy to combat it.¹

The planters of Lipá and other municipalities of the province lost all hope of reviving coffee in that locality, and cleared their lands of this plant in order to grow sugar cane, rice, and corn. I believe that hardly one one-thousandth part of the former coffee plantations are now in existence.

Before 1889 about two-thirds of the territory comprising the district of Lipá was planted in coffee, and only one-half of the plantations were bearing, the remainder of the plantations having a life of from one to six years.

The madre de cacao and the anii are two trees known as coffee protectors. These trees are excellent as protectors for the coffee plant because they develop so rapidly. The madre de cacao, furthermore, is one of the best classes of building woods, the only defect being that it does not attain the size of the *molave* and *banaba*. It has the hardiness and resistance to weather which the molave has. The supports of 90 per cent of the houses of the barrios and of the towns are made of this valuable wood, and it is believed that it will last from 20 to 40 years under the ground. The anii is a tree with a thick trunk, but of no use for building purposes, as its wood is soft and porous.

The Insular Bureau of Agriculture is conducting experiments with a special class of coffee in Lipá, and many of the residents are anxiously awaiting the results, because everyone is convinced that coffee is the only product that can save the critical situation of the residents of this municipality, which was formerly so wealthy.

All the municipalities adjoining Lipá have had coffee plantations, although not on so large a scale, and I am of the opinion that most of the municipalities of the province possess large areas of land suitable for the growing of coffee.

¹ The disease referred to is the "leaf blight," caused by *Hemileia vastatrix*, a microscopic fungus parasite.

A rich resident of Manila owns, in the municipality of San José, a plantation of Liberia coffee of considerable extent, and with proper care it would yield large crops. I do not know the extent of the crops during the past few years, but persons skilled in the matter state that it does not produce as much as the primitive coffee.

COFFEE CULTURE IN THE PROVINCE OF BENGUET.

By Hon. W. F. PACK, Governor of Benguet.

The Benguet coffee, or as good as the Benguet coffee, is advertised for sale by the merchants of the Philippines and in Spain, but there is little even raised, let alone put on the markets of the world.

It is indeed a rare coffee for both flavor and cleanliness. There is no blight that has ever attacked the coffee plant of Benguet. The altitude, temperature, and humidity of the air all combine to make this province peculiarly adapted to the successful growth of coffee; still, in 1901 there were only 697 cavanos raised in the province and last year, 1902, but 852. New coffee plantations are being planted and in a few years the real Benguet coffee will be on the market.

Coffee was first introduced into this province by the Spaniards in 1875, by the military governor, Manuel Scheidnegal y Sera, who planted in the vicinity of Galiano, forming a government garden for the experiment. But while the plants thrived therein, he did not achieve the success anticipated, owing to the low altitude and heavy rains, which affected the flavor of the coffee planted, that situation being more favorable for a Rio than for the Java of Arabia, with which this progressive governor was experimenting. However, the plants grew luxuriantly, and in 1877 his successor, Gov. Enrique Oraa y Bravo, transplanted to the plateaus at an altitude of from 4,000 to 5,000 feet, and distributed seeds among the people of the barrios of the province.

The native Igorots neither favored nor opposed at this time the introduction of this product; but in 1881, the plants having come to the bearing stage, Governor Villena endeavored to force the cultivation and enlargement of coffee plantations by ordering all natives of the province to plant, grow, and work coffee. This created an opposition that in Daklán extended so far that the Igorots there, acting under the advice of their old men, attempted to destroy the plantation by pulling out young plants; but to pull up the young coffee plant and throw it on the ground does not necessarily kill it, and the coffee resprouted. After this the natives went so far as to pour boiling water on the plants to kill them, and did succeed in Daklán in killing out the coffee culture.

In Kabayan the natives were under the domination of a young Igorot chief named Camising. This young chieftain had secured his influence and power over his followers not merely through his wealth, which consisted of herds of cattle and horses and large rice *sementeras*, but also because of his exceptional valor in personally defending his people against the attacks of *busesoles*, or head-hunters, of the north. He bears to this day the scars of many hard-fought battles. This young chief, after many visits to the capital and much study and observation of the new product that was being forced upon his people, became thoroughly satisfied that it would be very valuable to them; he therefore took upon himself the duty of introducing the coffee into Kabayan.

Under his leadership it was planted, cultivated, and grown, and no opposition to its culture was permitted for an instant. In four years they began gathering crops. Camising took charge of the sale of their crops, and discovered that the coffee was constantly increasing year by year in value per cavan. He himself went to the coast to learn its worth—a long trip in those days for a mountain Igorot. They gradually enlarged their coffee fields, and last year five-eighths of the coffee of the province was grown in Kabayan.

Meantime the Igorots of Daklán, who had destroyed their first plant, discovered that their neighbors in Kabayan were exceedingly prosperous, that they had much money, and that, comparatively speaking, gave but little labor for the money they received. So, though at a late date, they endeavored to retrieve their error, and have planted large fields, and will, undoubtedly, in the course of a few years, successfully rival Kabayan in the amount of coffee produced.

The coffee raised in the highlands of Benguet has been bought in by the Tabacalera Company year after year, and the entire crop shipped to Spain, and there disposed of at fabulous prices. None of it went on the market in Manila. But little has ever been used in Manila, and that little only by the friends of residents of Benguet or officials of the Tabacalera Company, by favor. It is the aim of the present government to foster this enterprise by every means within its power among the natives of the province; nor do I doubt that in the future the white man with his inherited enterprise will enter this territory for which nature has done so much, and make it the coffee producing province of the archipelago.

A coffee plant six years old should produce 3 pounds of coffee a year of a most desirable flavor, and there is little danger of the destruction of the crop by blight. The demand for this coffee will always be greater than the possible supply. The only obstacle in the way of making coffee cultivation a most profitable industry is the difficulty of obtaining suitable labor. The question of labor will

depend entirely upon the individual. The cost of labor for hacienda or ranch purposes will average from 5 to 10 cents gold a day, depending upon the kind of labor required and the age or sex of the laborer.

As these coffee plantations now in the province have been planted and cared for mostly by the women, and at odd moments when they were not otherwise occupied, it is impossible to estimate the cost of making or caring for a coffee plantation, but it is usually estimated by growers who are so far civilized as to figure on profit and loss, that the coffee trees, after an average age of five years, should net the owner 25 cents gold each year. These trees may be planted 6 feet apart. This coffee sells in the market in Benguet to-day at from \$6 to \$7.50 gold a cavan, which should weigh about 67 pounds.

RICE.

The production of rice of many varieties, though greatly lessened as compared with former years, is an important branch of Philippine agriculture. The grain is the principal article of food of nearly the entire native population and is cultivated more or less extensively in all provinces.

In former years its cultivation was and had been from time immemorial the principal industrial occupation of the people. It was the only cultivated crop, as far as can be ascertained, produced by the natives when the islands were first discovered by the Spanish explorer, Magellan, in 1521, and for upward of three centuries subsequent to the establishment of Spanish sovereignty it was the principal product. For many years surplus crops were produced and the grain was exported in large quantities, but as the production of more profitable crops, such as hemp and sugar, increased, the cultivation of rice diminished, and from becoming an article of export it changed to one of importation, as the population and their food requirements increased.

In 1857 import duties on rice were abolished; since then, and for some years prior thereto, the deficiency in home production has been made good by importation, although small quantities have been occasionally exported.

It may be said that, as a rule, the falling off in the production of rice has not resulted in any great loss to the population, except when resulting from drought or locusts, as that portion of land and labor formerly devoted to its cultivation was subsequently used for the production of more profitable crops.

The following table shows the quantities and values of imports of rice for such years since 1854 as statistics are available, with the percentages that their values were each year of the total value of imports:

Quantities and values of rice imported into the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of imports.
		Pesos.	Dollars.	
1854	1,001	65	69	(1)
1855	4,504	290	305	(1)
1857	2,824,867	183,938	195,544	1.86
1858	5,397,153	342,013	359,387	5.90
1860	6,130	374	397	(1)
1861	71,433	3,097	3,250	0.03
1862	27,516	1,566	1,656	0.02
1864	488,933	21,912	23,157	0.20
1865	258,656	23,427	24,631	0.13
1866	370,809	31,025	32,641	0.18
1867	479,804	37,987	39,639	0.25
1876	239,539	6,196	5,267	0.05
1877	23,005,946	1,128,611	1,065,860	5.78
1878	23,670,099	1,501,237	1,360,721	8.68
1879	59,493,552	2,821,616	2,491,769	15.65
1880	13,566,913	528,069	475,696	2.07
1881	5,558,047	338,482	296,699	1.61
1882	9,414,166	564,829	503,997	2.66
1883	54,414,683	1,646,596	1,436,161	7.73
1884	108,451,626	3,243,579	2,836,510	15.27
1885	42,440,640	1,488,387	1,288,832	7.73
1886	63,202,875	2,613,320	2,042,571	13.02
1887	79,987,973	2,355,431	1,812,740	13.44
1888	82,445,441	2,703,391	1,996,184	12.75
1889	85,417,158	5,255,537	3,861,769	21.20
1890	71,166,714	1,912,749	1,572,662	9.66
1891	72,664,363	2,349,993	1,824,300	10.86
1892	62,709,137	1,567,727	1,073,579	6.58
1893	41,000,503	1,025,010	628,434	3.95
1894	44,870,685	1,130,018	563,653	3.96
1895	11,668,079	436,578	224,357	1.72
1895 ²	3,915,317	.....	173,511	3.22
1899	112,381,448	.....	3,523,652	18.36
1899	145,837,845	.....	4,365,056	17.56
1900	170,648,367	.....	5,108,341	16.94
1901	.....	.....	.....	.....
1902	290,057,188	.....	8,784,388	26.35

¹ Less than one-hundredth of 1 per cent.

² Five months—August to December, inclusive.

A clear indication is gained from the above table of the extent to which the islands are dependent upon outside sources for this staple food of the people. In 1878 the value of rice imports was 8.7 per cent of that of all imports; during 1880, 1881, and 1882 considerably smaller quantities were imported, but in 1883 the per cent was 7.7 and in 1884, 15.3 of the total value of imports. In 1889 the percentage had risen to 21.2, after which there was a heavy diminution in the imports, until in 1895 the percentage was only 1.7 of the total. Since American occupation the annual imports of rice have far exceeded those of the preceding years, and in 1902 amounted to over eight and three-quarter millions of dollars and were 26.4 per cent of all imports. The enormous increase since 1898 is largely attributable to the lack of carabao, which have been slain by thousands by the rinderpest, without which the natives are unable to prepare the ground for the crop; to devastation of the growing crops by locusts; to recurring outbreaks of ladronism; and to visitations of cholera which at different times since 1898 have raged with very fatal results throughout nearly the whole of the archipelago.

CULTIVATION OF RICE.¹

By REGINO GARCIA, Bureau of Agriculture.

Rice is said to be indigenous in southern Australia and in India, to have been under cultivation in India from the earliest times, and to have been introduced into China nearly 3,000 years B. C. Whether it was brought to the Philippines from either of these countries, or whether it is an indigenous plant, is an unsettled question. But whatever its origin, the Spaniards on their arrival found it under cultivation generally, and it is one of the most important products of the islands.

Although deficient in nourishing qualities, as compared with some other articles of food, its great digestibility and palatability render it very valuable, especially in the Tropics, where it constitutes the principal article of food of millions of people.

There are many species of rice, which are commonly divided into two general groups and known as lowland, or irrigated-land rice, and upland, or mountain rice. The scientific division made by botanists includes many species, varieties, and subvarieties. Repeated experiments made between 1867 and 1873, in the botanical gardens, Manila, threw much light on the various species, varieties, and subvarieties of rice in the Philippines, and the names by which they are known in the different provinces.

Of the 152 kinds which have been recognized, the following are the more important:

Irrigated, or lowland rice.—*Macan, macan sulucan, macan bunut, macan sulung, macan munti, macan sonson, macan bocaue, malagquit puti, malagquit pula, mangasa, mangasalit, pinorsigue, binanbang, pinurutor, ganados, bodlilising, binanquero, binsolores, dimulong, sinanpablo, etc.*

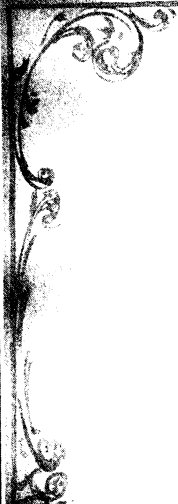
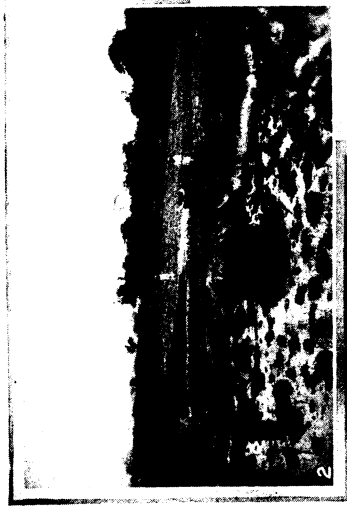
Unirrigated, or upland rice.—*Pinursigui, guinarayon, lactansangley, pinurutum haba, pinitod, guinamaliq, binusisi, mangasi puti, mangasa-pula, pinagocpoc, guinanda pula, guinanda puti, bolibot, dinumoro, quiriquiri, binoliti, quinabibi, dinulong puti, buntod-cabayo, tinuma, magapilay pula, mangola, tanqui, aguyot, agap, pinorsigui tapoyoc, bolalaque, castano, quinastila, sinantol, tinumbaga, quinaaco, quinandila, quinastilla-malit, quinanpilan, sinanpaga, calivo, manunbalay, inoropol, inopot-ibon, pinuray, quinalabac, etc.*

Of the total number collected in the Philippines about 35 are varieties and the remainder may be regarded as subvarieties.

Heat and moisture are prime essentials in the cultivation of rice, which thrives in all southern countries and grows even as far north as latitude 45°. Its cultivation is carried on in the Philippines at eleva-

¹This paper was most voluminous, and in order to adapt it to the general character of the census report it was necessary to condense it.—*Director.*





1. TERRACED RICE FIELDS, IGOROT SETTLEMENT, NUEVA VIZCAYA. 2. 3. PLOWING FOR RICE PLANTING. 4. THE TUGDA USED FOR PLANTING RICE.
5. HARVESTING RICE.

tions of 5,000 feet, as in the mountains of Benguet and other parts of the Igorot country.¹

While rice under careful cultivation will grow on any soil adapted to other cereals, a moist, sandy loam is most suitable.

Cultivation consists in the preparation of the soil and the subsequent planting and care of the growing crop.

These operations differ somewhat according as the rice is lowland or upland. The former is practically grown under water supplied by irrigation, while the latter is cultivated on the hills and mountains where irrigation is often impossible and the plants must depend on the annual rainfall for the necessary moisture.

In either case the preparation of the soil consists in clearing the ground of trees, brush, etc., which are used as fencing, and in constructing a sufficient number of earthen dikes or ridges to control the water of irrigation or the rainfall. Where the fields are irrigated an intake and outlet enables the operator to regulate the depth of the water, as well as the flow, which should be constant so as to avoid stagnant pools of long standing.

Lowland rice is grown under water, the plants being raised in seed beds. The ground for the beds is turned over two or three times with a plow in 10 or 15 centimeters of water, until the bed is very well formed.

The seed is then soaked in water for twenty-four hours and sown broadcast, but very thickly.²

When the plants begin to grow, it is customary to sprinkle them with a solution of lime to protect them against insects, and when they have attained a height of from 26 to 38 centimeters they are transplanted in the ground previously prepared for the purpose, care being taken that the roots of the plants be exposed to the action of the air for the shortest period possible.

The preparation of the soil for lowland rice consists in working it with a plow, when it is thoroughly saturated with water, being covered by at least 10 centimeters thereof. A harrow is passed over it to level the ground, mixing it with water, and forming a muddy mass. The working is repeated in an opposite direction, with colters in narrow furrows, in order that the soil may form a mass thoroughly soaked with water, the harrow being passed over it once more before the transplanting takes place.

In places where the soil is not of a moist character, artificial irrigation is absolutely necessary.

The field is kept under water until inflorescence appears, the land being flooded every three or four days in order to keep the plants always fresh. When they blossom and the fruit heads, irrigation is suspended and the ground left dry, in order to hasten the ripening of the fruit.

¹ See illustration No. 1 on plate facing page 89.

² See illustration No. 4 on plate facing page 91.

About 135 pounds of unhulled rice are necessary for a hectare of land. It is necessary to remove the weeds growing in the rice fields, which is done by turning them under into the mud where they rot very quickly and contribute thus to the richness of the soil.

The preparation of the soil for upland rice consists in plowing the ground during the first rains, harrowing or crushing it and raking off all refuse. After it has been exposed for a few days it is plowed again, and if necessary it is given a third plowing. As soon as the rainy season is well on in the locality, the unhulled rice is sown broadcast, care being taken to scatter it evenly.

Another method of planting, called *caingwines*, is resorted to and consists in dropping from three to five grains of unhulled rice in small, shallow holes about the width of a hand apart. The operation is described as follows: About the first rain many people gather in the field with long bamboo poles,¹ the small end bent with a sharpened piece of bamboo firmly fastened to it. This tool is held almost vertical and with bent part forward. When it is brought down the spring of the bend helps to raise it again and also to throw out some dirt, thus leaving a small hole in the ground in which the women and children drop the seed rice and cover it. The bamboo pole is kept going rapidly and as the top end is split, every time it is brought down the split pieces come together with a loud noise amid the shouts of the people. It seems more like play than work and can be heard for miles around. For planting of this kind one chupa of rice is needed for every square meter of ground.

Before planting, all kinds of rice should be soaked in lukewarm water for twenty-four hours to facilitate the swelling of the cotyledons and assist germination.

The crops of early rice having been sown in May, at the beginning of the rainy season, are harvested between August and January, according to the kind of rice, the spikes being cut when they have attained a length of 50 centimeters.

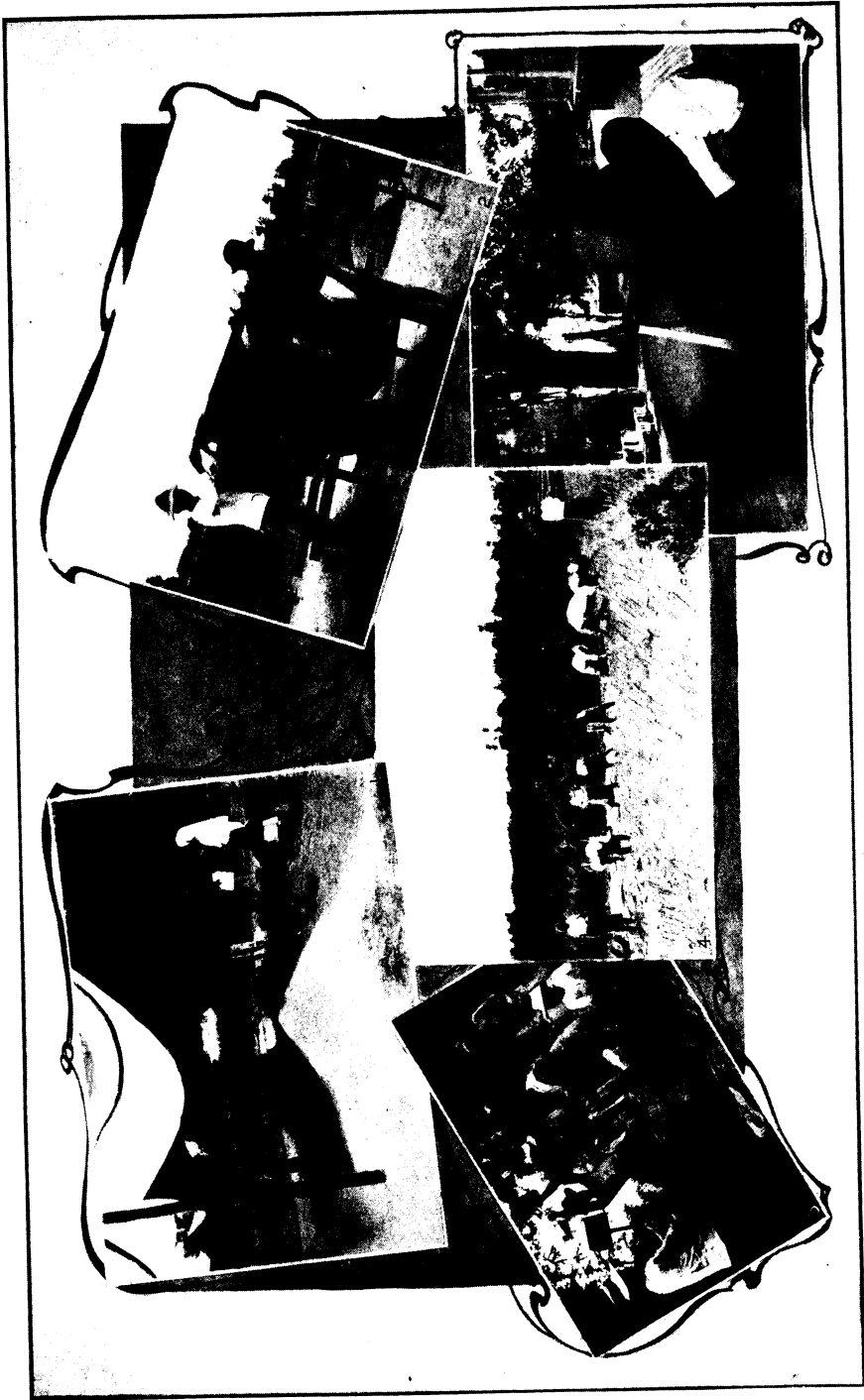
They are then tied in bunches and allowed to remain on the field until dry, when they are gathered.

Lowland rice is also sown in May, when the lakes and streams are bank full and irrigation made easy. It is harvested not later than October.

Immediately after the harvest the ground is again prepared for a second planting, not later than January, according to the kind of seed. Rice requires from three to four months to bring it to maturity.

Where mills are not to be had for thrashing, the stalks are thrown on a bamboo mat of sufficient size and trampled and turned with the feet until the grains have become completely separated from the stalks and hulls. The straw is then removed and the grain is fanned in

¹ See illustration No. 4 on plate facing page 89.



1. THRESHING RICE BY BEATING SHEAVES ON STONES. 2. MILL FOR WINNOWING RICE BY HAND. 3. HULLING RICE IN WOODEN MORTAR WITH WOODEN PESTLES. 4. PLANTING RICE. 5. HULLING RICE.

order to remove the particles of peduncle and calyx, leaving only the well-ripened grains. In the warehouses, where rice is cleaned for the market, a mill and fan are used.

After rice has been fanned it is placed in a wooden mortar and pounded in order to remove the fine chaff, called in the Philippines *binlig*, and used as food for hogs and horses.

The pounding is done with heavy wooden pestles, which can be easily handled in the mortar, or by large wooden mallets which, with moderate blows, leave the rice very clean and lustrous.

After pounding, the rice and chaff are separated by sifting through large shallow baskets with a small bamboo edge and bottom.

Two cavans of unhulled rice will yield 1 cavan of cleaned rice, or 1 cavan of ordinary rice and 4 gantas of binlig, which, at 6 pesos for the former and 40 cents for the latter, give a total of \$6.40. The cost of cleaning rice is 70 cents, and, supposing the cost of transportation to market to be 25 cents, the owner makes a profit of \$5.70 per cavan of rice.

The rice mill in Biñan, in the province of La Laguna, charged 28 cents for cleaning 2 cavans of rice, which yield 1 cavan of cleaned rice.

The rice mills of Bautista (Pangasinán) and of Calumpit (Bulacán) clean from 400 to 500 cavans per day.

Among the enemies of the rice plant which cause much damage are very small coleoptera, whitish or reddish, which generate in the soil when it is perfectly dry, and, perching upon the plants, leave them drooping and yellowish, preventing their perfect development. There are also some greenish worms which devour the entire leaf, and a bug which, when fully developed, hops about on the stalks and destroys the stamens, with the result that many of them fail to fruit, though the husks may be developed fully. A remedy against the first named, if the land be subject to irrigation, is to flood it thoroughly in order to exterminate them, or to irrigate with water containing a solution of lime, which also will exterminate the worm. In the case of the bug, bonfires are made on the embankments at night, and are quite efficacious, as the insects are attracted by the light and are burned up.

Birds called *mayas*, which usually come in large flocks, cause much damage to the rice stalks while they are fruiting. Field scarecrows are a good protection against them.

The greatest enemy to most of the gramineous plants are the locusts, and no amount of precaution or of active campaigning adequately protects the plants against these pests. The methods employed at the present time for the extermination of the locusts may be included in two groups, viz, those which are intended to prevent the development of the egg, and, secondly, those which tend to destroy the perfect insect

or the larvae. One of the methods employed to prevent the hatching of the eggs consists in plowing the land in which they are deposited, not only because the plow destroys a large number of them, but also because they are brought to or near the surface, where they may be easily exterminated by the use of barnyard fowl or hogs, which eat them with great relish. Of course, this is done before planting.

In order to kill the locusts while in the grasshopper stage the fields are sometimes surrounded with a number of men who close in toward the center, beating upon the ground with branches, sticks, or other suitable implements until the insects have been completely exterminated. Large rackets may also be used, but they should be thoroughly beaten before being used again.

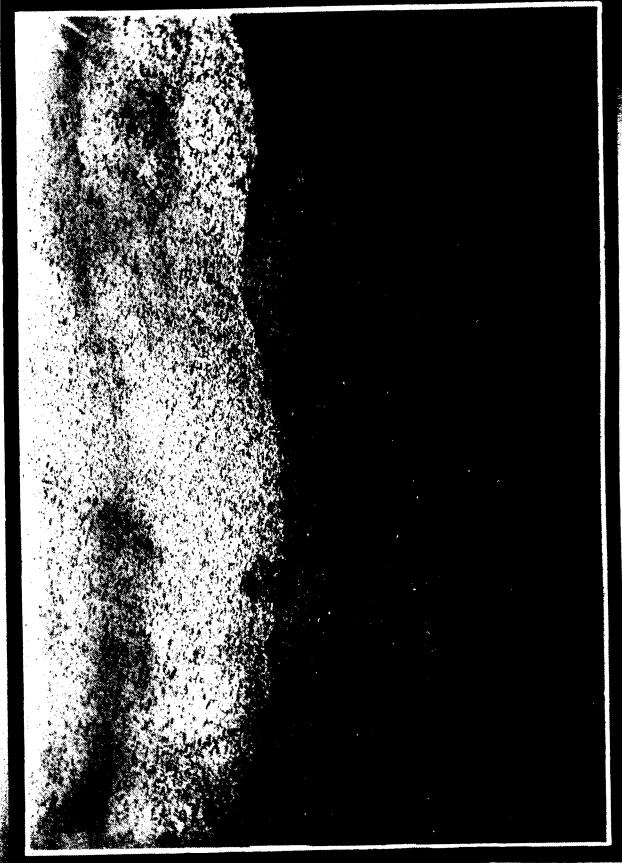
Another method is to light bonfires and make a great noise with bells, kettles, and other objects, all the inhabitants of the town gathering where this devastating insect appears.¹

AMOUNT OF THE CROPS.

The principal rice producing islands and provinces in the Philippines are Pangasinán, Nueva Écija, Pampanga, Tárlac (northern part), southern part of Zambales, Bulacán, Cavite, La Laguna, Batangas, Camarines Sur (the greatest producer in southern Luzón), the Visayan Islands, Cápiz (island of Panay), and Negros. Other islands and provinces of the archipelago cultivate rice, but only for local consumption, and a few supply themselves from neighboring provinces, especially from Manila.

The province of Pangasinán until 1868 exported large quantities of rice to China, and considerable shipments left Manila for the neighboring colonies. Until the year 1874 the value of a cavan of rice in Camarines, Pangasinán, the high towns of the provinces of Tárlac, Nueva Écija, and southern Zambales was from 2 to 2½ pesos, according to class. Even in the year 1899 rice sold in Pangasinán at 2 pesos Mexican per cavan, and the mills in Bautista and Calumpit had their granaries and warehouses overflowing with bunches of unhulled rice and many thousands of sacks of cleaned rice. There were years when the crop was so abundant that there was not sufficient labor to carry it from the field, even though each laborer was given one-third of the amount which he could cut per day, and the rice was abandoned in the fields for lack of labor. This has occurred in the extensive fields of the province of Ambos Camarines, which at the present time is paying exorbitant prices for rice, and also on the plains of the Poponto, between Pangasinán and Tárlac.

¹These and all other methods appear to have failed during the last plague of locusts which totally destroyed the crops in many localities.—*Director*.



FLIGHT OF LOCUSTS, PROVINCE OF BATANGAS.

In the irrigated lands of the province of Pangasinán, 80 cavans of rice may be gathered from 1 cavan of seed; in dry lands, 50; and in highlands of the third class, at least 40 to 60.

The most fertile farm of the Philippines is that of Imus (Cavite), of which 13,442 hectares are devoted to rice cultivation, and its soil is of the best known, with good irrigation canals, for which reason the crops give excellent yields. It has an area of 18,000 hectares, having 4,480 of the first class, each one yielding an average of 100 cavans of rice per cavan of seed; 4,480 of the second class, yielding approximately 75 for 1; and 4,482 of the third, with a yield of 50 for 1. There remains, furthermore, 4,558 hectares, of which one-half are suitable for upland rice, and would yield from 30 to 60 cavans for every cavan of seed, according to the present condition of fertility. The plantations of San Francisco de Malabón, Naic, and Santa Cruz de Malabón, of the same province, are also productive.

The rice plantations in the province of Bulacán, and the towns of southern Pampanga, and of Rizal, yield, according to class of soil and irrigation, from 25 to 40 cavans of rice per cavan of seed. Some of the land is exhausted on account of the constant cultivation; nevertheless, some of the fields in the municipalities of central Luzón, which are frequently watered by the great overflow of the rivers, usually yield 60 cavans of rice for 1 of seed.

In the province of Batangas the irrigated land yields from 30 to 40 cavans of rice to 1 of seed, and the uplands from 15 to 30 for 1 of seed.

The irrigated rice land of the province of Ambos Camarines yielded from 60 to 100 cavans for 1 of seed, and the dry lands from 30 to 50.

In the province of La Laguna there are lands which yield 80 cavans for 1 of seed, even though their method of irrigation is very primitive. This is due to the fact that the soil here is very suitable for the cultivation of rice. On the other hand, at a short distance therefrom, on the Calamba plantation, which has good irrigation canals, the yield is only 60 cavans for 1 of seed in 2 crops—that is, 35 in the first and 25 in the second—for the reason that the soil is quite sandy and more suitable for growing sugar cane.

In the municipalities of the vast plain in the southern part of the province of Zambales the land most suitable for the planting of rice will yield as much as 50 cavans for 1 of seed, and in other lands more sandy only 25 cavans for 1 of seed.

In Pampanga, where the greater part of the soil is quite sandy, notwithstanding the fact that the rice fields are favored by the rains, the yield is only from 20 to 25 cavans for 1 of seed.

In the island of Mindoro the irrigated land yields from 30 to 40 cavans, and in the dry lands, commonly called *Calanan*, as much as 70 cavans are harvested.

The classes of rice cultivated in the province of Cavite are the following: *Daliquit*, *pulan-balat*, *kuinanbic*, and *binaba*, the last two being glutinous, commonly called *malagquit*. These four classes are early varieties, which are sown broadcast during the first rains of May and harvested in the middle of September, as is also the variety called *quinanga*.

The other later varieties of dry land rice which are harvested in October are the following: *Quinastila*, *quinamalic*, *quinarayon*, *binocane*, *binolong*, *inabac*, *calimbin*, *pinalapa*, *dinalaba*, *binaguntao*, *inanot*, *sinaba*, *mimis*, and the glutinous *piroroton-dila*, *macabunot-dila*, and the *malagquit*, called *matpunit*.

The irrigated land varieties harvested in December are those called *macanpino*, *macanlaque*, *maasalec*, *quiriri*, *malagquit-dinolores-morado*, and the much desired *binanquero*, which is the rice which can be stored in a warehouse for five years while the others can hardly be kept two.

The varieties of rice in the provinces of Bulacán, Batangas, and Ambos Camarines have already been cited, as have also some cultivated in Cavite.

The varieties of rice in the provinces of Pangasinán, northern Nueva Écija, and northern Tárlac, are called: *Ganado*, *ambalang*, *ganado ampote*, *matayosa*, *galaygay*, *macabontoc*, *sagat*, *bililisin*, *inomatis*, *mimis*, *obanang*, *simpolet*, *inandusa*, *cavitena-paaga*, *pinila*, *binolaney*, *botoleno*, *pinella*, *dinominga*, *damasco*, *asingan*, *inanteresa*, *sinan Jose*, *bandig-goden*, *inagamang*, *mantica*, *mantica ampote*, and *mantica aren*, and the glutinous varieties *malis*, *bato*, *dinagupan*, *pogot*, *calsibon*, *sinotla*, *malsitin*, and *nilanca*, most of which come from Ilocos and are bearded varieties.

There are also many varieties of rice in the southern part of the province of Zambales. They are the following: *Bulagsac*, *sinanglay*, *panay*, *cumabibi*, *dinorado*, *bacayao*, *binondac*, *quinolapo*, *pinosiqui*, and the fragrant varieties *quinapitan*, *quinolantro*, all of which are early varieties. *Inocupa* is a glutinous rice, also early, as are the bearded varieties called *lampangan* and *mamreng*. There are others which are harvested later called *binarit*, *ipot*, and *tayaring*, which are sometimes sown broadcast and at other times in seed beds for transplanting, and the Ilocano varieties, *caviteno*, *mantica*, *salayusay*, *mimis*, *inanduran*, *daldal*, and *sampirit*, and the late irrigated land varieties, *macan* and *binucawi*, which is as fine as the *mimis*, and the bearded *balayan-manticalay*.

In closing it may be said that the main hope of the farmer in planting is to reap a good crop, and consequently he must avail himself of all the means within his power to that end, such as the preparation of

the soil, the selection of good seed, the care of the plants, and, above all, that there be no lack of water for irrigation, especially in sandy soil, where there is constant filtration.

COST OF PLANTING AND HARVESTING.

The custom existing in the Philippines in the cultivation of various agricultural products, including rice, when a partnership is formed or laborers are hired, is to make an agreement by which the latter usually take one-half the crop or its value, after all expenses have been deducted, either in kind or money.

Up to 1896 the principal expenses which the owners of rice fields were obliged to defray were the following, per hectare, in local currency, the Mexican dollar:

For wages for plowing, weeding, etc.....	\$2.00
For planting	5.00
For taking the sheaves of rice to the stack (<i>mandala</i>) and hulling.....	2.50
Total	9.50

For the cutting it is customary to give the cutters, according to their needs, a fourth or fifth of the number of sheaves, according to size, cut per day.

If a contract be made for cutting the rice it is customary to pay \$0.50 to \$0.75 per thousand bundles, of which the first yield is 2 chupas of unhulled rice and the second 4 chupas.

In other provinces contracts have been made to pay 3 pesos, per hectare of land, for preparing the ground suitably for the planting of rice, and 1 cavan of seed and 6 pesos per hectare for harvesting.

At the present time, wages being high, it is thought that for preparing the land, sowing and transplanting the rice, the cost would be 15 pesos per hectare, more or less, and the cutting according to agreement and as may suit the grower.

These expenses vary according to the different provinces and the scarcity of labor.

Rice is very largely consumed in Great Britain, nearly 330,000 tons, valued at 2,690,000 pounds sterling, being imported into England in 1889.

The colony of Victoria (Australia) imported 5,738 tons, valued at 80,997 pounds sterling, during 1887. The exports from British India during 1886 have been valued at 9,000,000 pounds sterling, according to Dr. G. Watt. The sweet rice, called *ame* in Japan, constitutes a delicacy, as do all kinds of glutinous rice, called *malagquit* and *piruruton* in the Philippines.

At the present time the rice annually imported into the Philippine Islands amounts to 375,784,891 pounds, representing the large sum of

\$4,178,921 gold, while but twenty years ago, more or less, rice was exported from the Philippines to neighboring colonies.

CULTIVATION OF RICE IN PAMPANGA PROVINCE.

By M. CUNANAN, Pampanga.

The cultivation of rice is more advanced in Pampanga, relatively, than in the other provinces of the archipelago. The life of the population depends upon its cultivation, being, as it is, its principal food. It is not meant to convey the idea hereby, however, that at the present time the cultivation of rice is at its highest state, because none of the modern agricultural machines is in use here, such as the drill, which dispenses with so much manual labor; or the reaper, which cuts and gathers the harvest so rapidly; or the thrasher. Indeed, none of the improvements used in agriculture, and which are real evidences of progress, are employed.

The following varieties cultivated in this province may be selected from the large number of known varieties of this plant, and are divided into two classes: (1) *dinalaga*, *quirinrin*, *milagrosa*, *mimis*, *dinalagangpulut*, *macapungul*, *ynatsupal*, *sinampaga*, *lactatan*, and *quinulantro*; (2) *sinanpablo*, *binunduc*, *pilingbelto*, *matavia*, *inaplaya*, *macanpina*, *palacaya*, *calibo*, *pinulsigui*, *pane*, and *quinuayan*. These two principal groups represent the irrigated and unirrigated rice, or lowland and upland classes.

The varieties mentioned in the first group are cultivated in localities where there is neither artificial irrigation nor natural irrigation produced by periodical inundations. This quality of rice requires much less care than the varieties of the second group. A very moist soil is essential; that is, a soil which has been inundated at least for a part of the year, but on the other hand is subject to the changes in the season. The seed is sown broadcast upon the ground, which has been suitably plowed and harrowed.

The varieties of the second group are sown in the same manner as those of the first group, with the exception that they are generally placed in seed beds, whence they are transplanted in the respective fields, which must be plowed and harrowed until they are converted into a species of marsh or muddy swamp. The preparation of ground for the cultivation of this rice consists in making squares of different sizes, which are formed by heaping up the earth in small dikes. After this has been done, the soil is plowed and harrowed with a harrow composed of thorny bamboo, called *balsa*. After the ground has been harrowed, the square is filled with water, and the transplanting takes place from the seed beds. The latter are similar to rice paddies. Planting begins early in June, and after it has been done, no work or care is necessary but to keep the paddies covered with water in order

to secure abundant crops. The harvest begins, as a rule, early in December and is gathered with a sickle, the same as wheat.¹

Two crops a year are harvested from irrigated lands in some sections of Pampanga. For the first crop the seed beds are prepared in February and March, transplanting takes place in April, and the crop is harvested in September. For the second crop the seed beds are prepared in August, transplanting is done in October, and the crop is gathered in February. After the first crop has been removed, one month is allowed to pass, during which the ground is cultivated before transplanting the second crop. It should be stated that the seed bed consists of a small section of land one-twentieth or one-thirtieth the size of the field in which the transplanting is done.

When cut, the heads are left in the fields for some days, and are then gathered into sheaves and removed to the thrashing place. Usually the thrashing is effected by means of mares or carabao; otherwise two stakes are planted upright and joined by a piece of bamboo for support, and the grain thrashed out with the naked feet. After the grain is thrashed and the chaff is separated, the latter is saved and fed to stock. When the grain is free from the chaff it is stored in granaries (usually constructed of bamboo and nipa, although there are many of stone and lumber). The rice crop in Pampanga in normal years has amounted to 1,800,000 cavans.

The price of unhulled rice at the place of production is from \$.75 Mexican to \$1 per cavan (75 liters), and for hulled rice from \$1.75 to \$2 Mexican per cavan in normal times. The cost of cultivating 1 hectare of land, sown broadcast, is about \$41; planted from seed, \$49 Mexican.

The dry lands yield a more substantial and finer flavored rice, but the yield is less certain and less abundant.

INDIGO.

The production of indigo and *tintarron* (liquid indigo), though of minor importance as compared with other products of which mention has been made, has been a source of considerable income and has contributed appreciable amounts to the sum total of insular exports, as indicated by the following table, which shows the quantities and values of the two products for each calendar year since 1854 for which statistics are available, with the percentage that such values were of the total value of exports annually.

¹See illustration No. 5 on plate facing page 89.

Quantities and values of indigo and tintarron (liquid indigo) exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	INDIGO.			TINTARRON.			Total value (dollars).	Per cent of total value of exports.
	Quantity (kilos).	Value.		Quantity (kilos).	Value.			
		Pesos.	Dollars.		Pesos.	Dollars.		
1854	194,727	82,349	87,224	18,471	25,818	27,346	114,570	1.70
1855	321,814	199,434	209,565	12,027	5,001	5,255	214,820	3.34
1856	269,983	134,744	141,589	110,610	31,830	33,447	175,036	1.82
1857	302,003	241,540	256,781	12,130	7,070	7,516	264,297	2.09
1858	17,853	12,338	12,965	16,945	25,008	26,278	39,243	0.40
1860	121,842	82,417	87,576	18,707	32,575	34,614	122,190	1.21
1861	184,834	110,545	116,017	110,556	36,946	38,775	154,792	1.83
1862	134,864	88,036	93,107	(²)	62,287	65,875	158,982	1.65
1863	72,608	49,502	52,314	847,097	89,253	94,323	146,637	1.38
1864	114,848	117,074	123,724	157,686	14,810	15,651	139,375	1.24
1865	163,384	154,587	162,533	557,726	112,435	118,214	280,747	1.28
1866	251,574	460,760	484,766	659,206	133,922	140,899	626,665	2.68
1867	24,677	47,458	49,522	513,511	91,982	95,983	145,505	0.63
1873	12,987	7,792	7,946	629,485	125,897	128,377	136,323	0.57
1874	54,955	44,708	44,923	201,471	26,439	26,566	71,489	0.41
1875	117,098	85,294	83,264	528,058	24,550	23,966	107,230	0.58
1876	139,579	107,112	97,975	572,946	25,285	23,128	121,103	0.89
1877	198,552	148,520	140,262	56,814	3,466	3,273	143,535	0.93
1878	70,764	37,635	34,112	213,300	16,758	15,189	49,301	0.31
1879	192,121	192,192	169,725	221,611	15,516	13,702	183,427	1.10
1880	139,151	137,147	123,405	429,553	41,919	37,719	161,124	0.76
1881	159,631	138,958	123,631	83,226	8,256	7,345	130,976	0.60
1882	83,485	62,674	55,924	521,136	51,696	46,128	102,052	0.55
1883	33,087	23,322	20,341	378,370	25,042	21,842	42,183	0.18
1884	51,100	34,287	29,984	395,306	25,416	22,226	52,210	0.26
1885	67,338	42,129	35,169	332,231	24,540	20,486	55,655	0.27
1886	50,044	35,425	27,688	327,467	19,890	15,546	43,234	0.22
1887	106,757	68,879	53,009	668,984	43,336	33,351	86,360	0.44
1888	183,487	128,469	94,862	419,738	22,820	16,850	111,712	0.57
1889	121,516	108,374	79,633	363,575	15,321	11,258	90,891	0.35
1890	66,653	16,416	13,497	507,276	17,280	14,208	27,705	0.13
1891	95,561	59,184	45,945	391,358	21,430	16,636	62,581	0.30
1892	317,015	204,975	140,367	408,836	19,192	13,143	153,510	0.80
1893	107,133	85,072	52,158	276,424	13,575	8,323	60,481	0.27
1894	25,072	33,976	16,947	191,794	17,000	8,480	25,427	0.15
1898	(³)			(³)				
1899	116,370		32,694	(³)			432,694	0.22
1900	5,545		1,325	(³)			41,325	0.01
1901	7,884		3,178	(³)			43,178	0.01
1902	251,025		16,573	(³)			416,573	0.06

¹ Tinajas.

² Quantity not specified.

³ Not separately reported.

⁴ Not including tintarron.

The provinces of Ilocos Norte and Ilocos Sur produce more indigo than all other provinces combined. The dye is produced, however, to some extent in the provinces of Bataán, Batangas, Bulacán, La Laguna, Pampanga, Pangasinán and Zambales. It will be observed that in the

years 1900, 1901, and 1902 the values of annual shipments fell considerably below those of the preceding years, for which figures are presented in the above table. This falling off is said to be due largely to the use of aniline dyes and to adulterations made by Chinese speculators in the dye, which has discredited the Philippine product and caused a depreciation in its price.

CULTIVATION OF THE INDIGO PLANT.

By AMELIO A. Y. LALLAVE, Ilocos Sur.

The indigo plant had its origin in India, and is to be found in nearly all the provinces of the Philippine Islands, especially in Ilocos Sur; and though still cultivated in the islands, it is only upon a very reduced scale.

This plant requires fertile soil; if virgin, so much the better. At the close of the rainy season—that is, in October—preparation of the ground should be begun. Deep tillage should be given it with the plow, and the operation repeated at the end of the month. At the beginning of November a third plowing is effected and the ground harrowed, so as to leave the soil well crumbled. Sowing is then proceeded with. Furrows are made, as nearly straight as possible, and about a foot apart. The planter carries the seeds in a small sack under his left arm, and with his right hand scatters them copiously into the furrows, which he then covers with earth, using both feet. This operation is easily performed by our planters.

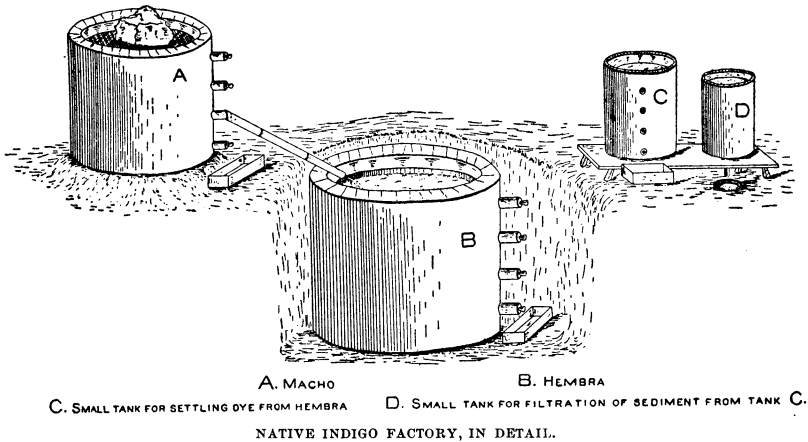
A few days after planting the seeds begin to germinate, and when the plants have attained a height of one palm or less the ground is once more plowed between the furrows, if soil conditions require it, for the purpose of cleaning it of all weeds and at the same time heaping the earth about the plants. Thenceforward the plants develop rapidly, and in two and a half months are usually in condition for cutting, which is done when they are about to bloom. Harvesting is then effected.

When the plants are cut they should be immediately conveyed to the place where the operation of extracting the dyestuff is to be performed. Haste is recommended, because the least delay may cause fermentation in the leaves, thus causing injury to the product. The extraction of the coloring matter is effected in the following manner:

The necessary apparatus for this manufacture should be placed near the plants and where water can be had. If this be not possible, a well should be dug, so as to supply the necessary water, the amount required depending upon the quantity of leaves to be treated.

The receptacles in which the leaves are to be deposited are called *machos* and are made of masonry. There may be one, two, or more of them, according to the number of leaves to be treated daily. They

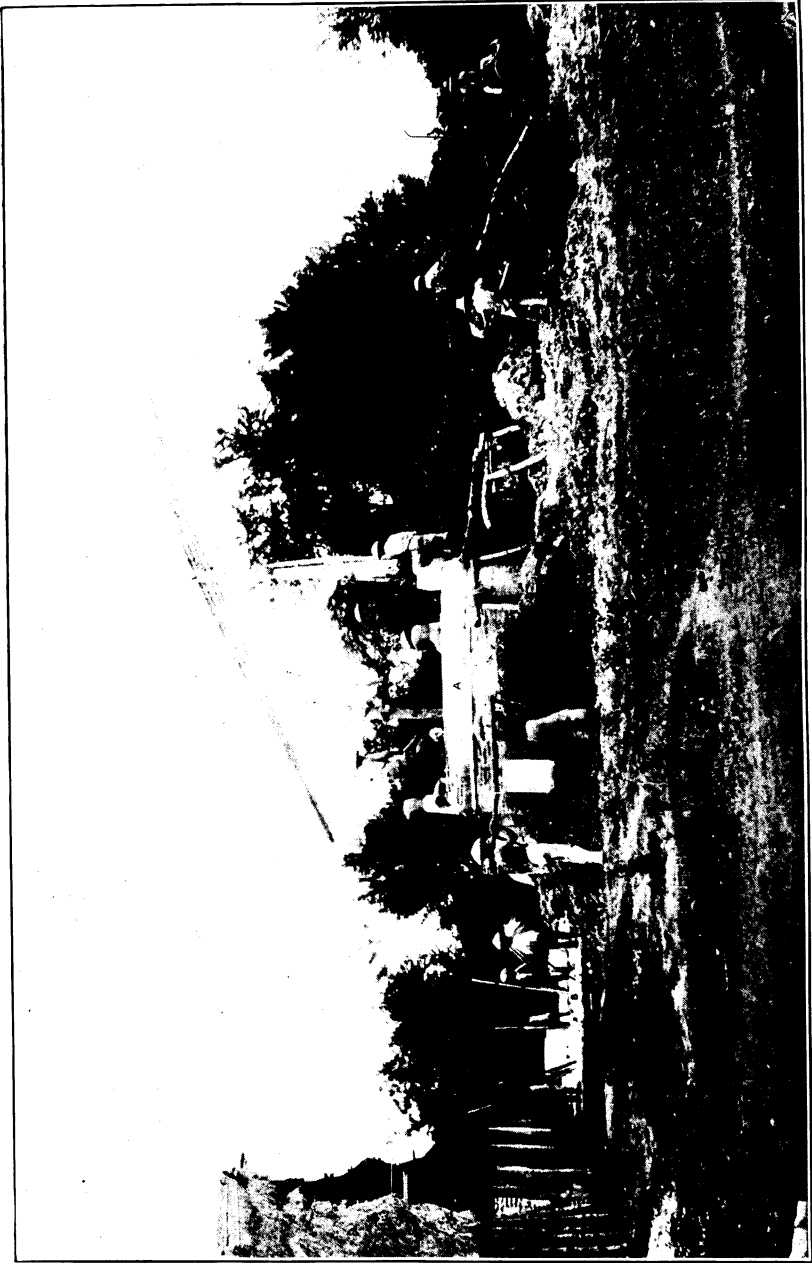
should be cylindrical and provided with three or four spigots, which are usually made of cane, through which the liquid is drawn off. Underneath and at right angles to the spigots is constructed a small leakage tank, which catches the drip as the fluid is drawn through the spigots. If four tanks are required instead of one, they should be constructed in a semicircular form, so that they may converge. *Hembra* is the name given to a larger tank, also constructed of masonry and close to those previously constructed, to receive the liquid drawn from them. This *hembra* must necessarily be lower than the *machos*. For this purpose a hole is dug in the earth, of the necessary dimensions, and the *hembra* solidly constructed in order to avoid the loss from leakage. Close to the *hembra* another small tank is constructed, and another, smaller still, at the side of this, is necessary for



completing the operation of extracting the dyestuff. All of these apparatus may vary, according to the quantity of leaves to be treated, the condition of the soil in which they are constructed, and the pleasure of the individual planter; but whatever disposition may be made, the object to be attained is always the same. When the apparatus is ready, the manufacture of the indigo is begun.

Early in the morning the plants should be cut, in sufficient quantity to fill the *machos* or *machos*, and immediately conveyed thither and deposited in them. The receptacle is at once filled with water, completely covering the leaves, so that none will float on top. A sort of grating of cane is placed over the mass, and on top of this grating a weight of some kind—a rock will answer the purpose.

The infusion is allowed to stand until the following morning. In the first hour all of the leaves are removed from the *machos* and the liquid tempered with a certain amount of lime of good quality, which



EXTRACTING INDIGO (A B C D CORRESPONDING WITH MECHANICAL DRAWING).



is placed in a basket, the basket being shaken from right to left, or vice versa, until the lime has been spread over the entire surface. If a piece of stone should remain in the basket unburned, it is thrown away, and the operation just described is repeated with all of the machos. In a short time the lime will have been precipitated to the bottom, carrying with it any stray leaf that may have remained, as well as whatever dirt there may be. The liquid is then withdrawn instantly from the machos into the hembra by means of a hollow cane. By opening the uppermost spigot the operator is able to see whether the liquid is clear and transparent, in which case the cane is attached, to conduct the liquid into the hembra. Having drawn all the fluid through the first spigot, the second one is turned on, then the third, and so on until the last, and the same operation is effected with the other machos. While this work is being performed in the manufactory, other laborers will have cut a fresh supply of leaves, in the same quantity as those just used, which will be handled the same as those of the previous day. At the expiration of the second day, the workmen commence to stir the liquid contained in the hembra. Three or four men, each provided with a spatula made of slender cane, to one end of which a small wooden tablet is attached, about one palm in length and three fingers in width, station themselves on the wall of the hembra and stir the liquid for at least an hour, when it is allowed to settle until the following day, care being taken to cover the receptacle with cloth or anything that will prevent the entrance of dirt or foreign matter into the liquid. On the following day, when the liquid in the hembra has settled, the first or top spigot of the hembra is opened in order to permit the outflow of a portion which has not yet assumed any color. This done, the machos are again emptied into the hembra as far as possible and the stirring is resumed. These operations are performed daily for eight or ten days, when they are suspended in order to extract the dye.

After a day, or preferably two days, of settling, all of the dyestuff contained in the liquid will have been precipitated to the bottom. The first spigot is then opened, then the others, successively, until the last, which is located the width of a few fingers from the bottom one, has been opened. Then the man in charge, or an intelligent laborer, descends to the bottom, and, while disturbing the liquid as little as possible, he collects it in a vessel, which he hands to another laborer standing above, who in turn hands it to another, this latter emptying the vessel into the next smaller tank referred to, and this work is continued until all the liquid has been collected.

On the following day new cuttings may be made, and all of the operations just described repeated, until the entire crop has been treated.

In from four to six days the dye in the smaller tank will have formed a sediment at the bottom, when all the water will be drawn off as was done with the hembra, and the dye will then be removed to the smallest tank. At the bottom of this tank is placed a frame made of cane, raised from four to six fingers above the floor of the tank; over this is stretched a clean cloth, upon which is thrown the dye. The water filtering through this cloth leaves the tank through a small hole in the bottom and is deposited in a small well close by. Since the water will at first carry with it some of the dyestuff, the operation of filtration should be repeated until the water flows thoroughly clean and transparent. By the following day all the water will have drained off, and the sediment remaining is made up into tablets or balls, fashioned by hand into the desired shape and size. These tablets or balls are then placed upon clean cloths, stretched upon a cane frame, and exposed to the sun, where they are allowed to remain until thoroughly dry.

When all the plants have been cut, the tanks should be covered and the utensils carefully put away to be used in the second cutting, which, if there has been some rain, will be as plentiful as the first, provided always that the rainfall has been slight and that it occurred before the plant brought forth many stalks; for when in this condition the rain may cause the production of a large amount of dyestuff. If the year be a good one, or if the rainy season is backward, a third cutting may be possible.

The cultivation of indigo was the source of considerable wealth in the Philippines, especially in Ilocos Sur, until 1883-84, when the producers began to adulterate it with sand and other substances so that its value in the market fell from 90 to 120 pesos per quintal to from 29 to 40 pesos per quintal, which brought about the ruin of this industry, the producers abandoning it and the market seeking its supply in other countries.¹

To-day an insignificant quantity is cultivated without any attempt to increase its cultivation, which would undoubtedly be done if the former price were paid. In Vigan to-day from 40 to 90 pesos per quintal are paid, according to the quality, and the greater part goes to the Chinese in Manila, and is used by them to dye their cloths.

The importance of this article should not be judged by the price paid for it to-day, but by that which it would command under good cultivation and proper care, which, as I have said, has reached 90 to 120 pesos per quintal.

¹ The decline of this industry in the Philippines is no doubt due in some measure to the manufacture of artificial indigo, which is produced from coal tar products, and which is always chemically pure, whereas the amount of available dyestuff of natural indigo varies from 20 to 90 per cent of the commercial products, due either to accident or adulteration in the preparation.—*Director*.

The expenses of cultivation per hectare are as follows:

	Mexican.
First plowing	\$12. 00
Second plowing	9. 00
Third plowing	5. 00
Sowing the grain	2. 90
One plowing to kill the weeds.....	4. 00
Weeding and cleaning	4. 00
Total	36. 90

The expenses of labor, first cutting, are as follows:

	Mexican.
Four plant cutters for ten days, at 30 cents each per day	\$12. 00
Transportation to factory (according to distance): Four <i>cargadores</i> (carriers), who may be the same men used to do the cutting.	
Six cavans of lime	3. 00
One master workman in the business	8. 00
Water: Cost according to the distance from which it is brought, but generally it is brought by the cutters.	
Total	23. 00

The figures may vary quite materially, according to the localities, prices of labor, distances from the land cultivated to the factory, water facilities, etc.

The product of 1 hectare, supposing that there is a high grade of cultivation, good judgment in the choice of land, sufficient moisture at the beginning of the plowing, and good atmospheric conditions, should easily reach 4 quintals of dye of good quality.

DYEWOODS.

The forests of the Philippines abound in a great variety of dye plants and woods, which are largely used by the people in coloring the fabrics they weave from native and imported fibers. In addition to their domestic use, the exportation of dyewoods has been, in the past, a considerable branch of commerce, and their shipment is still carried on to some extent. In 1875 the value of dyewoods exported amounted to \$332,976, a sum which had never been previously reached and which has not been nearly equaled since, except in 1878, when their value was \$313,604. In 1895 the value of such shipments had fallen to \$13,828.

Since American occupation the only dyewood of which a record is given in official commercial reports is sapan wood, beginning with the last six months of 1900.

The statistics covering the exportation of dyewoods, as far as available, are presented in the following table:

Quantities and values of dyewoods exported from the Philippine Islands during each calendar year specified: 1854 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854	1,629,579	36,566	38,731	0.58
1855	1,597,404	43,158	45,350	0.71
1856	3,353,048	86,893	91,307	0.95
1857	3,233,450	100,841	107,204	0.85
1858	3,217,750	88,644	93,147	0.94
1860	2,281,736	59,137	62,892	0.62
1861	2,087,850	48,254	50,643	0.60
1862	1,476,323	29,146	30,825	0.32
1863	337,919	4,631	4,894	0.05
1864	1,416,369	53,869	56,929	0.51
1864	2,308,337	176,430	185,498	0.84
1865	2,858,895	139,142	146,391	0.63
1866	3,483,863	152,378	159,006	0.69
1867	111,915,874	164,548	167,790	0.70
1873	10,794,572	255,907	257,135	1.48
1874	11,405,574	341,094	332,976	1.80
1875	5,959,163	138,649	126,822	0.93
1876	5,064,200	106,100	100,201	0.65
1877	9,340,039	345,989	313,604	1.98
1878	8,114,094	167,620	148,025	0.89
1879	6,018,374	176,250	158,590	0.75
1880	4,453,950	58,231	51,808	0.24
1881	4,790,480	116,408	103,871	0.56
1882	3,342,600	69,995	61,050	0.27
1884	2,792,086	51,383	44,934	0.23
1885	4,359,950	73,539	61,390	0.30
1886	5,039,198	86,599	67,686	0.34
1887	2,898,220	32,680	25,151	0.13
1888	7,002,613	119,380	88,150	0.45
1888	4,294,337	80,533	59,176	0.23
1890	2,765,445	43,715	35,942	0.17
1891	3,206,914	142,112	110,322	0.53
1892	4,226,109	64,052	43,863	0.23
1893	4,942,575	94,998	58,243	0.26
1894	3,861,992	69,851	34,342	0.21
1895	1,620,981	26,907	13,828	0.07
1898	(2)	(2)	.....	.....
1899	(2)	(2)	.....	.....
1900 ³	(4)	.....	⁵ 11,076	0.05
1901	(4)	.....	⁵ 38,850	0.16
1902	(5)	.....	⁵ 20,468	0.07

¹ Pieces.

² Not reported separately.

³ Six months ending December, 1900.

⁴ Quantity not reported.

⁵ Sapan wood.

CACAO.

The cultivation of the cacao plant, from the seed of which chocolate is obtained, is carried on to some extent in various portions of the Philippines, and in spite of crude and wasteful methods, has proved a highly profitable and promising branch of agriculture. No appreciable commercial surplus of the product of this plant has as yet been grown, practically the entire output having been consumed in the islands; but the perfect adaptability of many sections to its successful cultivation, the superior quality of the chocolate, and the certainty of generous returns from the industry, lead to the belief that this important and remunerative branch of agriculture will hereafter be carried on much more extensively, and add materially to the value of insular exports.

CULTIVATION OF CACAO.¹

By W. S. LYON, Bureau of Agriculture.

Cacao in cultivation exists nearly everywhere in the archipelago. I have observed it in several provinces of Luzón, in Mindanao, Joló, Basilan, Panay, and Negros, and have well-verified assurances of its presence in Cebú, Bohol, and Masbate; and it is altogether reasonable to predicate its existence upon all the larger islands anywhere under an elevation of 1,000 or possibly 1,200 meters. Nevertheless, in many localities the condition of the plants is such as not to justify the general extension of cacao cultivation into all regions.

In widely scattered localities the close observer will find many young trees that in vigor, color, and general health leave nothing to be desired, but before making final selection for a plantation he should inspect trees of larger growth for evidences of "die back" of the branches. If "die back" is present, superficial examination will generally determine if it is caused by neglect or by the attacks of insects. If not caused by neglect or insect attacks, he may assume that some primary essential to the continued and successful cultivation of the tree is wanting, and that the location is unsuited to profitable plantations.

With due regard to these preliminary precautions and a close oversight of every subsequent operation, there is no reason why the growing of cacao may not ultimately become one of the most profitable horticultural enterprises that can engage the attention of planters in this archipelago.

It is customary when writing of any crop culture to give precedence to site and soil, but in the case of cacao these considerations are of secondary importance, and while none of the minor operations of planting, pruning, cultivating, and fertilizing may be overlooked, they are all outweighed by the single essential—climate.

Irrigation must be resorted to in cases of deficient or unevenly distributed rainfall, and irrigation is always advantageous whenever there is a suspension of rain for a period of more than fifteen days.

The last but not least important of the atmospheric phenomena for our consideration are the winds. Cacao loves to "steam and swelter in its own atmosphere," and high winds are inimical; even refreshing breezes are incompatible with the greatest success. As there are but few large areas in these islands that are exempt from one or the other of our prevailing winds, the remedies that suggest themselves are: The selection of small, sheltered valleys where the prevailing winds are directly cut off by intervening hills or mountains; the planting of only small groves in the open and their frequent intersection by the planting of rapid growing trees; and, best of all, plantings made in forest

¹This report has been condensed and adapted to the census report from Farmers' Bulletin No. 2, 1902, published by the Insular Bureau of Agriculture, Manila.—*Director.*

clearings, where the remaining forested lands will furnish the needed protection. Concerning temperatures, the best is that with an annual mean of 26° to 28° , with 20° C. as the mean minimum where any measure of success may be expected. A mean temperature of over 30° is prejudicial to cacao growing.

It is always desirable to select a site that is approximately level or with only enough fall to assure easy drainage.

Provided the region is well forested and therefore protected from sea breezes, the plantation may be carried very near to the coast, provided the elevation is sufficient to assure the grove immunity from incursions of tide water, which, however much diluted, will speedily cause the death of the plants; therefore excavations should be made during the dry season to determine that water does not stand within $1\frac{1}{2}$ meters of the surface.

Silt, clay, and loam soils are suitable to cacao culture.

Where properly protected from the wind a rocky soil, otherwise good, is not objectionable; in fact, such lands have the advantage of promoting good drainage.

Having selected the site and cleared the land of brush and such trees as are not needed for shade, the ground should be deeply plowed, and, if possible, subsoiled as well, and then, pending the time of planting the orchard, it may be laid down in corn, cotton, beans, or some forage plant. Preference should be given to "hoed crops," as it is essential to keep the surface in open tilth, as well as to destroy all weeds.

The common practice in most cacao growing countries is to simply dig deep holes where the trees are to stand, and to give a light working to the rest of the surface just sufficient to produce the intermediate crops. This custom is permissible only on slopes too deep for the successful operation of a sidehill plow, or where from lack of draft animals all cultivation has to be done by hand.

Cacao roots deeply, and with relatively few superficial feeders, and the deeper the soil is worked the better.

The number and size of the drains will depend upon the amount of rainfall, the contour of the land, and the natural absorbent character of the soil. In no case should the ditches be less than 1 meter wide and 60 centimeters deep, and if loose stones are at hand the sloping sides may be laid with them, which will materially protect them from washing by torrential rains.

These main drains should all be completed prior to planting. Connecting laterals may be opened subsequently, as the necessities of further drainage or future irrigation may demand. Shallow furrows will generally answer for these laterals, and as their obliteration will practically follow every time cultivation is given, their construction may be of the cheapest and most temporary nature. Owing to the

necessity of main drainage canals and the needful interplanting of shade plants between the rows of cacao, nothing is gained by laying off the land for planting in what is called "two ways," and all subsequent working of the orchard will consequently be in one direction.

Cacao permits of a closer planting than would be admissible with any other orchard crop. In very rich soil the strong-growing *forastero* variety may be planted 3.7 meters apart each way, or 745 trees to the hectare, and on lighter lands this, or the more dwarf-growing forms of *criollo*, may be set as close as 3 meters or rather more than 1,000 trees to the hectare.

The rows should be very carefully lined out in one direction and staked where the young plants are to be set, and then (a year before the final planting) between each row of cacao a line of temporary shelter plants is to be planted. This temporary shelter is an indispensable protection to the young plantation from wind and sun.

The almost universal custom is to plant, for temporary shelter, suckers of fruiting bananas, but throughout the Visayas and in southern Luzón I think abacá could be advantageously substituted. This temporary shade may be maintained till the fourth or fifth year, when it is to be grubbed out and the stalks and stumps, which are rich in nitrogen, may be left to decay upon the ground. At present prices the four or five crops which may be secured from the temporary shelter plants ought to meet the expenses of the entire plantation until it comes into bearing.

In the next step, every fourth tree in the fourth or fifth row of cacao may be omitted and its place filled by a permanent shade tree. The planting of shade trees, or *madre de cacao*, among the cacao has been observed from time immemorial in all countries where the crop is grown, and the primary purpose of the planting has been for shade alone.

That cacao and its wild congeners naturally seek the shelter of well-shaded forests is well established; but having seen trees in these islands that were fully exposed at all times showing no evidences of either scald, burn, or sun spot, and in every respect the embodiment of vigor and health, we are fully justified in assuming that here the climatic conditions are such as will permit of taking some reasonable liberties with this time-honored practice.

All the varieties of cacao in general cultivation may be referred to three general types—the *criollo*, *forastero*, and *calabacillo*—and of these, those that I have met in cultivation in the archipelago are the first and second only. For flavor, freedom from bitterness, facility in curing, and high commercial value the *criollo* is everywhere conceded to be *facile princeps*.

On the other hand, in point of yield, vigor, freedom from disease,

and compatibility to environment it is not to be compared with the others. Nevertheless, where such perfect conditions exist as are found in parts of Mindanao, I do not hesitate to urge the planting of criollo. Elsewhere, or wherever the plantation is tentative or the conditions not very well known to the planter, the forastero is to be recommended. The former is commercially known as *caracas* and "old red Ceylon," and may be obtained from Ceylon dealers, and the latter—the forastero, or forms of it which have originated in the island—can be procured from Java.

Planting may be done "at stake" or from the nursery. The first consists in dropping and lightly covering during the rainy season three or four seeds at the stake where the plant is to stand, protecting the spot with a bit of banana leaf, left till the seeds have sprouted, and subsequently pulling out all but the one strongest and thriftiest plant.

The contingencies to be met by this system are many. The enemies of the cacao seed are legion. Drought, birds, worms, ants, beetles, mice, and rats will all contribute their quota to prevent a good "stand" and entail the necessity of repeated plantings. Success by planting at stake is so doubtful that it is rarely followed by experienced planters.

The consequent alternative lies in rearing seedlings in seed beds that are under immediate control, and, when the plants are of sufficient size, in transplanting them to their proper sites in the orchard.

It is advised that the seeds be planted one by one in small pots, or, if these are not procurable, in small bamboo tubes, and, for the sake of uniform moisture, plunge them to their rims in any free, light soil in a well-shaded, easily protected spot where they may be carefully watered. In three to six months (according to growth) the tube with its included plant may be planted in the open field, when the former will speedily decompose and the growth of the cacao proceed without check or injury.

It may be said, for the benefit of those unable to adopt more scientific methods, that the seed bed should be selected in a well-shaded spot, and, if possible, upon a rather stiff, plastic, but well-drained soil. After this is well broken up and made smooth, broadcast over all 3 or 4 inches of well-decomposed leaf mold mixed with sand, and in this sow the seed, in furrows about 1 inch deep. This sowing should be made during the dry season, not only to avoid the beating and washing of violent storms, but to have the nursery plants of proper size for planting at the opening of the rainy season. The seed bed should be accessible to water, in order that it may be conveniently watered by frequent sprinklings throughout the dry season.

The rich top dressing will stimulate the early growth of the seedling, and when its roots enter the heavier soil below it will encourage a

stocky growth. Four or five months later the roots will be so well established in the stiffer soil that if lifted carefully each plant may be secured with a ball of earth about its roots, placed in a tray or basket, and in this way carried intact to the field.

Planters are united in the opinion that pruning, cutting, or in any way lacerating the roots is injurious to the cacao, and, in deference to this opinion, all cultivation close to the tree should be done with a harrow tooth cultivator or shallow scarifier. All intermediate cultivation should be deep and thorough whenever the mechanical condition of the soil will permit.

Even more disastrous than an occasional root cutting is any injury, however small, to the tree stem, and on this account every precaution should be taken to protect the trees from accidental injury when plowing or cultivating.

When left to its own resources the cacao will fruit for an almost indefinite time. When well and strenuously grown it will bear much more abundant fruit from its fifth to its twenty-fifth year, and by a simple process of renewal can be made productive for a much longer time.

As is well known the cacao bears its crop directly upon the main branches and trunk, and not upon spurs or twigs; that wood under three years is rarely fruitful; and that only upon stems or branches of five years or upward does the maximum fruitfulness occur. Consequently the rational system of pruning is the maintenance of a large extension at all times of straight, well-grown, mature wood, and the perfecting of that by the early and frequent removal of all limbs or branches that the form of the tree does not admit of carrying without overcrowding.

From what we know of its flowering habit it is obvious that every operation connected with the handling or pruning of a cacao tree should be conducted with extreme care, to see that the bark is never injured about the old-leaf scars; for, to just the extent it is so injured is the fruit bearing area curtailed. Further, no pruning cut should ever be inflicted except with the sharpest of knives and saws; and the use of shears, that always bruise to some extent, is to be avoided. All the rules that are laid down for the guidance of the pruning of most orchard trees in regard to clean cuts, sloping cuts, and the covering of large wounds with tar or resin apply with fourfold force to the cacao. Its wood is remarkably spongy and an easy prey to the enemies ever lying in wait to attack it. The surest remedies for disease are preventive ones, and by the maintenance of the bark of the tree at all times in sound condition, we are assured that it is best qualified to resist invasion. Of the great number of worm riddled trees to be seen in the Philippines, it is easy in every case to trace the

cause to the neglect and brutal treatment which left them in a condition to invite the attacks of disease of every kind.

The ripening period of cacao generally occurs at two seasons of the year, but in these islands the most abundant crop is obtained at about the commencement of the dry season, and the fruit continues to ripen for two months or longer. The time of its approaching maturity is easily recognized by the unmistakable aroma of chocolate that pervades the orchard at that period, and by some of the pods turning reddish or yellow, according to the variety.¹

The pods are attached by a very short stalk to the trunk of the tree, and those within reach of the hand are carefully cut with shears. Those higher up are most safely removed with an American extension tree pruner. A West Indian hook knife, with a cutting edge above and below, and mounted on a bamboo pole, if kept with the edges very sharp, does exceedingly well, but should only be entrusted to the most careful workmen. There is hardly a conceivable contingency to warrant the climbing of a cacao tree. If it should occur, the person climbing should go barefooted. As soon as the fruit, or so much of it as is well ripened, has been gathered, it is thrown into heaps, and should be opened within twenty-four hours.

The process of curing that I have seen followed in these islands is simplicity itself. Two jars, half filled with water, are provided for the cleaners, and as the seeds are detached from the pulp they are sorted and graded on the spot; those of large, uniform size, well formed and thoroughly ripe, being thrown into one, and the deformed, small, and imperfectly matured seeds going to the other. In these jars the seeds are allowed to stand in their own juice for a day, then they are taken out, washed in fresh water, dried in the sun from two to four days, according to the weather, and the process from the Filipino standpoint is complete.

Much of the product thus obtained is singularly free from bitterness, and of such excellent quality as to be salable at unusually high prices; and at the same time it is in such great demand that it is with some hesitancy that the process of fermentation is recommended for general use.

Monkeys, rats, and parrots are here, as in all tropical countries, the subject of much complaint, and if the plantation is remote from towns, or in the forest, their depredations can only be held in check by the constant presence of a well-armed hunter or watchman. Of the more serious enemies with which we have to deal—pernicious insects and in particular those that attack the wood of the tree—everything has yet to be learned.

Mr. Charles N. Banks, an entomologist, now stationed at Máao, Negros Occidental, is making a close study of the life history

¹ See illustration No. 4 on plate facing page 16.

of the insect enemies of cacao, and through his researches it is hoped that much light will be thrown upon the whole subject, and that ways will be devised to overcome and prevent the depredations of these insect pests. The most formidable insect that has so far been encountered is a beetle, which pierces and deposits its eggs within the bark. When the worm hatches, it enters the wood and traverses it longitudinally until it is ready to assume the mature or beetle state, when it comes to the surface and makes its escape. These worms will frequently riddle an entire branch and even enter the trunk. The apertures that the beetle makes for the laying of its eggs are so small—more minute than the head of a pin—that discovery and probing for the worm with a fine wire is not as fruitful of results as has been claimed.

Of one thing, however, we are positively assured, i. e., that the epoch of ripening of the cacao fruit is the time when its powerful fragrance serves to attract to the grove the greatest number of these beetles and many other noxious insects. This, too, is the time when the most constant and abundant supply of labor is on the plantation, and when vast numbers of these insects can be caught and destroyed. The building of small fires at night in the groves, as commonly practiced here and in many other tropical countries, is attended with some benefits. Lately in India this remedy has been subject to an improvement that gives promise of results which will in time minimize the ravages of insect pests. It is in placing powerful acetylene lights over broad, shallow vats of water overlaid with mineral oil or petroleum. Some of these lamps now made under recent patents yield a light of dazzling brilliancy, and if well distributed would doubtless lure millions of insects to their death. The cheap cost of the fuel also makes the remedy available for trial by every planter.

There is a small hemipterous insect which stings the fruit when about two-thirds grown, and deposits its eggs within. For this class of insects M. A. Tonduz, who has issued publications on the diseases of cacao in Venezuela, recommends washing the fruit with salt water, and as a remedy against the attacks of beetles in general he recommends painting the tree stem and branches with Bordeaux mixture, or with the *vassiliere* insecticide, of which the basis is a combination of whale-oil soap and petroleum suspended in limewash. There can be no possible virtue in the former, except as a preventive against possible fungous diseases; of the sanative value of the latter we can also afford to be skeptical, as the mechanical sealing of the borer's holes, and thereby cutting off the air supply, would only result in driving the worm sooner to the surface. The odor of petroleum, and particularly of whale-oil soap, is so repellent, however, to most insects that its prophylactic virtues would undoubtedly be great.

The Philippine Islands appear to be so far singularly exempt from the very many cryptogamic or fungous diseases, blights, mildews, rusts, and cankers that have played havoc with cacao growing in many countries. That we shall enjoy continued immunity will depend greatly upon securing seeds or young plants only from noninfested districts, or from reputable dealers who will carefully disinfect any shipments; supplementing this by a close microscopical examination upon arrival and the immediate burning of any suspected shipments.

Another general precaution that will be taken by every planter who aims to maintain the best condition in his orchard is the gathering and burning of all prunings or trimmings from the orchard, whether they are diseased or not. Decaying wood of any kind is a field for special activity for insect life and fungous growth, and the sooner it is destroyed the better.

On this account it is customary in some countries to remove the fruit pods from the field; but unless diseased, or unless they are to be returned after the harvest, they should be buried upon the land for their manurial value.

There are few cultivated crops that make less drain upon soil fertility than cacao, and few drafts upon the land are so easily and inexpensively returned.

Although I have seen trees here that have been bearing continuously for twenty-two years, I have been unable to find one that to the knowledge of the oldest resident has ever been fertilized in any way.

Lands very rich in humus, as some of our forest valleys are, undoubtedly carry ample nitrogenous elements of fertility to maintain the trees at a high standard of growth for many years; but it is indispensable that provision be made for a regular supply of fertilizers as soon as the trees come into heavy bearing. It is to this we look for the formation of strong, stocky, well-ripened wood capable of fruit bearing, and for fruit that shall be sound, highly flavored, and well matured.

ESTIMATED COST AND REVENUES DERIVED FROM A CACAO PLANTATION.¹

Estimates of expenses in establishing a cacao farm in the Visayas and profits after the fifth year are tabulated below. The size of the farm selected is 16 hectares, the amount of land prescribed by Congress of a single public land entry. The cost of procuring such a tract of land is as yet undetermined and can not be reckoned. The price of the crop is estimated at 48 cents per kilo, which is the current price for the best grades of cacao in the world's markets. The yield per tree is given as 2 catties, or 1.25 kilos, a fair and conservative estimate for a good tree, with little or no cultivation. The prices for

¹ While this estimate may be assumed to be accurate in regard to the cost of cacao in previous years, the many economic changes and the rise in wages since the American occupation will probably necessitate some revision of these figures.—*Director.*

unskilled labor are 25 per cent in advance of the farm hand in the Visayan Islands. No provision is made for management or supervision, as the owner will, it is assumed, act as manager.

Charges to capital account are given for the second, third, and fourth year, but no current expenses are given, for other crops are to defray operating expenses until the cacao trees begin to bear. No estimate of residence is given. All accounts are in United States currency.

Estimate of expenses and income of a cacao farm of 16 hectares.

Expendable the first year.

Capital account:

Clearing of average brush and timber land, at \$15 per hectare.	\$340.00	
Four carabao, plows, harrows, cultivators, carts, etc.....	550.00	
Breaking and preparing land, at \$5 per hectare.....	80.00	
Opening main drainage canals, at \$6 per hectare.....	96.00	
Tool house and storeroom.....	200.00	
Purchase and planting 10,000 abacá stools, at 2 cents each...	200.00	
Seed purchase, rearing and planting 12,000 cacao trees, at 3 cents each.....	360.00	
Contingent and incidental.....	174.00	
		\$2,000.00
<i>Second year.</i>		
Interest on investment.....	200.00	
Depreciation on tools, buildings, and animals (20 per cent of cost)	150.00	
		350.00
<i>Third year.</i>		
Interest on investment.....	200.00	
Depreciation as above.....	150.00	
		350.00
<i>Fourth year.</i>		
Interest on investment.....	200.00	
Depreciation as above.....	150.00	
Building of drying house and sweat boxes, capacity 20,000 kilos	450.00	
		800.00
Total capital investment		3,500.00

Fifth year.

Income account:

From 11,680 cacao trees, 300 grams cacao each, equals 3,500 kilos, at 48 cents.....	\$1,680.00
---	------------

Expense account:

Fixed interest and depreciation charges on investment of \$3,500	\$350.00
Taxes, 1½ per cent on a one-third valuation basis of \$250 per hectare	60.00
Cultivating, pruning, etc., at \$5.50 per hectare.....	88.00
Fertilizing, at \$6 per hectare	96.00
Harvesting, curing, packing 3,500 kilos cacao, at 10 cents per kilo	350.00
Contingent	86.00
	1,030.00
Credit balance	650.00

Sixth year.

Income account:

From 11,680 cacao trees, at 500 grams cacao each, equals 5,840 kilos,
at 48 cents \$2, 803. 20

Expense account:

Fixed interest and depreciation charges as above \$350. 00
Taxes as above 60. 00
Cultivating, etc., as above 88. 00
Fertilizing, at \$8 per hectare 128. 00
Harvesting, etc., 5,840 kilos cacao, at 10 cents per kilo 584. 00
Contingent 93. 20
1, 303. 20
Credit balance 1, 500. 00

Seventh year.

Income account:

From 11,680 cacao trees, at 750 grams cacao each, equals 8,760 kilos,
at 48 cents \$4, 204. 80

Expense account:

Fixed interest charges as above \$350. 00
Taxes as above 60. 00
Cultivating, etc., as above 88. 00
Fertilizing, at \$10 per hectare 160. 00
Harvest, etc., of 8,760 kilos of cacao, at 10 cents per kilo 876. 00
Contingent 170. 80
1, 704. 80
Credit balance 2, 500. 00

Eighth year.

Income account:

From 11,680 cacao trees, at 1 kilo cacao each, equals 11,680 kilos, at
48 cents \$5, 606. 40

Expense account:

Fixed interest charges as above \$350. 00
Taxes as above 60. 00
Cultivating, etc., as above 88. 00
Fertilizing, at \$12.50 per hectare 200. 00
Harvest, etc., 11,680 kilos of cacao, at 10 cents per kilo 1, 168. 00
Contingent 240. 40
2, 106. 40
Credit balance 3, 500. 00

Ninth year.

Income account:

From 11,680 cacao trees, at 2 catties, or 1.25 kilos cacao each, equals
14,600 kilos, at 48 cents \$7, 008. 00

Expense account:

Fixed interest charges as above \$350. 00
Taxes at $1\frac{1}{2}$ per cent on a one-third valuation of \$500 per
hectare 120. 00
Cultivation and pruning as above 88. 00
Fertilizing, at \$15 per hectare 240. 00
Harvesting, etc., of 14,600 kilos of cacao, at 10 cents per kilo. 1, 460. 00
Contingent 250. 00
2, 508. 00
Credit balance 4, 500. 00

In the tenth year there should be no increase in taxes or fertilizers, and a slight increase in yield, sufficient to bring the net profits of the estate to the approximate amount of \$5,000. This would amount to a dividend of rather more than \$312 per hectare, or its equivalent of about \$126 per acre.

These tables further show original capitalization cost of nearly \$90 per acre, and from the ninth year annual operating expenses of rather more than \$60 per acre.

It should be stated, however, that the operating expenses are based upon a systematic and scientific management of the estate, while the returns or income are based upon revenue from trees that are at the disadvantage of being without culture of any kind; and, while I am of the opinion that neither the original cost per acre of the plantation, nor its current operating expenses may be reduced much below the figures given, I feel that there is a reasonable certainty that the crop product may be materially increased beyond the limit of 2 catties.

In Camerouns, West Africa, Doctor Preuss, a close and well-trained observer, gives the mean annual yield of trees of full bearing age at 4.4 pounds. Mr. Rousselot places the yield on the French Kongo at the same figure. In the Caroline Islands it reaches 5 pounds, and in Surinam, according to M. Nichols, the average at maturity is 6½ pounds. In Mindanao, I have been told, but do not vouch for the report, that more than 10 catties have been taken in one year from a single tree; and, as there are well-authenticated instances on record of single trees having yielded as much as 30 pounds, I am not prepared to altogether discredit the Mindanao story.

The difference, however, between good returns and enormous profits arising from cacao growing in the Philippines will be determined by the amount of knowledge, experience, and energy that the planter is capable of bringing to bear upon the culture in question.

PRODUCTION OF CACAO.

By Hon. PABLO TECSON OCAMPO, Governor of Bulacán.

The cacao or chocolate tree is not a native of the Philippines, having been brought here from New Spain, but is one of the many trees which have become acclimated and flourishing.

This tree abounds in the southern islands, especially Mindanao, yielding excellent fruit of a fragrant, buttery, and substantial character. As the yield is not even sufficient for home consumption, there are no exportations, the planters not engaging extensively in its cultivation.

Besides being a food, cacao possesses medicinal virtues of a high quality, and is used for the relief of many diseases.

The cultivation of cacao is a delicate matter, and requires much and special care. The method of cultivation with which I am acquainted is as follows: The seeds are selected from the fruit growing on the main trunk of the tree, which, in the opinion and experience of persons skilled in its cultivation, yields an abundance of large and excellent fruit.

The fruit should be almost ripe, and is prepared for planting in the following manner: The beans are wrapped in pieces of cloth soaked in water, and as soon as they sprout they are placed in bamboo tubes, about seven inches in length, filled with earth, and when they have developed sufficiently, are transplanted into holes, about fifteen inches in diameter, and dug at intervals of 8 feet. Just before planting, the holes are filled with straw, which is burnt, thus exterminating all insects which kill the cacao beans, and which acts as a fertilizer.

Another method of cultivation is to work the ground into furrows, in which the cacao beans are placed at intervals of a foot and a half. These are covered with rice straw and kept damp until they sprout. When they have developed sufficiently they are transplanted. This method is without doubt an easy one, but is open to objection because the roots suffer when the transplanting is done, and complete success is not obtained, thus retarding the development of the plant and causing the trees to wither. The opposite is the case with the first method mentioned, because the seed does not suffer at all when transplanted, as in placing it in the holes the bamboo tubes are simply broken and the seed is intact when transplanted.

A clayey, loamy soil is best suited for cacao. It requires also the shade of trees, the most suitable for the purpose being the *malaiba* and banana. Under these conditions the fertilization and prompt development of the plants are assured.

Cacao properly cared for and planted under the conditions above mentioned will surely yield, after four or five years from the date of planting, excellent and abundant crops. Some of the trees reach a height of 12 feet and are so luxuriant in foliage that they delight the sight. They produce as much as 2 or 3 gantas of fruit annually, from which the value of a tree may be estimated.

The life of a cacao tree, carefully tended, is from twenty to twenty-five years. A popular superstition is that the cacao tree follows the life of its grower. This belief is so widespread that some persons, on the death of the grower who cultivated and tended the cacao tree or grove, hang on the branches thereof a piece of black cloth as a sign of mourning, believing that by so doing the trees will not die as did the person who attended them.

MISCELLANEOUS PRODUCTS.

In addition to the soil products of which special descriptions have been given, certain food and other plants, some of which have been hereinbefore mentioned, are quite extensively grown for domestic use and in a few instances to a slight extent for export, the principal ones of which are briefly described, as follows:

Maiz, or Indian corn (*Zea mays*, L.), brought to the islands from America by Spaniards, is cultivated quite generally throughout the archipelago, and in a few districts is the staple food instead of rice. As in the United States, it is used principally as a food for live stock, the leaves and stalk being utilized for this purpose as well as the grain. When planted in good land it gives two, sometimes three, crops per year, each crop yielding about two-hundredfold. In the Visayan Islands the grain is used to some extent in the making of an alcoholic beverage called *pangasi*.

Zacate, which includes grasses of various kinds suitable for forage for live stock, especially horses, is carefully grown, particularly near Manila and other centers of population, and yields good returns to the farmers, who gather several crops per year from each field. The species grown about Manila is *Leersia hexandra*. The grass is not cured but is packed in small bundles as soon as cut, and sold to consumers for immediate use in its green state.

Teosinte (*Euchlaena luxurians*),¹ recently introduced into the islands, is a highly valuable annual grass, with very numerous stems from 6 to 12 feet tall, of which as many as sixty or seventy sometimes grow from a single seed. The stalk, leaves, and spindle resemble Indian corn.

The following description of this valuable forage grass, its cultivation, and the results of experiments in its culture, is furnished by Prof. F. Lamson-Scribner, Chief of the Insular Bureau of Agriculture:

This is the plant of which Prof. Asa Gray said, "Possibly affording an opportunity for one to make millions of blades of grass grow where none of any account grew before." At the experiment stations of Louisiana, Mississippi, Georgia, and Florida it has given the heaviest yields of any of the forage crops grown, Georgia reporting 38,000 pounds of green forage per acre, Mississippi 44,000, and Louisiana the enormous amount of over 50 tons. It needs a long season of hot weather, a rich soil, and abundant moisture in order to succeed well, and it is useless to plant it where all these conditions can not be had. It is a remarkably vigorous grower, reaching 10 to 12 feet in height, with an unusually abundant supply of leaves and tender stems. The seed should be planted in hills 4 feet distant each way, at the rate of 2 pounds per acre.

Experiments made by the Insular Bureau of Agriculture have demonstrated the adaptability of this grass to the Philippines, as indicated by the following account:

¹See illustration No. 6 on plate facing page 40.

From the table given below it will be seen that five cuttings were made from the plot in eight months, which is equivalent to nearly eight cuttings a year. The total yield of the five cuttings is $49\frac{1}{2}$ tons green and $10\frac{1}{2}$ tons dry fodder per acre, or at the rate of 80 tons green and $16\frac{1}{2}$ tons cured fodder per acre for the year. It is only fair to add here that the above figures are very low estimates. The second and third crops were damaged fully 50 per cent by locusts, and the four crops were obtained during the dry season, which was of unusual severity. This experiment shows that on well-fertilized land with frequent irrigation ten crops can be grown in one year, with a yield of 135 tons green and 30 tons dry fodder per acre.

The following is a record of the yield and dates of cutting:

DATE OF CUTTING.	Height (feet).	YIELD PER ACRE.	
		Green (tons).	Dry (tons).
March 21	5	12	2
April 20	$2\frac{1}{2}$	5	$1\frac{1}{2}$
May 18	2	4	1
June 29	5	$12\frac{1}{2}$	$2\frac{1}{2}$
August 10	6	16	4
Total		$49\frac{1}{2}$	$10\frac{1}{2}$

The high price of teosinte seed and the great demand for it in the islands suggests the advisability of growing a small area for seed purposes. The plot produced at the rate of 800 pounds of thoroughly cleaned seed per acre. At 60 cents gold per pound (the wholesale price of seed in the United States) the value of the crop from 1 acre is \$480. Three crops of seed can easily be grown on the same ground in one year, which would mean a return of \$1,440 per acre.

Two acres of teosinte were planted June 6. Owing to the dry weather prevailing at that time the seed did not germinate until June 20. Previous to planting, the land was fertilized with 40 cords of stable manure to the acre, which was plowed under. Only two cultivations were given, the first on June 29 and the second on July 7, at which time the teosinte was large enough to completely shade the ground. On August 10, one-tenth of an acre was cut, and yielded 3,440 pounds of green fodder, or at the rate of a little over 17 tons to the acre. At the time this plot was cut the average height of the teosinte on the 2 acres was 6 feet. Five days later, August 15, another tenth acre was cut, yielding 5,395 pounds, or at the rate of nearly $26\frac{1}{2}$ tons to the acre. This tenth of an acre was cut near the center of the field and may be taken as a fair average for the 2 acres. On August 19 the teosinte averaged 8 feet in height. The crop is being sold as fast as cut at \$10 gold per ton. This gives a return of \$265 gold per acre for each cutting. Allowing eight cuttings per year, which have been obtained here on a smaller area, the gross receipts, at this rate, from 1 acre would be \$2,120 gold per year.

Cogon (Imperata koenigii) is a species of grass of general natural growth, the young shoots of which afford excellent food for cattle. The grass is used in some localities as a substitute for nipa, where the latter does not grow, in thatching roofs. The name "cogon" is applied to many coarse, rank-growing grasses.

Sorghum (Sorghum vulgare), locally known as *batad*, is cultivated to some extent as a forage plant, and a considerable number of other varieties of useful gramineous forage plants grow in the mountain pastures and elsewhere in the islands.

Bamboo (*Bambusa*), several species of which grow luxuriantly throughout the archipelago. They are used for many purposes, principally in the construction of native houses, the frameworks of which are, as a rule, made almost wholly of these giant grasses. The bamboo poles used in house building are tied together and held in position by rattan (*bejuco*) and are thatched with cogon or nipa. The floors of the houses are usually of bamboo, and the posts, doors, window shutters, etc., are of the same material. These native houses are quickly and inexpensively erected by the natives, who are expert in their construction. Bamboo is also used for many other purposes, such as the making of boats, rafts, bridges, aqueducts, scaffolding, furniture, baskets, utensils of various kinds, fishing apparatus, weapons, rope, etc., while from finely separated filaments of bamboo, hats, cigar cases, and other articles are woven. The most useful variety of bamboo is that known as *Cauyang totoó*, which sometimes attains a diameter of over 20 centimeters and a height of more than 12 meters.

Nipa or *sasá* (*Nipa fruticans*) is a species of palm, having the appearance of a large fern, which grows only in marshy or muddy localities. It is indigenous to the coast, but is largely cultivated in places where there are marsh lands and is a highly useful plant.

It grows to a height of about 4 meters, and from its short stem arise large clusters of long compound leaves, which are used wherever procurable for thatching the roofs of dwelling houses. Sometimes churches and other public buildings are thatched with this material, and it is frequently used in the walls and partitions of the native houses.

From the sap or *tuba* extracted from the palm a liquor known as nipa wine, *vino*, or *bino*, is extensively distilled, which is used to a great extent by the people as a beverage. Large groves of nipa are grown in many localities for the sole object of producing tuba for purposes of distillation.

The nipa groves are started by planting the ripe fruits of the palm, usually between May and August, in holes placed about 1.7 meters apart; the frequent rains occurring at this season of the year usually keep the ground sufficiently wet to cause the seed to germinate and start a healthy, vigorous growth. Five or six years' growth is required before a nipa grove becomes serviceable.

The fruit of the plant grows in close lying clusters at the end of a thick peduncle arising from the base of the palm; an incision is made in the peduncle immediately below the fruit and the sap flowing therefrom is collected in bamboo tubes hung to the plant, into which it drips. The incision is renewed and the sap collected daily for about ten months, the average production per plant being about 46 liters each season. The sap is emptied from the bamboo tubes into larger receptacles, in which it is carried to the distilleries. It is customary

for the owners of large groves to give their workmen one-half the tuba they collect as remuneration for their labor. Fermented tuba makes a fairly good and largely used vinegar.

Cotton (*Gossypium herbaceum*, L.), of long staple variety, was formerly grown rather extensively in Ilocos Norte and a few adjacent provinces, but its cultivation was discouraged by the Government in order to encourage the growing of tobacco. The industry still exists, however, on a greatly reduced scale, and will probably hereafter increase.

A species of tree cotton (*Ceiba pentandra*) is found growing in a wild state in many of the islands; the cotton is useless for spinning purposes, the staple being very short, but it is used for making cushions and other articles.

The *pineapple* (*Ananas sativus*, L.), of American origin, is cultivated in the Philippines, particularly in some of the Visayan Islands, more for the sake of the fiber found in its leaves than for its fruit, the latter not being very highly prized.

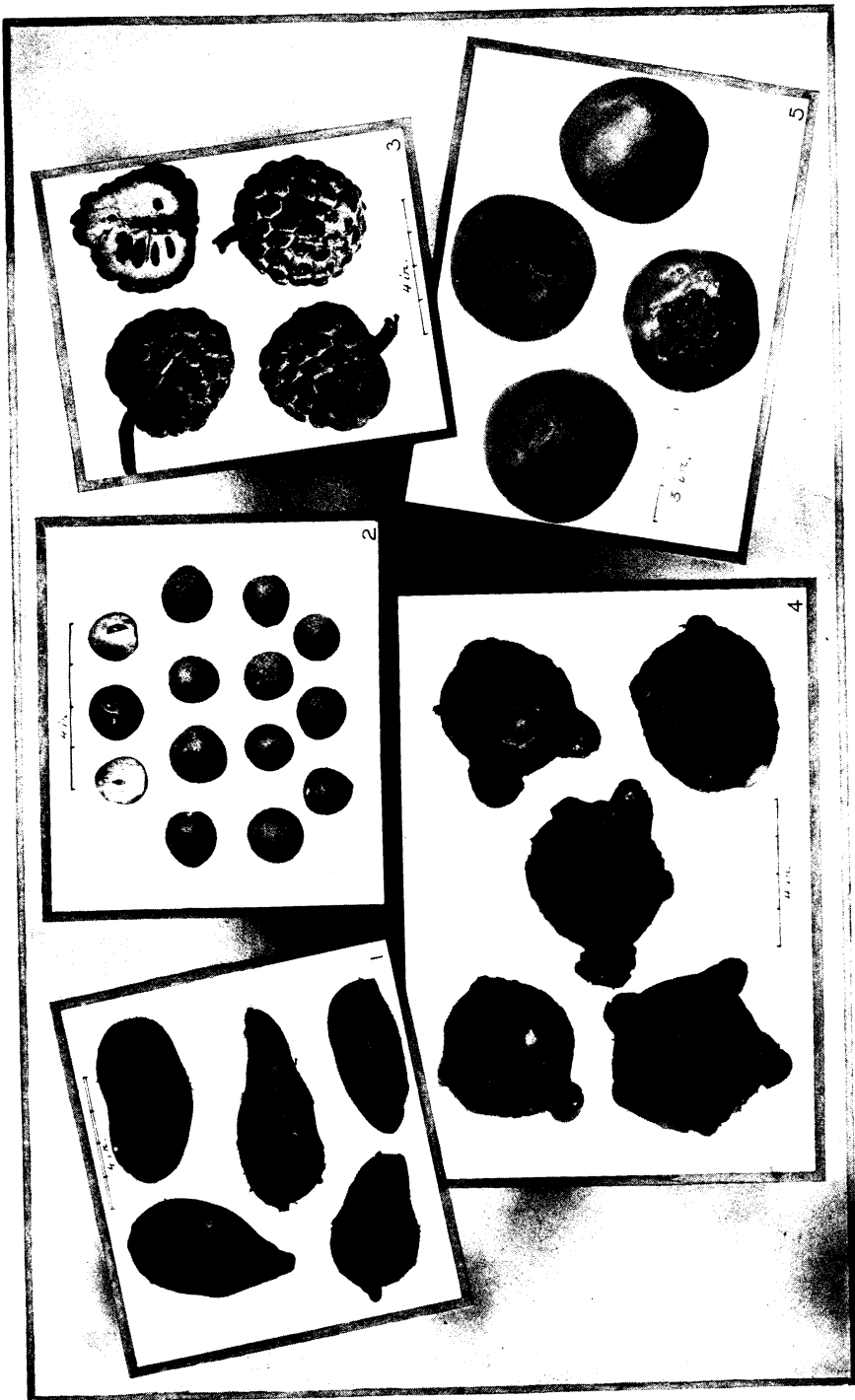
In order to obtain the greatest possible quantity of fiber, the young fruit of the plant is cut away, so that the leaves may grow longer and broader than they would otherwise; when the leaves are well developed they are torn from the plant and scraped with a fragment of glass, or a sharp instrument, so as to remove the pulp from the fiber, which, when thus extracted, is washed, sun dried, and combed. The fiber is classified according to fineness, and is woven into fabrics of exquisite beauty, very rough and primitive hand looms being used for the purpose.

Agave (*Agave vivipara*, L.), or maguey, is another plant of American origin that is cultivated on a small scale in some parts of the Philippines, from the fiber of which a cloth called *nipis* is woven. The fiber itself has been exported in bulk to Europe, China, and Japan for many years.

Rattan (*Calamus*, Sp.), locally known as *bejuco*, is found throughout the islands in many varieties. It is a climbing plant, which sometimes attains a length of 200 meters, and is of great use to the natives, who employ it in binding the frameworks of their houses together. It is also used as rigging in small boats, in the construction of rafts, and for almost any purpose for which rope might be used. In some of the provinces hats and bagging, as well as chairs and other articles of furniture, are made of rattan.

Pandan (*Pandanus spiralis*, Bl.), *Burí* (*Corypha umbraculifera*), and *Nito* (*Lygodium scandens*) are plants which furnish material largely used in the making of hats, sacks, and mats in different parts of the islands.

The burí palm is second only to the coco palm in the variety and usefulness of its products. The tree is not planted, but grows luxu-



1. CAMOTE. 2. CHICO. 3. SUGAR APPLE. 4. GABE. 5. SAPOTE.

riantly in many sections, birds being the sowers. It bears abundant crops of edible fruit which is consumed by the natives, both raw and preserved in sugar. From the flowering bud tuba, a highly prized beverage is extracted daily for a period of three or four months, more or less, after which the palm dies. From the tuba, vinegar is made; when fermented and mixed with the bark of the bacauan, it becomes a beverage called *basi*, which is very much relished by the people living on the island of Marinduque. When it is distilled an alcoholic liquor similar to that produced by distilling tuba extracted from the coco palm is obtained. When permitted to evaporate, a very fine sirup and sugar is formed. The young, tender leaves are used for making cloths. From the petioles of the leaves *buntal* is obtained, from which hats are made. The leaves are also used for making mats, sacks, and heavy wrapping material, and when boiled in water and bleached in the sun, are used in making a very fine quality of hats. From the trunk of the tree a starch food is extracted, as described on page 123. The variety and usefulness of its products render the burí palm one of the most valuable plants in the Philippines.

The hundreds of other fiber plants produced in the islands are not used sufficiently to justify their special mention; nevertheless many of them are very useful, and would undoubtedly prove of great value were they systematically produced and utilized.

The *camote* (*Ipomæa batatas*, Lk.), a tuber, is, aside from rice, the most widely grown and important food plant in the islands. It is a species of sweet potato, believed to have been brought from America. Leguminous plants are not as a rule extensively grown, though the *mongo* (*Phaseolus mungo*, Bl.) is cultivated on a considerable scale in some localities where it forms the principal food of the people. It is similar to, but smaller than the lentil, and has the same flavor. The *butingui* (*Phaseolus vulgaris*, L.) or kidney bean, the *zabache* (*Phaseolus lunatus*, L.), the *sitao* (*Dolichos sesquipedalis*), the *frijol* (*Phaseolus lunatus* variety), and the *patani* (*Phaseolus lunatus* variety), and various other kinds of legumes are cultivated to a small extent and furnish vegetables and edible seed more or less highly esteemed.

The *gabe* (*Colocasia antiquorum* variety) is a plant the root of which is highly prized and extensively cultivated, especially in mountain districts; both the large roots and the leaves afford excellent food. The *baidang*, grown principally in the Visayan Islands, is used in the same way as the gabe. Various other plants yielding edible roots are cultivated or grow spontaneously, among which are the *ube* (*Dioscorea alata*), *tuque*, or *tugue* (*D. sativa*, L.), the *paquit* (*D. divaricata*, L.), the *namiconot* (*D. pentaphylla*, L.), and the *tongo* (*D. papillaris*, L.), all of which have large roots. The tuque and ube are the most highly prized. Ordinary garden vegetables are cultivated in the Philippines to a very

limited extent. There are gardens near Manila and other centers of population, managed principally by Chinese, but the natives scarcely ever engage in their culture. That nearly all vegetables grown in the United States can be produced in the islands has been demonstrated, and their production will undoubtedly increase as time passes and the wealth and population increase.

Among those cultivated are Irish potatoes, onions, garlic, asparagus, radishes, cabbages, artichokes, endives, peppers, tomatoes, carrots, celery, parsley, squashes, and melons of different kinds, cucumbers, and a few native vegetables that are prized on account of their flavors and food values.

Of oil producing plants there are several kinds, in addition to the coco palm of which an account has already been given. Among these may be mentioned the *sesama* or *ajonjoli* (*Sesamum orientale*, L.), which yields *benne seed*, from which an oil is obtained somewhat similar to olive oil, which it is frequently used to adulterate. It can also be used in making soap, and the residue left after the oil is extracted is an excellent food for cattle. This plant is not as extensively cultivated as its merits justify.

The *lumbang* (*Aleurites moluccana*, Blume) plant is cultivated on a small scale, and its seeds yield an oil useful as an illuminant, for painting, for caulking ships, and other purposes. After the oil has been extracted from the seeds the refuse is generally used as a fertilizer. The oil is exported in small quantities to China.

The castor oil plant (*Ricinus communis*, L.) is grown for its seeds, which produce an oil useful for medicinal and lighting purposes. A reddish illuminating oil is also extracted from a tree known in north-western Luzón as *tavatava* (*Jatropha curcas*, L.), to the Tagálogs as *tuba*, and in Iloílo as *casta*.

The peanut (*Arachis hypogaea*, L.), locally known as the *mani* or *cacachuete*, is an oil producer of great value, but is cultivated in the Philippines on a small scale only, and is principally used as forage for cattle.

The dye plants most extensively produced and utilized in the islands in addition to indigo are the *sibucáo* or *sapang* (*Caesalpinia suppan*, L.), from the wood of which a red coloring matter similar to logwood is secured; the safflower *alazor* or *catsumba* (*Carthamnus tinctorius*, L.), known locally as *biri*, from the flower of which yellow and red dyes are obtained; the *agusip* (*Malastoma imbricatum*, Wall.) and the *bancudo* or *bancoro* (*Morinda bracteata*, Roxb.), a bright red coloring matter being derived from the bark of the first named and the root of the latter; the *bacauan* (*Rhizophora mucronata*, Lam.), the bark of which yields a reddish dyestuff; the *balanti* (*Homalanthus fastuosus*, F. Vill.) and the *cunalon* (*Diospyros cunalon*, A. D. C.), whose bark furnishes a black

dyestuff; and the *salicsican* (*Morinda umbellata*, L.), from whose roots a red coloring matter is extracted.

Among starch producing plants are the *cassava* or *yuccu* (*Manihot utilissima*, Pohl.), called in the Philippines *camóteng cáhoy*; the arrow-root or *Maranta*, locally known as *tagbac-tagbac*; and several varieties of palms, the most important of which is the *Buri* (*Corypha umbraculifera*), which is famed throughout the archipelago. The island of Burias acquired its name from this growth, which is very abundant there. The starch from this tree, commercially known as sago, is obtained by cutting down the tree at the root and taking out the soft interior portion of the trunk which is placed in casks or troughs and the bitter sap drained off. It is then subjected to a pounding with paddles or mallets which separates the starch into fine grains. The starch is gathered and dried and converted into flour. It is a palatable, nutritious food; and in Burias, Bohol, Masbate, and other sections where it is produced in abundance, largely takes the place of rice as a food stuff. The natives extract the juice from this plant by making an incision in the fruit, from which a beverage is made. Other varieties of starch producing palms are the *bagsang* (*Caryota rumphiana*, Mart.), which is quite common in the Visayan Islands; the *lumbia* or *lumbay* (*Metroxylon silvestre*, Mart.), the *cáung* (*Arenga saccharifera*, Labill.), and the *pagahan* or *baugan* (*Caryota ureus*, L.), from each of which the starch is obtained from the heart of the tree trunk.

The nutmeg (*Myristica fragrans*, Houtt.) grows naturally in Cebú and the province of La Laguna, and can be made to grow by cultivation in most sections of the islands. Cinnamon of superior quality is found growing spontaneously in widely separated sections of the island of Mindanao, and on some of the other southern islands; black pepper (*Piper nigrum*, L.) is also found, and is cultivated to a slight extent.

The *ikmo* or *betel* (*Piper betel*, L.) is a climbing plant, cultivated with much care in every province. The leaves are used in preparing the chewing mixture called *buyo*, as follows: A leaf is coated with lime, or a small piece of lime is placed in it. It is then folded, and wrapped around a slice of the nut of the *arica palm*, known as the *betel nut*, which is also extensively grown. The leaf of the *buyo de anís* is also sometimes used in connection with that of the *ikmo* in preparing *buyo*.

The natives are in the habit of chewing the *buyo*, which they claim is healthful and beneficial, though this is a matter of doubt. After having become addicted to the habit of *buyo* chewing, it is said to be as difficult to cease using it as it is for those accustomed to using opium or tobacco to abandon their use. The *buyo* chewing habit is general in the Philippines, with both males and females.

No attempt will be made in this report to enumerate the large number of medicinal plants found in the islands. Many of them thought

to be of value are of doubtful utility, while others of possibly great value have not been fully identified and classified, so that any list of such plants that might be given would not only be faulty, but possibly misleading. It may be said, however, that the botany of the islands is extremely rich in an enormous variety of plants possessing beneficial properties, among which it is believed remedies may be found adapted to many kinds of human ailments.

Fruits, both wild and cultivated, abound in great variety in the Philippines, some of them being of superior quality, although, as a rule, their flavors are not equal to those of American fruits. Under proper horticultural methods, with the favorable soil and climatic conditions prevailing in the islands, their quality will improve, and those that are now deemed somewhat inferior will equal or surpass similar fruits grown anywhere in the world. Certain fruits have been recently introduced from the United States, such as grapes, blackberries, figs, and strawberries, and have grown and developed perfectly in the province of Benguet.

A descriptive list of the best known and most generally used Philippine fruits is given in *El Archipiélago Filipino*, published by the United States Government in 1900, upon which the following description, given in the Pronouncing Gazetteer and Geographical Dictionary of the Philippine Islands (published by the Bureau of Insular Affairs, United States War Department, in 1902) is based:

ANONA (*Anona reticulata* L.). An exotic from Mexico, its meat being white and soft, and containing, like the ates, small, black pits; is sweet and fragrant, and has an exterior appearance resembling the common custard apple or bullock's heart.

ATES (*Anona squamosa* L.). Juicy, aromatic, very sweet, very soft, and somewhat peppery; a table delicacy.

BALIMBING (*Averrhoa carambola* L.). Has the flavor of a quince, and is used by the natives as food with dry fish or meat.

BANANA. The commonest and cheapest fruit in the Philippines, there being a large number of species, varying greatly in form and taste. It is called *platanó* by the Spaniards, and *saguín* by the Tagálogs. The trunk of the banana tree is not solid, but soft and full of minute little tubes or aqueducts, which serve to conduct the sap which sustains and matures the plant within the short space of one year. Shortly after the fruit ripens the plant begins to decline and the leaves dry up and fall. The fruit grows in bunches of various shapes, according to the species. Important varieties: *Lakatán*, very similar to the ordinary American banana; *latundán*, less yellow and sourer than the preceding, being noted for its digestive qualities; the *sabá*, which makes a most delicious fritter; the *hanípa*, sweeter than the *sabá*, and cultivated principally in Sámar and Leyte; the *tambonan*, a very common and healthful species; the *camada*, very large; the *tundoc*, also large, the skin of which is of a violet color; the *binalátong*, larger, more delicate, and more fragrant; the *torlangdato*, called in Spanish "the lady finger;" the *pilbitin*, a small, sweet, and rich variety; the *tarip*, the *buní-aran*, the *putían*, the *dariao*, the *mungcó*, the *talood*, the *tinumbaga*, the *dariyas*, the *buníulan*, the *gloria*, and others. P. Delgado enumerates and describes 57 varieties.

- CAMIÁS** (*Averrhoa bilimbi* L.). When green, has an agreeable sour taste, but when ripe is sweet and fragrant; is often pickled or candied, and its juice removes the stain of iron rust and other spots from linen.
- CANTALOUPE**S. Of excellent varieties, especially in the provinces near Manila.
- CHICO**. Two varieties; the *chico sapote* or *sapote* (*Achras sapota* L.) and the *chico mamey* or *chico* (*Lucuma mammosa* Gaert). The *sapote* is an evergreen tree, with thick shining leaves and milky juice; a native of tropical America. Its fruit is about the size of an orange, green on the outside and black on the inside, sweet, and makes excellent preserves. The *chico* is smaller, the skin and pulp of deep brown, with brilliant black seeds imbedded in it. It contains a pleasant flavored pulp resembling quince marmalade in appearance and taste.
- CITRON**. Fruit very large; is found in abundance.
- DUEAT** (Lomboy) (*Eugenia jambolana* L.). A tree of hard and durable wood; produces a wild edible fruit, dark purple to black in color, about the size of an olive. Its astringent bark is used in dyeing, tanning, and in medicine.
- GUANÁBANO** (*Anona muricata* L.). Pear shaped, being similar in exterior appearance to the pineapple, containing an agreeable slightly acid pulp; used for preserves.
- GUAYABA** (*Psidium guayaba* L.). A Tagalog *bayabas*; when ripe is of yellowish color, and very aromatic, as are the leaves. The pulp is acid, and has different color, according to the varieties, white, yellow, and pink. The interior is filled with little hard seeds or pits, which are embedded in the meat. It is a carminative and an excellent jelly and marmalade. Natives use this fruit as food.
- LANGCÁ** or **NANGCA** (*Artocarpus integrifolia* Willd). Is perhaps the largest found in the world, some as large as a good-sized water jar. The ripening fruit is recognized by its aromatic and penetrating odor. The fruit cut shows a large amount of yellowish or whitish meat, of which preserves and sweetmeats are made, resembling the date, with an odor like musk. The seeds when boiled or baked resemble the chestnut. The wood of the tree is yellow, solid, durable, and very serviceable for working.
- LANZONE** (*Lansium domesticum*) Jack or Boboa. Is beautiful in appearance and gives a cool shade. The leaves are of a beautiful clear green. The fruit is a yellow berry, the skin being bitter, thin, and fine. Within it are contained fine divisions, as in the lemon, but the flesh is crystalline white, almost transparent, sweetish sour, quite delicate, and very refreshing. This fruit is healthful for those who suffer from heat. The best kind of lanzones grows in La Laguna, Luzón.
- LEMONS**. Seven varieties of this fruit, some of superior quality.
- MABOLO** (*Diospyros discolor* Willd.). Is about the size of a quince and contains a large seed. The skin is reddish and velvety. The flesh is white and sweet, but somewhat indigestible, and has a rather strong odor.
- MACUPA** (*Eugenia malaccensis* L.). About the size of a sweet pepper and of somewhat the same shape, rather larger and quite red in color; more lustrous; bittersweet in taste, somewhat agreeable, but has no solid flesh which can be eaten.
- MAMPÓN** or **PAJO** (*Mangifera altissima* Blanco). Very similar to the *manga*, frequently preserved in brine in the form of pickles; also made into sweetmeats and preserves. There are other small varieties about the size of an olive, which are used in making pickles and preserves.
- MANGA** (*Mangifera indica* L.). One of the most exquisite fruits in the world, and the queen of the Philippines. The largest is from 6 to 7 inches in length; flattened. The skin is yellow and rather fine; the interior a fleshy, fibrous drupe, but sweet and delicate. The pit in the center is almost as long as the fruit itself, but very thin. The leaves are long, wide, and dark green, and an infusion of them somewhat resembles tea. The *manga* is used as a food, not only when ripe (April), but when green. It is used also for preserves, jelly, and marmalade. The natives make the boiled *manga* into a kind of relish of sweet-acid flavor, as palatable as the Indian chutney. The best mangas come from Imus, Cavite, Luzón.

MANGOSTEEN (*Garcinia mangostana* L.). An exotic fruit, grows only in Joló and some points of Zamboanga and Cottabato, where it is called the "King's fruit," because it is so highly prized by the Moro sultans. It is dark red or purple, and about the size of a small orange. The edible and juicy parts form small, white divisions; very soft; found in the interior; covered with a double skin, reddish in color, and which must be removed before the fruit is eaten. The rind of the fruit, as well as the bark and wood of the tree, is very astringent, and has been used in medicine.

ORANGES of various indigenous species are found. The principal is the *cajel*. Another the *naranjita*. There are several wild species, one of which is called *amumintay*. They are very large, being 12 or 13 inches in circumference, have a thick skin, are very juicy and bitter.

PAPAYA (papaw) (*Carica papaya* L.). Two sexes. The male produces panioles of small white aromatic flowers; the female yields fruit. The tree resembles a palm, with large broad leaves. The fruit resembles a small squash in appearance, is ordinarily 10 inches long, commonly of an oblong form, ribbed, with a thick, fleshy rind, and sweet. When it ripens the skin changes from green to a reddish or yellowish color, as does the flesh also. It is sometimes eaten raw or made into a sauce, or when green is boiled as a vegetable and pickled, in combination with red peppers, spices, radishes, and onions, forming a nice hors-d'œuvre, with a yellow sweet-acid sauce, called *achora* by natives and Spaniards alike. The seeds are an efficacious vermifuge.

PINEAPPLE (*Ananas sativus* or *Ananasa sativa* Lindley). Has a fine flavor, aromatic and slightly tart, on account of the presence of malic acid. It is of more importance, however, as a textile plant.

RIMA (*Artocarpus incisa* L.). Composed of the numerous small female flowers united into one large fleshy mass about the size of a child's head, and is covered with hexagonal marks externally, which are the limits of the individual flowers. The flesh is a substantial food, and on this account it is called the breadfruit plant. It is either boiled or roasted and then eaten with sugar or sirup. It is also made into preserves.

SANTOL (*Sandoricum indicum* Cav.). Similar to the peach, but larger and the rind thicker. Inside there are several divisions, as in the mangosteen, of a white color and bittersweet taste, each division containing a hard pit with carminative qualities. It is used principally for preserves and pickles, although it is eaten raw when ripe. Bulacán, Luzón, produces the best *santols*.

SAPOTE (*Diospyros ebenaster* Retz) and *Pagápat* (*Diospyros kaiki* L.), are natives of China. Among the large number of wild species of fruits found in the Philippines in general, sour, sweet, and somewhat carminative, may be mentioned the *doctoyan*, the *pananquián*, the *durion*, the *abuli*, *amahit*, *angiap*, *amaga*, *agononan*, *abubunanu*, *alanganisan*, *dae*, *amamampang*, *bonano*, *harobor* or *marobo*, *cabaan*, *carong*, *cagos*, *gayan*, *dalinson*, etc., which are described by P. Delgado.

TAMPOY (*Eugenia jambos*, L.). About the size of a small apple, the flesh being soft, sweet, and having an odor like roses. In color and shape it resembles a *guayaba*.

There is a large number of trees and plants in the Philippines that yield resins, gums, and waxes, none of which can be classified as agricultural, as they are not cultivated, nor is their growth fostered at present in any way other than by forestry regulations governing the cutting of timber. Many of them are susceptible of profitable cultivation, particularly trees yielding gutta-percha, which are found growing wild in many portions of Mindanao, and rubber-yielding trees and

vines which grow in abundance in several of the southern islands, and can be made to grow luxuriantly almost anywhere in the archipelago by cultivation. Considerable business was carried on in former years in the collection and exportation of gutta-percha and rubber, but adulterations made by Chinese traders in these gums have caused the insular products to become discredited, and very little is now exported.

Essences or essential oils for perfumery purposes are obtained by distillation from the blossoms of three trees in the Philippines, the most important of which is the *ilang-ilang* (*Cananga odorata*, Hook). This tree is cultivated to a slight extent, but the wild growth on the mountain sides is principally utilized. It bears a profusion of small, highly fragrant blossoms of a greenish color, from which the greatly prized and valuable oil, bearing the same name as the tree, is extracted. This product is exported to France and other countries, where it brings highly remunerative prices.

The following statement shows the quantities and values of ilang-ilang oil exported from the islands for such years since 1855 as statistics are available:

Quantities and values of ilang-ilang exported from the Philippine Islands: 1855 to 1902.

YEAR.	Quantity (kilos).	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1855.....	1	240	252	(1)
1856.....	2	320	336	(1)
1858.....	3	480	504	0.01
1862.....	2	296	313	(1)
1863.....	83	543	574	0.01
1866.....	30	2,640	2,778	0.01
1867.....	39	3,300	3,444	0.01
1873.....	121	16,823	17,154	0.07
1874.....	386	52,765	53,018	0.30
1875.....	399	30,421	29,697	0.16
1876.....	664	16,040	14,672	0.11
1877.....	246	12,200	11,522	0.07
1878.....	206	10,437	9,460	0.06
1879.....	403	29,767	26,287	0.16
1880.....	492	27,350	24,610	0.12
1881.....	13	735	654	(1)
1882.....	433	25,337	22,608	0.12
1883.....	417	21,989	19,179	0.08
1884.....	764	44,430	38,854	0.20
1885.....	1,703	98,606	82,316	0.40
1886.....	1,437	35,087	27,385	0.14
1887.....	1,181	25,890	19,925	0.10
1888.....	899	22,280	16,452	0.08
1889.....	1,080	25,950	19,068	0.07
1890.....	1,612	32,328	26,580	0.12
1892.....	10,095	85,653	58,655	0.31
1893.....	2,284	86,482	53,022	0.24
1894.....	1,621	90,886	45,334	0.27
1896.....	(2)	.....	.....	(2)
1899.....	(2)	.....	.....	(2)
1900 ³	(4)	.....	21,870	0.10
1901.....	(4)	.....	62,852	0.26
1902.....	5 3,949	.....	34,596	0.30

¹ Less than one-hundredth of 1 per cent.

² Not separately reported.

³ Six months ending December, 1900.

⁴ Quantities not specified.

⁵ Gallons.

The *sampaguita* (*Jasminum sambac* Ait.) yields white, fragrant flowers, from which a rich, agreeable perfume is extracted in limited quantities.

The *champaca* (*Michelia champaca* L.) is a conically shaped tree that grows to a height of about 4 meters. It is not found in the mountains, but is cultivated in gardens, and from its flowers a well-known perfume is extracted.

There are various other growths from which essences or essential oil may be derived, but the three before mentioned are the only ones utilized as far as is known.

ANTIQUATED METHODS AND LACK OF ENTERPRISE.

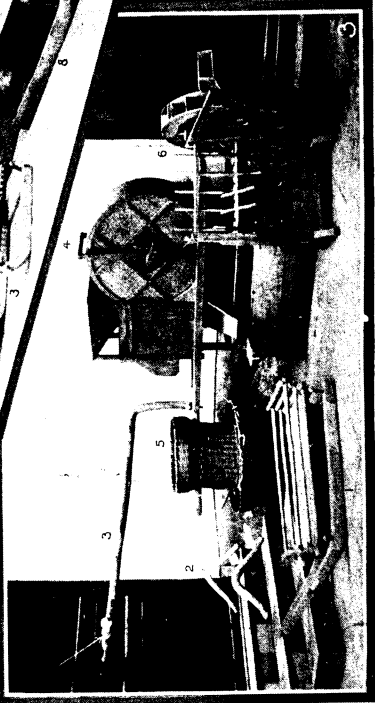
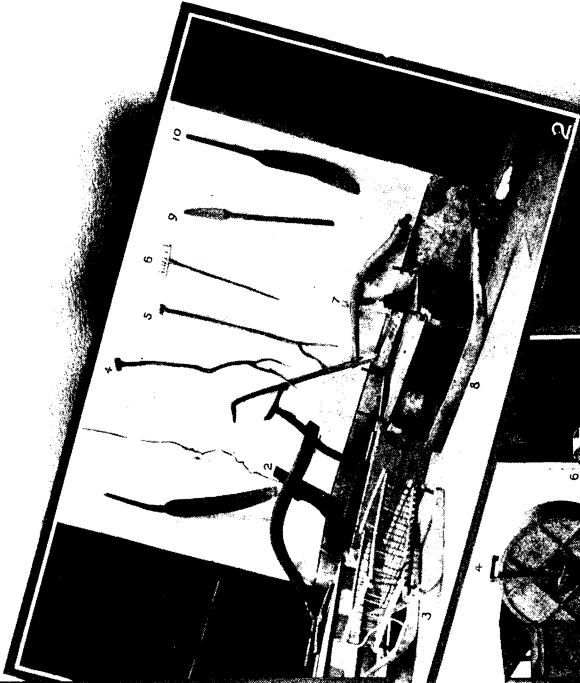
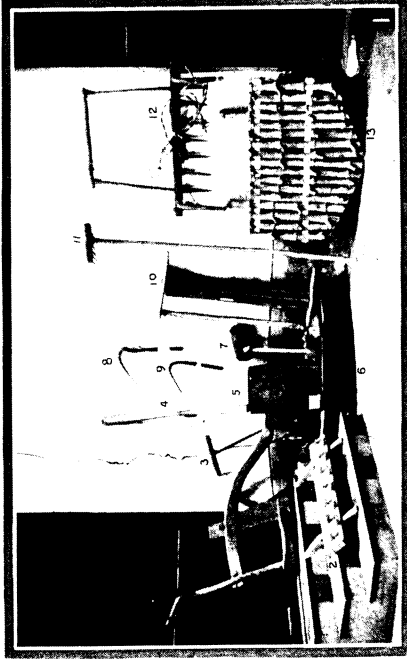
Although agriculture, as has been stated, is the principal occupation in and chief source of wealth of the Philippines, it is conducted along very primitive lines and by antiquated methods that restrict production by failure to thoroughly till the soil, to gather full harvests, or to bring under cultivation the amount of land that, with modern methods and appliances, could be attended to with no greater expenditure of labor than is now used on small areas.

The plowing of land preparatory to the planting of crops is of the most superficial character, the surface of the ground not being disturbed beyond a depth of 2 or 3 inches; plows with a single handle and a small wooden share, sometimes tipped or edged with iron, are drawn by slow moving carabao, and merely scratch the earth. After plowing, the ground is frequently gone over with a rude wooden harrow drawn by the carabao, and such cultivation as is subsequently given a growing crop is very meager. The hoe, spade, and shovel, as used in the cultivation of field and garden crops in the United States, are practically unknown. The implement used almost universally by the Filipinos is the bolo, a short sword, which is used for all sorts of purposes, such as felling trees, cutting down weeds, digging holes, stirring the soil between growing plants, etc.

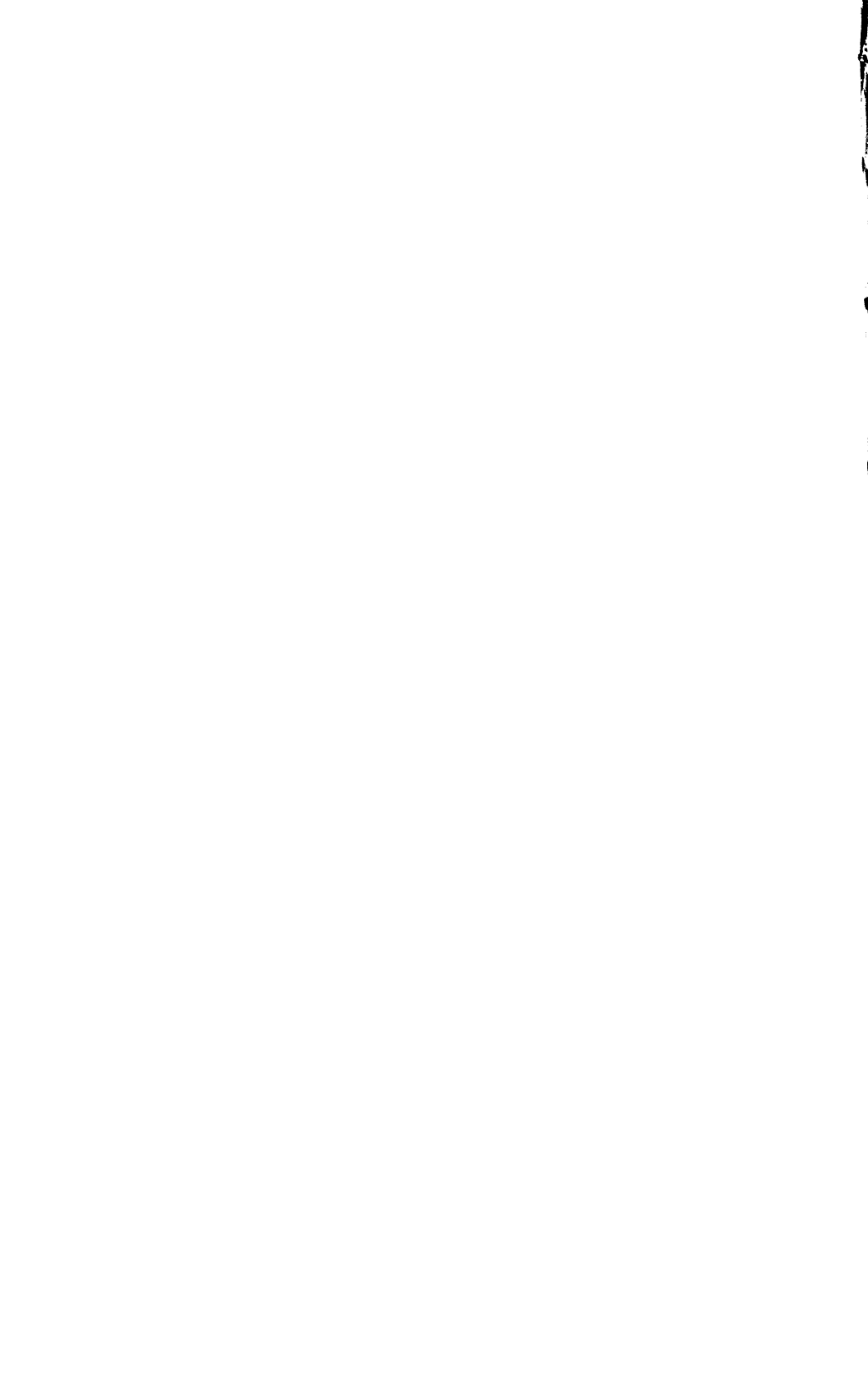
Improved machinery, either for purposes of cultivation, harvesting, or preparation of the product for use, has scarcely any place in the economy of the Filipino farmer, but crude appliances and hand methods are almost universally in vogue.

Attempts that have been made, since American occupation of the islands, to introduce modern agricultural machinery have met with but slight success. Such implements and machines as have been imported and sold by commercial houses have mostly been disposed of to Americans, or to the insular government for the use of the Bureau of Agriculture. The natives have made very few purchases.

A leading commercial house of Manila that, since 1900, has handled about 90 per cent of all modern agricultural machinery brought to the



1.—1. PLOW, 2, 10, 12, 13. HARROWS, 3, 11. BRUSHES, 4, 7. RICE PESTLES, 5, 6. RICE MORTARS, 8, 9. RICE SICKLES, 2, 7. PLOWS, 3, 8. SLEDS, 4, 5. SOIL FORKS, 6. GRAIN PLANTERS, 9. SPADE, 2.—1. SLED, 2. SLED YOKE, 3. HANDLE OF NO. 5, 4. RICE MILL, 5. RICE WINNOWER, 6. RICE GRINDER.



islands, states, in response to an inquiry from the Director of the Philippine Census, that during the three years they have been engaged in the business they have sold about 110 Deere plows of from 6 to 12 inch sizes, 6 heavy railroad plows, 3 middle-breaking plows, 2 breaking plows, 3 gang plows, 2 disk harrows, 5 fifty-tooth "Ajax" harrows, 3 fifteen-tooth vineyard harrows, 5 hand corn shellers, 4 one-hole corn shellers, 2 rice hullers and polishers, 2 rice fans, 2 rice thrashers, 2 hand-power grain mills, 3 hay mowers, 3 steel hayrakes, 4 garden seeders, 4 garden cultivators, 25 hand-power feed cutters, and about 100 each of Giant 5-tooth and Plannt, jr., cultivators.

The stock carried by the company referred to consists not only of the articles of which sales have been made as above specified, but of many other implements commonly used on farms in the United States. The manager of the company makes the following statement, under date of August 14, 1903:

At this writing we can see no encouragement whatever as to the Filipino taking up the use of modern machinery in preparing the soil. Of the above-mentioned implements the railroad plows, middle-break plows, breaking plows, gang plows, disk harrows, common harrows, rice hullers, fans, and thrashers have all been sold either to the military authorities or to the insular purchasing agent. The natives have purchased a few of the plows, probably 50 altogether, and probably 50 each of the 5-tooth and 12-tooth cultivators. These cultivators were sold mostly on the island of Negros for use in cultivating sugar. We believe we have handled far more agricultural machinery than all other companies in Manila put together, and from our experience we can say nothing that would be encouraging as to the native adapting himself to modern machinery. * * * We do not think there is a native in the Philippine Islands who has the slightest conception of the different classification of plows as applied to different soils and for different purposes. For instance, he does not understand or appreciate the difference between the common wood-beam plow, the low landslide plow, the stubble plow, the small stirring plow, the sugar plow, the turf plow, the subsoil plow, the special alfalfa plow, the root-ground plow, the vineyard plow, the breaking and middle-breaking plows, or the listing plow. He does not understand the use of the disk or the coulter.

American modern machinery is made to be used with horses mainly, and the native naturally finds himself handicapped in the beginning. His carabao will pull a small 6 or 7 inch plow and a small cultivator or harrow; beyond this he can do nothing, and his ideas lead him to believe he must use steampower or electricity. * * * The native does not understand the value of the farm wagon in transporting supplies to and from market, and prefers the ancient carabao cart.

Another prominent Manila importing house writes as follows:

* * * We have imported quite a lot of samples (of American agricultural machinery) from which we have endeavored to make sales, but have thus far found it impracticable, owing to the fact that our American apparatus is made up in such a way that it is extremely difficult (and in many cases impossible) to adopt it for use with carabao, and it is too heavy for use with ponies.

The only exception we have found to the above is small light plows and cultivators, but it is difficult to prevail upon the natives to change from their old customs until they can be shown the advantages which will accrue, which is being done to a considerable extent by the Bureau of Agriculture.

The great dearth of work animals during the past few years has also doubtless contributed considerably to the lack of demand for agricultural implements, but the government importations of carabao will, in all probability, considerably alleviate, if not entirely eliminate, this factor.

The machines which we have imported * * * have been mostly sold to Americans. The number of natives looking for these things has been very small.

It may be safely predicted that when the slow, wasteful, ancient methods of agriculture in the Philippines shall have given place to modern ones, the wonderful productivity of the soil, and the great demand for and highly remunerative prices brought by the leading agricultural products will afford a surprising degree of wealth and prosperity to the islands.

DOMESTIC ANIMALS.

The principal domestic and farm animals of the Philippines are the carabao, or water buffalo, neat cattle of Australian or Indian origin, horses, swine, and poultry. Goats and sheep are of slight economic importance and are found in limited numbers only.

The carabao is the most important animal in the archipelago. As in other oriental countries, it is not only the mainstay of agriculture, but is also extensively used as a draft animal and beast of burden. The country from which it was originally introduced is unknown, carabao having been found in the islands when the Spaniards first assumed dominion.

The following translation from the *Guía Oficial de Filipinas* gives an interesting description of this highly prized animal upon which the development and prosperity of the country so largely depend:

The carabao, or water buffalo, is the most notable quadruped found by the Spaniards when they came to occupy these islands. There are few animals which are as ugly, but there are also few which are more useful in agricultural labors and which can resist the enervating climate of the Philippines better.¹ Its color is black or brown; the hair is very scarce; the horns large, arched, and rough; and the head is comparatively small. Its strength is enormous. It easily swims the widest rivers, and can haul very large loads, although its progress is slow and its movements awkward. It likes humidity and to roll in the mud. The hide and horns of the carabao are of great commercial value. The carabao begins to work after it is five or six years old. It lives to about thirty years.

The wild buffalo is to be feared. In its savage state it constitutes a real danger to man if met in the woods.

The calamity which has befallen the islands in the decimation of the carabao by rinderpest has been referred to elsewhere in this report.

Neat cattle of Australian or Indian origin are bred in large numbers, and are used to some extent for agricultural purposes. Their princi-

¹ The author of this description should have said "there is none" instead of "there are few more useful and better able to resist the effects of the climate."—*Director*.

pal value, however, has consisted in their use as food, and in their hides and horns, which have been exported in considerable quantities.

The horses of the country, of which there were large numbers prior to the recent widely spread prevalence of an equine disease known as surra, which has slain them by thousands, are of the pony variety. Though of small size, they are strong and full of spirit, hardy, and consequently very useful. Some of them are very fast for short distances and make good race horses.

The swine of the islands are of poor breed, resembling the kind familiarly known in the United States as "razorbacks." Their flesh is of fairly good flavor, and is much prized as a food by the natives.

The poultry of the country consists principally of gamecocks and hens and their offspring, a few of which nearly every Filipino family is the possessor. Cock fighting is the national sport of the people, and the breeding of game roosters, though not capable of statistical presentation, is an important branch of insular employment, the sociologic and economic effects of which can not easily be measured. The average Filipino thinks much more of his gamecock and the sport to be found in the cockpit than he does of the food value of his poultry and eggs.

Ducks and geese are also bred; in some localities the former are found in large numbers. In the province of Rizal, on the Taguig and the Pásig rivers, not far from Manila, duck raising is conducted on an extensive scale, being the principal industry of the inhabitants of the pueblo of Pateros. The breeding yards are fenced in with bamboo on the river banks and in these the full grown ducks are confined during the day; in another inclosure near by the partially grown ducks are kept; and in a third the ducklings are kept, the latter being separated from their elders as soon as hatched. Not far from the duck yards are the duck houses, a separate house being provided for the young, the partially grown, and the full grown ducks, to which they are trained to go, each class to its respective domicile, at sunset; and every morning at dawn they leave their houses in orderly manner and enter their proper yards with almost military precision. The eggs are hatched artificially, usually in batches of one thousand, by being placed between bags of heated rice husks; and in this manner many thousands of ducks are produced annually, from the sale of which in Manila and neighboring towns considerable profit is derived. The general rule of the duck growers is to sell male birds only, the females being kept for breeding purposes.

The few sheep and goats in the islands are usually semiwild, of poor varieties, and of very little value.

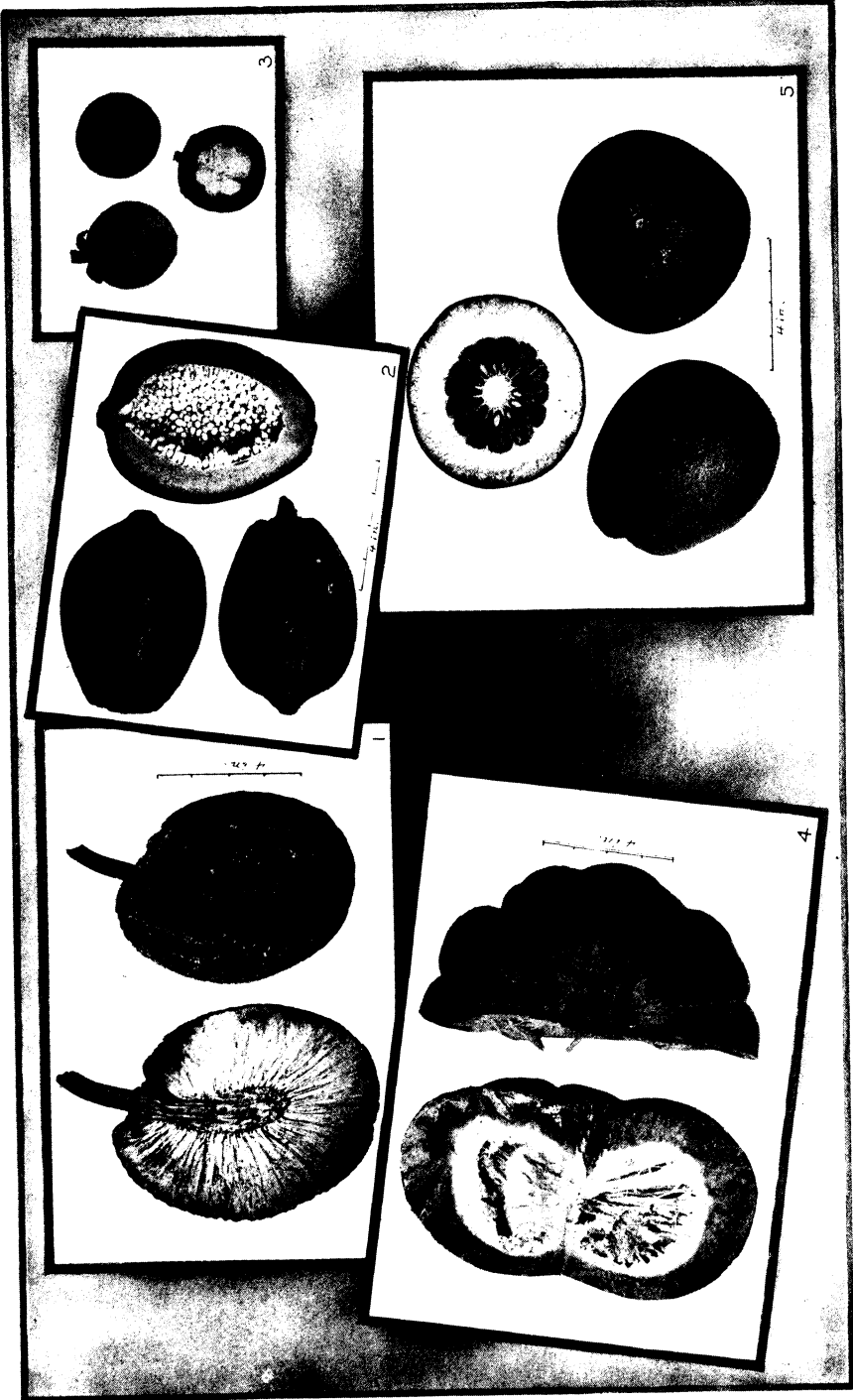
Considerable light is thrown on general agricultural conditions in 1903 by the provincial governors and census supervisors in reports made by them to the Director of the Philippine Census immediately after the census of the islands was taken. Their statements in regard to this subject have been largely used in preparing this report.

FRUITS, VEGETABLES, AND FIBER PLANTS.

By Hon. F. LAMSON-SCRIBNER, Chief of the Insular Bureau of Agriculture.

All races of men who are wholly or largely dependent upon their own resources for food, raiment, and the common necessities of life, acquire close familiarity with the plants about them, and the Filipinos illustrate this fact in a marked degree. They have discovered uses in a multitude of native plants which a more highly civilized and less primitive people would never have learned to recognize. The numerous plants whose products are utilized for food together with the great number of fiber plants contained in this list illustrate this statement. Had the list included all the gum or resin bearing species and those of reputed medicinal value known to the natives, the truth of the statement would have been even more strongly emphasized. As it is, one can not fail to appreciate the wonderful resources of the Philippines in its vegetable and plant products.

The preparation of this enumeration of fruits, vegetables, and fiber plants of the Philippines was made possible by the many and intelligent reports rendered by the correspondents of the Insular Bureau of Agriculture in all parts of the archipelago which were sent as replies to certain inquiries issued by the chief of the bureau, and it is upon these reports that the information here presented is chiefly based. There were many names reported which have been omitted because of lack of sufficient data concerning them, and, as will be seen, there are many plants among those yielding fibers which are yet unclassified. The list is, however, as complete as the material at hand will permit at this time, and it is believed that its presentation will not only afford useful and interesting information relative to the resources of the islands, but be a guide and assistance to others who may wish to take up the study of the economic plants of the Philippines.



1. BREADFRUIT. 2. PAPAYA. 3. MANGOSTEENS. 4. RED SQUASH. 5. POMELO.

PART I.—FRUITS AND VEGETABLES.¹

- ABALONG. See *Colocasia antiquorum*.
- ACELGA. See *Beta vulgaris*.
- ACHIOTE. See *Bixa orellana*.
- ACHOTE. See *Bixa orellana*.
- ACHRAS SAPOTA, L. (Sapotaceæ). Sico, V.; Tsicu, T.; Chico, Sapodilla, Sp., T.; Chicle, Eng. A small tree 20 to 30 feet high, cultivated in gardens in Luzón and the Visayan Islands. The fruit is much liked by the natives and the sap yields a valuable gum known in commerce as chicle, used as a basis for chewing gum.
- ACHUETE. See *Bixa orellana*.
- ACHUTE. See *Bixa orellana*.
- ADAM'S NEEDLE. See *Mamihot mamihot*.
- ADIÁVAN. See *Cocos nucifera*.
- ADYANGAO. See *Albizzia procera*.
- AGARICUS species. Colatcolat, Payong ahas. An umbrella-shaped fungus resembling the well-known mushroom, found throughout the archipelago. The entire plant is eaten. There are a great many species of *Agaricus* found in the islands and doubtless a number of them will prove to be edible.
- AGATHIS LORANTHIFOLIA, Salisb. (Coniferæ). Almaciga, Baltic, Biayo, Gala-gala. A tall tree, found in southern Luzón, Panay, and the southern islands. It yields a valuable resin, the gum dammar of commerce, locally known as *almaciga*. Large quantities of the gum come from Mindanao and it is sold in Manila at from \$7 to \$8 Mexican per picul. The best gum is said to come from the Calamianes.
- AGAYAC. See *Phaseolus* species.
- AGAYAP. See *Phaseolus* species.
- AGBO. See *Saccharum officinarum*.
- AJO. See *Allium sativum*.
- ALAIPAY. See *Nephelium litchi*.
- ALANG ILANG. See *Cananga odorata*.
- ALANIHAO. See *Dracontomelum* species.
- ALBIZZIA PROCERA, Benth. (Leguminosæ). Adyangao. A tree furnishing a resin used as incense.
- ALBIZZIA SAPONARIA, Blume. (Leguminosæ). Cogontoco. A tree which supplies a resin which is used by the natives in some localities for illuminating purposes.
- ALCAPARRAS. See *Capparis mariana*.
- ALBURITES MOLUCCANA, Blume. (Euphorbiaceæ). Lumban, Lunban, Lumbang, Rumbang, V.; Capili, T. A tree the seeds of which yield a valuable oil used for illuminating purposes, etc.
- ALBURITES SAPONARIA, Blanco. (Euphorbiaceæ). Baguilumban, T.; Balocanad, V.; Balucanang, Il.; Kalumban or Calumban. A tree found in Luzón and the Visayan Islands, the fruit of which is utilized in the manufacture of the soap found in the markets of Manila and some other towns.
- ALIBANBAN. See *Bauhinia tomentosa*.
- ALIMUQUEN. See *Musa* varieties.
- ALIPAL. See *Nephelium litchi*.
- ALLIUM CEPA, L. (Liliaceæ). Lasona, Sibuyas, T.; Cebolla, Sp.; Onion, Eng. A well-known vegetable which is grown with success in all the islands.
- ALLIUM SATIVUM, L. (Liliaceæ). Baoang, V.; Bauang, T.; Bauang poti (Joló); Bawang, T.; Ganda, V.; Laso, V.; Ajo, Sp.; Garlic, Eng. A common garden vegetable raised in limited quantities throughout the archipelago. The leaves and bulbs are used both for food and as a condiment.
- ALLIUM TRICOCCUM, Ait. (Liliaceæ). Cuchay, Cutsay, T.; Ganda, V.; Wild leek, Eng. Spontaneous in Leyte and often grown in gardens in Luzón and other islands. The leaves are utilized for condiments.

¹The names are all arranged in alphabetical order, the list of fruits and vegetables (Part I), being kept distinct and preceding the list of the fiber plants (Part II). Following the Latin or scientific names, where they are known, is the name of the family to which the plant belongs, in parenthesis; then follow the local or native names, the language or dialect of the same being indicated by abbreviations, as T. for Tagalog, B. for Bicol, C. for Cagayán, Il. for Ilocos, Z. for Zambales, P. for Pampanga, Pn. for Pangasinán, V. for Visayan, M. for Moro, Sp. for Spanish, Eng. for English, etc.

- ALLOPHYLUS COBBE, Blume. (Sapindacæ). Balic?, V. A small tree or shrub with globose, red, edible fruit.
- ALMACIGA. See *Agathis loranthifolia*.
- ALMENDRO. See *Terminalia catappa*.
- ALMOND. See *Terminalia catappa*.
- ALOPAI OR ALOPAY. See *Nephelium litchi*.
- ALPASOTES. See *Chenopodium ambrosioides*.
- ALPAI. See *Nephelium litchi*.
- ALPISTE. See *Phalaris canariensis*.
- ALUBIHOD. See *Spondias mangifera*.
- ALUBIHON. See *Spondias mangifera*.
- ALUOI. See *Nephelium litchi*.
- ALUPAY. See *Nephelium litchi*.
- ALUPE. See *Nephelium litchi*.
- AMAGA. See *Diospyros pilosanthera*, and *D. discolor*.
- AMARANTHUS SPINOSUS, L. (Amarantacæ). Ayantoto, P.; Bambán; Bayang-bayang, II.; Blédo; Calites, V.; Coletes or Colitis, T.; Cuanton, Harum, V.; Orayi; Quilite, Quilitis, Tilites, Tililes. A well-known weed common on Luzón and the southern islands. The young plants are used as a pot herb. The ash made from the plant is used for dyeing.
- AMARGOSO. See *Momordica balsamina*.
- AMERI. See *Indigofera tinctoria*.
- AMPAL. See *Musa* varieties.
- AMPALAYA. See *Momordica balsamina*.
- AMPALÉA. See *Momordica balsamina*.
- AMUYON. See *Unona*.
- ANACARDIUM OCCIDENTALE, L. (Anacardiacæ). Balubad, Bollogo, II.; Balurad, Balubad, Casoy, T.; Cashew, Eng. A small tree introduced from America and cultivated for its edible fruits, the seeds of which yield a valuable oil.
- ANANAS SATIVUS, Schult. (Bromeliacæ). Malisa, B.; Pita, II.; Piña, T., Sp.; Pine-apple, Eng. *Ananasa sativa* Lindl. is the same. A plant well known for its fruit, but grown in the Philippines chiefly for the fiber, which is supplied by the leaves and utilized in making the celebrated piña cloth.
- ANANGCA. See *Artocarpus integrifolius*.
- ANATE. See *Bixa orellana*.
- ANATTO. See *Bixa orellana*.
- ANGILANG. See *Cananga odorata*.
- ANIBONG. See *Cocos nucifera*.
- ANIS CAHOY. See *Myristica philippinensis*.
- ANNOTTA. See *Bixa orellana*.
- ANONA MURICATA, L. (Anonacæ). Gayubano, II.; Guanabano, P., II.; Guayabano, T.; Guyabano, T., V.; Guanabena; Suirsaak, Susakka; Sour Sop, Eng. A small tree introduced from America, valued for its fruit, which is eaten fresh or is made into preserves.
- ANONA RETICULATA, L. (Anonacæ). Anonas, T., Sp.; Bullock's Heart, Custard Apple, Eng. A tree introduced from Mexico many years ago and now quite generally grown for its fruit.
- ANONA SQUAMOSA, L. (Anonacæ). Ates, T., Sp.; Atis, V.; Natis, P.; Sugar-apple, Sweet-sop, Eng. A small tree introduced from America and valued for its edible fruit.
- ANONAS. See *Anona reticulata*.
- ANONOO. See *Musa* varieties.
- ANSIMAN. See *Portulaca oleracea*.
- ANTIDESMA BUNIAS, Spreng. (Euphorbiacæ). Bignay, P.; Bugnay, T.; Bub-bug-nay; Bignai-calabao, T. A native tree of Luzón, bearing an edible fruit which is used for preserves.
- ANTIMON. See *Cucumis melo* variety.
- ANTIPOLO. See *Artocarpus communis*.
- ANIL. See *Indigofera tinctoria*.
- ANUANG. See *Musa* varieties.
- APALE. See *Momordica balsamina*.
- APASOTE. See *Chenopodium ambrosioides*.
- APASOTIS. See *Chenopodium ambrosioides*.
- APIO. See *Apium graveolens*.
- APIPL. See *Colocasia antiquorum*.

- APIUM GRAVEOLENS, L. (Umbelliferae). Quinchay, Quinsay, T.; Apio, Sp.; Celery, Eng. A well-known garden vegetable grown with success in Benguet province.
- APIUM PETROSELINUM, L. (Umbelliferae). Perejil, Sp.; Parsley, Eng. A well-known garden vegetable successfully grown for local consumption.
- APOSOTIS. See *Chenopodium ambrosioides*.
- APPAN. See *Mangifera altissima*.
- ARACHIS HYPOGAEA, L. (Leguminosae). Mani, T.; Cacauate, T.; Cacahuete, Sp.; Groundnut, Peanut, Eng. This well-known plant is grown quite extensively, but is utilized chiefly for forage.
- ARARAO. See *Maranta arundinacea*.
- ARARO. See *Maranta arundinacea*.
- ARECA CATECHU, L. (Palmae). Boá, Il.; Boñga; Boñga-santol; Boñgang-matulis, T.; Boñga-palo; Buñga, T.; Buá, C.; Luyos, P.; Lugos; Mangupod, T.; Sacsic, T.; Betel nut, Eng. A palm quite common in gardens throughout the archipelago. The nut with the leaves of betel pepper and a little lime is chewed by the natives.
- ARICUNDAL. See *Musa* varieties.
- ARNOTTO. See *Bixa orellana*.
- ARONGAY. See *Moringa oleifera*.
- ARRAYAN. See *Psidium guajava*.
- ARROZ. See *Oryza sativa*.
- ARTOCARPUS CAMANSI, Blanco. (Urticaceae). Camance, Camañsi; Camansi, V.; Camongsi, Dalangian, Dolongian, Daluguan, Pacac, Il.; Breadnut, Eng. A large tree found in Luzón and the Visayan Islands, rarely cultivated. The seeds of the fruit are edible and the flowers are used for sweetmeats by the natives.
- ARTOCARPUS COMMUNIS, Forst. (Urticaceae). Antipolo, T.; Rimo, T.; Rima, Sp., T.; Colo, V.; Calo; Tipolo, P., V.; Tipoo, V.; Breadfruit tree, Eng. A tall tree distributed throughout the archipelago. The fruit is eaten when cooked and is also made into preserves.
- ARTOCARPUS INTEGRIFOLIA, L. f. (Urticaceae). Anañga, Il.; Lanñka, Nanca; Nanñka, T.; Jack fruit, Eng. A large tree producing a rough fruit 2 to 3 feet long, often weighing 60 to 70 pounds. The fruit is eaten raw or cooked and is sometimes made into preserves. The seeds when roasted have somewhat the flavor of chestnuts.
- ARTOCARPUS RIMA, Blanco. (Urticaceae). Colo, V.; Ogob, B.; Rima, T.; Breadfruit, Eng. A tree yielding the well-known and most important breadfruit, which is eaten when cooked, and is also valued for making sweetmeats or preserves. Selected fruits are sold for one or two pesetas. Kew Index refers this to *Artocarpus incisa*.
- ARUNGAY. See *Moringa oleifera*.
- ASPARAGUS. See *Asparagus officinalis*.
- ASPARAGUS OFFICINALIS, L. (Liliaceae). Esparrago, Sp.; Asparagus, Eng. A well-known garden vegetable grown to a limited extent in the vicinity of the larger towns.
- ASPLENIUM ESCULENTUM, Presl. (Filices). Paco, T. A fern found in Luzón and the Visayan Islands. The young leaves are eaten as a vegetable.
- ATES. See *Anona squamosa*.
- ATIS. See *Anona squamosa*.
- ATOLA. See *Bixa orellana*.
- ATSUITI. See *Bixa orellana*.
- AVERRHOA BILIMBI, L. (Geraniaceae). Calamias, T.; Caling-iwa, V.; Camias, T.; Colonauas, T.; Kamias, B., T.; Iba, V.; Pias, Il.; Quilihgiva, V. Cucumber tree, Eng. A fruit tree common in the gardens about Manila. The agreeably acid fruit is sold in Manila markets at 10 to 30 cents (Mexican) per 100.
- AVERRHOA CARAMBOLA, L. (Geraniaceae). Balimbing, Balinbin, Bilimbin, T.; Bilingbing, V.; Garangan, V.; Carambola, Coromandel gooseberry, Eng. A tree growing to the height of 20 or 30 feet; frequent in the gardens of Luzón and the Visayan Islands. It is cultivated for its fruit, which is used for desserts, etc.
- AYANTÓTO. See *Amaranthus spinosus*.
- AZABACHE. See *Phaseolus lunatus* variety.
- AZAFRAN. See *Curcuma longa*.
- BADIANG. See *Colocasia antiquorum*.
- BAGO. See *Gnetum*.
- BAGO-SILI. See *Gnetum*.
- BAGSANG. See *Metroxylon rumphii*.
- BAGULUMBAN. See *Aleurites saponaria*.

- BALACKAC. See *Eugenia jambos*.
 BALAGAY. See *Psophocarpus palustris*.
 BALAICAG. See *Dioscorea sativa*.
 BALATONG. See *Phaseolus mungo*, and *Vigna catjang*.
 BALIACAG. See *Dioscorea divaricata*.
 BALIC. See *Allophylus cobbe*.
 BALIMBING. See *Averrhoa carambola*.
 BALINBIN. See *Averrhoa carambola*.
 BALINGACTA. See *Diospyros pilosanthera*.
 BALOBAR. See *Eugenia jambos*.
 BALOCANAD. See *Aleurites saponaria*.
 BALOI. See *Musa* varieties.
 BALONG-LUYON. See *Corypha umbraculifera*.
 BALONGAY. See *Moringa oleifera*.
 BALSAM APPLE. See *Momordica balsamina* and *M. cylindrica*.
 BALSAMINA. See *Momordica balsamina*.
 BALTIC. See *Agathis loranthifolia*.
 BALUBAD. See *Anacardium occidentale*.
 BALUBAT. See *Anacardium occidentale*.
 BALUCANANG. See *Aleurites saponaria*.
 BALUNGAY. See *Moringa oleifera*.
 BALURAD. See *Anacardium occidentale*.
 BAMBAN. See *Amaranthus spinosus*.
 BANANAS. See *Musa sapientum* varieties.
 BANGA. See *Caryota urens*, and *Corypha umbraculifera*.
 BANGAL. See *Gnetum*.
 BANGQUILING. See *Phyllanthus distichus*.
 BANTLAC. See *Terminalia catappa*.
 BANSALAGIN. See *Mimusops elengi*.
 BANSALAGUE. See *Mimusops elengi*.
 BANTOLINAO. See *Diospyros pilosanthera*.
 BAOANG. See *Allium sativum*.
 BAONG. See *Dioscoria sativa*.
 BARABAG. See *Eugenia jambos*.
 BARACBAC. See *Eugenia jambos*.
 BARET. See *Leersia*.
 BARLIS. See *Diospyros pilosanthera*.
 BARRINGTONIA SPECIOSA. (Lecythidaceæ). Botong, T., V.; Botong-botong, T.; Bitoon, V.; Bitug, Bonetes, Bitung, V. A handsome tree with glossy leaves and four-sided pyramidal one-seeded fruits. The fresh fruit is used for stupefying fish and the dry fruits are sometimes used for floats for fish nets.
 BASENG. See *Zingiber officinale*.
 BATAD. See *Sorghum vulgare*.
 BATAO. See *Vigna catjang*.
 BATATA. See *Solanum tuberosum*.
 BATAVIA. See *Musa sapientum maxima*.
 BATOLINAO. See *Diospyros pilosanthera*.
 BAUANG. See *Allium sativum*.
 BAUANG POTI. See *Allium sativum*.
 BAUHINIA TOMENTOSA, L. (Leguminosæ). Alibanban, T., V., P.; Alibihil, V.; Ahihiro, V.; Alambihor, V.; Balibanban, V.; Diis, V.; Linas, V.; Marulinao, V. St. Thomas's tree, Eng. A small tree, native of Luzón. In Rizal and other provinces an acid that is used as a substitute for vinegar is extracted from the leaves.
 BAWANG. See *Allium sativum*.
 BAYABAS. See *Psidium guayava* variety.
 BAYANG-BAYANG. See *Amaranthus spinosus*.
 BAYANGCAN. See *Dioscorea pentaphylla*.
 BEANS. See *Phaseolus vulgaris*.
 BEETS. See *Beta vulgaris*.
 BENINCASA CERIFERA. (Cucurbitaceæ). Kondol, Condol, Calabaza blanca, Sp. Wax gourd. A gourd with oblong, waxy fruit, growing on a vine like a muskmelon. The fruit is cooked as a vegetable and is also used as a sweetmeat.
 BENTICOHOL. See *Musa* varieties.
 BERENGENA. See *Solanum melongena*, variety.

- BETA VULGARIS, L. (Chenopodiaceæ). Acelga, Sp.; Beet, Eng. A well-known vegetable grown with success in the gardens about Manila and elsewhere in Luzón, the Visayan Islands, and Mindanao.
- BETEL NUT. See *Areca catechu*.
- BETEL PEPPER. See *Piper betel*.
- BICACAO. See *Setaria italica*.
- BIGA. See *Colocasia antiquorum*.
- BIGAS. See *Oryza sativa*.
- BIGNAI-CALABAO. See *Antidesma bunias*.
- BIGNAY. See *Antidesma bunias*.
- BILANG-BILANG. See *Sesuvium portulacastrum*.
- BILIMBIN. See *Averrhoa carambola*.
- BILINGBING. See *Averrhoa carambola*.
- BINAMBANG. See *Oryza sativa*.
- BIRINGI. See *Phaseolus vulgaris*.
- BISCO. See *Musa sapientum compressa*.
- BITOON. See *Barringtonia speciosa*.
- BITUG. See *Barringtonia speciosa*.
- BITUNG. See *Barringtonia speciosa*.
- BIXA ORELLANA, L. (Bixineæ). Achote, T.; Achote, Achute, Sp.; Achute, Atsiuti, T.; Anate, Atola, Anatto, Anotto, Arnotto, Eng. A tall shrub or small tree 20 to 30 feet high introduced into the archipelago from tropical America. The fruit yields the annatto of commerce used for coloring butter, cheese, etc.
- BLACK PEPPER. See *Piper nigrum*.
- BLEDO. See *Amaranthus spinosus*.
- BOA. See *Areca catechu*.
- BOBOA. See *Lansium domesticum*.
- BOLATON. See *Phaseolus mungo*.
- BOLI. See *Corypha umbraculifera*.
- BOLOHAN. See *Oryza sativa*.
- BOLOGO. See *Anacardium occidentale*.
- BOLONGACTA. See *Diospyros pilosanthera*.
- BOLONGITA. See *Diospyros pilosanthera*.
- BOLONGUITA. See *Diospyros pilosanthera*.
- BONETES. See *Barringtonia speciosa*.
- BOŃGA. See *Areca catechu*.
- BOŃGA-PALO. See *Areca catechu*.
- BOŃGA-SANTOL. See *Areca catechu*.
- BOŃGANĜ-MATULIS. See *Areca catechu*.
- BONOTAN. See *Cocos nucifera*.
- BOOCAN. See *Lansium domesticum*.
- BORNA. See *Zea mays*.
- BOTOHAN. See *Musa* varieties.
- BOTOŃG. See *Barringtonia speciosa*, and *Cocos nucifera*.
- BOTOŃG-BOTOŃG. See *Barringtonia speciosa*.
- BRASSICA OLERACEA, L. (Cruciferæ). Repollo, Sp., T.; Cabbage, Eng. This well-known vegetable in some of its varieties is grown with success about Manila, Iloilo, etc.
- BRASSICA OLERACEA, var. (Cruciferæ). Coliflor, Sp.; Cauliflower, Eng. Grown with success in Pampanga and other provinces, succeeding best at elevations above 1,000 feet. Experiments of the Bureau of Agriculture in growing cauliflower in experiment station at Manila were not successful.
- BREADFRUIT. See *Artocarpus rima*.
- BUA. See *Areca catechu*.
- BUB-BUGNAY. See *Antidesma bunias*.
- BUCACAO. See *Setaria italica*.
- BUGNAY. See *Antidesma bunias*.
- BULAHAN. See *Lansium domesticum*.
- BULAY. See *Vigna catjang*.
- BULI-BURI. See *Corypha umbraculifera*.
- BULLOCK'S HEART. See *Anona reticulata*.
- BUNĜA. See *Areca catechu*.
- BUNĜALON. See *Llerisia hexandra*.
- BUNĜULAN. See *Musa sapientum suaveolens*.
- BUNNEC. See *Musa* varieties.

- BURI. See *Corypha umbraculifera*.
 BUTINGA. See *Phaseolus vulgaris*.
 BUTNEG. See *Musa* varieties.
 BUTUAN. See *Musa* varieties.
 BUYO. See *Piper betel*.
 CABATETE. See *Rhamnus* species.
 CABATITI. See *Rhamnus* species.
 CABBAGE. See *Brassica oleracea*.
 CABIQUI. See *Minusops elengi*.
 CABITCABAG. See *Mezoneurum glabrum*.
 CABO-NEGRO. See *Caryota urens*.
 CABOG. See *Citrus hystrix* and *Unona*.
 CABUGAO. See *Citrus decumana*.
 CABUL. See *Cucumis sativus*.
 CUBULAO. See *Citrus aurantium*.
 CABUYAO. See *Citrus torosa*.
 CACAHUETE. See *Arachis hypogaea*.
 CACAO. See *Theobroma cacao*.
 CACAUATE. See *Arachis hypogaea*.
 CAD-YOS. See *Cajanus indicus*.
 CADIOS. See *Cajanus indicus*.
 CADIWS. See *Cajanus indicus*.
 CAFE. See *Coffea arabica*.
 CAGEL OF CAJEL. See *Citrus aurantium*.
 CAGNOIS. See *Cajanus indicus*.
 CAGUINDI. See *Cissus acida*.
 CAGUIOS. See *Cajanus indicus*.
 CAGYOS. See *Cajanus indicus*.
 CAHAWA. See *Coffea*.
 CAHIL. See *Citrus aurantium*.
 CAJANUS INDICUS, Spr. (Leguminosæ). Cadios, Kadyos, Cagyos, Cad-yos, Cadiws,
 V.; Caguios, Kaguios, Cagnois, T. An erect shrub or herbaceous plant found
 in Luzón and the Visayan Islands. The seeds are either eaten green or dried
 like peas.
 CALABASANG PULA. See *Curcubita maxima*.
 CALABASANG PUTI. See *Curcubita langenaria*.
 CALABAZA BLANCA. See *Benincasa cerifera*.
 CALABOT. See *Citrus torosa*.
 CALADI. See *Colocasia antiquorum*.
 CALAMANSI. See *Citrus mitis*.
 CALAMIAS. See *Averrhoa bilimbi*.
 CALAMISMIS. See *Psophorocarpus tetragonobolus*.
 CALAMONDIN. See *Citrus medica*.
 CALAMUNDING. See *Citrus mitis*.
 CALAVAGA. See *Cucumis sativus*.
 CALINBAGIN. See *Pisidium guayava*.
 CALING-IWA. See *Averrhoa bilimbi*.
 CALIT-CALIT. See *Cissus acida*.
 CALITES. See *Amaranthus spinosus*.
 CALO. See *Artocarpus communis*.
 CALOBOT. See *Citrus hystrix*.
 CALOHADIA. See *Diospyros pilosanthera*.
 CALOYANANG. See *Diospyros pilosanthera*.
 CALUMBAN. See *Aleurites saponaria*.
 CALUNGAY. See *Moringa pterogosperma*.
 CALUT. See *Dioscorea triphylla*.
 CALUTPAMO. See *Cissus acida*.
 CAMACHILE. See *Pithecolobium dulce*.
 CAMAGUAN. See *Diospyros discolor*.
 CAMALAGUL. See *Tamarindus indica*.
 CAMALONGAY. See *Moringa oleifera*.
 CAMALUGAY. See *Moringa oleifera*.
 CAMALUSON. See *Psophorocarpus tetragonolobus*.
 CAMANCE. See *Artocarpus camansi*.
 CAMANCHILE. See *Pithecolobium dulce*.
 CAMANGEG. See *Dolichos sesquipedalis*.

- CAMANGIAN. See *Dolichos sesquipedalis*.
 CAMANGSI. See *Artocarpus camansi*.
 CAMANSI. See *Artocarpus camansi*.
 CAMANSILE. See *Pithecolobium dulce*.
 CAMANTIRIS. See *Pithecolobium dulce*.
 CAMAS OF KAMAS. See *Pachyrhizus angulatus*.
 CAMASTELES. See *Pithecolobium dulce*.
 CAMATIS. See *Lycopersicum esculentum*.
 CAMIAS OF KAMIAS. See *Averrhoa bilimbi*.
 CAMONGSI. See *Artocarpus camansi*.
 CAMOTE OF CAMOTI. See *Ipomea battatas*.
 CAMOTENG-CAHOY. See *Manihot manihot*.
 CAMULAO. See *Citrus hystrix*.
 CAMUNTAY. See *Citrus hystrix*.
 CAMUNYO. See *Citrus hystrix*.
 CANANGA ODORATA. H. f. et T. (Anonaceæ). Alang-ilang, T.; Ang ilang, V; Ilang-ilang, Ylang ylang, Sp. and T. A tree well known in the Philippines, sometimes attaining the height of 40 or 50 feet. The greenish yellow flowers borne in dense clusters yield the highly prized ilang-ilang perfume, which is an important commercial product, being exported to France, England, and other countries.
 CANARIUM COMMUNE, L. (Burseraceæ). Pilani, T.; Pili, V.; Pili-pilanay, T. A tree found in southern Luzón and sometimes planted for the resin which it yields in commercial quantities. The nuts are utilized for food by the natives.
 CANARY GRASS. See *Phalaris canariensis*.
 CANCONG. See *Convolvulus repens*.
 CANELA. See *Cinnamomum burmani*.
 CANISI. See *Piper betel*.
 CANOBONG. See *Tacca pinnatifida*.
 CAONG. See *Caryota onusta*.
 CAPAYAS. See *Carica papaya*.
 CAPER. See *Capparis marina*.
 CAPILI. See *Aleurites triloba*.
 CAPPARIS MARINA, D. C. (Capparidaçæ). Alcaparras, Sp.; Capers, Eng. A shrub reported from Rizal province, where the buds and fruit are used as a condiment.
 CAPSICUM MINIMUM, Roxb. (Solanaceæ). Chileng, Bundoc, T.; Malisa, Pasitis, Pasitas, T.; Quiticot, V.; Sili, T.; Guindilla, Sp. A small pepper apparently native; the very pungent small fruits are much used. The well-known bell-peppers (*Capsicum annuum*) are cultivated to some extent and most successfully.
 CAPSICUM species. (Solanaceæ). Chile, Sile, T.; Pimiento, Sp. An herb or shrub of which many varieties are in cultivation; common in the Philippines.
 CARACTON. See *Musa* varieties.
 CARAMBOLA. See *Averrhoa carambola*.
 CARAMPALIT. See *Sesuvium portulacastrum*.
 CARICA PAPAYA, L. (Passifloræ). Kapayo, T.; Capayas, V.; Papaya, Sp., T.; Papaw, Eng. A small tree, with the habit of growth of a palm, of American origin, but now well known in the Philippines. The fruit, which is yellow when ripe and has a pleasant, sweetish taste, is largely consumed by the natives; prepared in various styles or eaten raw.
 CARNATE. See *Musa* varieties.
 CAROT. See *Dioscorea triphylla*.
 CARROT. See *Daucus carota*.
 CARYOTA ONUSTA, Bl. (Palmæ). Caong, Cauong, Iroc, T. The fibrous stem of this palm yields a kind of sago, and tuba is extracted from its flowering spadix.
 CARYOTA URENS, L. (Palmæ). Cábo-negro, Banga or Pugahan, T.; Sagu, Taguipan, Taquipan, T. A palm from which the natives extract a kind of starch or sago.
 CASHEW. See *Anacardium occidentale*.
 CASLA. See *Jatropha curcas*.
 CASOY. See *Anacardium occidentale*.
 CASSAVA. See *Manihot manihot*.
 CASTANOPSIS PHILIPPINENSIS, Vidal (Cupuliferæ). Lovian, Livian, T.; Paunngagan, T. Tacatac; Talacatac; Wild Chestnut. Similar in growth to the below. The fruit, which resembles a chestnut, is eaten.
 CASTANOPSIS species. (Cupuliferæ). Talacatac, Wild Chestnut. A tall tree found in Luzón and other islands. The fruit is utilized by the natives.
 CASTOR OIL. See *Ricinus communis*.
 CATIMON. See *Cucumis melo*.

- CATMON. See *Dillenia philippinensis*.
 CATODAY. See *Sesbania grandiflora*.
 CATUDAY. See *Sesbania grandiflora*.
 CATURAY. See *Sesbania grandiflora*.
 CAULIFLOWER. See *Brassica oleracea*.
 CAUONG. See *Caryota onusta*.
 CAVILAN. See *Cissus acida*.
 CAYOMANIS. See *Cocos nucifera*.
 CAYOS. See *Dioscorea triphylla*.
 CEBOLLA. See *Allium cepa*.
 CELERY. See *Apium graveolens*.
 CEREZAS. See *Muntingia calabura*.
 CHENOPODIUM AMBROSIODES, L. (Chenopodiaceæ). Alpasotes, Alposotes, Sp.; Apasotes, T.; Aposotis, T., V., P.; Pasotis, T. An erect, herbaceous, aromatic weed found throughout the archipelago. The leaves are used for seasoning.
 CHICHARO. See *Pisum sativum*.
 CHICLE. See *Achras sapota*.
 CHICO. See *Achras sapota*.
 CHICO-MAMEY. See *Lucuma mamosa*.
 CHILE. See *Capsicum* species.
 CHILE PICANTE. See *Capsicum* species.
 CHILENG-BUNDOC. See *Capsicum minimum*.
 CICHORIUM ENDIVIA, L. (Compositæ). Escarola, T., Sp.; Endibia, Sp.; Endive, Eng. A common garden vegetable grown successfully in Luzón and other islands.
 CILANTRO. See *Coriandrum sativum*.
 CINNAMOMUM species (Lauraceæ). Malasangui; Maragaoed, Il.; Pasi, B.; Samilin, T.; Sindoc, T.; Canela, T., Sp.; Cinnamon, Eng. A small tree or tall shrub whose bark is a well-known spice. Several varieties or species are found in the southern islands, Mindanao, etc.
 CINNAMON. See above.
 CIRUELAS. See *Spondias*.
 CISSUS ACIDA, L. (Ampelidæ). Caguindi, V.; Calit-calit, Cavilan, T.; Culutpamu, Calutpamo, P.; Lagini, Langingi, Lopo, Lopo-lopo, Lupo, Pacopol, V. A slender herbaceous vine found in Luzón and the Visayan Islands. The young, fleshy stems and leaves are acid and are used as a substitute for vinegar.
 CITRULLUS VULGARIS, Schrad (Cucurbitaceæ). Pakwan, T.; Sandia, Sp.; Watermelon, Eng. Grown successfully in the Philippines, some varieties doing remarkably well, especially those grown from American seed. Excellent watermelons are produced in Mindanao, in the Lake Lanao region.
 CITRUS AURANTIUM, D. C. (Rutaceæ). Cajel, Cahil, T.; Cabulao (Tiagan); Dalandán, T.; Pisong, T.; Sintonis, T.; Orange, Eng. A tree quite common in the islands, introduced many years ago. In Batangas province orange growing constitutes quite an industry. Excellent oranges are grown on the islands of Cuyo and Busuanña. This is one of the best varieties, being valued at from 20 cents (Mex.) to 1 peso per hundred.
 CITRUS DECUMANA, L. (Rutaceæ). Cabugao, V.; Lucban, Suha, T.; Naranja, Sp.; Shaddock, Pomelo, Eng. A tree 20 to 30 feet high cultivated or spontaneous on all the larger islands. There are several varieties.
 CITRUS HYSTRIX ACIDA. (Rutaceæ). Camulao, Il.; Camuntay, V.; Camunyo, T.; Calobot, T.; Cabog, V.; Dalayap; Lime. A shrub grown in gardens in Luzón. The small, spherical acid fruit is used for seasoning.
 CITRUS MEDICA, L. (Rutaceæ). Calamondin, T.; Limon real, Sp.; Citron, Eng. A small tree cultivated for its fruit in Luzón, Panay, etc.
 CITRUS MEDICA LIMONUM, (Rutaceæ). Limon, Sp.; Lemon, Eng. The true lemon, of which there are a number of varieties growing in the Philippines, some being of very good quality.
 CITRUS MITIS, Blanco. (Rutaceæ). Calamansi, Calamunding, T.; Limoncito, Sp. This is made a variety of *Citrus aurantium* by recent authors. *Citrus medica* is the same. A small tree common in all gardens. The trees fruit freely and the fruit is used in the same manner as limes and in the bath. Market at all seasons, 10 to 20 cents per hundred.
 CITRUS NOTISSIMA, Blanco. Dayap, T.; Limon, Sp.; Lemon, Eng. A shrub or small tree; botanically regarded as identical with *C. medica*.
 CITRUS RETICULATA, Blanco. (Rutaceæ). Naranjitas, Sp.; Sintones, T. Small oranges Eng. The best orange grown in the islands. It is of the tangerine type and is grown commercially.

- CITRUS TOROSA**, Blanco. (Rutaceæ). Cabuyao, T., P.; Calabot or Colobot, T. A species of small lemon with strongly roughened skin. The fruit is rarely eaten, but is much used by the natives in bathing and for bleaching.
- CLUSTER FIG**. See *Ficus glomerata*.
- COBAG**. See *Dioscorea divaricata* and *D. sativa*.
- COCO**. See *Cocos nucifera*.
- COCOA**. See *Theobroma cacao*.
- COCONUT**. See *Cocos nucifera*.
- COCOS NUCIFERA**, L. (Palmæ). Adiávan, T.; Anibong, V.; Bonotan, V.; Botoñg, V.; Cayomanis, V.; Dahili, V.; Lobi, V.; Lubacan, V.; Niog-niga-poti, V.; Lobi-niga-hinbaon, V.; Lobi-niga-pilipog, V.; N'Gougot, P.; Limbaon, V.; Lubi; Niog, Oñgot, Z.; Pamócol, T.; Pangosin; Potot, V.; Pilipog, V.; Tapiasin; Tamis, V.; Tam-isan, V.; Tayomamis, V., T., C., Il., B., V.; Coco, Sp.; Coconut, Eng. A well-known palm common throughout the archipelago, and is utilized in many ways by the natives. The dried coconut meat, known as copra or coprax, is the principal commercial product and is among the chief items of export. Coconut oil is made almost entirely for home consumption, being used in cookery, as an illuminant, and for oiling the hair. Tuba is extracted from the young flower stalks. Nearly every part of the tree is devoted to some useful purpose.
- COFFEA ARABICA**, L. (Rubiaceæ). Cafe, T., Sp.; Cahawa, M.; Coffee, Eng. Formerly the coffee industry was an important one and large quantities were exported from Batangas province. At present very little is sold outside of the islands. Fine coffee is produced in many of the provinces, but at present there are no large plantations, excepting a few recently established in the provinces of Benguet, Lepanto-Bontoc, etc.
- COFFEE**. See *Coffea arabica*.
- COGONTOCO**. See *Albizzia saponaria*.
- COHOMBRO**. See *Cucumis sativus*.
- COLASIMAN**. See *Portulaca oleracea*.
- COLATCOLAT**. See *Agaricus* species.
- COLETES**. See *Amaranthus spinosus*.
- COLLIAT**. See *Gnetum*.
- COLIFLOR**. See *Brassica oleracea*.
- COLITIS**. See *Amaranthus spinosus*.
- COLO**. See *Artocarpus communis*.
- COLOBOCOB**. See *Eugenia jambos*.
- COLOBOT**. See *Citrus torosa*.
- COLOCASIA ANTIQUORUM**, Schott, var. *ESCULENTA* (Aroideæ). Abalong, V.; Apipi, V.; Badiang; Biga, V.; Caladi, Dagmay, V.; Dagmay-niga-initlog, V.; Gavay, T., V., P.; Gabe, Gaby, T.; Gallang, B.; Gave, Il., Z.; Gabi, C., T., V., P.; Gabing-morada, V.; Gandus, T., V., P.; Gabing-pola, T.; Lagvay, T., V., P.; Quim poy, V. A coarse perennial herb very generally cultivated throughout the islands for the large fleshy roots which are eaten as a substitute for potatoes; the leaves and young shoots are also utilized.
- COLONAUAS**. See *Averrhoa bilimbi*.
- COMINO**. See *Coriandrum sativum*.
- COMMONSI**. See *Pithecolobium dulce*.
- CONDOL**. See *Benincasa cerifera*.
- CONVOLVULUS REPENS**, Willd. (Convolvulaceæ). Cancong, Kancong, T.; Tancong, Tangcong, V. A slender vine growing in low wet places throughout the archipelago. The stems are used for making salads, etc.
- CORAL PLANT**. See *Jatropha multifida*.
- CORCHORUS OLITORIUS**, L. (Tilliaceæ). Saluyot, Il. A shrub found in northern Luzón and occasionally cultivated for its leaves, which are eaten when cooked.
- CORIANDRUM SATIVUM**, L. (Umbellifereæ). Cilantro, Comino, Sp.; Culantro, Ongsoy, T. An herbaceous plant cultivated in gardens to some extent in Luzón and other islands. The leaves, tender stems, and seeds are used for seasoning.
- CORN**. See *Zea mays*.
- COROMANDEL GOOSEBERRY**. See *Averrhoa carambola*.
- COROT**. See *Dioscorea triphylla*.
- CORYPHA UMBRACULIFERA**, L. (Palmæ). Bañga; Buri, Boli, T.; Buli, T.; Buli-buri; Bálóng-luyon, P.; Silac, Il.; Silag, Il. A tall and beautiful fan-leaved palm common throughout the archipelago; the island of Burias is so named because of the abundance of this palm upon it. A kind of sago is made from the central pith of the trunk. Tuba is obtained by tapping the terminal flowering shoot, and from the tuba is made vinegar, molasses or sirup, sugar, and brandy. A fine fiber is obtained from the leafstalks, from which the beautiful buntal hats are

made. The large leaf blades furnish fiber and material for making hats, sacks, mats, thatch, and many useful domestic articles. The fruit, which is the size of a cherry, is edible and is made into preserves. The hard or outer part of the trunk supplies wood for flooring, making canes, etc. In horticulture the burf palm is known as *Chamærops* and *Livistona*.

CUANTON. See *Amaranthus spinosus*.

CUCHAY. See *Allium tricoccum*.

CUCUMBER. See *Cucumis sativus*.

CUCUMIS MELO var. (*Cucurbitaceæ*). Atimon, Catimon, V.; Melon, Sp.; Milon, T.; Melon, Eng. A garden vegetable; the fruit is eaten for dessert, but is of inferior quality.

CUCUMIS SATIVUS, L. (*Cucurbitaceæ*). Cabul, Calavaga, Cohombro, V.; Pepino, T. Sp.; Cucumber, Eng. This garden vegetable is grown with success throughout the archipelago.

CUCURBITA LAGENARIA VILLOSA. (*Cucurbitaceæ*). Calabasang puti, Opo, Upo, T.; White Squash, Eng. Grown in all gardens throughout the archipelago. The squash often exceeds 3 ft. in length. The price is governed by the size.

CUCURBITA MAXIMA, Duchesne. (*Cucurbitaceæ*). Calabasang pula, Calabasang bilog, T.; Squash, Eng. A common squash found in most gardens, usually round or ovoid in shape, with yellow interior.

CUCURBITA PEPO ASPERA. See *Benecasa cerifera*.

CULANTRO. See *Coriandrum sativum*.

CULIAT. See *Gnetum*.

CULUTPAMU. See *Cissus acida*.

CUNALON. See *Diospyros cunalon*.

CURCUMA LONGA, L. (*Zingiberaceæ*). Dilao, T.; Azafran, Sp. A perennial herbaceous plant valued for its root, which is used for seasoning.

CUSTARD APPLE. See *Anona reticulata*.

CUTSAY. See *Allium tricoccum*.

DAGMAY. See *Colocasia antiquorum*.

DAGMAY-NGA-INITLOG. See *Colocasia antiquorum*.

DAHILI. See *Cocos nucifera*.

DALANDAN. See *Citrus reticulata* and *C. aurantium*.

DALANGIAN. See *Artocarpus camansi*.

DALANIS. See *Terminalia catappa*.

DALARA. See *Terminalia catappa*.

DALAYAP. See *Citrus hystrix*.

DALIMA. See *Punica granatum*.

DALISAYE. See *Terminalia catappa*.

DALIVI-DALAGA. See *Musa* varieties.

DALONGDONG. See *Diospyros pilosanthera*.

DALUGUIAN. See *Artocarpus camansi*.

DAMMAR. See *Agathis loranthifolia*.

DAMORTIS. See *Pithecolobium dulce*.

DAMPALIT. See *Sesuvium portulacastrum*.

DANCALAN. See *Calophyllum inophyllum*.

DAOA. See *Setaria italica*.

DATILES. See *Muntingia calabura*.

DAUA. See *Setaria italica*.

DAUCUS CAROTA, L. (*Umbelliferae*). Zanahoria, Sp.; Carrot, Eng. A well-known garden vegetable grown successfully in the Philippines and cultivated in the gardens in a number of the provinces.

DAVA. See *Setaria italica*.

DAYAP. See *Citrus notissima*.

DILAO. See *Curcuma longa*.

DILLENIA PHILIPPINENSIS, Rolfe. (*Dilleniaceæ*). Catmon, T. A tree yielding an acid fruit which is used as a substitute for vinegar.

DINCALIN. See *Calophyllum inophyllum*.

DINUGUAN. See *Musa* varieties.

DIOSCOREA ALATA, L. (*Dioscoreaceæ*). Ube, T.; Yam, Eng. A climbing herbaceous plant producing a large tuber which forms an important article of food for the natives in many of the provinces.

DIOSCOREA DIVARICATA, Blanco. (*Dioscoreaceæ*). Ignema, Baliacag, V.; Cobag, Dullian, Il.; Obat; Paquit; Yam, Eng. One of the yams well known in the islands and sometimes cultivated for its large edible tubers.

- DIOSCOREA PAPILLARIS**, L. (Dioscoreaceæ). Tongo, Tungo, T. A wild vine occasionally cultivated for its edible root. *D. fasciculata* Roxb. may belong here.
- DIOSCOREA PENTAPHYLLA**, L. (Dioscoreaceæ). Bayanġcan; Lima, Lima-lima, Naminconot, Sap-ang. A native vegetable widely distributed in Luzón and other islands. Rarely cultivated.
- DIOSCOREA SATIVA** variety. (Dioscoreaceæ). Baong, Balaicag, V.; Cobag, T.; Dogue; Náme; Quiroi; Togui, Tugue, Tugueng pulo, T. A vine grown as a garden vegetable in Luzón and the Visayan Islands for its edible root.
- DIOSCOREA TRIPHYLLA**, Pers. (Dioscoreaceæ). Cayos, V.; Orot, V.; Calut, P.; Carot, Il., V., Corot, V., Gayos, V.; Karot, Il.; Nami, T.; Taqui. In times of scarcity this native yam supplies the chief food of the mountaineers of Luzón and the other islands. This may be the same as *D. hirsuta* Blume.
- DIOSPYROS CUNALON**, D. C. (Ebenaceæ). Cunalon. A tree the bark of which yields a black powder which the natives use as a dye.
- DIOSPYROS DISCOLOR**, Willd. (Ebenaceæ). Amagá, T., V.; Camaguan, T.; Malatipay, T.; Mabolo, T.; Talang, P.; Persimmon, Eng. A native persimmon tree 30 to 45 ft. high growing in Luzón and some of the other islands. The mature fruit is deep crimson and is covered with a deep rich bloom.
- DIOSPYROS EBENASTER**, Retz. (Ebenaceæ). Sapote, Zapote, T.; Persimmon, Eng. A large wide-spreading tree producing a rather large, smooth fruit which is eaten by the natives.
- DIOSPYROS PILOSANTHERA**, Blanco. (Ebenaceæ). Amaga, V.; Bantolinao, V.; Bantolinao, C.; Bolonguita, T.; Bolongita; Barlis; Bolongacta, T.; Balingacta, Il.; Calohadia; Caloyanang; Dalondong, V.; Persimmon, Eng. A native tree of Luzón and the Visayan Islands. The fruit is edible.
- DISHCLOTH GOURD**. See *Luffa ægyptiaca*.
- DOGUE**. See *Dioscorea sativa*.
- DOLICHOS LABLAB**. See *Vigna catjang*.
- DOLICHOS SESQUIPEDALIS**, L. (Leguminosæ). Camangeg, Il.; Camangian, P.; Otong, Sitao, T.; Long yard-bean. A climbing bean grown throughout the archipelago. The young pods and ripe beans are eaten. There are two varieties, one with purple and one with green pods. In the Manila markets these beans are sold in bunches of about 20 pods, ranging in price from 2 to 4 cents a bunch.
- DOLONGIAN**. See *Artocarpus camansi*.
- DRACONTOMELUM** species. (Anacardiaceæ). Alanihao, V.; Malaihao, T. A large tree with edible fruit.
- DUAT**. See *Eugenia jambolana*.
- DUHAT**. See *Eugenia jambolana*.
- DUJAT**. See *Eugenia jambolana*.
- DULIAN**. See *Dioscorea divaricata*.
- DUMALI**. See *Oryza sativa*.
- EGGPLANT**. See *Solanum melongena*.
- ENDIBIA**. See *Cichorium endivia*.
- ENDIVE**. See *Cichorium endivia*.
- ESCAROLA**. See *Cichorium endivia*.
- ESPARRAGO**. See *Asparagus officinalis*.
- EUGENIA JAMBOLANA**, Lam. (Myrtaceæ). Duat, T., V., P.; Duhat, T., V., P.; Dujat, T.; Lombuy, V.; Lumboy, Sp.; Lumboi, P., V., T., Il.; Lumboy, T.; Jambolan, or Jambolan plum. Found both wild and cultivated in Luzón and the other islands, and valued for the fruit, which is used for dessert.
- EUGENIA JAMBOS**, L. (Myrtaceæ). Balacbac, T.; Balobar, P.; Barabag; Baracbac, Il.; Calobcob, T.; Macupa, T.; Manzana-rosa, Sp.; Tampoi, T., V.; Yambo, T.; Yambolin; Yambosa; Tampoy, T.; Rose apple, Jamrosade, Eng. A tree grown to some extent in the gardens of Luzón and the Visayan Islands for its fruit, which is used in making jelly.
- EUGENIA MALACCENSIS**, L. (Myrtaceæ). Macopa, Macupa, T.; Yambo, P.; Poma-rosa, Cuba; Otaheite apple, Eng. A tree grown in gardens in Luzón and other islands for its edible fruit.
- EUPHORIA LITCHI**, D. C. See *Nephelium litchi*.
- FENNEL**. See *Feniculum vulgare*.
- FICUS GLOMERATA**, Rxb. (Urticaceæ). Tibig na lalaqui; Cluster Fig, Eng. A tree growing along streams. The small fruit is much relished by children and cattle also. The roots yield drinking water.
- FICUS HISPIDA**. (Urticaceæ). Isis. The very rough leaves of this fig are used for cleaning kitchen utensils, floors, etc.

FÆNICULUM VULGARE, Gaertn. (Umbelliferæ). Anisestellado, Sp.; Fennel, Eng.

The seeds of this weed are used for seasoning sweetmeats, etc.

FRIJOLE. See *Phaseolus lunatus*.

GABE. See *Colocasia antiquorum*.

GABI. See *Colocasia antiquorum*.

GABING-MORADA. See *Colocasia antiquorum*.

GABING-POLA. See *Colocasia antiquorum*.

GABY. See *Colocasia antiquorum*.

GALA-GALA. See *Agathis loranthifolia*.

GALLANG. See *Colocasia antiquorum*.

GANDA. See *Allium tricoccum* and *Allium sativum*.

GANDUS. See *Colocasia antiquorum*.

GARANGAN. See *Averrhoa carambola*.

GARCINIA MANGOSTANA, L. (Guttiferæ). Manguis (Joló); Mangzis (Joló); Mangostan, T., Sp.; Mangosteen, Eng. A tree cultivated with success in Joló, Mindanao, and Negros islands. The fruit is one of the most delicious of tropical products.

GARLIC. See *Allium sativum*.

GAVAY. See *Colocasia antiquorum*.

GAVE. See *Colocasia antiquorum*.

GAYOS. See *Dioscorea triphylla*.

GAYUBANO. See *Anona muricata*.

GINGER. See *Zingiber officinale*.

GLORIA. See *Musa sapientum* variety.

GNETUM species. (Gnetaceæ). Bago, V.; Bago-sili; Bangal, T.; Culiat, T., V.; Nabo, B.; Coliat, T., V. A small tree found on Luzón and the Visayan Islands and valued for its edible leaves and nuts.

GOGO-CASAY. See *Pithecolobium dulce*.

GOLASIMAN. See *Portulaca oleracea*.

GOLDEN APPLE. See *Spondias* species.

GOOSEBERRY. See *Phyllanthus distichus*.

GOYORAN. See *Musa* varieties.

GRAPE. See *Vitis* species.

GRENADA. See *Punica granatum*.

GROUNDNUT. See *Arachis hypogæa*.

GUANABANO. See *Anona muricata*.

GUANABENA. See *Anona muricata*.

GUAVA. See *Psidium guayava*.

GUAYABA. See *Psidium guayava*.

GUAYABANO. See *Anona muricata*.

GUIABANO. See *Anona muricata*.

GUINDILLA. See *Capsicum minimum*.

GUISANTE. See *Pisum sativum*.

HABAS. See *Phaseolus vulgaris*.

HALÓPAG-AMO. See *Nephelium litchi*.

HAMTAC. See *Vigna catjan*.

HARUM. See *Amaranthus spinosus*.

HEMIDESMUS INDICUS, R. Br. (Asclepiadaceæ). Zarzaparrilla, Sp.; Sarsaparilla, Eng. Indian sarsaparilla is grown locally for medicinal use.

HINCAMAS. See *Pachyrhizus angulatus*.

HINTAN. See *Terminalia catappa*.

HOJAS DE BUYO. See *Piper betel*.

HORSE-RADISH TREE. See *Moringa oleifera*.

HUMAY. See *Oryza sativa*.

IBA. See *Phyllanthus distichus* and *Averrhoa bilimbi*.

IGNEMA. See *Dioscorea divaricata*.

IKMO. See *Piper betel*.

ILANG-ILANG. See *Cananga odorata*.

INCAMAS. See *Pachyrhizus angulatus*.

INDIGO. See *Indigofera tinctoria*.

IPOMEA BATATAS, Poir. (Convolvulaceæ). Camote or Camoti, T.; Sweet potato, Eng. Many varieties of sweet potato are cultivated in the Philippines, and in some places constitute the staple article of food.

IRISH POTATO. See *Solanum tuberosum*.

IROC. See *Caryota onusta*.

- ISIS. See *Ficus hispida*.
 ITMO. See *Piper betel*.
 JACK FRUIT. See *Artocarpus integrifolia*.
 JAMAICA PLUM. See *Spondias*.
 JAMBOLUM, OR JAMBOLUM PLUM. See *Eugenia jambolana*.
 JAMROSADE. See *Eugenia jambos*.
 JENGIBRE. See *Zingiber officinale*.
 JINCAMAS. See *Pachyrhizus angulatus*.
 KADYOS. See *Cajanus indicus*.
 KAGUIOS. See *Cajanus indicus*.
 KALAMISMIS. See *Psophocarpus tetragonolobus*.
 KAMAS. See *Pachyrhizus angulatus*.
 KAMIAS. See *Averrhoa bilimbi*.
 KAROT. See *Dioscorea triphylla*.
 KATUDAY. See *Sesbania grandiflora*.
 KONDOL. See *Benincasa cerifera*.
 LABANOS. See *Raphanus sativus*.
 LABLAB CULTRATUS. See *Vigna catjang*.
 LACATAN. See *Musa sapientum* variety.
 LACTUCA SATIVA, L. (Compositæ). Lechuga, Sp. Lettuce, Eng. A well-known garden vegetable which thrives under cultivation and is grown throughout the archipelago.
 LAGUINI. See *Cissus acida*.
 LAGVAY. See *Colocasia antiquorum*.
 LANGINGI. See *Cissus acida*.
 LANGKA. See *Artocarpus integrifolia*.
 LANLUNDAL. See *Musa* varieties.
 LANSINA. See *Ricinus communis*.
 LANSIUM DOMESTICUM, L. (Meliaceæ). Bóboa, T., Boocán, Bulahan, T., Lanzón, V. T., Lanzones, Sp., T. A small tree occurring in Luzón and the Visayan Islands. It is often cultivated, being grown quite extensively in La Laguna province, for its fruit, which is used for dessert by the natives and also by the Europeans and Americans who soon learn to like it. Quantities of this fruit are exported to China.
 LANZÓN. See *Lansium domesticum*.
 LANZONES. See *Lansium domesticum*.
 LARGE ORANGE. See *Citrus aurantium*.
 LASA. See *Nipa fructicans*.
 LASO. See *Allium sativum*.
 LASONA. See *Allium cepa*.
 LASTÓN. See *Vigna catjan*.
 LATONDAN. See *Musa sapientum cinerea*.
 LAYAL. See *Zingiber officinale*.
 LAYOHAN. See *Phyllanthus distichus*.
 LECHIA. See *Nephelium litchi*.
 LECHUGA. See *Lactuca sativa*.
 LEERSIA HEXANDRA, Sw. (Graminææ). Zacate, Baret, Barit, T.; Bufigalon, V. A marsh grass cultivated about Manila much in the same manner as rice. It is cut and sold green in small bunches, being delivered daily. Its cultivation forms an important industry. The term *zacate* is applied to any fine grass used for food for stock.
 LEMON GUAVA. See *Psidium guayava*.
 LETONDAL. See *Musa sapientum cinerea*.
 LETTUCE. See *Lactuca sativa*.
 LIMA. See *Dioscorea pentaphylla*.
 LIMBAON. See *Cocos nucifera*.
 LIMON. See *Citrus hystrix acida*.
 LIMON REAL. See *Citrus medica limonum*.
 LIMONCITOS. See *Triphasia trifoliata*.
 LIMONSUTI. See *Triphasia trifoliata*.
 LINGANCINA. See *Ricinus communis*.
 LIVIAN. See *Castanopsis philippinensis*.
 LOBI. See *Cocos nucifera*.
 LOBI-NGA-HINBAON. See *Cocos nucifera*.
 LOBI-NGA-PILIPOG. See *Cocos nucifera*.

- LOMBOY. See *Eugenia jambolana*.
 LOMBUY. See *Eugenia jambolana*.
 LONG YARD-BEAN. See *Dolichos sesquipedalis*.
 LOPO. See *Cissus acida*.
 LOPO-LOPO. See *Cissus acida*.
 LOVIAN. See *Castaniopsis Philippiensis*.
 LUBACAN. See *Cocos nucifera*.
 LUBI. See *Cocos nucifera*.
 LUCBAN. See *Citrus decumana*.
 LUCUMA MAMOSA, Gaertn. (Sapotaceæ). Mamey, T. Chico mamey, Sp. Marmalade plum, Eng. A shrub grown in gardens in La Laguna for its fruit.
 LUFFA ACUTANGULUS, Roxb. (Cucurbitaceæ). Patola, Saycua, V.; Sponge Cucumber, Eng. A vine grown as a vegetable throughout the archipelago. Its fruit, when green, is cooked like squash or served in soups and stews. The interior of the ripe fruit is strongly fibrous, and yields a so-called "vegetable sponge" which forms an article of commerce.
 LUFFA ÆGYPTIACA, Mill. (Cucurbitaceæ). Patola, T., V.; Dishcloth gourd, Eng. Cultivated as the preceding species for local consumption, and used in a similar manner.
 LUGO. See *Terminalia catappa*.
 LUGOS. See *Areca catechu*.
 LUMBAN. See *Aleurites moluccana*.
 LUMBANG. See *Aleurites moluccana*.
 LUMBAY or LUMBIA. See *Metroxylon silvestre*.
 LUMBOI. See *Eugenia jambolana*.
 LUMBOY. See *Eugenia jambolana*.
 LUNBAN. See *Aleurites moluccana*.
 LUPO. See *Cissus acida*.
 LUY-A. See *Zingiber officinale*.
 LUYA. See *Zingiber officinale*.
 LUYOS. See *Areca catechu*.
 LYCOPERSICON ESCULENTUM, Mill. (Solanaceæ). Camatis, T., Tomato, Sp., Tomatoes, Eng. A well-known vegetable grown with success throughout the archipelago. From fresh American seed the fruit is large and excellent, but the product rapidly deteriorates in succeeding crops.
 MABOLA. See *Diospyros discolor*.
 MACASAMPALOC. See *Tamarindus indicus* and *E. jambos*.
 MACHIN. See *Musa* varieties.
 MACOPA. See *Eugenia malaccensis*.
 MACUPA. See *Eugenia malaccensis*.
 MAGSALORO-ŊGA-DUCU. See *Tacca pinnatifida*.
 MAIS. See *Zea mays*.
 MALAGQUIT. See *Oryza sativa*.
 MALAIHAO. See *Dracontomelum*.
 MALASANGUI. See *Cinnamomum* species.
 MALATÁPAY. See *Diospyros discolor*.
 MALISA. See *Piper nigrum* and *P. minimum*.
 MALUNGAY. See *Moringa oleifera*.
 MAM-IN. See *Piper betel*.
 MAMEY. See *Lucuma mamosa*.
 MAMON. See *Piper betel*.
 MAMPALAN. See *Mangifera indica*.
 MANA. See *Jatropha multifida*.
 MANGGA. See *Mangifera indica*.
 MANGIFERA ALTISSIMA, Blanco. (Anacardiaceæ). Appan, C.; Paho, Pajo, T.; Pao. A tree not uncommon in Luzón and other islands. The fruit is used for pickling, etc.
 MANGIFERA INDICA, L. (Anacardiaceæ). Mampalan, J., M., Mangga, T., Manga, Sp. Mango, Eng. A large tree presenting a number of varieties found throughout the archipelago. The fruit of some of the varieties is most excellent and prized alike by natives and Americans both for dessert and jelly making.
 MANGO. See *Mangifera indica*.
 MANGOSTAN. See *Garcinia mangostana*.
 MANGOSTEEN. See *Garcinia mangostana*.
 MANGUIS. See *Garcinia mangostana*.
 MANGUPOD. See *Areca catechu*.
 MANI. See *Arachis hypogaea*.

- MANIHOT MANIHOT.** (Euphorbiaceæ). Camoteng cahoy, T. Adam's needle, Cassava, Tapioca plant or Yucca, Eng. There are several varieties of this well-known plant common in the Philippines, where the natives make a kind of sweetmeat from the root. The plant has become spontaneous in many places, especially about Manila, and often assumes the proportions of a small tree. The native name, *camoteng cahoy*, signifies "tree sweet potato."
- MANZANA ROSA.** See *Eugenia jambos*.
- MANZANITAS.** See *Zizyphus jujuba*.
- MARANTA ARUNDINACEA, L.** (Scitamineæ). Ararao, T., Araro, V., P. Arrowroot. An herbaceous plant introduced into the islands from America and now widely grown for local use.
- MARAGACED.** See *Cinnamomum* species.
- MARGOSO.** See *Momordica balsamina*.
- MARIANA.** See *Indigofera tinctoria*.
- MARMALADE PLUM.** See *Lucuma mamosa*.
- MARUNGAY.** See *Moringa oleifera*.
- MATAVIA.** See *Musa sapientum maxima*.
- MELON.** See *Cucumis melo* variety.
- METROXYLON RUMPHII, Mart.** (Palmæ). Bagsang. A palm common in the Visayan Islands where it grows spontaneously in moist localities. The heart of the tree yields a kind of flour which is made into cakes or fritters and eaten with coconut milk.
- METROXYLON SILVESTRE, Mart.** (Palmæ). Lumbia or Lumbay. Like the last this species yields a kind of flour from which the poorer classes derive food in times of scarcity.
- MEZONEURUM GLABRUM, Desf.** (Leguminosæ). Cabitcabag, Sagnit, Sapnit, Togabang, Tugabang, Ugabang, V.; Siit, V. A vine found in Luzón and the Visayas, where the tender leaves are cooked and used for making salad.
- MIJO.** See *Setaria italica*.
- MILON.** See *Cucumis melo* variety.
- MILLET.** See *Setaria italica*.
- MIMUSOPS ELENGI, L.** (Sapotaceæ). Cabiqui, T.; Bansalague, T. V.; Bansalagin, T.; Pasac, T.; Z.; Talipopo, V. A large tree bearing fragrant flowers and an edible fruit. It occurs in Luzón and the Visayan Islands, and is sometimes seen in gardens.
- MOCO.** See *Musa* varieties.
- MOMORDICA BALSAMINA, L.** (Cucurbitaceæ). Ampalaya, Ampalea, T. Apale, Apalia, V.; Palaya, B.; Palla, Margoso, T.; Palia; Sampalia, V.; Paria Amargoso Balsamina, Sp.; Balsan apple, Eng. A vine with yellow flowers grown throughout the archipelago for local consumption; the leaves and fruit are used as a condiment. There are two distinct varieties, both having a bitter taste.
- MONGO.** See *Phaseolus mungo*.
- MORINGA PTEROGOSPERMA, Gærtn.** (Moringeæ). Arongay, Arungay, P. Manungal, Balongay, Balungay, V., Caluñgai, T., V., P.; Camalongay, Camalungay, Malungay, T.; Marungay, Il., V.; Horse-radish tree, Eng. A small tree found throughout the archipelago, valued for its roots, leaves, and fruit, which are utilized for various purposes.
- MOSTAZA.** See *Sinapis juncea*.
- MUNGO.** See *Phaseolus mungo*.
- MUNTINGIA CALABURA, L.** (Tiliaceæ). Cerezas, T., Sp.; Datiles, Ratiles, T.; Calabur tree. A small tree introduced from America, now spontaneous in Luzón. The fruit is edible.
- MUSA SAPIENTUM, L.** (Scitamineæ). Saguing, T.; Platano, Sp.; Banana, Eng. Saguing is the Tagalog name for all kinds of bananas, of which there are several species and no less than fifty varieties in the Philippines. Some of the more important are the following:
Musa sapientum cinerea, Letondal, Lutandan, Tundalan. A variety introduced from India and now widely cultivated in the islands for its edible fruit.
Musa sapientum compressa. Bisco, Saba, T., Sab-a, V.; Platano, Sp. A variety with a strongly compressed fruit, raised throughout the archipelago and of some commercial importance.
Musa sapientum lacatan. Lacatan, T. This is regarded as one of the best varieties because of the superior flavor of its fruit.
Musa sapientum magna. Tondoc, T. V., Tunduque, T. A large fruited variety grown to some extent. The fruit is edible.

Musa sapientum maxima. Batavia, T.; Matavia, V. A widely distributed variety, valued for its fruit.

Musa sapientum suaveolens. Bungulan, T. Regarded as one of the best and most highly flavored varieties; widely cultivated.

Musa sapientum ternatensis. Gloria, T.; Taranate, P.; Ternate, T. Grown for its fruit in central Luzón. Other names for banana or *Musa* varieties, are as follows: Afapuyan, Afuyan, C.; Alimuquen, Il.; Anuang, T.; Aaricundai, V.; Aricundal, V.; Báloi, V.; Baloy, T.; Binalaton, V.; Bingticohol, T.; Botabau, T.; Caracton, V.; Dalivi-dalaga; Dinuguan, T.; Goyoran, T.; Lanlundai; Machiu; Quinanayan, T.; Sabang-visaya; Tinalong, T.; Tampuhing, T.; Aimpal, V.; Anonoo; Carnate; Balañgun, V.; Balayang, Il.; Benticohol, T.; Biuato, V.; Botoan, T.; Bunneç, Il.; Butneg, Il.; Butuan, T.; Moco (Ilofo), Saging, T., V.; (see *Musa sapientum* and *M. textilis* in Part II).

MUSHROOM. See *Agaricus*.

MUSTARD. See *Sinapis juncea*.

MYRISTICA PHILIPPINENSIS, Lam. (Myristicæ). Anis cahoy, T.; Nuez moscada, Sp.; Nutmeg, Eng. A tree found in southern Luzón and the Visayan Islands. The well-known fruit is used as a spice or condiment.

NABO. See *Gnetum*.

NÁME. See *Dioscorea sativa*.

NAMI. See *Dioscorea triphylla*.

NAMI-CONOT. See *Dioscorea pentaphylla*.

NANCA. See *Artocarpus integrifolia*.

NAÑGA. See *Artocarpus integrifolia*.

NAÑKA. See *Artocarpus integrifolia*.

NARANJA. See *Citrus decumana*.

NARANJITAS. See *Citrus reticulata*.

NATIS. See *Anona squamosa*.

NATO. See *Terminalia catappa*.

NEPHELIUM LITCHI, Camb. (Sapindacæ). Alaipay, T.; Alopay; Alpay; Alupay; Aluoi; Halópag-ámo (Tayabas). Lechia, Sp. A tree of Luzón and the Visayan Islands, valued for its edible fruit.

NGOÑGOT. See *Cocos nucifera*.

NICOTIANA TABACUM L. (Solnacæ). Tobacco, Sp., T., Eng. One of the most important of the agricultural products of the islands. There are a number of varieties recognized. The principal tobacco producing provinces are Isabela and Cagayán, in northern Luzón.

NILOMOT. See *Oryza sativa*.

NIOG. See *Cocos nucifera*.

NIOG-ÑGA-POTI. See *Cocos nucifera*.

NIPA. See *Nipa fruticans*.

NIPA FRUCTICANS, Wurm. (Palmæ). Nipa, Sp.; Sasa, T.; Lasa; Saga, Z.; Tata, C. Common along the banks of rivers and estuaries in tidal waters throughout the archipelago. It is one of the most useful of the native plants, the leaves supplying the material chiefly used by the natives for the walls and roofs of their bamboo houses, and the tuba obtained from it affords an important industry in a number of localities, especially in the vicinity of Cápiç, where there are numerous distilleries for making brandy or *vino*.

NUEZ MOCADA. See *Myristica philippinensis*.

NUTMEG. See *Myristica philippinensis*.

OBAT. See *Dioscorea divaricata*.

OGOB. See *Artocarpus rima*.

OLASIMAN. See *Portulaca oleracea*.

ONGOT. See *Cocos nucifera*.

ONGSOY. See *Coriandrum sativum*.

ONION. See *Allium cepa*.

OPO. See *Vitis*.

ORANGE. See *Citrus decumana*.

ORAYI. See *Amaranthus spinosus*.

ORYZA SATIVA, L. (Graminæ). Bigas, T.; Binambang, T.; Bolahan; Dumali, T.; Humay; Malagquit, T.; Nilomot; Quinanda, T.; Tangit; Palay, T.; Arroz, Palay, Sp.; Rice, Paddy, Eng. A well-known cereal which forms the staple food of the Filipinos. It is cultivated upon all the islands, and more than 150 varieties are known.

OTAHEITE APPLE. See *Eugenia malaccensis*.

- OTAHEITE GOOSEBERRY. See *Phyllanthus distichus*.
 OTONG. See *Dolichos sesquipedalis*.
 PAC. See *Artocarpus camansi*.
 PACAC. See *Artocarpus camansi*.
 PACHYRHIZUS BULBOSUS Kurz. (Leguminosæ). Camas, B.; Hincamas, T.; Incamas, P., Pn.; Jincamas, T.; Kamas, Il.; Sincamas, T.; Ticamas, V. An herbaceous vine with a turnip-like root, introduced from Mexico. The root is eaten raw or with oil and vinegar in the form of a salad.
 PACO. See *Asplenium esculentum*.
 PACOPOL. See *Cissus acida*.
 PADDY. See *Oryza sativa*.
 PAHO. See *Mangifera altissima*.
 PAJO. See *Mangifera altissima*.
 PAKWAN. See *Citrullus vulgaris*.
 PAL-LAM. See *Psophocarpus tetragonolobus*.
 PALAY. See *Oryza sativa*.
 PALAYA. See *Momordica balsamina*.
 PALIA. See *Momordica balsamina*.
 PALLA. See *Momordica balsamina*.
 PALLANG. See *Psophocarpus tetragonolobus*.
 PALMA CHRISTI. See *Ricinus communis*.
 PALO MARIA. See *Calophyllum inophyllum*.
 PAMINTA. See *Piper nigrum*.
 PAMOCOL. See *Cocos nucifera*.
 PANARIEN. See *Tacca pinnatifida*.
 PANDAN. See *Terminalia catappa*.
 PANGAS. See *Zingiber officinale*.
 PANGOSIN. See *Cocos nucifera*.
 PAO. See *Mangifera altissima*.
 PAPA. See *Solanum tuberosum*.
 PAPAWE. See *Carica papaya*.
 PAPAYA. See *Carica papaya*.
 PAQUIT. See *Dioscorea divaricata*.
 PARAS. See *Phyllanthus distichus*.
 PARIA. See *Momordica balsamina*.
 PARSLEY. See *Apium petroselinum*.
 PASAC. See *Mimusops elengi*.
 PASI. See *Cinnamomum* species.
 PASITAS. See *Capsicum minimum*.
 PASITIS. See *Capsicum minimum*.
 PASOTIS. See *Chenopodium ambrosioides*.
 PATANE. See *Phaseolus lunatus* variety.
 PATATA. See *Solanum tuberosum*.
 PATOLA. See *Luffa xyptiaca* and *L. acutangula*.
 PAUNNGAGAN. See *Castanopsis philippinensis*.
 PAYONG AHAS. See *Agaricus*.
 PEANUT. See *Arachis hypogaea*.
 PEAS. See *Pisum sativum*.
 PECHAY. See *Sinapis brassicata*.
 PEPINO. See *Cucumis sativus*.
 PEREJIL. See *Apium petroselinum*.
 PERSIMMON. See *Diospyros* species.
 PHALARIS CANARIENSIS, L. (Gramineæ). Alpiste, Sp.; Canary grass, or Canary seed. A grass introduced from Europe and grown for ornament or for the grain which is used for feeding canary birds.
 PHASEOLUS LUNATUS INAMENUS, L. (Leguminosæ). Patane, T.; Platani, Sp. A climbing bean of the lima bean type cultivated in gardens on Luzón, Panay, etc.
 PHASEOLUS LUNATUS MACROCARPUS. (Leguminosæ). Azabache, T.; Zabache, T.; Frijoles, Sp.; Haba, Sp.; Lima beans, Eng. A common vegetable grown in many gardens.
 PHASEOLUS MUNGO, L. (Leguminosæ). Balaton; Balatong Mungo, T.; Mongo, Sp.; Green Gram, Eng. An herbaceous plant cultivated on a commercial scale throughout the archipelago, the seeds constituting a staple article of food. The average price in local markets is 5 to 6 cents gold per pound.

- PHASEOLUS species (Leguminosæ). Agayap, T. Pn.; Beans, Eng. A variety grown in Cagayan valley for local consumption.
- PHASEOLUS VULGARIS, D. C. (Leguminosæ). Biringi, T.; Butinga, T., P.; Habas, Sp. T.; Beans, Eng. Beans of the kidney variety are grown in almost every garden.
- PHYLLANTHUS DISTICHUS, Mull. (Euphorbiacæ). Bangquiling, T.; Iba, T. P.; Layohan, Poras, V.; Yba, T.; Otaheite gooseberry, Eng. A shrub or small tree grown in gardens for its acid fruit, which is used for pickles or preserves.
- PIAS. See *Averrhoa bilimbi*.
- PILANI. See *Canarium commune*.
- PILI. See *Canarium commune*.
- PILI-PILAUAY. See *Canarium commune*.
- PILIPOG. See *Cocos nucifera*.
- PIMENTA. See *Piper nigrum*.
- PIMIENTO. See *Capiscum* species.
- PINEAPPLE. See *Ananas sativus*.
- PIÑA. See *Ananas sativus*.
- PIPER BETEL, L. (Piperacæ). Ikmo, Itmo, T.; Canisi, V.; Hojas de buyo; Poro; Mam-in, V.; Samat, P.; Buyo, Sp.; Betel pepper, Eng. A perennial vine with smooth, bright green, ovate leaves. Very variable. The fresh green leaves are chewed by the natives when wrapped about a fragment of areca nut, together with a pinch of quicklime, the leaves and nut together tasting something like a nutmeg, giving a spicy odor to the breath. All islands.
- PIPER NIGRUM, L. (Piperacæ). Malisa, P., Il.; Paminta, T.; Pamienta, Sp.; Black pepper, Eng. A shrub formerly extensively cultivated in Batangas province. The fruit is used as a spice.
- PISONG. See *Citrus aurantium*.
- PISUM SATIVUM, L. (Leguminosæ). Chicharo, T., Sp.; Guisante, Sp.; Peas, Eng. Grown with success by the natives in several provinces.
- PITHECOLOBIUM DULCE, Benth. (Leguminosæ). Camantiris, Il.; Camasteles; Comonsil, V.; Gogo-casay, T.; Teque, T.; Camachile, T.; Camanchile, T. Il.; Camansile, T.; Damortis; Manila Tamarind, Eng. A moderate sized tree from Mexico. The pulpy part of the pods is eaten by the natives; the bark is used for tanning, and the wood is used to make charcoal.
- PLATANO COLORADO. See *Musa* variety.
- PLATANO DE MONO. See *Musa* variety.
- PLATANO MORADO. See *Musa* variety.
- POMEGRANATE. See *Punica granatum*.
- PORAS. See *Phyllanthus distichus*.
- PORO. See *Piper betel*.
- PORTULACA OLERACEA, L. (Portulacacæ). Ansiman, Colasiman, or Golasiman, T.; Olasiman; Sayican, T.; Verdolaga, Sp.; Purslane, Eng. A common weed throughout the islands. The plant is used as a pot herb.
- POTATO. See *Solanum tuberosum*.
- POTOLONG WAK. See *Luffa xyptiaca*.
- POTOT. See *Cocos nucifera*.
- PSIDIUM GUAYAVA, L. (Myrtacæ). Arrayan; Calinbagin, T.; Bayabas, Tayabas, T.; Guayabas, Guayava, Sp.; Lemon Guava, Eng. A shrub or small tree bearing a fruit from which the well-known guava jelly is made. Imported from Mexico.
- PSOPHOCARPUS PALUSTRIS, Desv. (Leguminosæ). Balagay, V. A twining herb bearing an edible pod 3 to 4 inches long. Cultivated.
- PSOPHOCARPUS TETRAGONOLOBUS, D. C. (Leguminosæ). Calamismis, T.; Calmaluson, V.; Kalamismis, T.; Pal-lam, Il.; Pallang; Seguidillas, T.; Sp. Four-winged bean, Eng. A trailing herbaceous vine bearing edible pods having four longitudinal broad wings. Luzón and the Visayan Islands; grown as a garden vegetable.
- PUGAHAN. See *Caryota urens*.
- PUNICA GRANATUM, L. (Lythariæ). Dalima, J.; Grenada, Sp., T.; Pomegranate, Eng. A shrub found in Luzón and the southern islands. Valued as an ornamental plant and for its edible fruit.
- PURLANE. See *Portulaca oleracea*.
- QUIBAL. See *Vigna catjang*.
- QUILALA. See *Saccharum officinarum*.
- QUILIHIVA. See *Averrhoa bilimbi*.
- QUILITIS. See *Amaranthus spinosus*.
- QUIMPAY. See *Colocasia antiquorum*.
- QUINANDA. See *Oryza sativa*.

- QUINCHAY. See *Apium graveolens*.
 QUINSAY. See *Apium graveolens*.
 QUIROI. See *Dioscorea sativa*.
 QUITICOT. See *Capsicum minimum*.
 RABANOS. See *Raphanus sativus*.
 RADISH. See *Raphanus sativus*.
 RAPHANUS SATIVUS, L. (Crucifere). Rabanos, Sp.; Labanos, T.; Radish, Eng. A common vegetable widely cultivated throughout the islands.
 RATILES. See *Muntingia calabura*.
 RED PEPPER. See *Capsicum* species.
 RED SQUASH. See *Cucurbita maxima*.
 REPOLLO. See *Brassica oleracea*.
 RHAMNUS species. (Rhamnaceae). Cabatete, Il.; Cabatiti, Il., Pn. A shrub reported from Nueva Vizcaya. The leaves are eaten.
 RICE. See *Oryza sativa*.
 RICINO. See *Ricinus communis*.
 RICINUS COMMUNIS, L. (Euphorbiaceae). Lansino, Lingancina; Tañgantañgan, T.; Palma Christi, Ricino, Sp.; Castor Oil Plant, Eng. Widely distributed throughout the islands, often forming dense jungles. Valued for the oil bearing seeds.
 RIMA. See *Artocarpus communis* and *Artocarpus rima*.
 RIMO. See *Artocarpus communis*.
 ROSE APPLE. See *Eugenia jambos*.
 RUMBANG. See *Aleurites moluccana*.
 SABA. See *Musa sapientum compressa*.
 SABA ILOCO. See *Musa sapientum compressa*.
 SABANG VISAYA. See *Musa* varieties.
 SACCHARUM OFFICINARUM, L. (Gramineae). Agbo, C.; Quilala, V.; Tubo, T.; Cana dulce, Sp.; Sugar cane, Eng. Cane is grown throughout the archipelago, especially on the island of Negros. A number of varieties are cultivated and sugar is one of the principal exports.
 SACSIC. See *Areca catachu*.
 SAGA. See *Nipa fruticans*.
 SAGING. See *Musa* varieties.
 SAGNIT. See *Mezoneurum glabrum*.
 SAGU. See *Caryota urens*.
 SAGUING. The Tagalog name for bananas
 SALUYOT. See *Corchorus olitorius*.
 SAMALAGUI. See *Tamarindus indica*.
 SAMAT. See *Piper betel*.
 SAMBAC. See *Tamarindus indica*.
 SAMBAG. See *Tamarindus indica*.
 SAMBAGUI. See *Tamarindus indica*.
 SAMBALAGUI. See *Tamarindus indica*.
 SAMILIN. See *Cinnamomum*.
 SAMPALIA. See *Momordica balsamina*.
 SAMPALOC. See *Tamarindus indica*.
 SANDIA. See *Citrullus vulgaris*.
 SANDORICUM INDICUM, Cav. (Meliaceae). Santol, Santor; Wild Mangosteen. A tall tree grown in gardens throughout the archipelago, valued for its fruit which has a white fleshy acid pulp. Used for dessert, etc.
 SAP-ANG. See *Dioscorea pentaphylla*.
 SAPNIP. See *Mezoneurum glabrum*.
 SAPODILLA. See *Achras sapota*.
 SAPOTE. See *Diospyros ebenaster*.
 SAYCUA. See *Luffa acutangula*.
 SAYICAN. See *Portulaca oleracea*.
 SEGUIDILLAS. See *Psophocarpus tetragonolobus*.
 SESBANIA GRANDIFLORA, Pers. (Leguminosae). Katuday, Catoday, Il.; Catuday, T., Il.; Caturay, P., Il. A tree, the flowers of which are used for salad.
 SESUVIUM PORTULACASTRUM, L. (Ficoideae). Bilang-bilang, V.; Carampalit, P.; Dampalit, T.; Tarumpalit. A fleshy herb used as a vegetable, especially for pickling. Luzon and other islands.
 SETARIA ITALICA, Beauv. (Gramineae). Bicacao, V., T.; Borona, P.; Bucao, B. Dava, Daoa, V.; Dava, T., V.; Mijo, Sp.; Millet, Eng. A grass not uncommon in Luzon and the Visayan Islands. Introduced. The seeds are used for food by the natives.

- SIBUYAS. See *Allium cepa*.
- SICO. See *Achras sapota*.
- SIEVA. See *Phaseolus lunatus*.
- SIIT. See *Mezoneurum glabrum*.
- SILAC or SILAG. See *Corypha umbraculifera*.
- SILE. See *Capsicum* species.
- SILI. See *Capsicum minimum*.
- SINAPIS BRASSICATA, Bl. (Cruciferæ). Pechay, T. An herbaceous plant grown in Luzón and the Visayan Islands as a garden vegetable.
- SINAPIS JUNCEA, Bl. (Cruciferæ). Mostaza, Sp., T.; Mustard, Eng. A garden vegetable, the leaves and seeds being used for condiment.
- SINCAMIS. See *Pachyrhizus angulatus*.
- SINDOC. See *Cinnamomum*.
- SINTONES. See *Citrus reticulatus*, and *C. aurantium*.
- SIRUELAS. See *Spondias* species.
- SITAO. See *Dotichos sesquipetalis*.
- SMALL LEMON. See *Citrus mitis*.
- SMALL ORANGE. See *Citrus reticulatus*.
- SOLANUM MELONGENA, L. (Solanaceæ). Talong, T.; Berengena, Sp.; Eggplant, Eng. A well-known vegetable extensively grown by the natives.
- SORGHUM VULGARE, Pers. (Gramineæ). Batad, V.; Sorghum, Eng. Introduced, and now quite widely distributed, growing spontaneously.
- SOUR SOP. See *Anona muricata*.
- SPONDIAS MANGIFERA, Wall. (Anacardiaceæ). Alubihod, V.; Alubihon, T.; Siruelas, T.; Ciruelas, Sp.; Golden Apple, Jamaica Plum, Eng. A small tree grown for its edible fruit. All islands.
- SPONGE CUCUMBER. See *Luffa ægyptiaca*.
- SUGAR APPLE. See *Anona squamosa*.
- SUHA. See *Citrus decumana*, and (in Batangas) *C. hystrix*.
- SUIRSAAK. See *Anona muricata*.
- SUSAKKA. See *Anona muricata*.
- SUSONG CALABAO. See *Unona* species.
- SUSONG DAMULAG. See *Unona* species.
- SWEET POTATO. See *Ipomœa batatas*.
- SWEET SOP. See *Anona squamosa*.
- TABACO. See *Nicotiana tabacum*.
- TABACOG. See *Cucumis melo*.
- TACATAC. See *Castanopsis philippinensis*.
- TACCA PINNATIFIDA, Forst. (Taccaceæ). Magsaloro-n̄ga-ducu, V.; Panarien, P., T.; Parnarien, Il.; Canobong, Tayobong, V. A plant cultivated for its tuberous root, from which a kind of flour is made called *gaogao* in Manila markets. Common in Ilocos, Ilocos Norte, Ilocos Sur, Zambales, and Antique.
- TAGBAC-TAGBAC. See *Maranta arundinacea*.
- TAGOM. See *Indigofera tinctoria*.
- TAGUIPAN. See *Caryota urens*.
- TAGUM. See *Indigofera tinctoria*.
- TALACATAC. See *Castanopsis* species.
- TALANG. See *Diospyros discolor*.
- TALIPOPO. See *Mimusops elengi*.
- TALISAY. See *Terminalia catappa*.
- TALONG. See *Solanum melongena*.
- TAM-ISAN. See *Cocos nucifera*.
- TAMARIND. See *Tamarindus indica*.
- TAMARINDUS INDICA, L. (Leguminosæ). Camalagui, V.; Macasampaloc, T.; Samalagui, Sambag, Sambac, B.; Sambagui, Sambalagui, V.; Sampaloc, T.; Tamarindo, Sp.; Tamarind, Eng. A tree of Luzón and the Visayan Islands, valued for its fruit, which is edible.
- TAMIS. See *Cocos nucifera*.
- TAMPOY. See *Eugenia jambos*.
- TAMPUHING. See *Musa* varieties.
- TANCONG. See *Convolvulus repens*.
- TANGANTANGAN. See *Ricinus communis*.
- TANGCONG. See *Convolvulus repens*.
- TAPIASIN. See *Cocos nucifera*.
- TAQUIPAN. See *Caryota urens*.
- TARANATE. See *Musa sapientum* variety.

- TARUMPALIT. See *Sesuvium portulacastrum*.
TATA. See *Nipa fructicans*.
TAYABAS. See *Psidium guayava*.
TAYOBONG. See *Tacca pinnatifida*.
TAYOMAMIS. See *Cocos nucifera*.
TAYON. See *Indigofera tinctoria*.
TAYUM. See *Indigofera tinctoria*.
TAYUNG. See *Indigofera tinctoria*.
TEQUE. See *Pithecolobium dulce*.
TERMINALIA CATAPPA, L. (Combretaceæ). Almendro; Banilac, V.; Dalara; Dalansi, B.; Dalisay, Talisay; Lugo, II.; Nato, V.; Hintan, Pandan, II.; Almond, Eng. A common shade tree, the seeds of which are eaten and are known as the native almond. The true almond is *Amygdalis amygdalis*.
TERNATE. See *Musa sapientum* variety.
THEOBROMA CACAO, L. (Sterculiaceæ). Cacao, Sp.; T. Coco, Chocolate, Eng. Introduced from America in the sixteenth century and widely distributed throughout the islands, but nowhere forming any considerable industry. The Philippine product is of superior excellence.
TIBIG NA LALAQUI. See *Ficus glomerata*.
TICAMAS. See *Pachyrhizus angulatus*.
TILITES. See *Amaranthus spinosus*.
TIPOLO. See *Artocarpus communis*.
TOBACCO. See *Nicotiana tabacum*.
TOGABANG. See *Mezoneurum glabrum*.
TOGUI. See *Dioscorea sativa*.
TOMATES. See *Lycopersicum esculentum*.
TOMATO. See *Lycopersicum esculentum*.
TONDOC. See *Musa sapientum* variety.
TONGO. See *Dioscorea papillaris*.
TRIGO. See *Triticum vulgare*.
TRIPHASIA AURANTIOLA, Lour. (Rutaceæ). Limon suti; Limoncitus, Sp. A shrub whose fruit is used for a dressing. All islands.
TRITICUM VULGARE, Willd. (Gramineæ). Trigo, Sp.; Wheat, Eng. Reported to be grown in a number of provinces of Luzón.
TSICU. See *Achras sapota*.
TUBO. See *Saccharum officinarum*.
TUGABANG. See *Mezoneurum glabrum*.
TUGUE. See *Dioscorea sativa*.
TUGUENG PULO. See *Dioscorea sativa*.
TUNDALAN. See *Musa sapientum cinerea*.
TUNDUQUE. See *Musa sapientia magna*.
TUNGO. See *Dioscorea papillaris*.
TURMERIC. See *Curcuma longa*.
UBI. See *Dioscorea alata*.
UGABANG. See *Mezoneurum glabrum*.
UNONA species. (Anonaceæ). Cabog, Caboy, T.; Susong calabao, T.; Susong damulag, P. A small tree of Luzón, bearing a scarlet fruit which is eaten by the natives.
UPO. See *Cucurbita lagenaria villosa*.
UVAS. See *Vitis* species.
VERDOLAGA. See *Portulacca oleracea*.
VIGNA CAJANG, Endl. (Leguminosæ). Hamtac, V.; Laston, V.; Quibal; Cowpeas, Eng. A vine apparently indigenous in Luzón, etc. The natives eat the fruit.
VITIS species. (Vitaceæ). Uvas, Sp.; Grape, Eng. Occasionally seen in gardens in the cultivated (*Vitis vinifera*) forms. An apparently native grape grows in Negros and Guimará's islands. There are several native species of the genus *Vitis* in the Philippines.
WATERMELON. See *Citrellus vulgaris*.
WHEAT. See *Triticum vulgare*.
WHITE SQUASH. See *Cucurbita lagenaria villosa*.
WILD CHESTNUT. See *Castanopsis philippinensis*.
YAM. See *Dioscorea divaricata*.
YAM BEAN. See *Pachyrhizus angulatus*.
YAMBO. See *Eugenia malaccensis*, and *E. jambos*.
YAMBOLIN. See *Eugenia jambos*.
YBA. See *Phyllanthus distichus*.

YLANG YLANG. See *Cananga odorata*.

YUCCA. See *Manahot manahot*.

ZABACHE. See *Phaseolus lunatus*.

ZACATE. See *Leersia hexandra*.

ZANAHORIA. See *Daucus carota*.

ZAPOTE. See *Diospyros ebenaster*.

ZEА MAYS, L. (Gramineæ). Borona, Mais, T.; Maiz, Sp.; Corn or Indian Corn, Eng. Introduced from America many years ago and now widely cultivated throughout the islands; in some localities it forms the staple article of food. In the Visayan Islands an alcoholic drink called *pangasi* is made from corn.

ZINGIBER OFFICINALE, L. (Scitamineæ). Baseng, Il.; Loyal, M.; Luya, T.; Luy-a; Pangas, M.; Jengibre, Sp.; Ginger, Eng. This spice plant is grown in Luzón and the southern islands. There are several native species.

ZIZYPHUS JUJUBA, Lam. (Rhamnaceæ). Manzanas or Manzanitas, Sp., T. A tree occasionally found in gardens in Luzón, grown for its edible fruit. Introduced.

PART II.—FIBER PLANTS.

AANGAN. See *Rattan*.

ABACÁ NEGRO. See *Musa textilis*.

ABACÁ ÑGA ALAMAY, M. (Misamis). See *Musa textilis*.

ABACÁ ÑGA LAMB. See *Musa textilis*.

ABACANG PUTI, V. (Negros Occidental). See *Musa textilis*.

ABAGON, P. A fiber plant reported as growing in Tárlac province. The fiber is made into ropes for local use.

ABROMA ANGUSTA, Linn. (Sterculiaceæ). Anabo, Anibong, T., B., V., Il.; Anabu, P.; Anafu, Il.; Anangbo, V.; Annabo, Z.; Pn., Il.; Labon, Nabo, Tanabo, V. A perennial shrub, with soft, hairy leaves. The inner bark of the branches yields a strong, white fiber, which is said to rival jute in durability and value, and is used for making ropes, twine, thread, fishing lines, pouches, etc. Fiber of 2 meters in length can be obtained, and is sold in the local markets, at \$4 Mexican per picul. Luzón and the Visayan Islands. *Abroma elata* Blanco, apparently belongs here.

ABROMA species. (Sterculiaceæ). Canamo, Sp.; Lapnit, Il. The inner bark is used for making twine, ropes, etc. Northern Luzón.

ABRUS PRECATORIUS, L. (Leguminosæ). Bugayon, Il. See *Bugayon*.

ABUTILON INDICUM, Sweet. (Malvaceæ). Cuacuahon; Gulig Guiligan, T.; Tabing, Malis, Dalupang, Palis, B.; Malva, Sp. A small shrub. The inner bark of the branches yields a fairly strong, white fiber, used in making ropes. Luzón and the Visayan Islands.

AGA, T. Referred by authors to the genus *Ficus*. The inner bark of this plant, or tree, is used in making ropes, roofing, aprons, or breech cloths of the Ibilao and Negritos. The fiber is obtained by maceration.

AGAVE VIVIPARA, L. Nipis (Amaryllidaceæ). Amaguey, Pn.; Magay, V.; Maguey, T., Il.; Pita, Sp.; Bastard Aloe, Eng. Maguey is one of the "Century Plants," and its leaves yield a fiber similar to that of sisal hemp, or heniquen, of Central America. The fiber is used for making ropes, twine, etc. It is exported in large amounts from Ilocos Norte. The yield is reported to be about 10 piculs per hectare, selling at from \$5 to \$8 Mexican per picul. Northern Luzón, southward to Iloilo and western Negros. Introduced from America.

AGNAYAS. See *Lygodium* species.

AGOTAY. See *Musa textilis*.

AGPUL. See *Hibiscus* species.

AGUINGAY. See *Pennisetum*.

AGUTAY. See *Musa textilis*.

AHIHIRO. See *Bauhinia tomentosa*.

ALAMBIHOR. See *Bauhinia tomentosa*.

ALBU. See *Hibiscus* species.

ALGODON. See *Gossypium* species.

ALGODONCINO. See *Ceiba pentandra*.

ALIBANBAN. See *Bauhinia tomentosa*.

ALIBANGBANGAN. See *Bauhinia vahlii*.

ALIBIHIL. See *Bauhinia tomentosa*.

ALIMORRAN. See *Rattan*.

ALINAO. See *Grewia columnaris*, and *Columbia serratifolia*.

AMAGUEY. See *Agave vivipara*.

- AMORSECO. See *Cyathula prostrata*.
- AMUCAO. See *Musa* species.
- ANAAO. See *Corypha minor*.
- ANABO. See *Abroma angusta*.
- ANABU. See *Abroma angusta*.
- ANAFU. See *Abroma angusta*.
- ANAGBO. See *Abroma angusta*.
- ANAHAO. See *Corypha minor*.
- ANAHAW. See *Corypha minor*.
- ANAMIRTA COCCULUS, Wright and Arn. (Menispermaceæ). Labtang, Il., Lactang, Lictang, Lintang baguin, T.; Suma, P.; Balasin, Bayati, B. A coarse, woody climber, the stems of which are used in La Unión and Pampanga provinces for tying and binding.
- ANANAS SATIVUS, Schult. (Bromeliaceæ). Pineapple, Eng.; Piña, Sp., T., etc. The well-known pineapple, the leaves of which yield a very fine and strong fiber used in the manufacture of fine cloths, dress goods, shirts, etc. One ounce of fiber, "more or less," is obtained from 6 leaves, or practically 1 pound to 100 leaves. Luzón, Visayan, and Mindanao Islands. Introduced. (See also Part I.)
- ANAO. See *Corypha minor*.
- ANAS. See *Bambusa* species.
- ANASAG. See *Rattan*.
- ANDROPOGON ACICULARIS, Retz. (Gramineæ). Morisco, V.; Morosico, Mursicos, T., V. A rather slender grass common on thin soil. The stems are used in the manufacture of native hats, mats, etc. All islands.
- ANDROPOGON species. Jinguio, T.; Junquillo, Juncio, Sp. Reed-like grasses, the stems of which are used in making fish corrals.
- ANIBONG. See *Abroma angusta*.
- ANIBONG. See *Caryota urens*.
- ANIBUNG. See *Arenga saccharifera*.
- ANILAO OF ANILO. See *Grewia columnaris*.
- ANILO, P. A fiber plant reported from the province of Pampanga as being used in making ropes. Probably *Grewia columnaris*.
- ANNABO. See *Abroma angusta*.
- ANONA RETICULATA, Linn. (Anonaceæ). Anonas, Sp., T., Bullock's Heart, Eng. Custard Apple, Eng. A small tree from tropical America growing spontaneously in Luzón and the Visayan Islands. The inner bark of branches and young twigs are used in making ropes and twine.
- ANONANG. See *Cordia myxa*.
- ANOS. See *Bambusa* species.
- ANTIPOTO. See *Artocarpus communis*.
- ANULA. See *Grewia columnaris*.
- APAS. See *Rattan*.
- APIS. See *Calamus javensis*.
- APLIT. See *Pterocarpus*.
- APOO. See *Boehmeria nivea*.
- ARAMAY, Il. The bark of aramay is used in Nueva Vizcaya in making twine, cords, etc.
- ARANDONG, C. From the bark of this tree the natives of Cagayán province manufacture a textile called *baliti*.
- ARDISIA HUMILIS. See *Malasiag* or *Malasiac*.
- ARECA CATECHU, Linn. (Palmæ). Betel nut, Eng.; Bonga, Bunga, T., Bonga, Sp. A slender palm common throughout the East Indies and western Pacific islands. The fibrous covering of the nut may be used for paper making as also the broad spathe which covers the flowering axis. This spathe is also used as a substitute for cups and dishes, as are also the leaf sheaths. All islands. (See Part I.)
- ARENGA SACCHARIFERA, Labill. (Palmæ). Anibung, P.; Bahi, V.; Baru, T.; Caong, P., T.; Edioc, V.; Jidioc, Hidioc; Caon, T.; Ibioc, V.; Iroc, T.; Pugahan, T.; Ratipan, Il. A stout, erect palm 20 to 40 feet high, with numerous very long leaves. Quite generally distributed throughout the islands. Yields a strong, black fiber.
- ARIVAT, Il. A vine found in Abra province and recognized as a fiber plant.
- ARTOCARPUS CAMANSI, Blanco (Moraceæ). Pacac, Il.; Camance, Camansi, V.; Dalangian, Dologian, Il. An evergreen tree similar in habit to the breadfruit tree. The inner bark yields a very strong fiber, used in making ropes, etc. All islands. (See Part I.)

- ARTOCARPUS COMMUNIS**, Forst. (Moraceæ). Antipolo, Rima, T.; Tipolo, P., V.; Tipoo, V.; breadfruit, Eng. A tree 30 to 40 feet high, a native of the East Indies and sometimes cultivated in Luzón and other islands of the archipelago. The inner bark yields a fiber which is used locally in making twine and small ropes. (See Part I.)
- ASIMAO**. See *Harrisonia benettii*.
- AVAJA**. See *Musa* species.
- BABAIAAN**, P. The outer part of the stem is manufactured in Pampanga province into a kind of wearing apparel.
- BABALAQUET**, II. A vine reported among the fiber plants of Abra.
- BABAQUET**, II. A vine recognized as a fiber plant in Abra province.
- BABAUNON**. See *Musa textilis*.
- BACAU**. See *Litsea*.
- BACBAQUIN**. See *Rattan*.
- BACNIT**. See *Harrisonia benettii*.
- BACONG**. See *Crinum asiaticum*.
- BAGAAS** or **BAGA-AS**, V. The stems of this plant are used in Negros and Panay in making hats and mats.
- BAGACAY**. (Referred by authors to *Dendrocalamus membranaceus*.) A superior variety of rattan found in Bohol and Negros islands and used in the manufacture of sieves. See *Rattan*.
- BAGANITO**. See *Rattan*.
- BAGCAYON**. See *Musa textilis*.
- BAGO**. See *Gnetum gnemon*.
- BAGO-BILLI**. See *Gnetum gnemon*.
- BAGOCON** or **BAGUCON**, V., B. A plant found in the Visayan Islands, the inner bark of which is used in making ropes, twines, etc.
- BAHAY**. See *Ormosia Calavensis*.
- BAHI**. See *Arenga saccharifera*.
- BAHUCA**. See *Rattan*.
- BAITO**, T., Z. In Bataán and Zambales this plant is used in making the large, native hats. Referred by authors to *Bambusa*.
- BALADING**, T., Z. A native plant of Masbate province, the leaves and roots of which are used in making hats, mats, ropes, etc.
- BALAGACAY**. See *Rattan*.
- BALAGON**. See *Flagellaria indica*, L.
- BALALAT**. See *Rattan*.
- BALANAC**, T. A plant reported from Nueva Écija as being used in the manufacture of cords, strings, etc., the fiber being as strong as that of pineapple.
- BALANGOT**. See *Typha angustifolia*.
- BALANGUAY**. See *Flagellaria*.
- BALANOG**. See *Rattan*.
- BALBAL-LIGA**, II. A vine growing in Abra province, where it is recognized as a fiber plant.
- BALBAS**, P. A vine found in Tárlac and reported as one of the fiber plants of that province.
- BALETE**. See *Ficus indica*.
- BALEN**, V. The leaves of this plant are used in the Visayan Islands for making hats, mats, etc. See *Balio*.
- BALEW**, V. In Bohol the leaves of this plant are used for making mats.
- BALIBAGO**. See *Hibiscus tiliaceus*.
- BALIBANBAN**. See *Bauhinia tomentosa*.
- BALICNONG**, V. In the province of Antique the bark of Balicnong is valued for the fiber it furnishes.
- BALINGUAY**. See *Flagellaria indica*.
- BALIO**, V. A plant of the Visayan Islands, the leaves of which are employed in making hats, mats, etc. See *Balen*. Referred by authors to *Pandanus dubius*, Spr.
- BALITI**. See *Ficus indica*.
- BALITNONG**. See *Melochia arborea*.
- BALIU**, V. A plant of the Visayan Islands, the leaves of which are used in making hats, mats, etc.
- BALIWAG**, T. The stems of Baliwag are used in Bulacán province for making hats.
- BALLINGUAY**. See *Flagellaria*.
- BALLO**, V. A native of western Negros, where the leaves are employed in making hats, mats, etc.
- BALNOT**, B. A vine found in Ambos Camarines, the bark of which is used in making ropes.

- BALOGO. See *Entada scandens*.
- BALONES. See *Entada scandens*.
- BALUGACO. See *Rattan*.
- BALUNOS, V. A vine, the stems of which are made into ropes in Panay.
- BAMBOO. See *Bambusa arundinacea*, *Bambusa blumeana*, and *Bambusa vulgaris*.
- BAMBUSA ARUNDINACEA, Willd. (Gramineæ). Bokawe, Bukawe, T.; Caña, Caña espina, Sp.; Bamboo, Eng. One of the largest of the bamboos, growing in dense clumps and attaining the height of 40 to 60 feet, or, in favorable localities, 80 to 100 feet. This is one of the most useful species for constructive purposes. The outer portion of the stem is used in making lattice work, baskets, etc. All islands.
- BAMBUSA BLUMEANA, R. and S. (Gramineæ). Kawayang Totoo, T.; Caña, Caña espina, Sp.; Bamboo, Eng.; Quian, P.; Cawayan quid, V. A tall hard-stemmed bamboo, armed with recurved thorns. Used in the construction of houses, fences, rafts, etc. The outer part of the stems or cortex is used in the manufacture of hats, cigar and cigarette cases, etc. All islands.
- BAMBUSA species. Anas, P.; Baito; Bical-babuy, T.; Bojo, T., P.; Butong, V.; Calangsi, V.; Kawayang Kiling, T.; Quian Bangin, T. V.; Quian Bical, P.; Quian Timbu, P.; Usiu, T.; Taguisi, T.; Boho, T.; Bocavi, T. These are all found in Luzón and the Visayan Islands and are used for a great variety of purposes—construction of houses, building of fences, making of furniture, domestic utensils, etc.
- BAMBUSA VULGARIS, Wendl. (Gramineæ). Caña de China, Sp.; Kawayang China, T. A thornless bamboo, 20 to 80 feet high, with yellow and green-striped stems, which are used in making fancy furniture, etc. Introduced into Luzón.
- BANACALAO, Pn. Used in the province of Pangasinán for making cigar cases.
- BANGAL. See *Gnetum gnemon*.
- BANGAR. See *Sterculia foetida*.
- BANGCOANG. See *Pandanus dubius*.
- BANGKWANG. See *Cyperus difformis*.
- BANHOT. See *Bauhinia vahlii*.
- BANILAD. See *Sterculia urens*.
- BANITLONG. Used in Negros for making ropes.
- BANNACALAO, Il. Reported from Ilocos Norte and Ilocos Sur, and is probably the same as banacalao, and is used for the same purposes.
- BANOT. See *Bauhinia vahlii*.
- BANYAN TREE. See *Ficus indica*.
- BAQUEMBAQUES. See *Helicteres*.
- BAQUINBAQUIT. See *Helicteres*.
- BAQUIT, V. A plant found on the island of Panay, where it is used in making hats.
- BAREN. See *Pandanus dubius*.
- BAREW, or BARIW. See *Pandanus dubius*.
- BARINAS, P., T. Reported from Tárlac province, where it is employed in making cords and ropes.
- BARINATNAT, Il. A vine reported from Abra province as a fiber plant of some local value.
- BARIT. See *Calamus hænceanus*.
- BARONG, P., T. Used in Tárlac province for ropes and cord. Referred by authors to *Eugenia operculata*, Roxb. Malaruhat is the same.
- BAROY. See *Pterospermum*.
- BARRIT, Il. A rattan of northern Luzón used for binding in the construction of houses. See *Rattan*. Probably the same as Barit.
- BARU. See *Arenga saccharifera*.
- BASAG. See *Rattan*.
- BASTARD ALOE. See *Agave vivipara*.
- BATARAG. See *Rattan*.
- BATARAG, Il., C. A plant of northern Luzón, where the stems are used for whips and for tying tobacco bales.
- BATIAN. See *Hibiscus* species.
- BATIAN, P. A vine used for ropes in Pampanga province.
- BATLIT. See *Rattan*.
- BAUBON. See *Rattan*.
- BAUHINIA TOMENTOSA, Linn. (Leguminosæ). Linas, V.; Salibangbang, Alibanban, T., V.; Balibanban, Marulinao, Diis, V.; Ahihiro, Alambihor, Alibihil, P. A shrub or small tree 15 to 20 feet high found in Luzón and the Visayan Islands. A fiber used for cordage is prepared from the bark.

- BAUHINIA VAHLII**, W. and Arn. (Leguminosæ). Alibangbangan, Banhot, V.; Banot, T. A vigorous climbing plant found in southern Luzón, Panay, Negros, Paragua, and other islands. The inner bark yields a strong fiber used in making cords, twine, bowstrings, and ropes.
- BAYOG**. See *Pterospermum*.
- BEAUMONTIA**, species undetermined. (Apocynaceæ). Hingue calabao, T.; Hinguio, Jinguio, B., T. A vine-like plant, the stem of which is used in making fish nets, fish corrals, etc. It is found in southern Luzón, Ambos Camarines, Tayabas, etc., and in local markets is valued at \$1 (Mexican) per arroba (about 25 pounds). See *Callicarpa*.
- BEJUCO**. Spanish name for rattan. See *Calamus albus*, *C. buroensis*, *C. coccineus*, *C. equestris*, *C. henkeanus*, *C. horrens*, *C. javensis*, *C. maximus*. See also *Rattan*.
- BEJUCO DELGADO**. See *Calamus buroensis*.
- BETEL NUT**. See *Areca catechu*.
- BICAL-BABUY**. See *Bambusa*.
- BICAL OR BICUL**, Il., Pn. A plant of northern Luzón, the stalks of which are used in making large hats. Referred by Merrill to *Rhamnus*.
- BIGAA**. See *Ficus macrocarpa*.
- BIGAS**. See *Oryza sativa*.
- BIS**. See *Bauhinia tomentosa*.
- BILING**, V. The bark is used in Bohol for making hats and mats.
- BILUA**, T. Used for ropes in Nueva Ecija province. Referred by Merrill to *Macaranga*.
- BILUA**. See *Octomales sumatrana*.
- BIMNARIT**. See *Rattan*.
- BINANGCUSANG**. See *Musa textilis*.
- BISAYA**, V. See *Musa textilis*.
- BISCO**. See *Musa* variety.
- BITNONG**. See *Kleinhorria*.
- BO-Y**. See *Musa* species.
- BOBUY**. See *Ceiba pentandra*.
- BOCAVI**. See *Bambusa arundinacea*.
- BOEHMERIA HETEROPHYLLA**, Wedd. (Urticaceæ). Pamangpangon, Cagay, V.; Lapnis, V., T. A species of nettle found in Luzón and Negros, the fibers in the bark of which are locally used in making twine.
- BOEHMERIA NIVEA TENACISSIMA**. (Urticaceæ) Apoo; Canton Pamangpangon, Cagayán, Arimay, Amiray, Lapnis, C.; Labrus; Labnis, Rania, Sp.; Ramie, China-grass, Eng. A well-known and valuable fiber plant extensively cultivated in China and India, and although a native of the Philippine Islands, it is not reported as being utilized by the Filipinos. The bark yields a fiber largely used in other countries in the manufacture of fabrics of various kinds.
- BOEHMERIA** species. Cagay, V. Reported from western Negros. Possibly the same as Ramie or *B. nivea*, which it resembles in its uses. See *Lqmis*.
- BOGNORARON**. See *Musa textilis*.
- BOGTONGIN**. See *Rattan*.
- BOHO**. See *Bambusa* species.
- BOJO**. See *Dendrocalamus*.
- BOJO OR CANA BOJO**. A slender species of bamboo, growing to the height of 15 to 20 feet; common on Luzón and the southern islands. It is used in the construction of houses, fish traps, fences, etc. Caña Boho is the same.
- BOKAWE**. See *Bambusa arundinacea*. Bocavi is the same.
- BOLI**. See *Corypha umbraculifera*.
- BOLOGANON**. See *Musa textilis*.
- BOLONG LUYONG**. See *Corypha minor*, and *Livistonia papuana*, Becc.
- BOLONGAN**. See *Rattan*.
- BOLONGKAHINAY**, V. A vine found in western Negros, where the stems are used for cordage.
- BOMBAX MALABARICUM**, D. C. (Bombacaceæ). Malabulac, Maracapas, Il., T., Z.
- BONGA**. See *Areca catechu*. Also applied to a species of *Bauhinia*.
- BONGAN LABNI**. See *Calamus albus*.
- BONGBONĠ**, V. The bark or cortex is used in Bohol for making sieves, etc. Referred by authors to *Macaranga mappa*, Muell. See *Macaranga*.
- BONOT-BONOT**, V. In Masbate the bark is used for making cords.
- BOROBAGACAY**. See *Rattan*.
- BOT-UNGAN**. See *Rattan*.
- BOTOHAN**. See *Musa sapientum*.
- BOWSTRING HEMP**. See *Sansevieria*.

- BROOM-WEED. See *Sida rhombifolia*.
- BUBUYAN, P. A twining plant reported among the fiber plants from Pampanga.
- BUCAWE. See *Bambusa arundinacea*.
- BUCTON. See *Calamus scipionium*.
- BUGANG, V. In Bohol the bark is used for making mats and hats.
- BUGAYON, Il. A vine reported as a fiber plant in Abra province. Referred by authors to *Abrus precatorius* L.
- BUGTING. See *Rattan*.
- BULAC CAHOY. See *Gossypium arboreum*.
- BULAC CASTILA. See *Gossypium herbaceum*.
- BULAC DOLDOL. See *Ceiba pentandra*.
- BULACSINO. See *Ceiba pentandra*.
- BULAOBULAO. See *Parameria*.
- BULE. See *Corypha umbraculifera*.
- BULI. See *Corypha umbraculifera*.
- BULLOCK'S HEART. See *Anona reticulata*.
- BULUT BULUTAN. Used in Pampanga for making ropes.
- BUNGA. See *Areca catechu*.
- BURI. See *Corypha umbraculifera*.
- BURIT. See *Calamus haenkeanus*.
- BUTON. See *Calamus scipionium*.
- BUTONG, V. A variety of bamboo found on the island of Negros and used in the construction of houses, fences, etc. Referred by authors to *Dendrocalamus*.
- BUTONGAN. See *Rattan*.
- BUTUHAN. See *Musa sapientum*.
- CABITCABAG. See *Mezoneurum glabrum*.
- CABONEGRO. See *Carvota urens*.
- CACANON, B. The inner bark is used in Albay for making ropes.
- CADIZNON. See *Musa textilis*.
- CAGAY. See *Boehmeria heterophylla*.
- CAGAYAN. See *Boehmeria nivea*.
- CAGNISAN. See *Musa textilis*.
- CALAL-LAQUITI. A vine reported among the fiber plants from Abra province.
- CALAMUS ALBUS, Pers. (Palmæ). Calapi, Kalapi, Kalape, V.; Palasang pola, T.; Labni anay na maloto, Bongan labni, P.; Labnei, Pn.; Lapnei, Labnit, Palasan, Z. A rattan found in Luzón and the Visayan Islands; the stems are used for making canes, etc. (See *C. scipionium* and *C. scipionium maculatus*.) See also *Rattan*.
- CALAMUS BUROENSIS, Mart. (Palmæ). Talola, Talora, T., V.; Talula, T.; Bejuco delgado, Sp.; Talalula, V. A variety or species of rattan found in Luzón and the Visayan Islands.
- CALAMUS EQUESTRIS, Willd. (Palmæ). Bejuco, Sp.; Ouay, T.; Rattan, Eng. A variety of rattan found in Luzón and other islands.
- CALAMUS HENKEANUS, Mart. (Palmæ). Bejuco, Sp.; Ditaan or Ditan or Digtan, Z.; Barit, Burit, Il.; Pudlos, V.; Padlos, B.; Purlus, Il. A species of rattan 20 to 30 feet long, climbing trees. (*Calamus mollis* Bl. is the same.) Used for making canes, large hats, etc.
- CALAMUS HORRENS, Blume. (Palmæ). Bejuco, Sp.; Rattan, Eng.; Taguictic V. A rattan common in the Visayas.
- CALAMUS JAVENSIS, Blume. (Palmæ). Bejuco, Sp.; Apis, Z.; Rattan, Eng. A scandent rattan with stems 10 to 30 feet long reported from Zambales where it is used for binding or lashing in the construction of houses, etc.
- CALAMUS MAXIMUS, Blanco. (Palmæ). Bejuco, Sp.; Calape, Calapi, Calupe V.; Palasan, Parasan, T. A rattan found in Luzón and the Visayan Islands.
- CALAMUS PISCICARPUS, Blume. (Palmæ). Bejuco, Sp.; Limoran, T.; Rattan, Eng. A common rattan in Luzón.
- CALAMUS SCIPIONIUM, Lour. (Palmæ). Bejuco, Sp.; Bucton, Buton, V.; Rattan, Eng. A slender rattan with stems 40 to 60 feet long and large leaves. Reported from Masbate, where it is used for binding and tying.
- CALANGSI, V. A bamboo used in the construction of houses, fences, etc., in the island of Negros.
- CALAPE. See *Calamus maximus*.
- CALAPI. See *Calamus maximus* and *C. albus*.
- CALASIAS, T. A vine, the stems of which are used in Bataán province for cords.
- CALATAN. See *Urena sinuata*.
- CALBANG. See *Bambusa* species.
- CALIAT. See *Gnetum gnemon*.
- CALIBO. See *Musa textilis*.

- CALLICARPA CANA**, Lin. (Verbenaceæ). Hanagdong, V. A shrub whose inner bark is employed in western Negros for making twine. Widely cultivated as a foliage plant.
- CALLICARPA** species. (Verbenaceæ). Hinguio, T. Hinguio and Hinguiong calabao are doubtfully referred to *Beaumontia* by Blanco. Reported from La Laguna.
- CALUMPANG**. See *Sterculia foetida*.
- CALUPE**. See *Calamus maximus*.
- CAMACSA OR CAMAGSA**, B., T. The stems are used in southern Luzón for building fish corrals, lashing timbers, etc. Probably *Smilax indica*.
- CAMANCE**. See *Artocarpus camansi*.
- CAMANGEY**, Il. A vine, the stems of which are used in Abra province.
- CAMANSI**. See *Artocarpus camansi*.
- CAMARINES**. See *Musa textilis*.
- CAMORAS**, V. The leaves are used in Iloilo and Bohol for making hats.
- CAMPAPALIS**, P. Yields an excellent fiber for making ropes; used in Pampanga.
- CAÑA**, T. The bark or cortex is used in Cavite for making ropes and strings. A species of *Bambusa*.
- CAÑA BOJO**. See *Bambusa* species.
- CAÑA ESPINA**. See *Bambusa blumeana*.
- CANALAJON**. See *Musa textilis*.
- CANAMO**. See *Abroma* species.
- CANAYAN**, V. The inner bark is used in Iloilo for making hats.
- CANDABA**, V. In Masbate the leaves are used for making shirts.
- CANIDAD**. See *Sterculia urens*.
- CANTON**. See *Boehmeria nivea*.
- CANTONG**. See *Musa textilis*.
- CAONG**. See *Arenga saccharifera*.
- CAPAS CAPAS**. See *Ceiba pentandra*.
- CAPAS-SANGLAI**. See *Ceiba pentandra*.
- CAPASNGA VAYAN**, Pn. A species of cotton found in Pangasinán. Probably *Ceiba pentandra*.
- CAPOC**. See *Ceiba pentandra*.
- CAPOOS OR KAPOOS**. *Ceiba pentandra*.
- CARAGAD**. See *Rattan*.
- CARAGOMOY**. See *Pandanus* species.
- CARAHUMAI**. See *Pandanus* species.
- CAROME**, Pn. A fiber plant of Pangasinán used in the manufacture of large hats.
- CARUMSI**, Il. A vine the stems of which are used in Ilocos Norte and Ilocos Sur for making hats, baskets, etc.
- CARYOTA ONUSTA**. See *Arenga saccharifera*, Labill.
- CARYOTA** species. (Palmæ). Darumaca, Il., Pn. A palm reported from Ilocos Norte and Ilocos Sur and Pangasinán, whose leaves are used for making the large hats worn by the natives.
- CARYOTA URENS**, L. (Palmæ). Anibong, T.; Cabonegro, Sp.; Idioc eruc, V.; Idiok, B.; Iroc, T.; Jidioc, V. A palm, 30 to 40 feet high, common throughout the islands. From the leaves and the abundant fiber surrounding the stem called "cabonegro," strong rope, twine, etc., are manufactured. (See Part I.)
- CASTULI**. See *Hibiscus abelmoscus*.
- CAT-TAIL FLAG**. See *Typha angustifolia*.
- CATALINA**, T. The bark is reported from Bulacán as yielding a fiber of some local value.
- CATILPUC**. See *Hibiscus* species.
- CATIPU**. See *Hibiscus* species.
- CAUN**. See *Arenga saccharifera*.
- CAUYAN-PANA**. See *Bambusa* species.
- CAVA**. The same as *Cana*.
- CAVAYANG BOO**. See *Dendrocalamus*.
- CAWAYAN GUID**. See *Bambusa blumeana*.
- CAYAPE**. See *Rattan*.
- CAYO OR KAYO**. See *Ceiba pentandra*.
- CEIBA PENTANDRA**, Gaertn. (Bombacaceæ). Bobuy, T.; Daldol, V.; Bulac daldol, Bulac dondol, V.; Bulacino, T.; Kapas Kapas nga babaret, Pn.; Capasanglai, Pn., Il.; Kapoos, Pn.; Cayo or Kayo, B.; Algo-doncino, Sp.; Silk cotton tree, Eng. A tree 30 to 60 feet high, conspicuous for its light-colored bark and horizontal branches with pendent seed pods filled with a white flossy down. The

down or lint covering the seeds is too short and too brittle and elastic to be spun, but it is an excellent material for stuffing mattresses, pillows, and upholstered goods. The *Kapok* of commerce.

CHINA-GRASS. See *Boehmeria nivea*.

CIAPO OR KIAPO, V. A fiber plant of Negros Oriental, where it is used in the manufacture of cloths and ropes.

CILAG, II. A plant of northern Luzón, where the leaves and stems are used for making hats and mats.

CLERODENDRON INTERMEDIUM, Cham. (Verbenaceæ). Colo-co-lot, Pn. A shrub which yields a fiber used in Pangasinán in making pouches.

COCO. See *Cocos nucifera*.

COCONUT. See *Cocos nucifera*.

COCOS NUCIFERA, L. (Palmæ). Niog, T.; Coco, Sp.; Coconut, Eng. (For other native names see Part I.) The well-known coconut palm of the Tropics and common throughout the archipelago. Copra or coprax, which is the dried meat of the coconut, ranks second in importance among the exports from the islands, Manila hemp holding the first place. The husk or covering of the nuts yields the coir of commerce, but is little utilized in the Philippines at present. The leaves and leaf stalk supply a fiber utilized locally.

COGON. See *Saccharum spontaneum*. Any coarse rank growing grass.

COLIAS. See *Gnetum scandens*.

COLIAT. See *Gnetum gnemon*.

COLO-CO-LOT. See *Clerodendron intermedium*.

COLOT-COLOTAN. See *Urena sinuata*.

COLUMBIA SERRATFOLIA. See *Grewia columnaris*.

COMMERSIONIA PLATYPHYLLA. See *Labaya*.

CONOCEPHALUS ERECTUS, Vill. (Urticaceæ). Hanopol or Janapol, T. A shrub or small tree reported as one of the fiber producing plants of Tayabas.

CORCHORUS ACUTANGULUS, Lam. (Tiliaceæ). Saluyot, II., Pn., T. Jute. An herbaceous annual widely distributed throughout the Tropics. The inner bark is used for making ropes.

CORCHORUS OLITORIUS, L. (Tiliaceæ). Pasao, T., P. Jute. An annual cultivated as a pot herb or for its fiber, which is extracted from the inner bark by maceration and used in Luzón for making sacks, ropes, harnesses for working animals, etc.

CORDIA BLANCOI, Vidal. (Borraginaceæ). Sinaligan, II. Found in Abra and Pangasinán provinces, where the inner bark is used in making cigar cases.

CORDIA MYXA, L. (Borraginaceæ). Anonang, B. A tall shrub or straggling tree 30 to 40 feet high, native of southern Luzón, where the inner bark is used for cordage.

CORYPHA MINOR, Blanco. (Palmæ). Anaao, II.; Anahao, P., V.; Anahaw, V., T.; Anaao, P.; Bolong luyong. A palm resembling the areca palm in habit, growing in the woods of Luzón and the Visayan Islands. The leaves are used in making hats, coats, fans, mats, etc.

CORYPHA UMBRACULIPERA, L. (Palmæ). Buri, T.; Boli, Bule, T., P.; Buli, T., M.; Ebus, V.; Silac, Silag, or Cilag, II., Pn. A lofty and beautiful fan palm found throughout the archipelago and giving the name to the island of Burias. The fiber from the leaves and leafstalks is employed in the manufacture of hats, mats, sacks, ropes, brooms, clothes chests, coarse fabrics, baskets, bags, pocket cases, etc. The celebrated buntal hats are made from fiber extracted from the leafstalks. The talipot palm of Ceylon and fan palm of India. (See Part I.)

CRINUM ASIATICUM, L. (Amaryllidaceæ). Bacong, V. A bulbous plant reported from the Visayan Islands as being used in making twine.

CUACUAHON. See *Abutilon indicum*.

CUAYAN. See *Hibiscus* species.

CULACLING. See *Rattan*.

CULADING. See *Rattan*.

CULIAT. See *Gnetum gnemon*.

CURIPAT-TONG TI NUANG, II. A vine the stems of which are used in Abra province.

CUSTARD APPLE. See *Anona reticulata*.

CYATHULA PROSTRATA. (Amarantaceæ). Amorsecó, Sp., T.; Variri, V. A slender herbaceous plant 1 to 2 feet high, with narrow leaves and bluish flowers. Reported among the fiber plants from Luzón and other islands.

CYPERUS DIFFORMIS, L. (Cyperaceæ). Bangkwang, T. A common sedge, the leaves of which are used in Rizal province for making hats, mats, strings, etc.

DAANAN. See *Rattan*.

- DÆMONOROPS CALAPPURENS, Vidal. (Palmæ). Limoran. A species of rattan from western Negros, etc.
- DÆMONOROPS HYSTRIX, Mart. (Palmæ). Taguiti, V.; Halamham. A species of rattan reported from western Negros. See *Dæmonorops calappurens*.
- DÆMONOROPS MELANOCHÆTUS, Blum. (Palmæ). Palasan, Palusan, Purasan. The name Palasan is also applied to *Calamus scipionum* and *Rattan*, which see.
- DÆMONOROPS NIGER (Palmæ). Tomatom, Tomarom, Tonton. A species of rattan reported from southern Luzón and the Visayan Islands.
- DAHONUAY. See *Rattan*.
- DALANGIAN. See *Artocarpus camanisi*.
- DALDOL. See *Ceiba pentandra*.
- DALUPAN. See *Urena sinuata*.
- DALUPANG. See *Abutilon indicum*.
- DANAN. See *Rattan*.
- DANGLI. See *Grewia lævigata* and *G. multiflora*.
- DANGLIN. See *Grewia lævigata*.
- DANLI. See *Grewia lævigata*.
- DANLOI. See *Grewia umbellata*.
- DAO, V. T. The bark yields a fiber reported from Antique to be of some value. Referred by authors to *Dracontomelum mangifera*. See *Pandanus spiralis*.
- DARUMACA. See *Caryota* species.
- DE PEPITA. See *Musa textilis*.
- DEMORAS. See *Morus alba*.
- DENDROCALAMUS FLAGELLIFERA, Munro. (Graminæ). Bojo, T., II.; Cavayang Boo, T. One of the tallest of the bamboos, the cavity of the stem being unusually large. The cortex or outer part of the stem is used for making hats, baskets, etc.
- DENDROCALAMUS MEMBRANACEUS. See *Bagacay*.
- DESMODIUM GANGETICUM and D. DIVERSIFOLIUM. (Leguminosæ). Mangquit, T. Somewhat woody, branching, herbaceous plants, 3 to 4 feet high. These plants are now referred to *Meibomia gangetica*.
- DEVIL'S COTTON. See *Abroma angusta*.
- DIETAN. See *Rattan*.
- DIGTAN or DIG-TAN. See *Calamus hæneanus*.
- DIIS. See *Bauhinia tomentosa*.
- DITAAAN. See *Calamus hæneanus*.
- DITAN. See *Calamus hæneanus*.
- DOLOCOT, V. The stems are used in Iloilo for making hats.
- DOLONGIAN. See *Artocarpus camansi*.
- DOMARACA. A variety of rattan reported as growing in La Unión province and used in making the large native hats. See *Rattan*.
- DONLARENG, Pn. Used in Pangasinán for making cigar cases.
- DRACONTOMELUM MANGIFERA. See *Dao*.
- DUCLITAN. See *Sideroxylon duclitan*.
- DULUPANG. See *Abutilon indicum*.
- DUMAYACA. A variety of rattan found in Batangas province, where it is used in weaving nipa for thatching houses, etc. See *Rattan*. Also referred to *Willichia tremula*, a species of palm.
- DUTONG AHAS. See *Parameria*.
- EBEB. See *Musa textilis*.
- EBUS. See *Corypha umbraculifera*.
- EDIOC. See *Arenga saccharifera*.
- EGYPTIAN COTTON. See *Gossypium barbadense*.
- ENTADA SCANDENS, Benth. (Leguminosæ). Gohong bacay, Gogo, T.; Bayogo, T.; Balones, Balogo, Balones, V., P.; Sea bean or Scimitar pod, Eng. A giant climber, with stems as thick as a man's arm and a hundred feet long. The green stems are used for making fish traps. The crushed stems are saponaceous and are used for cleaning the hair, hairy skins, leather, etc. Common on Luzón and the Visayan Islands.
- EUGENIA OPERCULATA, Roxb. See *Barong*.
- FICUS INDICA, L. (Moraceæ). Balete, B., T.; Baliti, V.; Nonoc or Lonoc, V.; Banyan tree, Eng. In the United States this is known as the rubber plant. It grows to a great size in the Philippines, where it is common, and in some of the provinces the inner bark is used for making ropes.
- FICUS MACROCARPA, L. (Moraceæ). Bigaa, V.; Payapa, V. A banyan tree of the Visayan Islands, the inner bark of which is used for making ropes. See *Aga*.

- FLAGELLARIA INDICA, L. (Flagellariaceæ). Balinguay, T.; Hoag, Joag, V.; Huak, Juag, Uak. A slender vine, resembling rattan, climbing to the tops of high trees. It grows in southern Luzón, where the inner bark is sometimes used for twine.
- GAMOT SAMBALI. See *Parameria*.
- GATASAN. See *Rattan*.
- GNETUM GNEPON, L. (Gnetaceæ). Bagó, V.; Bago-sili, T.; Bangal, T.; Caliat, Pn.; Culiát, P.; Coliat, T.; Itmongouac, T.; Lamparahan, T.; Malaitmo, T.; Nabo, B. A shrub or small tree, 10 to 15 feet high, common in Luzón and the Visayan Islands. The bark is used for cordage, twine, cigar cases, etc.
- GNETUM LATIFOLIUM, Blume. (Gnetaceæ). Salago, V. Found in Luzón and the Visayas. The bark is used for cordage.
- GNETUM SCANDENS, Roxb. (Gnetaceæ). Colias, T. A lofty climber with flattened stems, 4 to 5 feet in circumference. Common in central Luzón. The bark is employed for fishing nets, etc.
- GOHONG BACAY. See *Entada scandens*.
- GOGO. See *Entada scandens*.
- GOSSYPIUM ARBOREUM, L. (Malvaceæ). Bulac cahoy, T.; Algodon, Sp.; Tree cotton, Eng. A tree cotton growing to the height of 10 to 20 feet, found in Luzón and nearly all of the other islands. Introduced from tropical Africa. The lint is fine, strong, and about one inch long. Yield small. Used for stuffing pillows, making fish lines, candle wicks, whips, etc.
- GOSSYPIUM BARBADENSE, L. (Malvaceæ). Egyptian cotton. An improved variety recently developed in Egypt and introduced into the islands by the Insular Bureau of Agriculture. It is an annual and produces a white lint $1\frac{1}{4}$ inches long.
- GOSSYPIUM HERBACEUM, L. (Malvaceæ). Bulac castila, T.; Algodon, Sp.; India cotton, Eng. Introduced by the Spaniards many years ago and extensively cultivated in Ilocos Norte and other provinces. Manufactured into cloths, blankets, etc.
- GOSSYPIUM PERUVIANUM, Car. (Malvaceæ). Algodon, Sp.; Peruvian cotton, Kidney cotton, Eng. A perennial introduced from South America. The fiber is white and of good quality. Cultivated to some extent, but it can not be ginned successfully, as the seeds in each section of the pod are adherent.
- GREWIA COLUMNARIS, Sm. (Tiliaceæ). Alinao, Il.; Anilao, T., V.; Anilo and Anulo, P.; Linao, V. A much-branched shrub or small tree common in Luzón and the Visayan Islands. The inner bark is used for cordage, twine, etc.
- GREWIA LEVIGATA, Vahl. (Tiliaceæ). Dangli, Danli, T.; Danglin, T. A tree of Luzón, the inner bark of which is used for twine, cordage, cigar cases, etc.
- GREWIA MULTIFLORA, Juss. (Tiliaceæ). Dangli, T.; Bangalad, V. A shrub or small tree growing in Luzón and the Visayan Islands, the inner bark of which is used for twine.
- GREWIA MULTIFLORA, Bl. See *G. umbellata*, Roxb.
- GREWIA UMBELLATA, Roxb. (Tiliaceæ). Danláy. A shrubby climber reported as being of some value as a fiber plant.
- GUEODENG, Z. The bark is used in Zambales for ropes.
- GULLIMAN, P. A vine the stems of which are used in Pampanga for making ropes, fish nets, and fish traps.
- GUILON, V. A plant used in Bohol in the manufacture of hats and mats.
- GUINABANG. See *Macaranga*.
- GUIOTE, Pn. A species of cotton found in Pangasinán.
- GULIG GUILIGAN. See *Abutilon indicum*.
- GUNI, P. A vine, the stems of which are used for ropes.
- GUTAY. See *Musa textilis*.
- HAGNAYAS. See *Lygodium* species.
- HAJASON. See *Musa textilis*.
- HALAMHAN. See *Damonorops calappurens* and *D. hystrix*.
- HANADIONG, T. The fiber in the bark, obtained by maceration, is used in Batangas for making ropes.
- HANAGDONG. See *Callicarpa cana*, L.
- HANOPOL. See *Conoccephalus*.
- HARRISONIA BENNETTI, B. & H. (Simarubaceæ). Asimao, T.; Bacnit, V. A small tree found in Luzón and the Visayan Islands, yielding a fiber used in making hats.
- HELICTERES species. (Sterculiaceæ). Baquembraques, Baguinbaquit, Il. A tree found in northern Luzón, where the inner bark is used for twine.
- HIBISCUS ABELMOSCUS, L. (Malvaceæ). Castuli, T. Musk Mallow. A shrub, the bark of which is used in central Luzón for cordage.

- HIBISCUS species. (Malvaceæ). Agpui, P.; Albu, B.; Batian, B.; Catilpuc, B.; Catipu, B.; Cuayán, B.; Late, B.; Metu, P., B.; Puti, B.; Tapitac, P. A tree of central and southern Luzón, possibly *Hibiscus tiliaceus*, the inner bark of which is used in making cordage, fine textiles, bowstrings, hats, mats, pocket cases, baskets, etc.
- HIBISCUS TILIACEUS L. (Malvaceæ). Balibago, T., V. Impid, B. Malabago, V., Z.; Malibago, V., Pn., Malubago, V., P. A tree of Luzón and the Visayan Islands, the inner bark of which is used for cordage and twine and in the manufacture of fine textiles, rain coats, cigar cases, etc.
- HIDIOC. See *Arenga saccharifera*.
- HINGUIO. See *Beaumontia*.
- HOAG. See *Flagellaria indica*.
- HUAK. See *Flagellaria indica*.
- HYPTIS CAPITATA, Jacq. See *Mesosphaerum capitatum*.
- IBIOC. See *Arenga saccharifera*.
- ICHNOCARPUS species. (Apocynaceæ). Jipguid, V. A climbing plant, the bark of which is used in Iloilo in making fish nets.
- IDIOC ERUC. See *Caryota urens*.
- IDIOK. See *Caryota urens*.
- ILAJON. See *Musa textilis*.
- ILANDONG, T. The same as Hanadiong.
- ILONAG. See *Rattan*.
- IMPID. See *Hibiscus tiliaceus*.
- INASAROG. See *Musa textilis*.
- INASUFRE. See *Musa textilis*.
- INDIA COTTON. See *Gossypium herbaceum*.
- INILLO, V. A species of cotton reported from Antique province as being more durable than Bulac.
- IROC. See *Caryota urens*, and *Arenga saccharifera*.
- IRUAD. See *Rattan*.
- ISAROG. See *Musa textilis*.
- ITIBAN. See *Parameria*.
- ITMONGOUAC. See *Gnetum gnemon*.
- JABO, Z. The bark yields a fiber which, reports from Zambales state, compares very favorably with Manila hemp.
- JAGNAYA. See *Rattan*.
- JAMBABALOD, V., or PAMBABALOD. Found in Antique, where the bark is used for making ropes. Referred by authors to *Nauclea obtusa*, Blume, a plant of the Rubiaceæ family.
- JAMUY, Z. A variety of rattan reported as growing in Zambales province, where it is used in the manufacture of chairs and fish corrals. See *Rattan*.
- JANAMJAM. See *Rattan*.
- JANAPOL. See *Conocephalus*.
- JAUD-BAYAD, V. A plant reported from Masbate as being used in the manufacture of hats and mats.
- JIDIOC or HIDIOC. See *Caryota urens* and *Arenga saccharifera*.
- JINAGDONG, V. Reported from the Visayan Islands, where it is used for making cords and ropes.
- JINGUIO. See *Andropogon* species.
- JINGUIO. See *Beaumontia*, species undetermined.
- JIPGUID. See *Ichnocarpus*.
- JIPGUID. See *Rattan*.
- JOAG, V., or HOAG. A vine found in western Negros, where it is used for tying bamboos or other timbers together in house building. See *Rattan*; also see *Flagellaria indica*.
- JORY, Pn. A vine, the stems of which are used in Pangasinán for binding and lashing timbers of houses, bridges, etc.
- JUAG, or HUAC, V. A vine reported from Bohol, where it is used in roofing and in making fish corrals. See *Rattan*, and *Flagellaria indica*.
- JUAY. See *Rattan*.
- JUNAY, V. One of the most useful species of bamboo, found in Sámar.
- JUNCIO. See *Andropogon* species.
- JUNQUILLO. See *Andropogon* species.
- JUTE. See *Corchorus* species.
- KAHPOK, M., CAPOC or KAPOK. A wild cotton yielding a fair lint; reported from Cottabato, Mindanao. Probably *Ceiba pentandra*.
- KALA-AO. See *Musa textilis*.

- KALAPI.** See *Calamus albus* and *C. maximus*.
KAMAGSA. See *Smilax zeylanica*.
KANARAON. See *Musa textilis*.
KAPAS KAPAS. See *Ceiba pentandra*.
KAPASANGLAI. See *Ceiba pentandra*.
KAPOOS. See *Ceiba pentandra*.
KARAGOMOY. See *Pandanus* species.
KAUAT-KADLAGAN, B. A plant growing in southern Luzón, and used for ropes and cords.
KAWAYAN. See *Bambusa blumeana*. Kawayan is the native name for bamboo, including several species.
KAWAYANG KILING, T. Bamboo, found throughout the archipelago.
KAWAYANG TOTOO. See *Bambusa blumeana*.
KAYO. See *Ceiba pentandra*.
KIAP0. See *Ciapo*.
KINISOL. See *Musa textilis*.
KLEINHOVIA HOSPITA, L. (Sterculiaceæ). Bitnong, Ph.; Tanag, T., P.; Tan-ag, B. A handsome tree found in Luzón and the Visayan Islands. The fiber of the inner bark, obtained by maceration, is used for making ropes, twine, cigar cases, etc.
KN0B-FRUITED PANDANUS. See *Pandanus dubius*.
KOLOT-COLOTAN. See *Urena sinuata*.
KOLOTAN. See *Urena sinuata*.
LABAYO, T. Reported from Batangas province, where it is used for ropes. Referred by authors to *Commersonia platyphylla* Andr., a tree belonging to the family Sterculiaceæ.
LABNEI. See *Calamus albus*.
LABNEY. See *Rattan*.
LABNI AUAY. See *Calamus albus*.
LABNIG. A rattan found in southern Luzón, where it is used for tying, for making baskets, chairs, latticework, window blinds, etc. See *Rattan*. The same as *palasan*.
LABNIS. See *Bœhmeria nivea*. *Lapnis* is the same.
LABNIT. See *Calamus albus*.
LABOG-LABOG, V. The bark yields a fiber which resembles jute, and is used in the Visayan Islands for making twine. Referred by authors to *Malachra bracteata*.
LABON. See *Abroma angusta*.
LABRUS. See *Bœhmeria nivea*.
LABTANG. See *Anamirta cocculus*.
LACTANG. See *Anamirta cocculus*.
LALABANG, Il. Used in Nueva Vizcaya in making hats and rain coats.
LALAUISIN. See *Sida rhombifolia*.
LAMBOTAN. See *Rattan*.
LAMPARAHAN. See *Gnetum gnemon*.
LAMURAN. See *Rattan*.
LANAY. See *Rattan*.
LANESID. See *Musa textilis*.
LANG-AN, V. The bark is used in Antique for cordage.
LANGLANGSI, Il. Reported among the fiber plants from Abra.
LANGOSIG, V. The bark is used for twine in Bohol.
LANGUSIG, V. Used in western Negros for making ropes and cloths.
LANISIP. See *Musa textilis*.
LANOOTE. See *Musa textilis*.
LANOT. See *Musa textilis*.
LANSID. See *Musa textilis*.
LANUTAN. See *Thespesia camphylosiphon*.
LAPNEI. See *Calamus albus*.
LAPNIS. See *Bœhmeria heterophylla*.
LAPNIS. Perhaps the same as *Labnis*, which see. This is reported from Ambos Camarines, Tayabas, etc., and is supposed to be a species of *Bœhmeria*. The fiber in the bark is used for making twine, etc. Referred to *Malachra bracteata* by authors, also to *Bœhmeria nivea*.
LAPNIT. See *Abroma*, species undetermined.
LAPORTEA. See *Lipay*.
LATE. See *Hibiscus* species.
LICTANG. See *Anamirta cocculus*.

- LIGNO, B., or LIGAO. Used in the manufacture of hats and mats in Albay province. Perhaps referable to *Grewia*.
- LIGUIS. A palm, the leaves of which are made into mats in Ilocos Norte and are said to be superior to those made from Buri.
- LILIMBUYEN. See *Rattan*.
- LIMORAN. See *Calamus pisecarpus*.
- LIMORAN. See *Dæmonorops calappureus*.
- LINGAO. See *Grewia columnaris*.
- LINGA-LINGAHAN. See *Mesosphaerum*.
- LINGI, Z. Fine fabrics and cordage are made from Lingi in Zambales; the fiber resembles silk.
- LINGIS, II. A kind of palm, the leaves of which are used in Ilocos Norte for making mats.
- LINGO-LINGO. See *Mesosphaerum*.
- LINTANG BAGUIN. See *Anamirta cocculus*.
- LIPAT-LIPAT. A rattan found in Negros Occidental, where it is used for making canes, ropes, furniture, etc. See *Rattan*.
- LIPAY, II. A vine reported among the fiber plants of Abra province.
- LIPAY. Referred by authors to *Laportea* and to *Mucuna pruriens*.
- LITSEA, species. (Lauracæ). Bacau, B. A tree reported from Ambos Camarines as one of the fiber-yielding plants.
- LIVISTONIA PAPUANA, Becc. A species of palm.
- LOCMOY or LOGMOY, T., V. A plant, probably some vine, used for binding purposes and basket work in southern Luzón and Mindoro.
- LOCOAN. See *Rattan*.
- LONO. See *Musa textilis*.
- LONOC. See *Ficus indica*.
- LONTOC. See *Rattan*.
- LUCUAN. See *Rattan*.
- LUM-AN. See *Rattan*.
- LUMBAY, V. The inner bark is used for ropes, etc., in Romblón. Possibly referable to *Eugenia jambolana*.
- LUMPA, V. Reported among the fiber plants from Antique. The bark is the part used.
- LUPIG, T. A fiber plant of Bulacán. The bark is the part used. Lupid is referred by authors to *Bauhinia*, and Lupig is probably the same.
- LUSUBAN, II. A fiber plant from the province of Abra.
- LYGODIUM SCANDENS, Sw. (Filices). Nito, Ngito, T.; Nitong-puti, T. A climbing fern found throughout the archipelago. The glossy, wiry stems are used in the making of fine hats, mats, cigarette and cigar cases, etc.
- LYGODIUM species (Filices). Agnayas, Hagnayas, Tagnaya, V. A climbing fern found in the Visayan Islands, used for making fish nets, fish corrals, etc. Perhaps the same as *Lygodium dichotomum*, Sw.
- MACARANGA species. (Euphorbiacæ). Guinabang, T.; Boñgaboñg, V.; Bilua, P. A tree reported among the fiber plants from Nueva Ecija.
- MAG-NAG, Pn. A species of cotton found in Pangasinán.
- MAGABAY. See *Rattan*.
- MAGAY. See *Agave vivipara* Linn.
- MAGBAGACAY. See *Rattan*.
- MAGNEY. See *Agave vivipara*.
- MAGTAGUICTIC. See *Rattan*.
- MALA ACHUETE or MALA ACHIOTE, T. Used for cordage and ropes in Luzón.
- MALAAISIS, T. Reported among the fiber plants in Batangas.
- MALABAGO. See *Hibiscus tiliaceus*.
- MALABOTONG. See *Rattan*.
- MALABULAC. See *Bombax malabaricum*.
- MALACADIOS, V. The inner bark is used for making twine in Masbate.
- MALACHRA BRACTEATA, Cav. (Malvacæ). Labog-labog, V.; Lapnis. A shrub reported as being used for roofing in western Negros. See *Labog-labog*.
- MALAGOQUING. See *Rattan*.
- MALAITMO. See *Gnetum gnemon*.
- MALAPAN, P. Used for making ropes in Pampanga.
- MALAPAO, T. The bark is used for cordage in Nueva Ecija. Referred by authors to *Dipterocarpus vernicifluus*, Blanco.
- MALARUHAT. See *Barong*.
- MALASAP, T. Used for cordage in Bulacán.

- MALASAPSAP, T. Used in central Luzón for cordage. Referred by authors to *Pterocymbium javanicum*, R. Br. A tall tree.
- MALASIAG, T. A fiber plant of La Laguna province; the bark is used for making ropes. Referred by authors to *Ardisia humilis*, Vahl., of the family Myrsinaceæ.
- MALIBAGO. See *Hibiscus tiliaceus*.
- MALILDONG, V. A tree of Negros Oriental; the bark is used for making blankets, etc.
- MALIS. See *Abutilon indicum*.
- MALOBAGO. See *Hibiscus tiliaceus*.
- MALUBAGO. See *Hibiscus tiliaceus*.
- MALUBITIS, P. Yields a fine white fiber from which ropes are made in Pampanga.
- MALUCADIOS. See *Sesbania*.
- MALVA. See *Abutilon indicum*.
- MALVAVISCO, T. Used for making ropes in Batangas.
- MAMBOTAN. See *Rattan*.
- MAMUGTUNG. See *Rattan*.
- MAMUNTING. See *Rattan*.
- MANGNAO. See *Rattan*.
- MANGQUIT. See *Desmodium*.
- MANZANITAS. See *Zizyphus*.
- MARACAPAS. See *Bombax malabaricum*.
- MARAGAYAMAN, II. The stems are used for tying purposes, as reported from La Unión province.
- MARATABONG, II., Pn., T. Used for cordage and pouches in central Luzón.
- MARATECA, II. The inner bark is used for tying purposes in La Unión province.
- MARULINAO. See *Bauhinia tomentosa*.
- MAYAMBAGO, M. The inner bark is used in Surigao.
- MAYQUIDIT, B. (Ambos Camarines). See *Musa textilis*.
- MEIBOMIA GANGETICA. See *Desmodium*.
- MELOCHIA ARBOREA, Blanco. (Sterculiaceæ). Balitnong, V. A shrub or small tree of western Negros. The inner bark is used for twine.
- MELODORUM species. (Anonaceæ). Amuyong, T. A tree reported among the fiber plants from Nueva Ecija, the bark being used.
- MESOSPHERUM CAPITATUM. (Labiatae). Lingo-lingo, Palapasaguy, Linga-lingahan. See *Hyptis capitata*, Jacq. A rank-growing weed, common in swamps and waste places. In southern Luzón this plant is used in making hats and mats.
- METU. See *Hibiscus* species.
- METU, P. A vine the stems of which are used for making ropes in Pampanga.
- MEZONEURUM GLABRUM, Desf. (Leguminosæ). Togabang, V.; Tugabang, B.; Cabitcabag, P. A native vine found in Luzón and the Visayan Islands, and reported from Negros Occidental as a fiber plant.
- MOLOPOLO. See *Urena sinuata*.
- MORAS. See *Morus alba*.
- MORISICO. See *Andropogon acicularis*.
- MORO. See *Musa textilis*.
- MOROSICO. See *Andropogon acicularis*.
- MORTES. See *Musa textilis*.
- MORUS ALBA, L. (Moraceæ). Demoras, V.; Moras, V., T. White mulberry. A tree found in Luzón and the Visayan Islands, and reported to be used (probably the bark) in the making of hats, mats, etc.
- MUCUNA. See *Lipay*.
- MULIOS OR MULIOT, T. Used for ropes in Batangas.
- MUNGAO. See *Rattan*.
- MURSICOS. See *Andropogon acicularis*.
- MUSA SAPIENTUM. (Musaceæ). There are many varieties of bananas and plantains in the Philippines, some of which, especially forms referred to *Musa sapientum*, yield fibers that are utilized by the Filipinos. The fibers vary greatly in quality, all being regarded inferior to Manila hemp, but as in that plant (*Musa textilis*) the fiber is in the leafstalk and is extracted in the same manner as in that species. The native names for these fiber-yielding bananas are Botohan, B.; Butuhan, T.; Sab-a, V.; Saba, T.; Tindoc, B., V.; Tundoc, Z.; Tunduque, V., T.
- MUSA TEXTILIS, Nees. (Musaceæ). Abacá, Manila hemp, Eng. This is the most important fiber plant of the Philippines; in fact, abacá is the most important of all the agricultural products of the islands. In 1902-3, 67.4 per cent of the value of all the exports was Manila hemp. The abacá plant closely resembles the common banana, the trees, however, are usually somewhat taller, the leaves more erect and narrower, and the fruit much smaller and filled with seeds.

There are a number of well-marked varieties of abacá, differing in the period required for their full development, the characters presented by the stem or trunk, the quality of the fiber, and the ease with which the fiber is extracted or "stripped." The best varieties are those which have a stalk of nearly equal diameter for its entire length. In a plant much larger at the base than at the top, as in the so-called black hemp, there is much waste of short fibers at the base. The finest and most valuable fiber is that produced from the leafstalks nearest the central stem of the plant. Abacá fiber of the best quality is from 8 to 12 feet in length, of a glossy white color, very strong and of a clean even texture. In the islands the fiber is used to some extent in making ropes, but its most general and important use is in the manufacture of textiles either alone or mixed with other fibers, as cotton and piña. A hectare of abacá will yield, approximately, 1,450 pounds or 8 picos of fiber. In Albay, the principal hemp province of the islands, the varieties recognized are as follows: Samorong itom, Samorong pula, Samorong puti, Samina, Inisarog, Sabaon, Canaraon, Bogonoraon, Tomatagakanon and Bagacayon, those most sought being the Samorong. In western Negros the following varieties occur: Moro, Bisaya Kinisol, Salaog, Lono, Camarines Tancaao, Agutay, Kala-ao, Pakol, Tindoc, Umambac, Sab-a and Cadizon. The first seven in this list are cultivated for their fibers, the last four for their fruits only. The yield per hectare is estimated at 14 picos (piculs) of clear white fiber. Señor Juan Araneta, of Bago, western Negros, has kindly furnished descriptions of the above-named varieties as follows:

Moro.—Stalk cylindrical, dark, coarse, 15 to 18 feet high; leaves dark green, shining, coriaceous, broad and long; flowers and fruits small with seeds; thread very consistent; fibers coarse, strong, abundant, white, brilliant; manipulation (stripping) difficult; yield very good.

Bisaya.—Stalk cylindrical, white, coarse, 15 to 18 feet high; leaves dark green, shining, spreading, broad and long; flowers and fruit large with round black seeds when mature; thread very strong, fibers coarse, strong, white; manipulation slightly resistant; yield abundant.

Kinisol.—Stalk dark, conical, coarse, long; leaves dark green, shining, spreading, broad, long; flowers and fruit large with seeds; thread firm; fibers coarse, white; manipulation easy; yield good.

Salaog.—Stalk cylindrical, yellowish, somewhat coarse, 9 to 12 feet high; leaves yellowish green, firm, narrow, short; flowers and fruit small with seeds; thread firm, with white and coarse fibers; manipulation easy; yield fair.

Lono.—Stalks medium, dark, cylindrical with red stripes on the borders of the sheaths, coarse, 15 to 18 feet high; leaves dark green, shining, spreading, broad, long; flowers and fruit medium size, with seeds; thread firm, fibers white, fine, shining; manipulation easy; yield good.

Camarines.—Stalk cylindrical, somewhat dark, coarse, 20 feet high; leaves dark green, shining, spreading, broad, long; flowers and fruit dark with seeds; thread very resistant, fibers coarse, strong, white, brilliant; manipulation easy; yield good.

Tancaao.—Stalk cylindrical, dark, coarse, 15 to 18 feet high; leaves dark green, shining, spreading, narrow, short; flowers and fruit small, the latter with seeds; thread firm, of many fibers which are coarse, white, shining; manipulation difficult; yield good.

Other native and local names for abacá and its varieties are the following:

Abacá negro, Sp. (Cápiz).
 Abacá nga alamay, M. (Misamis).
 Abacá nga bicad, M. (Misamis).
 Abacá nga lamb, M. (Misamis).
 Abacang puti, V. (Negros Occidental).
 Agotay, V. (Masbate).
 Amucao, Z. (Zambales).
 Avaja, C. (Cagayán).
 Babauon, M. (Surigao).
 Binangcusan, T. (Tayabas).
 Bo-y, Il. (Abra, La Unión).
 Bolonganon, V. (Negros Occidental).
 Cagnisan, V. (Negros Occidental).
 Calibo, B. (Albay).
 Canalajon, V. (Romblón).

Cantong, Pn. (Pangasinán).
 De Pepita, Pn. (Pangasinán).
 Ebe, Pn. (Pangasinán).
 Gutay, V. (Romblón).
 Hajason, V. (Romblón).
 Ilajon, V. (Romblón).
 Inasufre, T. (Tayabas).
 Isarog, B. (Ambos Camarines).
 Kanaraon, B. (Albay).
 Lanesid, M. (Mindanao).
 Lanisid, V., M. (Negros Occidental, Mindanao).
 Lanisip, V. (Masbate).
 Lanoote, Pn. (Pangasinán).
 Lanot, M. (Misamis).
 Mayquidit, B. (Ambos Camarines).

Mortes, B. (Ambos Camarines).
 Ozanay, Il. (Ilocos Norte).
 Patungal, Pitogo, V. (Bohol).
 Pliegues, V. (Romblón).
 Poonan, M. (Surigao).
 Putian, M. (Surigao).
 Quidit, B. (Ambos Camarines).
 Retondan, V. (Bohol).
 Samoro, V. (The Visayas).
 Samponganon, M. (Misamis).
 Sinabuya, T. (Tayabas).

Sugutong ñga Pacol, V. (Cápiz).
 Tabuno, V. (Romblón).
 Tañgalañ, T. (Cápiz).
 Tapaz, V. (Cápiz).
 Tinagac, V. (Cápiz).
 Tinabuno, V. (Negros Occidental).
 Tinabuno, V. (Negros Occidental).
 Tood, M. (Surigao).
 Totoo, V. (Romblón).
 Tovancog, B. (Albay).
 Tubacanón, V. (Cápiz).

MUSK MALLOW. See *Hibiscus abelmoscus*.

NÁBO. See *Abroma angusta*.

NÁBO, V. The inner bark is used in Negros Oriental. *Nábo* is applied to *Gnetum gnemon*, *Abroma alata*, and to *Ficus*.

NACOT. See *Rattan*.

NAG. See *Rattan*.

NAGSANGSAÑGA, Il. A vine used in Abra province.

NANGA. See *Rattan*.

NAPUS. See *Rattan*.

NGINTU, C. A vine used for weaving purposes in Cagayán province.

NGITO. See *Lygodium scandens*.

NICOP. See *Rattan*.

NICOT. See *Rattan*.

NIQG. See *Cocos nucifera*.

NIPA. See *Nipa fructicans*.

NIPA FRUCTICANS, Wurrmb. (Palmæ). Sasa, T.; Nipa, Sp. A nearly stemless palm with very long nearly erect pinnate leaves which are extensively employed for thatching the roofs and walls of houses, for making mats, etc. All islands, growing along creeks and estuaries near the sea. For other native names, see Part I.

NIPIS. See *Agave vivipara*.

NITO. See *Lygodium scandens*, or *L. dichotomum*.

NITONG-PUTI. See *Lygodium scandens*.

NOCOT. See *Rattan*.

NOCOTNAG. See *Rattan*.

NONOC. See *Ficus indica*.

OAG-OAG, Il. Used in the manufacture of hats in La Unión province.

OAY-BABAE. See *Rattan*.

OAY-BABAI-YE. See *Rattan*.

OAY NI PANGLAO, Il. A vine found in Abra province. Probably a rattan.

OAY or OEY. Widely distributed variety of rattan used for making ropes, chairs, etc. See *Rattan*, *Calamus piscicarpus*, and *Calamus buruensis*.

OAYI. See *Calamus piscicarpus*.

OCTOMALES SUMATRANA, Miq. (Datiscaceæ). Bilua, T. A tree of Luzón and the Visayan Islands, the bark of which yields a fiber of some value.

OEY. See *Rattan*. Same as Oay.

OLAS. See *Rattan*.

ONGALI, M. Used for tying purposes in Surigao.

OPLIG, Il. A vine reported as one of the fiber plants of Abra province.

ORMOSIA CALAVENSIS, Blanco. (Leguminosæ). Bahay. The bark is used for cordage.

ORYZA SATIVA, L. (Gramineæ). Bigas, T.; Rice, Eng. Rice is cultivated throughout the archipelago, and in many places the straw is used for making hats, etc.

OUAY. See *Calamus equestris*.

OUAY NA PULA. See *Calamus coccineus*.

OYANÇO, B., T. The leaves are used in southern Luzón in making hats, mats, baskets, pocket cases, etc. Probably the same as Oyañgia, which is referred to *Abrus precatarius*.

OZANAY. See *Musa textilis*.

PAALIS. See *Rattan*.

PAAT-HALO, V. The inner bark is used in making twine in Negros Occidental.

PACAC. See *Artocarpus camansi*.

PACACBAQUIR, Il. A tree from the inner bark of which ropes are made in Abra province.

PACNOT, V. Furnishes material for ropes and cords in Romblón.

PADLOS. See *Rattan* and *Calamus hoenkeanus*.

- PAIT. See *Rattan*.
- PAKOL. See *Musa textilis*.
- PALANOC. See *Rattan*.
- PALAPASAGUY. See *Mesosphærum*.
- PALASAN. See *Calamus albus*, *Calamus maximus*, *Calamus scipionum*, and *Dæmonorops melanochætus*, etc.
- PALASANG POLA. See *Calamus albus*.
- PALIMANAO. See *Rattan*.
- PALIS. See *Abutilon indicum*.
- PAMANGPANGON. See *Boehmeria heterophylla* and *B. nivea*.
- PANDAN. See *Pandanus spiralis* and other species.
- PANDANUS DUBIUS, Spr. (Pandaneæ). Balio, V.; Baw or Bariw, B., V.; Baren, V.; Knob-fruited Pandanus, Eng. Bangcoang bonduk. A tree growing to the height of 10 to 25 feet, with very broad stiff leaves crowded at the end of the branches. In Luzón and the Visayan Islands the leaves are used for making hats, mats, baskets, pocket cases, bags, sails, etc.
- PANDANUS FASCICULATUS. Pandan, Sabotan. A low tree with usually very short trunk soon branching. The leaves are long, sword shaped, armed with spines on the margins and keel. The spines are removed and the leaves steeped in hot water, scraped, and split in various widths according to purpose—the fiber being used in the making of mats, hats, bags, thatch lashings, etc.
- PANDANUS SABOTAN, Bl. (Pandaneæ). Sabotan, T. A screw pine found in Luzón from the leaves of which mats called *sinabotan* or *sinabatan* and boxes called *tampipi* are manufactured.
- PANDANUS species. (Pandaneæ). The following are doubtfully referred to Pandanus; they may belong to one of the above named: Caragamay, Caragamoy, Caragumay, Karagomoy, B.; Carahumai, T.; Salogo, V. Common on Luzón and the Visayan Islands; the leaves are used for making hats, mats, etc.
- PANDANUS SPIRALIS, Bl. (Pandaneæ). Screw pine, Eng.; Pandan, T.; Pangdang, Dao. A species not uncommon on Luzón and other islands. The leaves are used for making mats, large hats, etc.
- PANGDANG. See *Pandanus spiralis*.
- PANGIHAN, T., V. A large tree; the bark is used for making ropes in Luzón and the Visayan Islands.
- PANLIS. See *Rattan*.
- PANLITOCAN. See *Rattan*.
- PANSILANON. See *Rattan*.
- PARAGTONG AHAS. See *Parameria*.
- PARAMERIA GLANDULIFERA. (Apocynaceæ). Bulao-bulao, V.; Itiban, Paragtong ahas, Dutong ahas, Gamot-sambali, V., T.; Tagulauay, T., V.; Sagid, Taguc-taguc. An evergreen climbing shrub, common in the Visayan Islands, where the bark or stems are used for tying purposes. To be compared with *Parameria philippinensis*.
- PARASAN. See *Calamus maximus*.
- PASAN. See *Rattan*.
- PASAO. See *Corchorus olitorius*.
- PATANGIS, V. A tree found in Masbate whose inner bark is utilized in making ropes.
- PAYAPA. See *Ficus macrocarpa*.
- PAYASAN. See *Rattan*.
- PENNISETUM species. (Gramineæ). Aguingay, V. A grass, the stems of which are used on the islands of Bohol for making hats, etc.
- PERUVIAN COTTON. See *Gossypium peruvianum*.
- PHALERIA species. (Thymelacæ). Salagod, V. A small graceful tree of the Visayan Islands, reported as affording material for cordage.
- PHRAGMITES ROXBURGHII. (Gramineæ). Tambo, Tabun-ak, Common reed. A tall perennial grass 8 to 12 feet high, growing in marshes and along streams. The stems and leaves are used for thatch and the split stems for matting.
- PIÑA. See *Ananas sativus*.
- PINEAPPLE. See *Ananas sativus*.
- PITA. See *Agave vivipara*.
- PTOGO, V. (Bohol). See *Musa textilis*.
- PLIEGUES. See *Musa textilis*.
- POETEG, Pn. A cotton reported from Pangasinán.
- POONAN. See *Musa textilis*.
- POPOYOTEN, Il. A vine found in Abra province.

- PTEROCARPUS BLANCOI**, Merrill. (Leguminosæ). Aplit, P. The bark is used in Pampanga province for rope.
- PTEROSPERMUM DIVERSIFOLIUM**, Blume. (Sterculiaceæ). Baroy, Il.; Bayog, V., T. A moderate-sized tree of Luzón and the Visayan Islands, the inner bark of which is utilized.
- PUDLOS**, V. See *Calamus hænceanus*.
- PUGAHAN**. See *Arenga saccharifera*.
- PURLUS**. See *Calamus hænceanus*.
- PUSAPUSA**, P. or PUSO-PUSO, T., *Eugenia*, *Litsea*, etc. A vine from Tárlac province.
- PUSI**. A rattan found in Abra province, where it is used in making whips, canes, etc.
- PUSO-PUSO**. See *Pusapusa*.
- PUTI**. See *Hibiscus* species.
- PUTIAN**. See *Musa textilis*.
- QUEDDING**, Il., P., T. The inner bark is used for cordage in Tárlac and Abra.
- QUERQUERSANG**. See *Rattan*.
- QUIAN**. See *Bambusa blumeana*.
- QUIAN BANGIN**, P. A species of bamboo used in the construction of houses, fences, etc., in Pampanga province.
- QUIAN BICAL**. A species of bamboo used in the construction of houses in Pampanga province.
- QUIAN KILING**, T. The common bamboo (*Bambusa*) of Luzón and the other islands of the archipelago, and devoted to a great variety of uses.
- QUIAN TIMBU**, P. A variety of bamboo, probably the common *Bambusa blumeana*, reported from Pampanga province, where it is used in the construction of houses, fences, etc.
- QUIDIT**. See *Musa* species.
- QUILING**. See *Bambusa* species.
- QUILLO**, V. The lint from the seed is used in making fabrics of various kinds in Antique.
- QUINIO NEGRO**, Z. A vine, the stem of which is used in Zambales for fish corrals.
- RABO DE LEON**, Il. Pn. The fiber resembles Manila hemp; it is elaborated from the leaves, and is used in Ilocos Norte and Ilocos Sur and Pangasinán for making cloth. The plant is probably *Sansevieria zelanica*, Willd.
- RAGNIODIN**. See *Hibiscus* species.
- RAMIE**. See *Boehmeria nivea*.
- RAMIO**. See *Boehmeria nivea*.
- RANGRANGEN**, Il. A vine reported from Abra as one of the fiber plants.
- RATIPAN**. See *Arenga saccharifera*.
- RATTAN**. Bejucó, Sp. Yantok, Tag. The true rattans belong to the palm family chiefly in the genera *Calamus* and *Dæmonorops*. They generally have very long, slender, pliant, and many jointed stems, in some species attaining the length of four hundred to six hundred feet. These stems are used by the natives for a great variety of purposes, such as tying or lashing together parts of buildings, bridges, etc., also in making of ropes, lattice work, chairs, and other household articles, and in the manufacture of hats, mats, pocket cases, fish corrals, etc. There are many and some very valuable species of rattan in the Philippines, but doubtless many of those enumerated below will prove to be merely synonyms or possibly vines quite distinct from any of the palm family, for the list is compiled from reports received from correspondents of the Bureau of Agriculture, and the natives often call any climbing vine whose stem can be used in the ways above noted, a rattan, and so report it. See *Calamus albus*, *Calamus buroensis*, etc. *Dæmonorops Flagellana*.
- Aangan, V. (Negros Occidental).
 Alimorran, T. (Bataán).
 Anasag, V. (Bohol).
 Apas, T. (Batangas).
 Bachaquin, P. (Tárlac).
 Bagacay, V. (Bohol, Negros Occidental).
 Baganito, B. (Albay).
 Bahuca, B. (Albay).
 Balagacay, V. (Negros Occidental).
 Balanog, T. (Tayabas).
 Balugaco, V. (Marinduque).
 Barit, Il., Z. (Luzón).
 Barret, C. (northern Luzón).
 Barrit, Il. (northern Luzón).
 Basag, V. (Antique).
 Batarag, Pn. (Pangasinán).
 Batlit, Z. (Zambales).
 Banban, V. (Antique).
 Bimnarit, Pn. (Pangasinán).
 Bogtongin, T. (Tayabas).
 Bolongan, V. (Negros Occidental).
 Borobagay, B., V. (southern Luzón).
 Bot-ungan, T. (Luzón).
 Bugting, V. (Negros Occidental).

- Bulalat, Z. (Zambales).
 Caragad, B. (Albay).
 Cayape, M. (Surigao).
 Culacling, T. (Nueva Écija).
 Culacling, T. (Nueva Écija).
 Daanan, T. (Tayabas).
 Dahonuay, T. (Bulacán).
 Danan, B. (Albay).
 Dietan, T. (Bulacán).
 Domaraca, Il. (La Unión).
 Dumayaca, T. (Batangas).
 Gatasan, T. (Luzón and the Visayan Islands).
 Halamham, V. (Negros Occidental).
 Hoag, V. (Romblón).
 Ilonag, V. (Visayan Islands).
 Iruad, Il. (Benguet).
 Jaguaya, V. (Visayan Islands).
 Jamuy, Z. (Zambales).
 Jananjam, V. (Bohol).
 Jipquid, V. (Panay).
 Joag, V. (Negros Occidental).
 Juag, V. (Bohol).
 Juay, V. (Luzón and other islands).
 Labney, Pn. (Pangasinán).
 Labnig, B. (southern Luzón).
 Lambotan, T. (Tayabas).
 Lamuran, T. (Bulacán).
 Lanay baboy, T. (Batangas).
 Lilimbuyen, Pn. (Pangasinán).
 Lipatlipat, V. (Negros).
 Lipay, T. (Tayabas).
 Locoan, V. (Masbate).
 Lontoc, V. (Negros).
 Lucuan, V. (Masbate).
 Lum-an, V. (Masbate).
 Magabay, V. (Romblón).
 Magbagacay, V. (Negros).
 Magtaguictic, V. (Masbate).
 Malabotong, V. (Negros).
 Malagoqing, V. (Negros).
 Mambotan, T. (Tayabas).
 Mamungtung, P. (Tárlac).
 Mamunting, P. (Tárlac).
 Mangnao, V. (Negros).
 Mungao, C. (Cagayán).
 Nacot, B. (southern Luzón).
 Nag, B. (southern Luzón).
 Nanga, V. (Romblón).
 Napus, B. (Ambos Camarines).
 Nicop, B. (southern Luzón).
 Nicot, B. (southern Luzón).
 Nocot, B. (southern Luzón).
 Nocotnag, B. (southern Luzón).
 Oay, B., T., Il. (Luzón and other islands).
 Oay-babae, V. (Masbate).
 Oay-babai-ye, M. (Surigao).
 Oey, Pn. (Pangasinán).
 Olas, B. (Ambos Camarines).
 Paalis, T. (Tayabas).
 Padlos, B. (Ambos Camarines).
 Pait, B. (Ambos Camarines).
 Palanoc, B. (Albay, Ambos Camarines).
 Palimanao, T. (Bulacán).
 Panlis, T. (Tayabas).
 Panlitocan, V. (Negros).
 Pansilanon, V. (Negros).
 Pasan, V. (Bohol).
 Payasan, M. (Surigao).
 Pudlos, V., M. (Visayan and Mindanao islands).
 Pusi, Il. (Abra).
 Querquersang, Il. (La Unión).
 Remoran, V., B. (southern Luzón and the Visayan Islands).
 Remuran, V. (Masbate).
 Sadat, Il. (La Unión).
 Saja-an, V. (Negros).
 Sajajan, V. (Masbate).
 Samolig, B. (southern Luzón).
 Samulid, T. (Bulacán).
 Samulig, B. (southern Luzón).
 Sangumay, V. (Rizal).
 Sarmientos, V. (Antique, Negros).
 Siag, B. (Albay).
 Sig-id, V., M. (Negros, Mindanao).
 Sigid, V. (Bohol).
 Tagsahon, M. (Surigao).
 Tagsaon, V. (Masbate).
 Tagoloaoy, V. (Bohol).
 Talaran, V. (Negros Occidental).
 Talipupoc, T. (Bulacán).
 Talolo, V. (Marinduque).
 Talonton, V. (Negros Occidental).
 Tamalola, V. (Negros Occidental).
 Tamalura, V. (Negros Occidental).
 Tamarura, V. (Romblón).
 Tanamjam, V. (Negros Occidental).
 Tandalora, B., V. (Albay, Masbate).
 Tandarora, B. (Albay).
 Tandarura, B., V. (southern Luzón, etc.).
 Tapniguid, M. (Surigao).
 Tararura, B. (Ambos Camarines).
 Tatula, T. (Batangas).
 Tinalintin, T. (Tayabas).
 Tocong, Pn. (Pangasinán).
 Tomarom, B., V. (Sorsogón).
 Tumaguictic, B., V. (southern Luzón, Masbate, etc.).
 Tumalin, T. (southern Luzón).
 Tumalon, V. (Romblón).
 Tumarom, B. (southern Luzón).
 Uag, B. (Albay).
 Uay, T. (Luzón and Visayan Islands).
 Uay-babae, B., V. (Sorsogón).
 Uban-uban, B. (Ambos Camarines).
 Ubao, B. (Ambos Camarines).
 Uii, Z. (Zambales).

- REMORAN. See *Rattan*.
REMULAN. See *Rattan*.
RETONDAN. See *Musa* species.
RHAMNUS. See *Bical*.
RICE. See *Oryza sativa*.
RIMA. See *Artocarpus communis*.
ROROY, B. An inferior quality of hats and mats is made from the leaves in Albay province.
SAB-A. See *Musa textilis*.
SABA. See *Musa sapientum*.
SABAON. See *Musa textilis*.
SABID LUONG, II. A vine reported from Abra as a fiber plant.
SABNIT, T. Thread is made from this plant in Batangas province.
SABOTAN. See *Pandanus sabotan*.
SACCHARUM SPONTANEUM, L. (Gramineæ). Cogon. A coarse grass found throughout the archipelago. The stems and leaves are used for thatch and in the manufacture of hats. The name *cogon* is applied to several coarse grasses.
SADAQ, II. A vine enumerated among the fiber plants of Abra province.
SADAT. See *Rattan*.
SADIAC A JUIRAO, II. A vine found in Abra and classed among the fiber plants of that province.
SAG-ID. See *Paramelia*.
SAGULAT, V. The bark is used in Negros Oriental for making ropes and cloths.
SAJA-AN, or SAJAJAN. See *Rattan*.
SALAGO. See *Gnetum latifolium*, *Wilkstroemia indica*, etc.
SALAGOD. See *Phaleria*.
SALAOG. See *Musa* species.
SALAWAG. See *Musa textilis*.
SALIBANGBANG. See *Bauhinia tomentosa*.
SALOGO. See *Pandanus* species.
SALUYOT. See *Corchorus acutangulus*.
SAMARONG PUTI. See *Musa textilis*.
SAMINA. See *Musa textilis*.
SAMOLIG. A rattan of southern Luzón used for canes. See *Rattan*.
SAMORO. See *Musa textilis*.
SAMORONG ITOM. See *Musa textilis*.
SAMORONG PULA. See *Musa textilis*.
SAMPONGANON. See *Musa textilis*.
SAMULID. See *Rattan*.
SAMULIG. See *Rattan*.
SANGUMAY. A rattan found in the province of Rizal, where it is used for making hats, chairs, twine, etc.
SANSEVIERA. See *Sansevieria zeylanica*.
SANSEVIERA ZEYLANICA. (Liliaceæ). Bowstring hemp. Introduced as an ornamental plant in Manila and other towns. In Negros Occidental it is utilized in the manufacture of cordage and textiles.
SARACAY, II. The leaves are used in Ilocos Norte and Ilocos Sur for making hats.
SARMIENTOS. See *Rattan*.
SASA. See *Nipa fructicans*.
SAYAPO, V. A plant of Negros Oriental, where it is used in the making of ropes and textiles.
SCREW PINE. See *Pandanus spiralis*.
SEA BEAN. See *Entada scandens*.
SESBANIA ÆGYPTIACA, Pers. (Leguminosæ). Malucadios, V. A small shrub reported as one of the fiber plants of Masbate.
SIAG. See *Rattan*.
SIAPO, V. The inner bark is employed in making ropes in the Visayan Islands.
SIDA ACUTA, Burm. (Malvaceæ). Silhigon, V. A much-branched, half-shrubby perennial found in the Visayan Islands, where the bark is used for cordage, twine, etc.
SIDA CARPINIFOLIA. See *Sida acuta*.
SIDA RHOMBIFOLIA, L. (Malvaceæ). Lalauisin, T.; Taclingvaca, Pn.; Tacquimvaca, II.; Silhigon; Waliswalisin, P., T.; Broom weed. An erect, much-branched undershrub, found in Luzón, the bark of which is used in the manufacture of cloths, twine, etc.
SIDEROXYLON DUCLITAN, Blanco. (Sapotaceæ). Duclitan. The bark is used for cordage.

- SIG-ID. See *Rattan*.
 SIGID. See *Rattan*.
 SILAC. See *Corypha umbraculifera*.
 SILAG. See *Corypha umbraculifera*.
 SILHIGON. See *Sida rhombifolia* and *S. acuta*.
 SILIMAN, P. A vine growing in Tárlac and quoted as one of the fiber plants of that province.
 SIMA, P. Reported from Tárlac. It is a vine and is regarded as one of the fiber plants.
 SINALIGAN. See *Cordia blancoi*.
 SINGITAN, II. The inner bark is used for twine and cord in Ilocos Sur.
 SINIBUYA. See *Musa* species.
 SINITU, C. This fiber is braided over a strand of rattan and used for holding skirts in Cagayán province.
 SIPIT-ULANG. See *Smilax vicaria*.
 SMILAX INDICA. See *Camagsa*.
 SMILAX VICARIA, Kth. (Liliaceæ). Sipit-ulang, T. The stems are used for ropes in Nueva Ecija.
 SMILAX ZEYLANICA, L. (Liliaceæ). Kamagsa, T. A climbing glabrous or sparingly prickly shrub reported among the fiber plants of La Laguna province.
 STERCULIA FÆTIDA, L. (Sterculiaceæ). Bangar, II.; Calumpang, P., T. A large tree with horizontally spreading branches and flowers of very offensive odor. Reported from Luzón and other islands, the inner bark being used for making ropes.
 STERCULIA URENS, Roxb. (Sterculiaceæ). Banilad, Canilad, V. A tree found in the Visayan Islands, where the inner bark is used in making twine.
 SUGUTONG ÑGA PACOL, V. (Cápiz). See *Musa textilis*.
 SUMA. See *Anamirta cocculus*.
 SUMARINGAT, II. The inner bark is used for making ropes and twine in Abra province.
 TABING. See *Abutilon indicum*.
 TABONG, V. Reported from Cápiz as being employed in the manufacture of or for ropes. The bark is the part used.
 TABUN-AK. See *Phragmites roxburghii*.
 TABUNO. See *Musa* species.
 TACLINGVACA. See *Sida rhombifolia*.
 TACQUIMVACA. See *Sida rhombifolia*.
 TAGNAYA. See *Lygodium* species.
 TAGOLAOAY. See *Rattan*.
 TAGSAHON. See *Rattan*.
 TAGSAON. See *Rattan*.
 TAGUC-TAGUC. See *Parameria*.
 TAGUICTIC. See *Calamus horrens*.
 TAGUISI. See *Bambusa* species.
 TAGUITI. See *Dæmonorops hystrix*.
 TAGULANAY. See *Paramelia*.
 TAINANAC. See *Bambusa* species.
 TALALULA. See *Calamus buroensis*.
 TALARAN. See *Rattan*.
 TALIPUPOC. See *Rattan*.
 TALOLA. See *Calamus buroensis*.
 TALOLO. See *Rattan*.
 TALONTON. See *Rattan*.
 TALORA. See *Calamus buroensis*.
 TALOTA, V. The bark or cortex is used in Antique for cordage.
 TALULA. See *Calamus buroensis*.
 TAMALOLA. See *Rattan*.
 TAMALURA. See *Rattan*.
 TAMABURA. See *Rattan*.
 TAMBO. See *Phragmites roxburghii*.
 TANABO. See *Abroma angusta*.
 TANAG. See *Kleinhovia*.
 TANAMJAM. See *Rattan*.
 TANCA-AO. See *Musa textilis*.
 TANDALORA. See *Rattan*.
 TANDARORA. See *Rattan*.
 TANDARURA. See *Rattan*.

- TANGLAN. See *Musa textilis*.
- TAPAZ, V. (Cápiz). See *Musa* species.
- TAPITAC. See *Hibiscus* species.
- TAPITAC, P. Used in Pampanga province for making ropes.
- TAPNIGUID. See *Rattan*.
- TARARURA. See *Rattan*.
- TARLUTO, T. A plant used in Batangas province for making ropes.
- TATULA. See *Rattan*.
- TAWTAWON, V. The bark is used in Sámar.
- TAYOM, V. Used in Cápiz, Panay Island, for making hats.
- TAYUCTAYUC, V. The leaves are used in the Visayan Islands in making hats, mats, etc.
- THESPESIA CAMPHYLOSIPHON, Rolfe. (Malvaceæ). Lanutan, V. Reported from Romblón among the fiber plants, used for making hats, rain coats, etc.
- THESPESIA POPULINA, Sol. (Malvaceæ). Bubuy, B., T., V., II.; Bulacán, V.; Tree cotton, Eng. A much-branched shrub or small tree of Luzón and the Visayan Islands. The lint on the seeds is used for stuffing pillows, mattresses, and making cloths.
- TICOG, M., V. In Luzón and the southern islands, hats, mats, pocket cases, etc., are made from this plant.
- TINABUNO. See *Musa* species.
- TINAGAC. See *Musa* species.
- TINALINTIN. See *Rattan*.
- TINAMBUNO. See *Musa* species.
- TINDOC. See *Musa sapientum*.
- TIPOLO. See *Artocarpus communis*.
- TIPOO. See *Artocarpus communis*.
- TOCONG. See *Rattan*.
- TOGABANG. See *Mezoneurum glabrum*.
- TOMAROM. See *Rattan* and *Dæmonorops niger*.
- TOMATAGAKANON. See *Musa textilis*.
- TOMATOM. See *Dæmonorops niger*.
- TONTON. See *Dæmonorops niger*.
- TOOD. See *Musa* species.
- TORANCOG. See *Musa textilis*.
- TREE COTTON. See *Gossypium arboreum* and *Thespesia populina*.
- TUBACANON. See *Musa textilis*.
- TUGABANG. See *Mezoneurum glabrum*.
- TUGOP. This is probably a species of *Artocarpus*, the inner bark of which is used for making rope and twine. Reported from Cápiz on the island of Panay.
- TUMAGUICTIC. See *Rattan*.
- TUMALIM. See *Rattan*.
- TUMALON. See *Rattan*.
- TUMAROM. A variety of rattan found in southern Luzón where it is used in making chairs, hammocks, traveling bags, etc. See *Rattan*.
- TUNDOC. See *Musa sapientum*.
- TUNDUQUE. See *Musa sapientum*.
- TYPHA ANGUSTIFOLIA, L. (Typhaceæ). Balangot, T., V.; Cat-tail Flag, Eng. Common on Luzón and other islands. The leaves are used for twine and in the manufacture of hats, mats, etc.
- UAG. See *Rattan*.
- UAK. See *Flagellaria indica*.
- UAY. A widely distributed species of rattan used in making hats, pocket cases, and other articles. See *Rattan*.
- UAY-BABÆ. See *Rattan*.
- UBAN-UBAN. See *Rattan*.
- UBANUBAN. See *Rattan*.
- UBAO. See *Rattan*.
- UDIN, II. In Nueva Vizcaya this furnishes material for the manufacture of rope and large hats.
- UII. See *Rattan*.
- UMAMBAC. See *Musa textilis*.
- URENA SINUATA, L. (Malvaceæ). Colotan, Colot-colotan, Culut-culutan, Molopolo, Dalupan, Kolotan, Kolot-colotan, T., P. A perennial much-branched herb, 2 to 4 ft. high, common in Luzón where the bark is used for making ropes which are very strong.
- USIU. See *Bambusa* species.

UWAY. A rattan found in Luzón, used for making tobacco pouches, hats, baskets, pocketbooks, jewel cases, traveling bags, etc. See *Rattan*.

VARIPI. See *Cyathula prostrata*.

VARIW, V. In Antique pocket cases, hats, mats, etc., are made from this plant.

WAKAL, Pn. A vine used for fishing lines in Pangasinán.

WALISWALISIN. See *Sida rhombifolia*.

WHITE MULBERRY. See *Morus alba*.

YANTOK. Tagalog name for rattan, applied to many species. See *Calamus*, *Dæmonorops*, and *Rattan*.

YORO. See *Caryota*.

ZARACAT. A palm found in Ilocos Norte, the leaves of which are split and woven into mats regarded superior to those made from the leaves of buri (which see).

ZIZYPHUS JUJUBA, Lam. (Rhamnaceæ). Manzanitas, Sp., T., Il. A much-branched shrub or small tree found in Luzón. The bark is utilized.

II. RETURNS OF THE CENSUS.

The Schedule—Collection and Tabulation of Data—Agricultural Lands—Number and Size of Farms—Farm Areas—Color of Farmer and Tenure—Comparison of Cultivated Areas, by Years—Products—Domestic Animals—General Tables.

While the act of Congress providing for the census made no mention of agriculture, it was included in the act of the Philippine Commission, and the specific data to be collected are prescribed in the schedule, the form of which is presented below.

The information called for by the schedule was secured entirely by the census enumerators who visited the farms, plantations, or haciendas in person.

By referring to the schedule the subject-matter called for will be understood. It was the purpose to ascertain the number and area of farms, the race of the owners and occupants, whether the farms were rented or owned, and if they were rented, how or in what way the rent was paid, the amount of ground under cultivation and wooded, and the character and amount of crops and domestic animals of all kinds. The collection of these statistics in some portions of the archipelago was fraught with many troubles, as a result of the great difficulty of travel and the frequent absence of the owners or occupants of property, but on the whole the information gathered was quite as much as expected, and while some anomalies were apparent in the schedules they were susceptible of explanation, and do not detract from the merit of the work done by the enumerators in general.

Census of the Philippine Islands taken under the direction of the United States Philippine Commission: 1903.

SCHEDULE NO. 2—AGRICULTURE.

Supervisor's district, No.
 Enumeration district, No.
 Municipality

Province.....
 Judicial district.....
 Barrio.....

Completed by me on the....day of....., 1903.

.....Enumerator.

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Name of the proprietor? 2. Name of the occupant or farmer? 3. Race or color of proprietor? 4. Race or color of occupant? 5. Is the farm rented to the occupant? 6. Is the rent paid in money or in produce, and the amount? | <ol style="list-style-type: none"> 7. Area of the farm or plantation? 8. Area of the land now under cultivation 9. Area cultivated before 1896? 10. Area of the land not cultivated 11. Area of the forests? 12. Kind of forests, high or low? |
|---|--|

NOTE.—State whether Filipino, American, Spaniard, Chinese, or of another country. When this can not be done, state the race, indicating Indian, white, black, Mongolian, or Mestizo.

SCHEDULE No. 2—AGRICULTURE—Continued.

Distribution of the area of cultivation according to the kinds and quantities of products.

PRODUCTS.	Area in hectares.	Product expressed in local weights and measures in 1902.	PRODUCTS.	Area in hectares.	Product expressed in local weights and measures in 1902.
13.	14.	15.	13.	14.	15.
Hemp.....			Tomatoes.....		
Sugar cane.....			Coconuts.....		
Coffee.....			Copra.....		
Tobacco in leaf.....			Oranges.....		
Rice.....			Mangoes.....		
Rubber.....			Plantains or bananas.....		
Gutta-percha.....			Pineapples.....		
Grass.....			Cacao or chocolate.....		
Sweet potatoes.....			Lanzones.....		
Gabe.....			Guavas.....		
Corn.....					
Onions.....					

NOTE.—State in the blank space any other products. In giving the products of the year 1902 use the particular weights and measures of each province—for example, pico, quintal, cavan, arroba, ganta, or number.

Number of domestic animals on the date of enumeration.

ANIMALS.	Number.	Value in pesos.	Died in 1902.	Slaughtered, 1902.	ANIMALS.	Number.	Value in pesos.	Died in 1902.	Slaughtered, 1902.
16.	17.	18.	19.	20.	16.	17.	18.	19.	20.
Carabao bulls.....					Hogs.....				
Carabao steers.....					Asses.....				
Carabao cows.....					Goats.....				
Carabao calves.....					Sheep.....				
Australian cattle.....					Hens.....				
Indian cattle.....					Geese.....				
American horses.....					Turkeys.....				
Australian horses.....					Ducks.....				
Native horses.....									

NOTE.—Indicate on blank lines any other domestic animals.

COLLECTION AND TABULATION OF DATA.

The data collected by the census enumerators, through the use of the above schedule, cover the insular industry that, in point of importance and extent, overshadows all the others combined. The returns give evidence of the conscientiousness with which the enumerators performed their work, which, under the conditions prevailing throughout the islands, was unusually and peculiarly difficult.

It will not be necessary to mention in detail all the obstacles encountered by the enumerators, but it is desirable to point out those which most affected the accuracy of the returns:

First. The absence of land surveys and the lack of definite knowledge on the part of the people in the Philippine Islands as to the exact extent of their land holdings and the quantities of products harvested. These have led to a custom of guessing at areas and yields, which made

it difficult, in many cases, to secure accurate information. To this should be added the inability of a considerable proportion of the people to apply mathematical expressions to their agricultural operations.

Second. The condition of terrorism which prevailed in some of the most important sections of the archipelago while the census taking was in progress. This was caused by the raids of the ladrones, whose incursions were so widespread and devastating, especially in the provinces of Albay, Sorsogón, and a portion of Ambos Camarines, that entire communities became depopulated. In order to protect the people against these robber bands the government established reconcentration points, where many thousand Filipinos were collected. It was, therefore, impossible for the enumerators to secure the agricultural data from these people on their farms, and when they endeavored to obtain the information at the reconcentration points the replies were frequently unsatisfactory and to a certain extent unreliable.

Third. The fact that the principal agricultural products, with the exception of rice (paddy), sugar, tobacco, and corn, in addition to being cultivated, also grow wild. The census inquiries, however, were intended to relate to cultivated areas and products only, which, in the case of most crops, form but a small part of the total area and yield. It is probable, however, that the enumerators were not always able to discriminate between cultivated and wild products, and in view of the fact that the Filipinos use wild and cultivated products indiscriminately, it was extremely difficult to secure accurate data.

The reports of agricultural areas and products were made in the different local units of measure prevailing throughout the several provinces. These have been reduced to the metric system, and are so shown in the general tables of this report.

The tabulations based on the investigation are made under three general heads corresponding to the three subjects covered by the schedule: First, general Tables 1 to 18, inclusive, present data for 1903 relating to number of farms, farm tenures, and areas, cultivated and uncultivated lands, wooded lands, and color of farmer, by provinces and comandancias and by certain principal islands; second, Table 19 gives the areas devoted to the production of different leading crops and the quantities in which such crops were produced in 1902, by provinces and comandancias and by the same islands covered by the tables of areas, tenures, etc.; third, Tables 20 to 25, inclusive, show the number and value of different classes of domestic animals in 1903, with the number of each kind that died of disease or were slaughtered for food in 1902, by provinces and by certain selected islands.

The general tables relate to the agricultural operations of, and live stock belonging to, the civilized or Christian population. Such agricultural data pertaining to the wild tribes as were collected will be

given separately in textual form, their character being such as to render a tabular presentation inexpedient.

AGRICULTURAL LANDS.

It will be observed that the titles of Tables 1 to 18, inclusive indicate that the statistics they contain relate to "farms and other parcels of land used for agriculture." In order that this phrase may be clearly understood, a word of explanation is necessary.

In most sections of the Philippine Islands the lands used for agriculture, located within the limits of territory having a Christian population, are greatly subdivided, and, consequently, individual holdings are frequently of very small areas. Nearly half the parcels of occupied lands, to which the tables relate (49.8 per cent) are less than 1 hectare (2.471 acres) in size; while thousands of tracts, the total number of which constitutes 21.7 per cent of the holdings embraced by the tables, are smaller than 35 ares—an are being equivalent to 0.0247 of an acre, or about 1,075 square feet. These small parcels of land, many of them no larger than ordinary kitchen gardens in the United States, are resided upon by, cultivated by, and contribute materially to the subsistence of, their owners or occupants; and the presentation of agricultural statistics for the Philippines would be extremely faulty and incomplete were they not included. They are, however, too small to be properly called "farms." For convenience, however, in discussing the tables, all agricultural holdings will be referred to as "farms," regardless of size.

The people of the Philippines are extremely gregarious. The isolated farmhouse, so familiar in rural sections throughout the United States, is practically unknown in these islands, whose inhabitants almost universally live in communities and largely subsist on such products of the soil as can be cultivated or gathered from wild growths in the immediate vicinity of their dwelling places.

This custom of herding together is not due alone to the social, company loving disposition of the people. It has been rendered necessary by the ladronism and the raids of Moros that prevailed throughout the islands for centuries. The piratical Moros have in earlier times, raided the islands as far north as Northern Luzón, until, half a century ago, Spain put a stop to it. These, with the marauding bands of ladrones that have infested the most productive portions of the archipelago have rendered farm life in the American sense impracticable, and have forced the people to live in more or less closely settled communities for purposes of protection and defense against the incursions of the robbers. This has been one of the greatest obstacles in the way of agricultural development and is in a large degree the cause of the numerous small land holdings. Another reason is the great productiveness of the soil, and the variety of crops that can be raised on a small piece of land.

The spaces of land between their villages are, as a rule, unpopulated, and these intervening tracts, frequently of great extent, are almost wholly uncultivated and practically unused, except in a limited way for grazing purposes, or in the utilization of such wild growths of fruits, vegetables, or fiber plants as they produce. The average size of all farms in the Philippines is only 346.8 ares—equivalent to 8.57 acres. In the United States the average size of all farms is shown by the census of 1900 to have been 146.6 acres, making a ratio as to size of about 17 to 1.

The small proportion of land in farms or agricultural lands, as compared with the total areas of the various provinces, comandancias, and islands, is shown by the two following tables:

Total area and area of agricultural land, by provinces and comandancias, arranged in the order of the magnitude of the percentage of agricultural land reported.

In order of magnitude.	PROVINCE OR COMANDANCIA.	AREA IN HECTARES.		Per cent agricultural.
		Total.	Agricultural.	
	Philippine Islands.....	29,791,734	2,827,704	9.5
1	La Laguna	162,911	86,426	53.1
2	Pampanga	224,812	105,677	47.0
3	Sorsogón	195,545	88,829	45.4
4	Pangasinán	308,987	119,771	38.8
5	Ilocos Sur	121,989	47,176	38.7
6	Batangas	311,059	117,422	37.7
7	Iloilo	524,998	176,955	33.7
8	Bulacán	303,807	90,220	29.7
9	La Unión	164,206	43,077	26.2
10	Cebu	502,201	130,624	26.0
11	Cavite	160,321	40,881	25.5
12	Tarlac	312,095	78,923	25.3
13	Albay	461,797	116,084	25.1
14	Cápiz	452,991	108,692	24.0
15	Negros Occidental	810,670	177,642	21.9
16	Abra	303,289	52,086	17.2
17	Leyte	779,072	133,620	17.2
18	Ilocos Norte	344,470	59,633	16.2
19	Nueva Ecija	561,771	90,367	16.1
20	Romblón	148,407	23,546	15.9
21	Bohol	391,349	58,098	14.8
22	Manila city	5,180	738	14.2
23	Ambos Camarines	849,261	106,371	12.5
24	Cagayán	1,308,468	188,166	10.6
25	Antique	293,706	27,194	9.3
26	Zambales	550,375	45,917	8.3
27	Negros Oriental	482,776	37,971	7.9
28	Rizal	189,847	14,787	7.8
29	Sámar	1,366,484	101,481	7.4
30	Tayabas ¹	1,645,686	120,754	7.3
31	Misamis	978,243	59,269	6.1
32	Bataan	139,088	8,232	5.9
33	Isabela	1,239,632	67,716	5.2
34	Mindoro	1,042,216	42,424	4.1
35	Surigao	1,809,592	49,060	2.7
36	Masbate	406,371	9,798	2.4
37	Basilan ²	134,680	2,277	1.7
38	Paragua	618,751	9,032	1.5
39	Zamboanga ²	791,504	10,588	1.3
40	Dapitan ²	521,885	5,374	1.0
41	Nueva Vizcaya	505,050	4,421	0.9
42	Dávao ²	2,514,113	16,343	0.7
43	Siassi ²	23,051	133	0.6
44	Lepanto-Bontoc	519,295	1,741	0.3
45	Cotabato ²	3,052,574	5,286	0.2
46	Paragua Sur ²	737,891	626	0.1
47	Benguet	212,898	233	0.1
48	Jolo ²	142,450	23	(³)
	Tawi Tawi ²	103,600	(⁴)	(⁴)

¹Including the subprovince, Marinduque.

²Comandancia.

³Less than one-tenth of 1 per cent.

⁴No agricultural land reported.

Total area and area of agricultural land, by islands, arranged in the order of the magnitude of the percentage of agricultural land.

In order of magnitude.	ISLAND.	AREA IN HECTARES.		Per cent agricultural.
		Total.	Agricultural.	
	Philippine Islands.....	29,791,734	2,827,704	9.5
1	Cebú.....	456,358	119,989	26.3
2	Panay.....	1,194,249	294,487	24.7
3	Leyte.....	704,998	123,754	17.6
4	Marinduque.....	91,168	15,598	17.1
5	Negros.....	1,264,179	210,452	16.6
6	Luzón.....	10,610,971	1,592,288	15.1
7	Bohol.....	373,219	53,160	14.2
8	Sámar.....	1,303,029	85,892	6.6
9	Mindoro.....	997,409	39,138	3.9
10	Masbate.....	320,124	5,222	1.6
11	Mindanao.....	9,399,628	127,534	1.4
	All other islands.....	3,076,402	160,190	5.2

Table 1 shows, for the archipelago and for each province and comandancia, except the comandancia of Tawi Tawi, for which no agricultural data were collected, the total number of farms, with their total cultivated and uncultivated areas. The percentages of cultivated, forest, and other agricultural lands are also shown, with the average size of all agricultural holdings and of cultivated areas. In addition statistics are presented in this table showing the areas of occupied lands covered with timber, classified as large timber, small timber, and mixed large and small timber. Information similar to that given in Table 1 is presented in Table 2 for the principal agricultural islands of the archipelago.

It will be observed, as shown in Table 1, that while, in the archipelago as a whole, 45.9 per cent of agricultural lands were under cultivation, the percentage of such cultivated lands in the different provinces and supervisors' districts varied widely, ranging from 7.2 per cent in Cottabato to 84.2 per cent in Ilocos Sur. Contrary to the rule that the percentage of farm lands under cultivation increases as the size of land holdings diminish, examination of the table fails to disclose any close relationship between the percentage of cultivated land and the size of farms in the separate provinces. For example, in Ilocos Norte 64,812 farms averaging 85.8 ares in size are reported, while in Ilocos Sur 21,479 farms of an average size of 219.6 ares are shown. In the first-named province 72.3 per cent of farm land was under cultivation, while in Ilocos Sur the proportion of cultivated farm land was 84.2 per cent. In the province of Abra, adjoining Ilocos Norte and Cagayán, there were 13,655 farms, averaging 381.4 ares in size, but the proportion of farm lands that were cultivated in this province was only 23.4 per cent, while in Pampanga 60.4 per cent of the land

embraced by 10,031 farms, averaging 1,053.5 ares in size, was cultivated. It is seen from the foregoing figures, taken at random from Table 1, that in the Philippines the proportion of cultivated land does not invariably increase as the size of agricultural holdings diminishes, though in some provinces where the average size of farms is larger than the general average for the archipelago the percentage of cultivated land is smaller than in some other provinces having farms of a smaller average size.

NUMBER AND SIZE OF FARMS.

In the archipelago as a whole, however, the proportion of farm land under cultivation increases, regularly, as the size of the farms diminishes; this can be seen by reference to the table given on page 278, in which the percentage of farm area under cultivation is shown for each specified size of farms.

In order that the proportion of farms under cultivation in the different provinces may be readily compared, the following table is given, in which the provinces are arranged with reference to such proportion. The table shows, in addition to the percentages of cultivated farm lands, the number of farms and their average size; also the percentages of farm areas that were forest land and that were other than cultivated or forest.

Number and average size of farms, by provinces and comandancias, together with the percentages of cultivated, forest, and other land, arranged in the order of the magnitude of the percentage of cultivated land.

In order of magnitude.	PROVINCE OR COMANDANCIA.	FARMS.		PER CENT OF FARM AREA.		
		Number.	Average size in ares.	Cultivated.	Forest.	All other.
	Philippine Islands	815,453	346.8	45.9	13.6	40.5
1	Ilocos Sur	21,479	219.6	84.2	3.9	11.9
2	Joló ¹	9	255.6	82.6	.....	17.4
3	Antique	13,110	207.4	79.5	3.5	17.0
4	Masbate	3,090	317.1	75.8	13.1	11.1
5	Albay	32,794	354.0	73.4	6.5	20.1
6	Ilocos Norte	64,812	85.8	72.3	8.3	19.4
7	La Unión	38,219	112.7	71.6	11.5	16.9
8	Pangasinán	54,712	218.9	68.0	14.2	17.8
9	Rizal	11,564	127.9	67.2	2.2	30.6
10	Bulacán	21,096	427.7	67.1	3.3	29.6
11	Zamboanga ¹	2,600	407.2	65.2	26.7	8.1
12	Manila city	537	137.4	64.1	3.5	82.4
13	Nueva Vizcaya	1,807	244.7	64.1	4.2	31.7
14	Sorsogón	14,567	609.8	61.5	10.4	28.1
15	Pampanga	10,031	1,053.5	60.4	6.2	33.4
16	Zambales	24,367	188.4	59.6	0.7	89.7
17	Negros Oriental	26,434	143.6	56.3	4.5	39.2
18	Romblón	6,823	345.1	56.2	9.7	34.1
19	Ambos Camarines	12,863	827.0	56.1	10.8	33.1
20	Cavite	9,640	424.1	50.9	4.5	44.6
21	Misamis	25,679	230.8	49.5	9.4	41.1
22	Surigao	7,412	661.9	49.4	10.9	39.7
23	Tayabas ²	42,236	285.9	47.7	22.2	30.1
24	La Laguna	22,025	392.4	47.5	12.7	39.8

¹ Comandancia.

² Including the subprovince, Marinduque.

Number and average size of farms, by provinces and comandancias, together with the percentages of cultivated, forest, and other land, arranged in the order of the magnitude of the percentage of cultivated land—Continued.

In order of magnitude.	PROVINCE OR COMANDANCIA.	FARMS.		PER CENT OF FARM AREA.		
		Number.	Average size in ares.	Cultivated.	Forest.	All other.
25	Tarlac	11,160	706.2	47.3	18.0	34.7
26	Samar	25,218	402.4	42.4	20.2	37.4
27	Bataan	2,304	357.3	42.3	8.3	49.4
28	Bataan ¹	1,203	446.7	41.5	28.0	30.5
28	Dapitan ¹	6,976	2,546.5	41.0	9.2	49.8
29	Negros Occidental	80,231	162.8	40.8	6.7	52.5
30	Cebu	36,869	157.6	40.0	0.2	59.8
31	Bohol	24,969	435.3	34.0	19.3	46.7
32	Capiz	2,673	337.9	33.2	59.9	6.9
33	Paragua	34,666	510.5	32.3	11.0	56.7
34	Iloilo	37,081	360.3	32.1	7.2	60.7
35	Leyte	76	306.6	30.5	31.3	38.2
36	Benguet	13,381	675.3	29.6	11.4	59.0
37	Nueva Ecija	18,204	759.0	25.6	50.4	24.0
38	Cagayan	115	1,980.0	25.6	57.9	16.5
39	Basilan ¹	11,738	576.9	24.7	6.1	69.2
40	Isabela	13,655	381.4	23.4	2.1	74.5
41	Abra	1,309	1,248.5	23.1	37.6	39.3
42	Davao ¹	3	4,433.3	22.6	.....	77.4
43	Siasi ¹	159	1,095.0	21.5	0.5	78.0
44	Lepanto-Bontoc	23,295	504.1	18.4	27.2	54.4
45	Batangas	131	477.9	17.6	54.1	28.3
46	Paragua Sur ¹	2,100	2,020.2	11.2	27.7	61.1
47	Mindoro	32	16,518.8	7.2	0.3	92.5
48	Cotabato ¹	(2)	(2)	.....	.....	.....
	Tawi Tawi ¹	(2)	(2)	.....	.....	.....

¹ Comandancia.

² No farms were reported for this comandancia.

Table 2, which gives data for the principal agricultural islands similar to those given in Table 1 for provinces, does not show such wide variations in the proportions of farm lands under cultivation as exist in the separate provinces; except on Mindoro, where the cultivated land is only 8.2 per cent of the farm area, and Masbate where such percentage rises to 76.2, the figures are fairly uniform, ranging from 30.7 per cent on Leyte to 50.7 per cent on Luzón, as shown by the following table, which is similar in form to the preceding one:

Number and average size of farms, by islands, together with the percentages of cultivated, forest, and other land, arranged in the order of the magnitude of the percentage of cultivated land.

In order of magnitude.	ISLAND.	FARMS.		PER CENT OF FARM AREA.		
		Number.	Average size in ares.	Cultivated.	Forest.	All other.
	Philippine Islands	815,453	346.8	45.9	13.6	40.5
1	Masbate	1,818	287.2	76.2	12.6	11.2
2	Luzón	447,267	356.0	50.7	14.7	34.6
3	Mindanao	30,877	413.0	45.1	14.7	40.2
4	Negros	25,814	815.3	42.8	8.5	48.7
5	Cebu	75,382	159.2	40.9	6.9	52.2
6	Samar	20,536	418.3	40.6	22.5	36.9
7	Bohol	35,093	151.5	40.5	0.2	59.3
8	Panay	71,379	412.6	37.4	13.2	49.4
9	Marinduque	17,979	86.8	32.3	24.1	43.6
9	Leyte	34,203	361.8	30.7	7.2	62.1
10	Mindoro	1,660	2,357.7	8.2	29.6	62.2
11	All other islands	53,445	299.7	49.2	13.7	37.1

The farm areas in the different provinces and the principal agricultural islands are no less varied in extent than are the proportions of such areas under cultivation. This will be readily seen by examining the tables immediately following, in which the provinces and the islands embraced by the general Tables 1 and 2 are arranged in the order of their importance as determined by the average size of farms in each:

Number and average size of farms by total and cultivated areas, by provinces and comandancias, arranged in the order of the magnitude of the average total area.

In order of magnitude.	PROVINCE OR COMANDANCIA.	Number of farms.	AVERAGE SIZE OF FARMS IN ARES.	
			All land.	Cultivated land.
	Philippine Islands	815,453	346.8	159.3
1	Cottabato ¹	32	16,518.8	1,196.9
2	Siassi ¹	3	4,433.3	1,000.0
3	Negros Occidental.....	6,976	2,546.5	1,045.4
4	Mindoro.....	2,100	2,020.2	227.0
5	Basilan ¹	115	1,980.0	507.0
6	Dávao ¹	1,309	1,248.5	287.9
7	Lepanto-Bontoc.....	159	1,095.0	235.2
8	Pampanga.....	10,031	1,053.5	636.4
9	Ambos Camarines.....	12,863	827.0	464.0
10	Cagayán.....	18,204	759.0	194.6
11	Tarlac.....	11,160	707.2	334.5
12	Nueva Ecija.....	13,381	675.3	200.0
13	Surigao.....	7,412	661.9	327.2
14	Sorsogón.....	14,567	609.8	375.3
15	Isabela.....	11,738	576.9	142.7
16	Iloilo.....	34,666	510.5	164.7
17	Batangas.....	23,295	504.1	92.9
18	Paragua Sur ¹	131	477.9	84.0
19	Dapitan ¹	1,203	446.7	185.5
20	Cápiz.....	24,969	435.3	148.0
21	Bulacán.....	21,095	427.7	287.1
22	Cavite.....	9,640	424.1	215.9
23	Zamboanga ¹	2,600	407.2	265.7
24	Sámar.....	25,218	402.4	170.8
25	La Laguna.....	22,025	392.4	186.2
26	Abra.....	13,655	381.4	89.4
27	Leyte.....	37,081	360.3	115.7
28	Bataán.....	2,304	357.3	151.3
29	Albay.....	32,794	354.0	259.6
30	Romblón.....	6,823	345.1	194.1
31	Paragua.....	2,673	337.9	112.2
32	Masbate.....	3,090	317.1	240.4
33	Benguet.....	76	306.6	93.4
34	Tayabas ²	42,236	285.9	136.3
35	Joló ¹	9	255.6	211.1
36	Misamis.....	25,679	230.8	114.3
37	Ilocos Sur.....	21,479	219.6	185.0
38	Nueva Vizcaya.....	1,807	244.7	156.7
39	Pangasinán.....	54,712	218.9	148.9
40	Antique.....	13,110	207.4	164.9
41	Zambales.....	24,367	188.4	112.4
42	Cebú.....	80,231	162.8	66.4
43	Bohol.....	36,869	157.6	63.1
44	Negros Oriental.....	26,434	143.6	80.9
45	Manila city.....	537	137.4	38.1
46	Rizal.....	11,564	127.9	85.9
47	La Unión.....	38,219	112.7	80.7
48	Ilocos Norte.....	64,812	85.8	62.1
	Tawi Tawi ¹	(³)		

¹ Comandancia.

² Including the subprovince, Marinduque.

³ No farms were reported for this comandancia.

Number and average size of farms by total and cultivated areas, by islands, arranged in the order of the magnitude of the average total area.

In order of magnitude.	ISLAND.	Number of farms.	AVERAGE SIZE OF FARMS IN ARES.	
			All land.	Cultivated land.
	Philippine Islands.....	815,453	346.8	159.3
1	Mindoro.....	1,660	2,357.7	193.6
2	Negros.....	25,814	815.3	349.2
3	Samar.....	20,586	418.3	169.9
4	Mindanao.....	30,877	413.0	186.4
5	Panay.....	71,379	412.6	154.4
6	Leyte.....	34,203	361.8	111.0
7	Luzon.....	447,267	356.0	180.3
8	Masbate.....	1,818	287.2	218.9
9	Cebu.....	75,382	159.2	65.2
10	Bohol.....	35,093	161.5	61.3
11	Marinduque.....	17,979	86.8	28.0
	All other islands.....	53,445	299.7	147.4

The data given in Tables 1 and 2 regarding the area of woodlands within farm areas will be found interesting. The timber growing on such lands is classified as large, small, and mixed large and small, the number of hectares of each class being stated. This portion of the tables is instructive, as it shows, by comparison of total forest areas with total farm areas, the proportion of agricultural lands that are clear of timber. The percentage of lands that are wooded is given for the separate provinces in Table 1, and in Table 2 for each of the islands embraced therein.

In the archipelago as a whole the forest land constitutes 13.6 per cent of the total farm area; but in the different provinces it ranges from two-tenths of 1 per cent in Bohol to 59.9 per cent in Paragua; and, on the principal agricultural islands, from two-tenths of 1 per cent on Bohol to 29.6 per cent on Mindoro.

FARM AREAS.

The two following tables show the total farm area, and total forest and nonforest areas, by provinces, comandancias, and islands, together with the percentages which the forest land bears to the total farm areas. The figures presented in these tables give indication of the extent to which the populated agricultural portions of the archipelago have been denuded of timber.

Total area of farms, classified as forest and nonforest land, by provinces and comandancias, together with the percentages of each, arranged in the order of the magnitude of the percentage of forest land.

In order of magnitude.	PROVINCE OR COMANDANCIA.	FARM AREA IN HECTARES.			PER CENT OF FARM AREA.	
		Total.	Forest.	Nonforest.	Forest.	Non-forest.
	Philippine Islands	2,827,704	384,400	2,443,304	13.6	86.4
1	Paragua	9,032	5,408	3,624	59.9	40.1
2	Basilan ¹	2,277	1,319	958	57.9	42.1
3	Paragua Sur ¹	626	339	287	54.1	45.9
4	Cagayán	138,166	69,559	68,607	50.4	49.6
5	Dávao	16,343	6,142	10,201	37.6	62.4
6	Benguet	233	73	160	31.3	68.7
7	Daupitan ¹	5,374	1,505	3,869	28.0	72.0
8	Mindoro	42,424	11,762	30,662	27.7	72.3
9	Batangas	117,422	31,952	85,470	27.2	72.8
10	Zamboanga ¹	10,588	2,825	7,763	26.7	73.3
11	Tayabas ²	120,754	26,827	93,927	22.2	77.8
12	Sámar	101,481	20,496	80,985	20.2	79.8
13	Cápiz	108,692	20,981	87,711	19.3	80.7
14	Tárlac	78,923	14,168	64,755	18.0	82.0
15	Pangasinán	119,771	17,005	102,766	14.2	85.8
16	Masbate	9,798	1,285	8,513	13.1	86.9
17	La Laguna	86,426	10,963	75,463	12.7	87.3
18	La Unión	43,077	4,944	38,133	11.5	88.5
19	Nueva Ecija	90,367	10,303	80,064	11.4	88.6
20	Iloilo	176,955	19,502	157,453	11.0	89.0
21	Surigao	49,060	5,351	43,709	10.9	89.1
22	Ambos Camarines	106,371	11,510	94,861	10.8	89.2
23	Sorsogón	88,829	9,201	79,628	10.4	89.6
24	Romblón	23,546	2,279	21,267	9.7	90.3
25	Misamis	59,269	5,586	53,683	9.4	90.6
26	Negros Occidental	177,642	16,314	161,328	9.2	90.8
27	Ilocos Norte	55,633	4,632	51,001	8.3	91.7
28	Bataan	8,232	684	7,548	8.3	92.8
29	Leyte	133,620	9,635	123,985	7.2	93.8
30	Cebú	130,624	8,711	121,913	6.7	93.3
31	Albay	116,084	7,590	108,494	6.5	93.5
32	Pampanga	105,677	6,501	99,176	6.2	93.8
33	Isabela	67,716	4,118	63,598	6.1	93.9
34	Cavite	40,881	1,824	39,057	4.5	95.5
35	Negros Oriental	37,971	1,712	36,259	4.5	95.5
36	Nueva Vizcaya	4,421	185	4,236	4.2	96.8
37	Ilocos Sur	47,176	1,822	45,354	3.9	96.1
38	Antique	27,194	960	26,234	3.5	96.5
39	Manila city	738	26	712	3.5	96.5
40	Bulacán	90,220	6,547	83,673	3.3	96.7
41	Rizal	14,787	318	14,469	2.2	97.8
42	Abra	52,086	1,069	51,017	2.1	97.9
43	Zambales	45,917	305	45,612	0.7	99.3
44	Lepanto-Bontoc	1,741	9	1,732	0.5	99.5
45	Cottabato ¹	5,286	16	5,270	0.3	99.7
46	Bohol	58,038	137	57,901	0.2	99.8
47	Siassi ¹	133	-----	133	(³)	100.0
48	Joló ¹	23	-----	23	(³)	100.0
	Tawi Tawi ¹	(⁴)	(⁴)	-----	-----	-----

¹ Comandancia.
² Including the subprovince, Marinduque.
³ Less than one-tenth of 1 per cent.
⁴ No farms were reported for this comandancia.

Total area of farms, classified as forest and nonforest land, by islands, together with the percentages of each, arranged in the order of the magnitude of the percentage of forest land.

In order of magnitude.	ISLAND.	FARM AREA IN HECTARES.			PER CENT OF FARM AREA.	
		Total.	Forest.	Nonforest.	Forest.	Non-forest.
	Philippine Islands	2, 827, 704	384, 400	2, 443, 304	13. 6	86. 4
1	Mindoro	39, 138	11, 599	27, 539	29. 6	70. 4
2	Marinduque	15, 598	3, 756	11, 842	24. 1	75. 9
3	Sámar	85, 892	19, 349	66, 543	22. 5	77. 5
4	Mindanao	127, 534	18, 739	108, 795	14. 7	85. 3
5	Luzón	1, 592, 288	234, 306	1, 357, 982	14. 7	85. 3
6	Panay	294, 487	38, 889	256, 657	13. 2	86. 8
7	Masbate	5, 222	659	4, 563	12. 6	87. 4
8	Negros	210, 452	17, 912	192, 540	8. 5	91. 5
9	Leyte	123, 754	8, 933	114, 821	7. 2	92. 8
10	Cebú	119, 989	8, 245	111, 744	6. 9	93. 1
11	Bohol	53, 160	123	53, 037	0. 2	99. 8
	All other islands	160, 190	21, 949	138, 241	13. 7	86. 3

COLOR OF FARMER AND TENURE.

Tables 3 and 4 show, by provinces, comandancias, and principal agricultural islands, respectively, the number and color of farmers and their tenures.

As is natural, nearly all the people engaged in agriculture are "brown," or, in other words, are full-blooded Filipinos of the various Christian tribes; 99.8 per cent of the 815,453 persons reported as engaging more or less extensively in agriculture are of this class. Of the remainder there are 778 "white," comprising Americans and Europeans; 308 "mixed" (denominated "mixed" in the tables), usually of Spanish-Filipino or Chino-Filipino descent; 959 "yellow," or Chinese; and 26 whose color is not reported.

A few farmers, of color other than "brown," are reported as operating in nearly all the provinces and on all the islands specified in Table 4; only the provinces of Ilocos Sur, La Unión, and Nueva Vizcaya, and the sections embraced by the comandancias of Dapitan and Siassi report no farmers of another color; but their numbers are too small to exert any appreciable effect upon insular agriculture or to justify any extended present consideration. The figures covering these data will, however, prove of value for purposes of comparison with those of the next Philippine census.

The two brief statements which follow indicate, by percentages, the relative proportion of farms of each tenure operated by farmers of each color, and the relative proportion of farmers of each color operating under each tenure for the entire archipelago:

Percentage of the number of farms of specified tenures, classified by color of farmer.

COLOR OF FARMER.	All tenures.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
All colors.....	100.0	100.0	100.0	100.0	100.0	100.0
White	0.1	0.1	0.6	(1)	0.2	0.6
Mixed.....	(1)	(1)	0.1	(1)	.....	0.1
Brown.....	99.8	99.8	98.6	100.0	99.8	99.1
Yellow	0.1	0.1	0.7	(1)	.....	0.2
Unknown	(1)	(1)	.....	(1)	.....	.....

¹ Less than one-tenth of 1 per cent.

Percentage of the number of farms operated by farmers of specified colors, classified by tenure.

TENURE OF FARMER.	All colors.	White.	Mixed.	Brown.	Yellow.	Unknown.
All tenures	100.0	100.0	100.0	100.0	100.0	100.0
Owners.....	80.8	78.1	86.4	80.8	84.9	73.1
Cash tenants.....	1.8	12.0	3.9	1.7	9.8	.....
Share tenants.....	16.2	2.8	5.8	16.3	3.2	26.9
Labor tenants.....	0.1	0.3	.....	0.1	.....	.....
No rental.....	1.1	6.8	3.9	1.1	2.1	.....

The two preceding statements, derived from general Tables 3 and 4, are important and instructive, showing, as they do, the proportions, respectively, of farm owners, tenants paying a cash rental, tenants who pay a share of crop as rental, tenants who pay their rent with labor, and those occupants of others' land who pay no rent, the class known in the United States as "squatters," but not dealt with in the United States Census reports.

In the archipelago as a whole by far the largest proportion of the 815,453 Christian farmers own the land they cultivate, while tenants who pay a share of products as rental come next in order numerically; tenants who pay their rent in cash, while not comparatively numerous, exceed the combined numbers of those who are designated as "labor tenants" and the occupants of land who pay no rent.

A comparison of the Philippine statistics relating to tenure with those given in the United States Census reports for 1900 shows that the percentage of owners is much larger in the islands than in the United States. Differences in classification prevent an exact comparison, as, in the United States, labor tenants and "no rental" tenants are not included in the Twelfth Census reports; and owned farms are distributed among owners, part owners, owners and tenants, and managers who represented owners, the percentage that each of these classes of tenures was of all tenures being 54.9, 7.9, 0.9, and 1, respectively, making a total of 64.7 per cent. Considering all four of the classes specified as owners, and placing them and the cash tenants and share tenants in comparison with similar classes in the Philippines, the following relative percentages are found:

TENURE.	Philippine Islands.	United States.
All tenures.....	100.0	100.0
Owners.....	80.8	64.7
Cash tenants.....	1.8	13.1
Share tenants.....	16.2	22.2
Labor tenants.....	0.1	.....
No rental.....	1.1	.....

The proportion of farms held under each of the various tenures in the provinces and islands for which figures are given in the general tables relating to farm areas is shown in the two tables here presented:

Percentage of the number of farms in each of five specified tenures, by provinces and comandancias:

PROVINCE OR COMANDANCIA.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Philippine Islands.....	80.8	1.8	16.2	0.1	1.1
Abra.....	72.6	1.0	25.8	.....	0.6
Albay.....	98.2	1.2	0.2	.....	0.4
Ambos Camarines.....	93.2	0.1	2.8	(1)	3.9
Antique.....	99.6	0.1	0.2	.....	0.1
Basilan ²	100.0	.....	.....	.....	.....
Bataán.....	50.2	2.3	46.6	(1)	0.9
Batangas.....	81.7	0.6	14.9	.....	2.8
Benguet.....	1.3	.....	.....	.....	98.7
Bohol.....	92.8	(1)	6.5	.....	0.7
Bulacán.....	24.8	16.4	57.4	(1)	1.4
Cagayán.....	90.9	0.2	8.7	.....	0.2
Cápiz.....	95.9	0.2	3.4	(1)	0.5
Cavite.....	62.2	2.7	25.2	0.2	9.7
Cebu.....	63.0	0.1	36.1	(1)	0.8
Cotabato ²	100.0	.....	.....	.....	.....
Dapitan ²	99.7	.....	0.1	.....	0.2
Dávao ²	94.2	0.8	0.2	.....	4.8
Ilocos Norte.....	71.5	(1)	26.7	1.5	0.3
Ilocos Sur.....	55.8	0.1	43.7	.....	0.4
Iloilo.....	97.6	0.5	1.1	.....	0.3
Isabela.....	75.5	8.2	14.5	0.7	1.1
Joló ²	66.7	.....	33.3	.....	.....
La Laguna.....	91.6	3.5	1.6	(1)	3.3
La Unión.....	83.2	0.1	11.7	.....	(1)
Lepanto-Bontoc.....	98.1	.....	1.3	.....	0.6
Leyte.....	90.8	0.1	8.1	(1)	1.0
Manila city.....	46.9	48.2	3.2	0.4	1.3
Masbate.....	95.6	0.3	2.1	.....	2.0
Mindoro.....	84.2	0.1	14.6	.....	1.1
Misamis.....	98.4	(1)	0.9	(1)	0.7
Negros Occidental.....	88.4	3.3	5.9	(1)	2.4
Negros Oriental.....	98.1	(1)	1.6	.....	0.3
Nueva Ecija.....	74.3	16.5	2.2	.....	7.0
Nueva Vizcaya.....	83.8	0.7	15.5	.....	(1)
Pampanga.....	64.8	8.6	25.0	(1)	1.6
Pangasinán.....	65.6	3.7	30.1	(1)	0.6
Paragua.....	95.0	0.2	2.1	.....	2.7
Paragua Sur ²	97.7	.....	.....	.....	2.3
Rizal.....	86.9	6.7	5.6	.....	0.8
Romblón.....	86.3	1.2	10.7	0.3	1.5
Samar.....	97.2	0.7	1.5	(1)	0.6
Siassi ²	100.0	.....	.....	.....	.....
Sorsogón.....	98.5	(1)	1.4	.....	0.1
Surigao.....	95.1	.....	4.6	(1)	0.3
Tárlac.....	76.2	6.8	14.9	0.1	2.0
Tayabas ³	90.1	0.3	8.9	(1)	0.7
Zambales.....	57.6	(1)	41.8	(1)	0.6
Zamboanga ²	83.1	6.1	3.5	.....	7.8

¹ Less than one-tenth of 1 per cent.

² Comandancia.

³ Including the subprovince, Marinduque.

Percentage of the number of farms in each of five specified tenures, by islands.

ISLAND.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Philippine Islands	80.8	1.8	16.2	0.1	1.1
Bohol	92.7	(¹)	6.6	.....	0.7
Cebu	62.2	0.1	37.0	(¹)	0.7
Leyte	91.0	0.1	7.7	0.1	1.1
Luzón	74.7	2.9	20.8	0.3	1.8
Marinduque.....	98.4	0.2	0.6	.....	0.8
Masbate	96.1	0.4	3.2	.....	0.3
Mindanao	96.6	0.6	1.6	(¹)	1.2
Mindoro.....	84.0	0.2	14.6	.....	1.2
Negros.....	95.9	0.9	2.3	(¹)	0.9
Panay	97.5	0.3	1.6	(¹)	0.6
Sámar	97.1	0.8	1.4	.....	0.7
All other islands.....	91.8	0.7	6.7	(¹)	0.8

¹ Less than one-tenth of 1 per cent.

Figures are presented in Tables 5 and 6 relating to total farm and cultivated areas and the average size of farms and average areas under cultivation, classified by tenure, so as to show, for the archipelago and for each separate province, comandancia, and island for which data are given, the total and average amount of land held and cultivated by owners and by each class of tenants, as well as the percentage of farm lands cultivated by each of them.

It is not deemed necessary to summarize by provinces and islands the information afforded by these tables relative to areas classified by tenures; for the convenience of the reader, however, these data for the archipelago as a whole are given in the following statement:

CLASSIFICATION OF AGRICULTURAL AREA.	All tenures.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Area of agricultural land in hectares..	2, 827, 704	2, 137, 776	109, 674	488, 878	1, 849	89, 527
Area of cultivated land in hectares...	1, 298, 845	965, 248	57, 447	245, 123	570	30, 457
Per cent of agricultural land cultivated.....	45.9	45.2	52.4	50.1	30.8	34.0
Average size of farms in ares.....	346.8	324.6	761.5	369.1	150.0	1, 013.9
Average area of cultivated land in ares	159.3	146.6	398.8	185.1	46.2	344.9

In Tables 7 and 8, relating to provinces and islands, respectively, the farms are classified according to size, and the number of owners and of each class of other tenures is shown for each classification by size.

The following percentage tables, derived from general Tables 7 and 8, show the proportion of farms of each specified size in the different provinces and islands under consideration:

Percentage of the number of farms in each of ten specified sizes in hectares, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Philippine Islands.....	21.7	28.1	20.6	18.5	6.5	1.8	1.5	0.6	0.4	0.3
Abra.....	38.7	31.5	16.3	9.1	3.4	0.4	0.4	0.1	0.1	(1)
Albay.....	9.8	25.3	25.2	26.4	8.3	2.1	1.7	0.6	0.4	0.2
Ambos Camarines.....	3.1	4.5	14.8	37.1	21.9	7.8	6.6	2.3	1.1	0.8
Antique.....	17.1	28.1	28.0	19.4	4.9	1.1	0.8	0.4	0.2	(1)
Basilan ²	1.7	.....	20.0	34.8	14.8	10.5	11.3	1.7	2.6	2.6
Bataan.....	13.6	29.3	26.4	18.8	5.9	1.7	2.3	1.1	0.7	0.2
Batangas.....	25.3	20.6	18.6	18.8	8.1	3.1	2.9	1.1	1.0	0.5
Benguet.....	43.4	18.4	17.1	14.5	.....	4.0	1.3	.....	.....	1.3
Bohol.....	51.8	26.6	11.4	7.2	2.1	0.4	0.3	0.1	0.1	(1)
Bulacán.....	12.6	24.3	29.3	23.2	6.4	1.3	1.1	0.4	0.7	0.7
Cagayán.....	11.7	24.0	25.5	25.8	7.9	2.2	1.9	0.5	0.3	0.2
Cápiz.....	20.3	21.9	21.9	21.1	7.8	2.7	2.4	0.8	0.6	0.5
Cavite.....	14.7	17.5	23.2	28.2	9.3	2.6	2.6	1.0	0.6	0.3
Cebu.....	21.1	35.8	23.4	13.9	4.1	0.9	0.5	0.2	0.1	(1)
Cottabato ²	15.6	.....	.....	6.3	15.6	12.5	28.1	6.3	3.1	12.5
Dapitan ²	22.7	13.7	18.9	24.4	10.8	3.2	4.2	1.3	0.5	0.3
Davao ²	0.5	2.4	23.1	36.5	19.2	5.2	5.6	.....	1.9	2.8
Ilocos Norte.....	40.7	36.1	16.2	5.5	1.2	0.2	0.1	(1)	(1)	0.1
Ilocos Sur.....	35.9	28.8	16.2	11.2	4.8	1.2	1.2	0.4	0.2	0.1
Iloilo.....	19.6	21.3	19.6	21.3	9.1	3.1	3.4	1.2	0.8	0.6
Isabela.....	4.1	31.8	37.8	20.8	2.7	0.6	1.0	0.1	0.5	0.6
Joló ²	33.4	22.2	11.1	11.1	11.1	.....	.....	.....	.....	.....
La Laguna.....	9.1	23.2	25.0	24.8	7.4	4.7	3.1	0.6	1.0	0.1
La Unión.....	16.3	51.2	22.5	8.3	1.2	0.3	0.1	0.1	(1)	(1)
Lepanto-Bontoc.....	9.5	15.7	23.3	30.8	8.8	4.4	5.0	0.6	.....	1.9
Leyte.....	18.8	28.2	22.7	19.7	6.8	2.0	1.2	0.3	0.2	0.1
Manila city.....	44.9	22.9	12.9	13.0	5.0	0.7	0.4	.....	.....	.....
Masbate.....	7.7	18.6	29.1	28.7	11.2	2.8	1.3	0.3	0.2	0.1
Mindoro.....	9.1	15.5	20.4	24.6	13.8	6.3	5.8	2.2	1.2	1.1
Misamis.....	24.4	28.5	20.8	18.2	5.1	1.4	0.9	0.3	0.3	0.1
Negros Occidental.....	7.4	8.3	17.2	25.6	12.6	5.3	6.9	3.8	5.1	7.8
Negros Oriental.....	14.3	69.5	8.4	4.6	1.7	0.6	0.4	0.1	0.2	0.2
Nueva Ecija.....	14.0	6.9	17.6	33.2	16.3	3.7	4.0	3.0	0.8	0.5
Nueva Vizcaya.....	17.5	23.4	22.9	25.9	7.2	1.2	1.3	0.4	0.1	0.1
Pampanga.....	6.8	16.7	23.0	23.5	12.2	4.9	5.5	3.2	2.6	1.6
Pangasinán.....	18.5	29.9	24.3	20.1	4.9	1.1	0.8	0.3	0.1	(1)
Paragua.....	10.7	31.2	28.7	20.6	4.1	1.4	1.7	1.2	0.2	0.2
Paragua Sur ²	45.0	15.2	22.9	14.5	.....	0.8	.....	0.8	.....	0.8
Rizal.....	83.7	6.6	4.4	2.9	1.0	0.3	0.5	0.2	0.2	0.2
Romblón.....	2.8	17.2	30.0	36.5	9.8	2.0	1.1	0.3	0.1	0.2
Samar.....	9.6	19.0	22.6	31.0	11.9	3.1	2.1	0.4	0.2	0.1
Siassi ².....	.....	.....	.....	.....	.....	.....	66.7	33.3	.....	.....
Sorsogón.....	0.3	1.7	11.0	58.5	22.9	2.1	1.7	0.8	0.6	0.4
Surigao.....	0.8	4.4	13.1	37.0	26.5	9.4	6.6	1.5	0.6	0.1
Tarlac.....	15.0	24.8	20.9	20.9	8.7	3.1	3.3	1.4	1.1	0.8
Tayabas ²	29.4	20.2	17.7	19.7	7.9	2.4	1.8	0.5	0.3	0.1
Zambales.....	14.6	37.0	26.3	17.0	3.9	0.6	0.5	0.1	(1)	(1)
Zamboanga ²	16.4	18.6	23.0	24.9	9.8	3.2	2.5	0.8	0.4	0.4

¹ Less than one-tenth of 1 per cent. ² Comandancia. ³ Including the subprovince, Marinduque.

Percentage of the number of farms in each of ten specified sizes in hectares, by islands.

ISLAND.	Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Philippine Islands.....	21.7	28.1	20.6	18.5	6.5	1.8	1.5	0.6	0.4	0.3
Bohol.....	52.3	26.7	11.3	7.0	1.9	0.3	0.3	0.1	0.1	(1)
Cebu.....	21.2	36.5	23.6	13.3	3.8	0.8	0.5	0.2	0.1	(1)
Leyte.....	18.9	28.1	22.9	20.1	6.5	1.8	1.1	0.3	0.2	0.1
Luzón.....	21.1	26.9	21.2	19.4	6.7	1.8	1.6	0.6	0.4	0.3
Marinduque.....	46.9	32.5	14.0	5.3	0.8	0.2	0.2	0.1	(1)	0.2
Masbate.....	12.4	21.1	31.6	22.6	6.5	3.7	1.4	0.4	0.2	0.1
Mindanao.....	17.0	20.3	19.6	23.9	11.6	3.3	2.7	0.8	0.5	0.3
Mindoro.....	8.8	11.7	21.0	25.9	15.8	6.6	5.6	2.0	1.3	1.8
Negros.....	9.8	55.5	9.8	10.5	5.0	2.1	2.3	1.1	1.6	2.8
Panay.....	19.6	23.0	21.9	20.6	7.8	2.6	2.5	0.9	0.6	0.5
Samar.....	8.4	18.6	22.0	31.8	12.9	3.2	2.2	0.5	0.3	0.1
All other islands.....	17.5	28.5	20.9	22.1	7.1	2.0	1.3	0.3	0.1	0.2

¹ Less than one-tenth of 1 per cent.

The proportion of farms in the Philippines of each of the classifications by size held by owners and by each class of tenants is shown in the following table:

Percentage of the number of farms of ten specified sizes in hectares, classified by tenure.

TENURE.	All farms.	Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
All tenures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Owners.....	80.8	85.4	81.3	77.3	79.7	80.2	80.1	78.3	71.1	69.5	66.8
Cash tenants.....	1.8	0.7	1.2	2.4	2.4	2.3	3.4	3.6	5.2	7.2	7.3
Share tenants.....	16.2	12.4	16.8	19.5	16.5	15.7	14.9	15.1	16.8	15.3	20.0
Labor tenants.....	0.1	0.5	0.1	(¹)	(¹)	(¹)	(¹)	(¹)	0.1	0.1	(¹)
No rental.....	1.1	1.0	0.6	0.8	1.4	1.8	1.6	3.0	6.8	7.9	5.9

¹ Less than one-tenth of 1 per cent.

The proportion of farms in the archipelago, held under each classification by tenure, of each of the specified sizes, is shown in the following percentage table derived from general Tables 7 and 8:

Percentage of the number of farms of specified tenures, classified by size in hectares.

SIZE OF FARMS IN HECTARES.	All tenures.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
All sizes.....	100.0	100.0	100.0	100.0	100.0	100.0
Under 0.35.....	21.7	22.9	9.1	16.6	71.1	19.3
0.35 and under 1.....	28.1	28.3	19.0	29.2	15.8	15.8
1 and under 2.....	20.6	19.7	27.7	24.7	4.0	16.0
2 and under 5.....	18.5	18.3	24.8	18.9	5.5	28.5
5 and under 10.....	6.5	6.5	8.3	6.2	2.3	10.6
10 and under 15.....	1.8	1.8	3.5	1.7	0.5	2.7
15 and under 30.....	1.5	1.5	3.1	1.4	0.2	4.2
30 and under 50.....	0.6	0.5	1.7	0.6	0.3	3.4
50 and under 100.....	0.4	0.3	1.6	0.4	0.2	2.9
100 and over.....	0.3	0.2	1.2	0.3	0.1	1.6

It will be found interesting to examine the above percentages in connection with those given in the table immediately preceding. In the former the percentage of farms of each size held under each tenure is shown; in the latter the percentage of farms held under each tenure, of each size, is stated. The figures indicate that while 85.4 per cent of farms containing less than 0.35 of a hectare were held by owners, 22.9 per cent of farms held by owners were less than 0.35 of a hectare in size; similar deductions may be drawn for each of the specified sizes and tenures. The two salient facts that stand out clearly in these tables are, first, that more than four-fifths (80.8 per cent) of Philippine farms are cultivated by their owners; and, second, that the great majority of individual holdings, regardless of tenure, are of small areas—88.9 per cent containing less than 5 hectares; 70.4 per cent, less than 2; 49.8 per cent, less than 1; and 21.7 per cent, less than 0.35 of a hectare.

The proportion of the number of farms, the total farm and cultivated areas, and that of the farm areas cultivated in all the Philippine Islands is shown in the two following tables for each tenure and for each designated size of farm:

Percentage of the total number of farms, total farm area, and total cultivated area, and percentage of total area under cultivation, classified by tenure.

TENURE.	Number of farms.	Total area.	Cultivated area.	Per cent of total area cultivated.
All tenures.....	100.0	100.0	100.0	45.9
Owners	80.8	75.6	74.3	45.2
Cash tenants.....	1.8	3.9	4.4	52.4
Share tenants.....	16.2	17.3	18.9	50.1
Labor tenants.....	0.1	0.1	(¹)	30.8
No rental.....	1.1	3.1	2.4	34.0

¹ Less than one-tenth of 1 per cent.

Percentage of the total number of farms, total farm area, and total cultivated area, and percentage of total area under cultivation, classified by size of farms in hectares.

SIZE OF FARMS IN HECTARES.	Number of farms.	Total area.	Cultivated area.	Per cent of total area cultivated.
All sizes.....	100.0	100.0	100.0	45.9
Under 0.35	21.7	1.2	2.0	76.0
0.35 and under 1	28.1	5.2	8.4	74.7
1 and under 2	20.6	8.3	12.5	69.0
2 and under 5	18.5	16.3	21.8	61.2
5 and under 10	6.5	12.7	14.4	52.2
10 and under 15	1.8	6.3	6.4	47.0
15 and under 30	1.5	8.9	8.3	42.8
30 and under 50	0.6	6.0	5.2	39.7
50 and under 100	0.4	7.6	6.6	40.1
100 and over	0.3	27.5	14.4	24.1

In these tables the percentages relative to area classified by tenure are derived from general Tables 5 and 6, and those for area classified by size of farms are derived from general Tables 9 and 10, which show the total and average amount of agricultural land held and cultivated under each classification by size and the percentage of land in farms of each size under cultivation.

Tables 11 and 12 show, for the provinces and the islands specified, the number of farms classified according to size and the number of farmers of each color under each classification. The total and average quantity of land held and cultivated by each color of farmers, with the percentage of their farm lands under cultivation, are shown in Tables 13 and 14.

While the statistical presentation made in these tables is of no especial present interest, nearly all lands being held by "brown" people—Filipinos of unmixed blood—the data may be of future interest. The

figures of the next census will disclose, by comparison with those given here, such changes as may have occurred along this line during the interim.

The percentage of farms of each specified size in the archipelago held by farmers of each color and of those held by farmers of each color of each size is stated in the two following tables:

Percentage of the number of farms in each of ten specified sizes, in hectares, classified by color of farmer.

COLOR OF FARMER.	All farms.	Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
All colors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	0.1	(1)	(1)	0.1	0.1	0.1	0.2	0.6	1.0	2.1	6.8
Mixed.....	(1)	(1)	(1)	(1)	(1)	0.1	0.1	0.2	0.4	0.4	1.8
Brown.....	99.8	99.9	99.9	99.8	99.8	99.6	99.4	98.7	97.8	97.0	90.4
Yellow.....	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.8	0.5	0.9
Unknown.....	(1)	(1)	(1)	(1)	(1)	(1)	.....	.....	(1)	.....	0.1

¹ Less than one-tenth of 1 per cent.

Percentage of the number of farms held by farmers of each color, classified by size in hectares.

SIZE OF FARMS IN HECTARES.	All colors.	White.	Mixed.	Brown.	Yellow.	Unknown.
All sizes	100.0	100.0	100.0	100.0	100.0	100.0
Under 0.35.....	21.7	5.3	5.5	21.7	13.3	15.4
0.35 and under 1.....	28.1	12.6	10.7	28.2	16.7	53.9
1 and under 2.....	20.6	10.4	18.2	20.6	16.0	7.7
2 and under 5.....	18.5	14.5	20.4	18.5	21.8	3.8
5 and under 10.....	6.5	8.1	9.4	6.5	12.6	3.8
10 and under 15.....	1.8	4.5	5.2	1.8	5.1	.....
15 and under 30.....	1.5	9.1	7.5	1.5	7.2	.....
30 and under 50.....	0.6	5.9	5.2	0.5	3.5	7.7
50 and under 100.....	0.4	8.9	3.9	0.4	1.6	.....
100 and over.....	0.3	20.7	14.0	0.3	2.2	7.7

The preceding percentage table is based on the following arrangement of data, which is not given in the general tables, and is therefore presented here:

Number of farms held by farmers of each color, classified by size in hectares.

SIZE OF FARMS IN HECTARES.	All colors.	White.	Mixed.	Brown.	Yellow.	Unknown.
All sizes	815,453	778	308	813,382	959	26
Under 0.35.....	176,653	41	17	176,463	128	4
0.35 and under 1.....	229,272	98	33	228,967	160	14
1 and under 2.....	167,966	81	56	167,674	153	2
2 and under 5.....	151,238	113	63	150,852	209	1
5 and under 10.....	52,867	63	29	52,653	121	1
10 and under 15.....	14,896	35	16	14,796	49	.....
15 and under 30.....	12,495	71	23	12,332	69	.....
30 and under 50.....	4,490	46	16	4,392	34	2
50 and under 100.....	3,222	69	12	3,126	15	.....
100 and over.....	2,354	161	43	2,127	21	2

Percentages for the archipelago are given in the following table, the rates for the area being based on Tables 13 and 14:

Percentage of the total number of farms, total farm area, and total cultivated area, and percentage of the total area under cultivation, classified by color of farmer.

COLOR OF FARMER.	Number of farms.	Total area.	Cultivated area.	Per cent of total area cultivated.
All colors	100.0	100.0	100.0	45.9
White	0.1	3.4	1.8	21.2
Mixed	(1)	0.6	0.5	35.5
Brown	99.8	95.6	97.3	46.7
Yellow	0.1	0.4	0.4	57.5
Unknown	(1)	(1)	(1)	1.9

¹ Less than one-tenth of 1 per cent.

In the fourteen tables thus far analyzed all the detailed statistics relating to size of farms are classified according to total farm areas. In the four tables succeeding those referred to, and numbered from 15 to 18, a different basis of classification is adopted; the data relating to tenures, color of farmers, and the total and average amounts of land held and cultivated are distributed according to the area of land under cultivation, instead of the total farm area.

The figures here given, both provincial and insular, disclose even more plainly than those of the preceding tables the limited individual extent to which agriculture in the Philippines is conducted. Of the 815,453 farms reported, 776,372, or 95.2 per cent, had less than 5 hectares under cultivation; 734,736, or 90.1 per cent, less than 3; 673,939, or 82.6 per cent, less than 2; 532,227, or 65.3 per cent, less than 1; and 290,770, or 35.7 per cent, less than 0.35 of a hectare; while farms having 5 hectares and upward under cultivation constituted only 4.8 per cent of the total number.

In order that this feature may be definitely brought out, the following statement is presented, showing, in connection with the number of farms in each classification by amount of cultivated land, the average total and cultivated ares per farm:

Total number of farms and average number of ares per farm, classified by area of cultivated land in hectares.

SIZE OF CULTIVATED FARMS IN HECTARES.	Number of farms.	AVERAGE NUMBER OF ARES PER FARM.	
		Total.	Cultivated.
All areas	815, 453	346.8	159.3
Under 0.35	290, 770	145.5	15.0
0.35 and under 1	241, 457	152.2	61.7
1 and under 2	141, 712	256.5	135.2
2 and under 3	60, 797	455.0	235.1
3 and under 5	41, 636	667.1	369.1
5 and under 10	24, 783	1, 286.9	651.6
10 and under 15	6, 156	2, 621.2	1, 179.2
15 and under 30	4, 656	3, 993.1	2, 034.8
30 and under 50	1, 648	6, 465.3	3, 721.9
50 and over	1, 839	22, 126.9	12, 419.1

The average amount of cultivated land per farm, regardless of size, is, as shown in the preceding statement, 159.3 ares—or 1.59 hectares—equivalent to 3.92 acres. In the United States, in 1900, the average number of acres of “improved” (cultivated) land per farm is shown by the Twelfth Census reports to have been 72.3—slightly over eighteen times as much as in the Philippines in 1903.

The proportion of farms held under each classification by tenure, in the archipelago, in each group of cultivated farm areas, is shown in the table given below, derived from Tables 15 and 16. The wide variations in the proportions between the holdings of the different classes of occupants of farms in the same group of cultivated area are very noticeable, especially in each of the four groups having less than 3 hectares. It will be observed that the percentage of farms held by owners of each of the different classifications by cultivated area approximate quite closely those for farms held under all tenures. This is, of course, due to the fact that the great majority of Philippine farms are occupied by their owners, as shown in these and preceding tables relating to tenure. It is curious to note that while 38 per cent of farms held by owners contained less than 0.35 of a hectare of cultivated land, 16.8 per cent of those held by cash tenants, 25.3 per cent of those held by share tenants, and 86.5 per cent of those held by labor tenants, were within the same category. Variations in proportions under other groupings are no less remarkable than the ones cited, as will be seen by examining the table immediately following:

Percentage of the number of farms of specified tenures, classified by area of cultivated land in hectares.

SIZE OF CULTIVATED FARMS IN HECTARES.	All tenures.	Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
All areas	100.0	100.0	100.0	100.0	100.0	100.0
Under 0.35.....	35.6	38.0	16.8	25.3	86.5	34.1
0.35 and under 1.....	29.6	29.0	29.4	33.4	6.6	18.9
1 and under 2.....	17.4	16.4	25.6	21.6	2.8	14.4
2 and under 3.....	7.4	7.0	13.2	8.8	1.2	14.3
3 and under 5.....	5.2	5.0	6.9	5.5	0.7	7.9
5 and under 10.....	3.0	3.0	2.8	3.3	1.5	5.1
10 and under 15.....	0.8	0.7	1.3	0.9	0.2	1.8
15 and under 30.....	0.6	0.5	1.3	0.7	0.2	1.7
30 and under 50.....	0.2	0.2	0.9	0.2	0.1	0.7
50 and over.....	0.2	0.2	1.8	0.3	0.2	1.1

The data given in Tables 15 and 16 relating to the color of farmers holding lands of different areas under cultivation throughout the archipelago constitute the basis of the following percentage table, which is presented more for its future than its present interest, the classification by color having small significance at this time, because, as before stated, and as shown by these and the other tables relating to this subject, nearly all farming operations in the Philippines are

carried on by "brown" farmers. Should the measureless agricultural possibilities of the islands hereafter attract any extended immigration, the figures here given will be of interest and value.

Percentage of the number of farms held by farmers of each color, classified by area of cultivated land in hectares.

SIZE OF CULTIVATED FARMS IN HECTARES.	All colors.	White.	Mixed.	Brown.	Yellow.	Unknown.
All areas	100.0	100.0	100.0	100.0	100.0	100.0
Under 0.35.....	35.6	21.5	35.1	35.7	24.1	38.5
0.35 and under 1.....	29.6	13.1	10.1	29.6	17.3	50.0
1 and under 2.....	17.4	10.0	13.6	17.4	14.6	7.7
2 and under 3.....	7.4	7.6	3.2	7.5	13.3	3.8
3 and under 5.....	5.2	6.0	7.5	5.1	8.9	.....
5 and under 10.....	3.0	7.3	7.5	3.0	8.9	.....
10 and under 15.....	0.8	4.4	3.9	0.7	3.6	.....
15 and under 30.....	0.6	8.0	5.8	0.6	4.5	.....
30 and under 50.....	0.2	4.8	3.2	0.2	2.6	.....
50 and over.....	0.2	17.3	10.1	0.2	2.2	.....

With the foregoing, the discussion of the general tables relating to areas, tenures, and color of farmers concludes.

COMPARISON OF CULTIVATED AREAS, BY YEARS.

There is one other feature connected with the cultivated areas concerning which data were collected by the enumerators. The agricultural schedules called, by inquiry 9, for information as to the area of land under cultivation prior to 1896, the year of the armed revolt against Spanish sovereignty. The tabulated returns give no indication of the extent to which insular agricultural industry had recovered during the interval from 1896 to the year 1902, in which year the rinderpest and other causes previously mentioned caused a decline in the cultivation of farms.

The following tables show the total agricultural area in 1903, and the cultivated areas prior to 1896 and in 1902 and 1903, respectively, together with the percentages of increase or decrease in 1902 and in 1903 as compared with the cultivated areas reported for the earlier period. These tables are arranged by provinces and comandancias and by islands, in the order of the magnitude of the increase or decrease of cultivated areas shown in 1902 over the period prior to 1896.

COMPARISON OF CULTIVATED AREAS.

199

Total agricultural area in 1903, and cultivated areas prior to 1896, in 1902 and 1903, in hectares, with percentages of increase or decrease in 1902 and 1903 as compared with earlier period, by provinces and comandancias, arranged in the order of the magnitude of the increase in 1902.

In order of magnitude.	PROVINCE OR COMANDANCIA.	Total agricultural area in 1903.	CULTIVATED AREA IN HECTARES.			PER CENT OF INCREASE.	
			Prior to 1896	1902	1903	1902	1903
	Philippine Islands..	2,827,704	1,612,068	1,311,294	1,298,845	118.7	119.4
1	Siassi ²	133	10	110	30	1,000.0	200.0
2	Dávao ²	16,343	898	4,699	3,769	423.3	319.7
3	Paragua	9,032	1,029	3,399	2,999	230.3	191.4
4	Paragua Sur ²	626	33	109	110	230.3	233.3
5	Basilan ²	2,277	395	667	583	68.9	47.6
6	Romblón	23,546	9,312	13,393	13,243	43.8	42.2
7	Joló ²	23	10	14	19	40.0	90.0
8	Cottabato ²	5,286	1,016	1,264	383	24.4	162.3
9	Manila city	738	374	454	473	21.4	26.5
10	Masbate	9,798	6,003	7,053	7,429	17.5	23.8
11	Antique	27,194	21,868	24,281	21,622	11.0	11.1
12	Surigao	49,060	22,606	25,023	24,250	10.7	7.3
13	Dapitan ²	5,374	1,932	2,103	2,232	8.9	15.5
14	Isabela	67,716	15,720	16,834	16,752	7.1	6.6
15	Abra	52,086	12,117	12,503	12,208	3.2	0.8
16	Albay	116,084	85,019	83,555	85,147	11.7	0.2
17	La Unión	43,077	31,688	31,037	30,850	12.1	12.6
18	Tayabas ³	120,754	63,575	62,122	57,575	12.3	19.4
19	Cagayán	138,166	42,055	40,892	35,430	12.8	115.8
20	Ilocos Sur	47,176	39,312	37,954	39,739	13.5	1.1
21	Zamboanga ²	10,588	7,377	6,985	6,908	15.3	16.4
22	Ilocos Norte	55,633	41,137	38,531	40,233	16.3	12.2
23	Nueva Vizcaya	4,421	3,338	3,121	2,832	16.5	115.2
24	Negros Oriental	37,971	22,259	20,728	21,388	16.9	13.9
25	Pangasinán	119,771	89,518	82,920	81,472	17.4	19.0
26	Iloilo	176,955	69,504	61,616	57,081	111.3	117.9
27	Ambos Camarines	106,371	68,373	59,311	59,683	113.3	112.7
28	Samar	101,481	50,573	43,632	43,073	113.7	114.8
29	Tarlac	78,923	44,645	37,807	37,332	115.3	116.4
30	Sorsogón	88,829	71,382	58,872	54,668	117.5	123.4
31	Mindoro	42,424	5,655	4,597	4,768	118.7	115.7
32	Rizal	14,787	10,335	8,206	9,934	120.6	113.9
33	Pampanga	105,677	82,088	64,754	63,840	121.1	122.2
34	Bulacán	90,220	78,872	62,189	60,570	121.2	123.2
35	Leyte	133,620	55,685	43,302	42,898	122.2	123.0
36	Bohol	58,098	29,304	22,505	23,247	123.2	120.7
37	Negros Occidental	177,642	84,536	64,111	72,928	124.2	113.7
38	Zambales	45,917	37,888	28,402	27,386	125.0	27.7
39	La Laguna	86,426	55,501	40,862	41,016	126.4	126.1
40	Cebu	130,624	75,304	54,467	53,283	127.7	129.2
41	Cavite	40,881	29,186	19,379	20,811	131.5	128.7
42	Lepanto-Bontoc	1,741	608	397	374	134.2	138.0
43	Bataan	5,232	5,899	3,571	3,485	139.5	140.9
44	Misamis	59,269	50,104	28,565	29,346	143.0	141.4
45	Nueva Ecija	90,367	49,977	27,395	26,763	145.2	146.4
46	Cápiz	108,692	68,640	36,838	36,965	146.3	146.1
47	Benguet	283	197	68	71	165.5	164.0
48	Batangas	117,422	69,216	20,097	21,652	171.0	163.7

¹ Decrease.

² Comandancia.

³ Including the subprovince, Marinduque.

Total agricultural area in 1903, and cultivated areas prior to 1896, in 1902 and 1903, in hectares, with percentages of increase or decrease in 1902 and 1903 as compared with earlier period, by islands, arranged in the order of the magnitude of the increase in 1902.

In order of magnitude.	ISLAND.	Total agricultural area in 1903.	CULTIVATED AREA IN HECTARES.			PER CENT OF INCREASE.	
			Prior to 1896	1902	1903	1902	1903
	Philippine Islands..	2, 827, 704	1, 612, 068	1, 311, 294	1, 298, 845	118. 7	119. 4
1	Masbate	5, 222	3, 422	4, 005	3, 980	17. 0	16. 3
2	Sámar	85, 892	38, 954	34, 968	34, 898	110. 2	110. 4
3	Luzón	1, 592, 288	1, 001, 462	802, 088	806, 876	119. 9	119. 5
4	Fanay	294, 487	149, 438	118, 267	110, 240	120. 9	126. 2
5	Negros	210, 452	102, 971	80, 323	90, 151	122. 0	112. 5
6	Leyte	123, 754	49, 629	38, 621	37, 950	122. 2	123. 5
7	Bohol	53, 160	27, 052	20, 218	21, 503	125. 3	120. 5
8	Cebú	119, 989	68, 605	50, 560	49, 148	126. 3	128. 4
9	Mindanao	127, 534	75, 818	55, 686	57, 552	126. 6	124. 1
10	Mindoro	39, 138	4, 846	3, 075	3, 213	136. 5	133. 7
11	Marinduque	15, 598	8, 475	4, 548	5, 039	146. 3	140. 5
	All other islands	160, 190	81, 396	98, 935	78, 795	21. 5	20. 5

¹ Decrease.

As shown by the two preceding tables, the total falling off in the cultivated area in 1902, as compared with that under cultivation prior to 1896, was 300,774 hectares or 18.7 per cent, whereas that of 1903 over the earlier period was 313,223 hectares or 19.4 per cent. It is remarkable that the percentage was not much greater than indicated, in view of the devastations which swept over the islands and the diminution of carabao and horses by rinderpest and surra. During the years intervening between 1896 and 1902 the cultivated areas were undoubtedly larger in extent than in either 1902 or 1903, for it is known that in those years agricultural activity had steadily increased. This is plainly shown by the increase, year by year, of exports of agricultural commodities. The reports of insular agricultural exports show such increase to have been maintained since the first year of American occupation. With the replenishment of the work cattle, the improvements in sanitary conditions, and the establishment of settled, peaceful conditions, including the final crushing of ladronism, agriculture will undoubtedly take on such an impetus within the near future as will not only reverse the figures given in the tables, but will show increased agricultural cultivation and production vastly in excess of anything ever before known in the islands.

It will be noticed that the largest increases in cultivated areas are shown in unorganized territories. In the province of Romblón, however, a substantial increase in farm area under cultivation is shown. This increase is undoubtedly due to the fact that nothing interfered with the progress of industries in that province, as it escaped the rinderpest and other disasters which were so destructive elsewhere.

Analogous reasons account for the small decreases or increases in certain other provinces. The diminished areas are greatest in those provinces which suffered most heavily from the calamitous visitations described in other portions of this report, as a reading of the reports of the military operations in the islands since their acquisition by the United States and the several reports of the Philippine Commission will clearly show.

PRODUCTS.

Table 19 presents statistics covering the areas of land devoted to the cultivation of various principal crops in the separate provinces, comandancias, and the leading agricultural islands, and the quantity of production reported for each crop dealt with in 1902.

A large number of plants, fruits, and vegetables which were reported by enumerators in different sections of the archipelago, are not included in these tables, because their cultivation and production was too small and unimportant to be of statistical interest or value. Information regarding them was not, except in a few instances, called for by the schedules, and for this reason they were not reported by many enumerators. The data relating to them are, therefore, incomplete, and the information which is given further on concerning them must, consequently, be taken as merely indicative of the wide range of insular agricultural possibilities.

Considerable difficulty was encountered in tabulating this branch of the agricultural returns, both on account of the different names by which the same product is known, and because of the varying systems of weights and measures prevailing in different portions of the islands. The Director of the United States Census Bureau, under whom the tabulations of the Philippine census returns were made, says:

Much care has been exercised to secure accuracy in the tabulation of this work. The translation of the names of products was a difficult and tedious undertaking; the English equivalents for some could not be found, and they were therefore reported as entered on the schedules. Whenever possible, the name was carefully traced to the scientific name, and all products belonging to the same family were consolidated under the English equivalent. It was found also that there were varying units of weights and measures reported on the schedules, and it was necessary to reduce these to the metric system. This was also a matter of some difficulty, as there were frequent cases where the enumerators in one province reported a product in from ten to fifteen different units of weights, and measures. In order to secure a common unit, a list was prepared for each province, showing for each specified product the area reported under cultivation, and the yield in its respective unit of weight or measure; the unit of the yield for the largest reported area was then adopted for the unit of that product in that province. Other weights or measures capable of reduction were made to conform to the unit adopted, and the areas and yields were added and the average yield established. This average yield was then applied to the total area of the product reported.

The reported areas and quantity of products are shown in Table 19 for the following products, classified by the general character of the several plants:

AROMATIC PLANTS—Cocoa (cacao); Coffee; Tobacco.

FIBER PLANTS—Cotton; Hemp.

COCONUTS.

GRAMINEOUS PLANTS—Corn; Paddy (unhulled rice); Sugar cane.

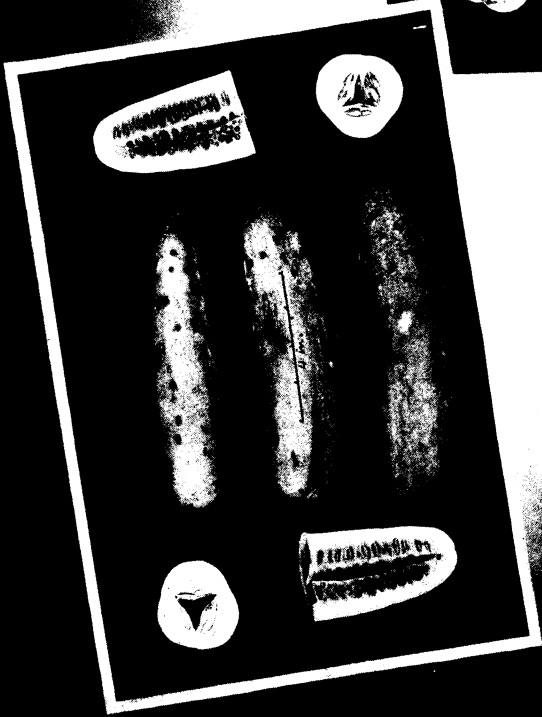
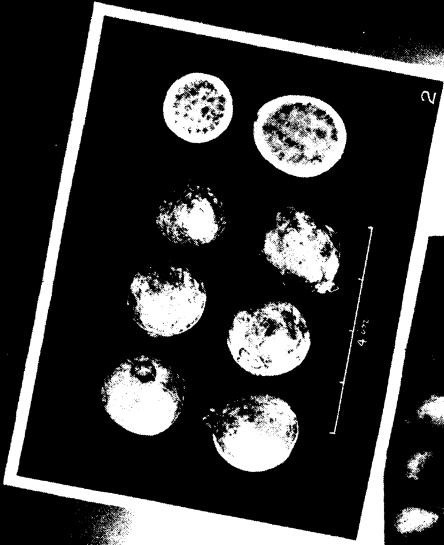
Certain reported products not included in the general table because of their limited cultivation and the fact that many enumerators failed to report concerning them, as stated on page 201, are shown in the table which follows, with such data regarding quantity of production as the schedules show. These incomplete data, although of slight statistical worth, are instructive in that they show the many different lines along which Philippine agriculture has been projected.

PRODUCTS.	Quantity.	Area (hectares).
Bamboo, pieces	24, 108, 600	18, 090
Bananas, hundreds of bunches	140, 786	33, 913
Beans, liters	1, 752, 283	3, 170
Benne seed, liters	98, 513	210
Betel, leaves	230, 627, 000	636
Betel, nuts, thousands	525, 577	2, 572
Breadfruit, number	937, 800	694
Buri, leaves, thousands	2, 266	2, 123
Buri, tuba, liters	313, 143	73
Camachile and tamarinds, kilos	204, 887	128
Cassava, kilos	1, 184, 329	46
Chicles, number	3, 574, 700	361
Custard and balsam apples, kilos	888, 225	332
Egg plant, kilos	1, 198, 748	179
Fan palms, leaves	775, 500	2, 271
Gabe, kilos	4, 827, 155	111
Garlic, liters	45, 518, 713	2, 018
Grass, kilograms	36, 929, 105	1, 052
Guavas, hundreds	496, 575	27
Gutta-percha, kilos	47, 693	138
India rubber, liters	484, 050	755
Indigo, kilos	550, 382	614
Lanzones, liters	67, 585, 686	3, 317
Mangoes, hundreds	1, 041, 877	29, 645
Nipa, leaves, thousands	138, 875	132
Nipa, tuba, liters	103, 311, 680	871
Onions, kilos	357, 121	487
Oranges, hundreds	100, 178	613
Peanuts, liters	695, 258	23, 873
Pineapples, fiber, kilos	292, 403	1, 253
Sweet potatoes, kilos	65, 542, 716	178
Tomatoes, kilos	2, 856, 341	
Watermelons, number	781, 700	

In addition to the area with crops given in Table 19 and those receiving particular mention in the above table, there were 1,024 hectares under cultivation for which the following crops were reported, none of which had, in any of the provinces, an area equaling 25 hectares.

Coloring plants.—Annotta, casubba, colis, colitis, cuantro, ipil, and ovayi.

Fiber plants.—Amaguay, ambolong, anahao, anao, bacong, bago, balin, balinguay, balibya, ballos, balocon, bangor, barinas, barico, bayog, butong, calasias, calupi, camagon, camarines, canayan, cayape,



1. CUCUMBER. 2. GUAVA. 3. LANZONE.

dagnan, gogo, gucano, jabo, janapole, junco, lipa, lum-an, lusaban, malva, moras, nabos, palimano, palisan, pasao, and talaran.

Fruits.—Alipai, almonds, alupe, bobog, bugnay, cabatete, chestnuts, dátiles, figs, gooseberries, grapes, lemons, mangosteens, manzard berries, marmalade plums, miscellaneous orchard fruits, pangí, paw-paw, peaches, persimmons, pomegranates, plums, susong calabao, and tangerines.

Gramineous plants.—Millet and wheat.

Medicinal plants.—Ground ivy, palo-cruz, palo-santo, saffron, and tava-tava.

Miscellaneous plants.—Alugboti, angill, apatut, atsnete, aulang, augue, aubres, balingasay, balmoray, bist, borona, caburas, calmay, casin, cashew, conga, cuyot, droquis, fansol, fanugas, gunook, lutti, mistletoe, narra, obien, palas, pallang, pardo, pas, piticolen, singuelas, sugod-sugod, tami, tango, tanjore, tudias, tungue, yalapo, and zanco.

Oil producing plants.—Bittaog, lumbang, palomaria, and pamitlain.

Spices.—Anise seed, cinnamon bark, ginger, mustard, nutmeg, and pepper.

Vegetables.—Arrowroot, batao, beets, cabbages, cadios, caguio, cantaloupes, carrots, catuday, celery, cucumbers, culantro, dulian, endives, fabien, Irish potatoes, leeks, lentils, lettuce, parnarien, pease, radishes, sago, squash, tabias, taro, and toble.

The quantities produced, as shown in the tables, are only such as were reported by the enumerators as having been grown on cultivated land. This fact must not be overlooked in studying the figures, which do not, by any means, represent the total production during the year 1902. As stated previously, nearly all cultivated agricultural products also grow spontaneously without cultivation. The only exceptions to this rule worthy of mention are rice, sugar, tobacco, and corn. All other products, although under cultivation, also grow wild, some of them to an extent equaling or exceeding that to which they are grown under cultivation. This is especially true of the great commercial crops copra and hemp, of which enormous quantities are gathered from wild growths. As illustrating this feature of insular production statistics relating to the hemp crop may be cited. The tables show that 66,756,200 kilograms, equivalent to 65,705 tons, were produced on cultivated lands in 1902. The official reports of Philippine commerce show that, in the year named, 111,500 tons of hemp fiber were exported. The exports of the preceding and following years amounted to 124,257 and 137,752 tons, respectively.

It is not only possible, but probable, that because of the unsettled conditions prevailing in many sections of the islands, the enumerators did not succeed in securing full information in response to the inquiries of the schedule.

In the province of Albay, the principal hemp producing province of the archipelago, ladronism was rampant while the census taking was in progress, and many thousands of the people were required, by governmental orders, to abandon their houses and to concentrate in a few principal towns, in order that protection might be given them. This condition undoubtedly militated against the completeness of the enumerator's work, and to some extent accounts for the difference between the quantities of hemp reported as produced and exported. But such difference is largely attributable to the fact that abacá grows wild in vast quantities and in all the islands, and thousands of natives prefer gathering and selling the fiber from the wild growth, the entire proceeds of which inure to their benefit, to working in the planted abacá fields owned by others, where a portion of the results of their labor goes to the landlords.

Another, and the principal reason for the large excess of hemp exports over the reported production in 1902, is found in the fact that coastwise ports in Philippine hemp districts were closed to trade by American military authorities at different dates during 1900 and 1901, and remained closed for about a year, during which period enormous quantities of the fiber were accumulated in the "godowns" (warehouses) of hemp dealers located in the closed ports, and this fiber, upon the reopening of the ports to trade, was placed upon the market and served to abnormally swell the amount exported.

The hemp ports which were closed to trade, and dates of their closing and reopening, are stated by the Insular Bureau of the United States War Department to have been as follows:

COASTWISE PORTS CLOSED IN 1900, 1901, AND 1902.	Date of closing.	Date of reopening.
Malitbog (Leyte)	June 10, 1900	Aug. 20, 1901
Róac (Marinduque)	Nov. 3, 1900	May 16, 1902
Úbay (Bohol)	Jan. 7, 1901	(¹)
Inabaña (Bohol)	Feb. 26, 1901	(¹)
Guindulman (Bohol)	Feb. 26, 1901	(¹)
Ibajay (Panay)	June 20, 1901	(¹)
Calbáyog (Sámar)	May 15, 1901	May 15, 1902
Catbalogan (Sámar)	May 15, 1901	May 15, 1902
Guiuan (Sámar)	May 15, 1901	May 15, 1902
Laoang (Sámar)	May 15, 1901	May 15, 1902
Balayán (Batangas)	Dec. 10, 1901	May -, 1902
Batangas (Batangas)	Dec. 10, 1901	May -, 1902
Lemery (Batangas)	Dec. 10, 1901	May -, 1902
Nasugbú (Batangas)	Dec. 10, 1901	May -, 1902
Taal (Batangas)	Dec. 10, 1901	May -, 1902

¹ The date of reopening, in 1902, is not recorded.

Again, take the exported product of the coco palm, commercially known as copra or coprax. The tables show that 42,834,867 kilograms, or 94,433,748 pounds, were produced in 1902; official reports show that 130,571,523 pounds were exported in that year, while 71,688,683 pounds had been exported in 1901 and 181,117,084 pounds

were exported in 1903. In 1902 the excess of exports over the quantity shown by the tables to have been produced in planted groves amounted to about 36,000,000 pounds, and this excess was practically all gathered from wild growing trees.

The foregoing statements regarding hemp and copra sufficiently illustrate the qualifications to which the data given in the tables are subject, and will impress the reader with the fact that the present productivity of the islands is not to be measured by statistics relating to cultivated lands; the indeterminate factor of wild growth must be taken into consideration in making any estimate of production.

Another factor entering largely into the reported yields of many crops is the extent to which they are needed for use or for sale by the inhabitants of different sections. The average Filipino does not look far beyond his immediate necessities; he harvests, from day to day, as much of any particular growth as the present food and other requirements of his family demand; or, if the crop be one of commercial value, as much as will, when sold, supply the money necessary to satisfy his immediate need. The crop not necessary to meet these demands remains ungathered, and this is, of course, an unknown quantity, and does not enter into the reported figures of production.

This fact largely accounts for the wide variations shown in the average yields per hectare of the various crops in the different provinces and islands. Such variations are further accounted for by the different conditions prevailing in the several sections. In some sections the soil is better adapted to a given crop than in others. The weather conditions in some portions of the archipelago were unfavorable, while in others they were favorable to normal yields; some provinces and islands were disastrously affected by the ravages of insects, while others were comparatively or wholly free from this form of devastation; in addition, in a few provinces the prevalence of ladronism prevented such full harvestings as would have been otherwise made. All these features must be borne in mind in studying the tables.

ALCOHOLIC PLANTS.

Buri.—The buri palm was reported in 24 provinces, and in all islands embraced by Table 19. The area for the archipelago is given as reported on the schedules, but for the reason given this total can not be accepted as indicating the amount of land devoted to buri, because this palm is not, as a rule, planted in groves with defined boundaries, but is set out at random—a tree here and a tree there—and consequently a correct statement regarding area is well-nigh impossible.

The use of the palm for the production of the starch food commercially known as sago was greatest in the province of Iloilo and on

the island of Panay. In the production of this food the palm is cut down and the starch extracted from the trunk.

The leaves of the burí palm are used in making hats, mats, and other woven articles of domestic use. Of the provinces Pangasinán was the largest producer along this line and of the islands Luzón. The fruit is edible and greatly prized, and was most largely produced in Cebú province and island.

Tuba, the sap extracted from the palm, is used as a beverage, and also for the distillation of alcohol. More liters of this liquid were gathered in the province of Batangas and on the island of Luzón than elsewhere.

Nipa.—The nipa palm is cultivated in 29 provinces and in all the islands named in Table 19. It is a highly important growth, and the leaves are used in the construction of the houses in which the natives live, while its sap, or tuba, is extensively used in distilling alcohol.

The largest provincial area devoted to the growth of nipa was in Pampanga, in which there were 7,195 hectares out of a total of 29,258 hectares for the archipelago; and on the island of Luzón, 21,749 hectares were planted in this useful palm. The province and the island named were the largest producers of nipa leaves, the first producing 117,404 thousands and the latter 131,434 thousands out of a total production of 138,875 thousands of leaves in the entire archipelago.

Tuba was more largely extracted from nipa palms in the province of Cápiz, in which the production amounted to 39,877,059 liters, than in any other province; Bulacán ranked next, with 31,228,314 liters, and Pampanga third, with 13,733,031 liters; the production in no other province reached 5,000,000 liters. Of the islands, Luzón headed the list with a production of 45,040,073 liters, and Panay stood next, with 41,234,800 liters; no other island produced as much as 4,000,000 liters. The total production in the archipelago was 103,311,680 liters.

AROMATIC PLANTS.

Cocoa.—Cocoa, otherwise known as cacao, was cultivated to a limited extent in all the provinces except Benguet, Lepanto-Bontoc, and in the comandancia of Siassi. Only 11 provinces had as much as 100 hectares devoted to this useful and profitable culture; the cultivated area in other provinces ranged from 1 to 99 hectares, the total number of hectares in all of them amounting to only 764 hectares. The following statement shows the provinces having 100 or more hectares in cocoa in 1902, arranged with reference to their respective cultivated areas planted in this product:

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Quantity of cocoa produced in liters.	Average liters per hectare.
	Philippine Islands.....	3,521	689,249	196
1	Tayabas ¹	576	15,900	28
2	Cebu.....	476	185,475	390
3	Ambos Camarines.....	396	42,825	108
4	Albay.....	210	18,375	88
5	Leyte.....	205	73,425	358
6	Misamis.....	202	40,575	201
7	La Laguna.....	161	33,600	208
8	Surigao.....	161	20,775	129
9	Batangas.....	145	20,100	139
10	Bohol.....	115	65,250	567
11	Iloilo.....	110	23,532	214
	All other provinces ²	764	149,417	196

¹ Including the subprovince, Marinduque.

² Including comandancias.

The relative cultivated areas in cocoa in the different islands covered by Table 19 are shown in the following table in order of magnitude:

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of cocoa produced in liters.	Average liters per hectare.
	Philippine Islands.....	3,521	689,249	196
1	Luzón.....	1,867	221,465	119
2	Mindanao.....	378	60,538	160
3	Cebu.....	367	141,808	386
4	Leyte.....	144	50,948	354
5	Panay.....	140	29,478	211
6	Bohol.....	113	64,651	572
7	Negros.....	107	18,479	173
8	Samar.....	32	5,796	181
9	Mindoro.....	22	1,342	61
	All other islands.....	351	94,744	270

Coffee.—Coffee culture was a fairly important agricultural industry in the Philippines prior to 1898; but the ravages of insect pests reduced it to small proportions, and in 1902 only 999 hectares were reported as devoted to its production, the total quantity produced amounting to only 181,091 liters. About a third of the insular coffee area was in the province of Cavite, in which 330 hectares were reported; Batangas ranked second in area, with 145 hectares; and Lepanto-Bontoc third, with 125 hectares. In the other provinces and comandancias producing coffee the areas ranged from 1 to 86 hectares, except in a few in which there was no production or such small yields that the areas were not reported.

The apparently wide divergencies in yield per hectare in the different provinces and islands are very remarkable, as shown in the two following statements, which indicate the portions of the archipelago in which the culture has attained the greatest success. This seeming

difference in productiveness is largely accounted for by the fact that in several provinces coffee trees had been planted but had not come into bearing at the date of the census; the areas of land upon which they were planted were reported by the enumerators; there is, therefore, no real relation between the figures of area and of production of this crop. In the two statements the provinces and islands are arranged in accordance with their importance as producers of coffee, those producing the largest quantities being placed first; the ones producing less than 5,000 liters are grouped together, their separate production being too small to be of significance.

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Quantity of coffee produced in liters.	Average liters per hectare.
	Philippine Islands	999	181,091	181
1	Ilocos Norte	16	23,400	1,463
2	Nueva Vizcaya	18	19,650	1,092
3	Batangas	145	18,450	127
4	Lepanto-Bontoc	125	17,400	139
5	Albay	30	13,500	450
6	Benguet	24	13,050	544
7	Cavite	330	10,350	31
8	Misamis	4	8,700	2,175
9	Leyte	10	6,525	653
10	La Unión	3	6,225	2,075
11	Tarlac	10	5,775	578
	All other provinces ¹	284	38,066	134

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of coffee produced in liters.	Average liters per hectare.
	Philippine Islands	999	181,091	181
1	Luzón	912	157,344	173
2	Mindanao	11	6,370	579
	All other islands	76	17,377	229

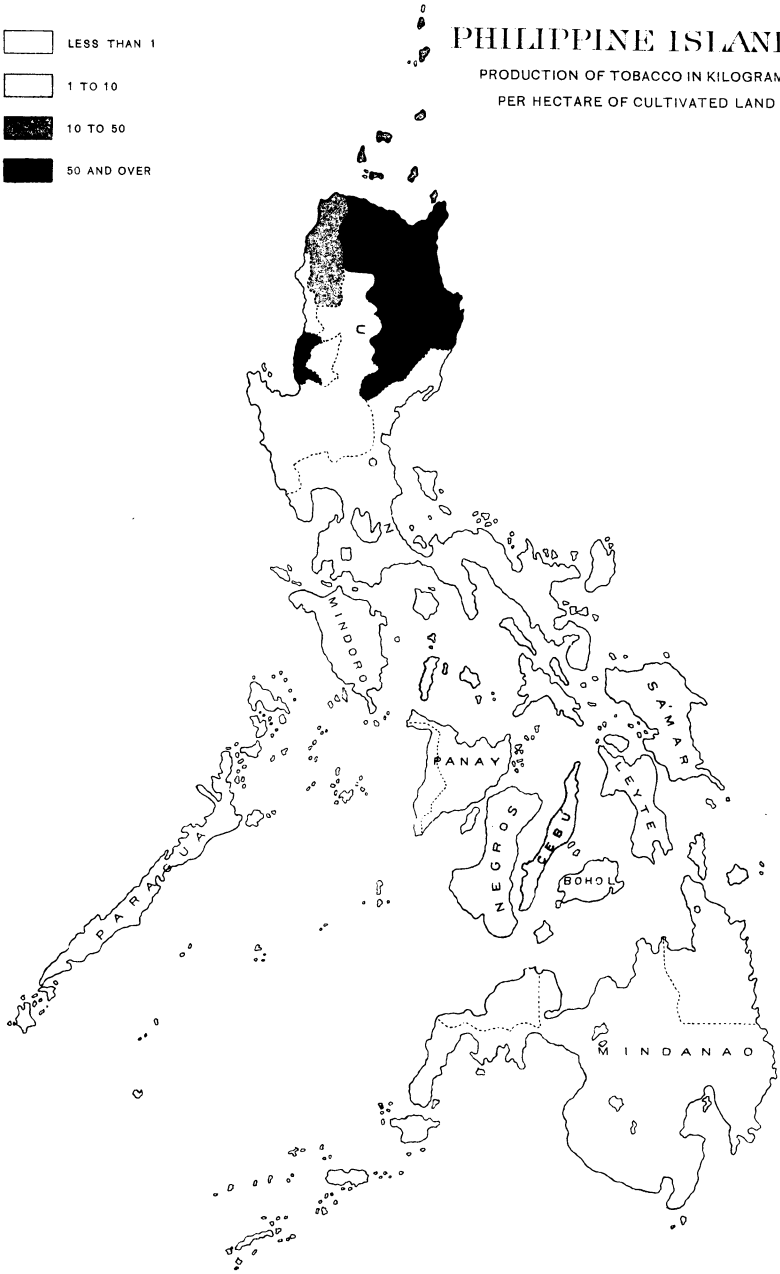
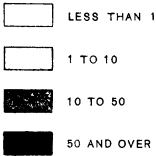
¹ Including comandancias.

Tobacco.—Tobacco is grown in a majority of the provinces and principal islands, though its production in 1902 exceeded half a million kilograms in only 6 provinces and 2 islands, and exceeded 100,000 kilograms in only 13 provinces and 5 islands. The following statements show the relative importance of the provinces and islands as tobacco producers, the arrangement being similar to that in the preceding tables for cocoa and coffee; provinces and islands producing less than 100,000 kilograms are grouped together:



PHILIPPINE ISLANDS

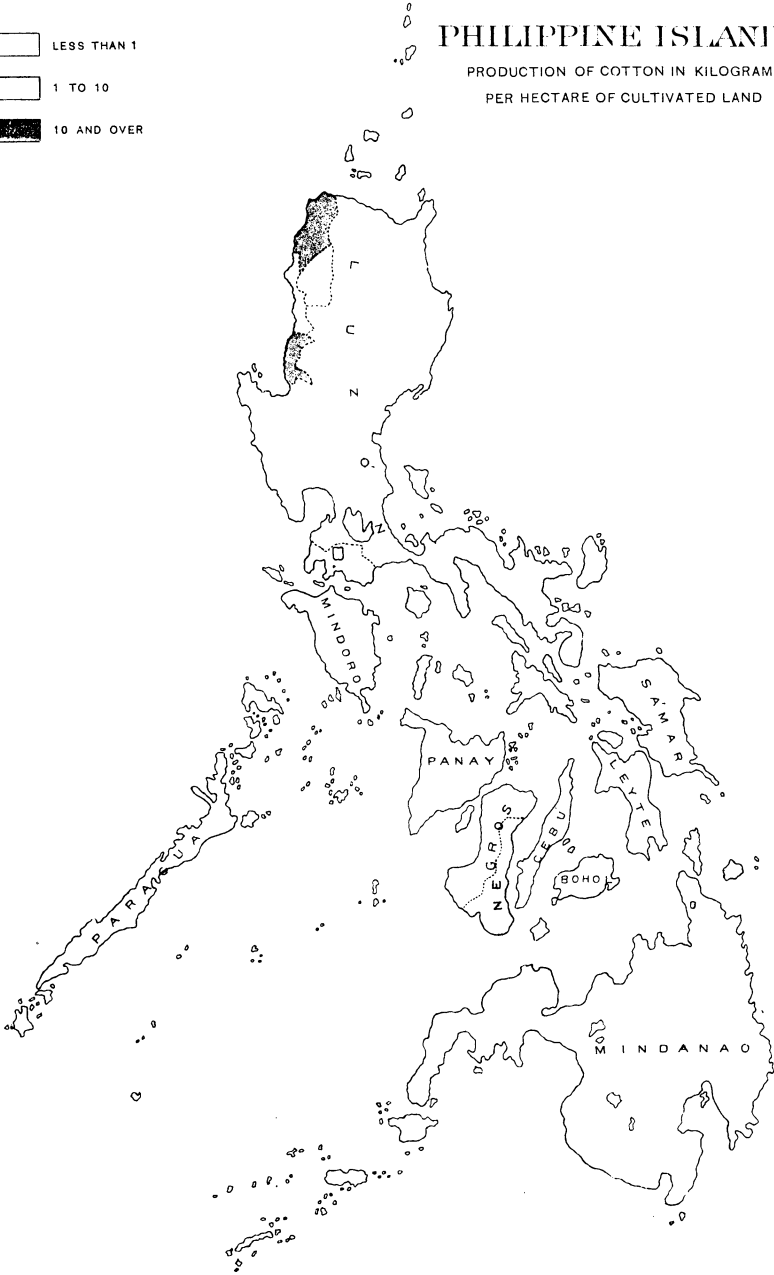
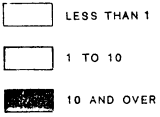
PRODUCTION OF TOBACCO IN KILOGRAMS
PER HECTARE OF CULTIVATED LAND





PHILIPPINE ISLANDS

PRODUCTION OF COTTON IN KILOGRAMS
PER HECTARE OF CULTIVATED LAND



In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Quantity of tobacco produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	31, 417	17, 009, 291	541
1	Isabela.....	9, 575	5, 691, 028	594
2	La Unión.....	3, 149	3, 752, 772	1, 192
3	Cagayán.....	8, 901	2, 663, 296	299
4	Cebú.....	2, 750	1, 717, 318	624
5	Pangasinán.....	1, 569	686, 182	437
6	Ilocos Norte.....	655	562, 212	858
7	Negros Occidental.....	600	327, 888	546
8	Abra.....	456	325, 910	715
9	Iloilo.....	390	248, 860	638
10	Romblón.....	401	224, 112	559
11	Leyte.....	453	142, 278	314
12	Nueva Ecija.....	683	119, 121	174
13	Negros Oriental.....	420	117, 484	280
	All other provinces ¹	1, 415	430, 830	304

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of tobacco produced in kilograms.	Average kilograms per hectare.
	Philippine Islands.....	31, 417	17, 009, 291	541
1	Luzón.....	25, 523	14, 006, 254	549
2	Cebú.....	2, 649	1, 647, 632	622
3	Negros.....	909	394, 570	434
4	Panay.....	535	306, 816	573
5	Leyte.....	388	138, 514	357
	All other islands.....	1, 413	515, 505	365

¹ Including comandancias.

FIBER PLANTS.

Cotton.—The culture of cotton was much more important in former years than it is at present. Its cultivation is, and always has been, almost wholly confined to the island of Luzón, the quantities grown in other islands being comparatively insignificant. In 1902, more than half the cultivated area on the island named was in the province of Ilocos Norte, in which there were 1,591 hectares of land in cotton, and the quantity produced was 605,029 kilograms; the adjoining province of Ilocos Sur produced 244,140 kilograms on 645 hectares, the combined area of the two provinces constituting 73.2 per cent of all lands (3,053 hectares) devoted to the staple in question, and their aggregate production being 64.2 per cent of the 1,322,118 kilograms grown in the entire archipelago. Only two other provinces, both on Luzón Island, had an area in excess of 100 hectares in cotton—Batangas, with 239, and La Unión, with 266, upon which there were reported as produced 21,206 and 362,434 kilograms, respectively. The combined cotton area for the 17 remaining provinces and comandancias in which the fiber was produced was only 312 hectares, and their total production, 89,286 kilograms.

Hemp.—Abacá, commonly known throughout America and Europe as Manila hemp, the most important commercial product of the Philip-

pinos, is indigenous to nearly all the provinces, though there are a few in which neither cultivated area nor production was reported by the enumerators. The province of Leyte was the heaviest producer of this commodity, and was closely followed by Albay, Sorsogón, and Ambos Camarines, in the order named. Other important hemp producing provinces are Sámar, Misamis, Surigao, Tayabas, Negros Oriental, Masbate, Bohol, Cebú, and Ilocos Sur, in each of which more than 1,000,000 kilograms were reported; and several provinces produced between 100,000 and 1,000,000 kilograms, as shown in the following statement, in which all provinces with a yield of less than 100,000 kilograms are grouped as "all other provinces." A statement is also given by islands. In the statements provinces and islands are arranged in the order of their importance as hemp producers.





In order of magnitude.	PROVINCE OR COMANDANCIA.	Area of cultivation in hectares.	Quantity of hemp produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	217, 806	66, 756, 200	306
1	Leyte	22, 038	11, 708, 518	531
2	Albay	57, 646	11, 080, 710	192
3	Sorsogón	45, 020	10, 262, 094	228
4	Ambos Camarines	35, 072	8, 002, 620	228
5	Sámar	12, 368	6, 485, 586	524
6	Misamis	10, 846	3, 798, 588	350
7	Surigao	8, 806	2, 570, 296	292
8	Tayabas ¹	3, 453	2, 464, 128	714
9	Negros Oriental	3, 653	2, 160, 712	591
10	Masbate	1, 642	1, 465, 131	892
11	Bohol	2, 083	1, 280, 880	615
12	Cebú	1, 820	1, 091, 764	600
13	Ilocos Sur	801	1, 060, 484	1, 319
14	Ilocos Norte	386	552, 000	1, 430
15	Cápiz	2, 243	470, 718	210
16	Dapitan ²	716	404, 432	565
17	Romblón	1, 803	378, 626	210
18	La Laguna	879	378, 626	431
19	Dávao ²	2, 499	307, 924	123
20	Negros Occidental	611	199, 301	326
21	Cavite	1, 401	176, 410	126
22	Mindoro	739	163, 760	222
	All other provinces ³	1, 278	292, 892	229

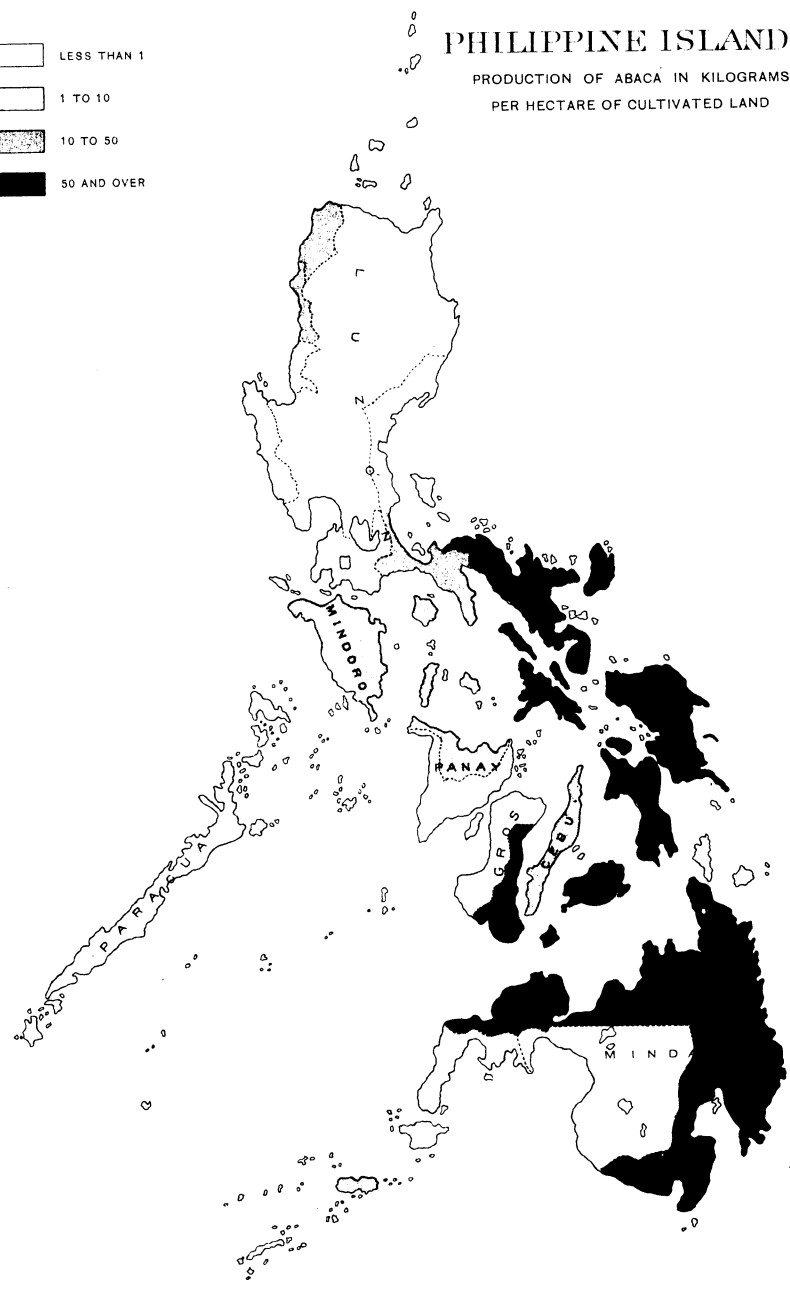
In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of hemp produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	217, 806	66, 756, 200	306
1	Luzón	116, 937	24, 941, 363	213
2	Leyte	19, 319	10, 116, 044	524
3	Sámar	11, 192	5, 956, 686	532
4	Mindanao	17, 901	5, 018, 986	280
5	Negros	4, 076	2, 247, 581	651
6	Bohol	2, 074	1, 274, 400	614
7	Cebú	1, 763	1, 055, 050	598
8	Marinduque	851	601, 312	707
9	Panay	2, 836	585, 009	206
10	Masbate	433	386, 030	892
11	Mindoro	683	162, 727	238
	All other islands	39, 741	14, 411, 112	363

¹ Including the subprovince, Marinduque.² Comandancia.³ Including comandancias.

PHILIPPINE ISLANDS

PRODUCTION OF ABACA IN KILOGRAMS
PER HECTARE OF CULTIVATED LAND

-  LESS THAN 1
-  1 TO 10
-  10 TO 50
-  50 AND OVER



Pineapple.—This plant, which is principally grown for the fiber yielded by its leaves, is found in most of the provinces and principal islands. Its fruit is also utilized to a considerable extent, particularly in the province of Bataán, from which no fiber was reported, the entire product of 30 hectares consisting of fruit which found ready market in the near-by city of Manila. In the entire archipelago the total reported area in pineapples was 613 hectares, upon which the production in 1902 amounted to 952,400 fruits and 292,403 kilograms of fiber. More than half the area and fruit production were in provinces on the island of Luzón, and 46 per cent of the fiber was produced in the same provinces.

The two following statements show the provinces and islands in which the yield of fiber amounted to 5,000 kilograms and upward, arranged with reference to their importance in this respect. Provinces and islands that produced less than 5,000 kilograms are grouped together.

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Number of pineapples produced (in hundreds).	Average number of pineapples per hectare.	Quantity of fiber produced in kilograms.	Average kilograms per hectare.
	Philippine Islands.....	613	9,524	1,554	292,403	478
1	Negros Occidental.....	41	444	1,083	46,000	1,122
2	Sámar.....	51	930	1,824	30,229	593
3	Ilocos Norte.....	3	117	3,900	30,038	10,013
4	Bulacán.....	31	249	803	18,400	594
5	Cebu.....	25	312	1,248	17,296	692
6	Leyte.....	29	257	886	17,086	589
7	La Laguna.....	25	177	708	15,772	631
8	Batangas.....	27	96	356	15,114	560
9	Cagayán.....	17	213	1,253	11,172	657
10	Iloilo.....	20	80	400	11,172	559
11	Cápiz.....	44	86	195	10,534	239
12	La Unión.....	16	187	1,169	10,514	657
13	Paragua.....	15	48	320	8,543	570
14	Zambales.....	12	227	1,892	7,229	602
15	Pangasinán.....	11	166	1,509	7,229	657
16	Tayabas ¹	41	420	1,024	6,579	160
17	Tárlac.....	8	31	388	5,257	657
	All other provinces ²	197	5,484	2,784	24,239	123

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Number of pineapples produced (in hundreds).	Average number of pineapples per hectare.	Quantity of fiber produced in kilograms.	Average kilograms per hectare.
	Philippine Islands.....	613	9,524	1,554	292,403	478
1	Luzón.....	306	7,027	2,296	126,886	415
2	Negros.....	45	524	1,164	49,272	1,095
3	Sámar.....	38	728	1,916	28,917	761
4	Panay.....	69	186	270	20,622	299
5	Leyte.....	29	257	886	17,086	589
6	Cebu.....	8	227	2,838	9,320	1,165
	All other islands.....	118	575	487	40,300	342

¹Including the subprovince, Marinduque.

²Including comandancias.

FRUITS.

Bananas.—This highly important fruit grows in every province and inhabited island of the Philippines, both in the wild and cultivated state, and numbers over fifty varieties, some of them of unexcelled delicacy and flavor. The statistics regarding its production and area are interesting only as indicating the extent to which the natural, spontaneous growth has been supplemented and added to by such industry as the natives have exerted in setting out plants in the vicinity of their homes, which after planting receive very little, if any, attention in the way of real cultivation.

The entire cultivated area devoted to the banana in the archipelago was reported as 33,913 hectares, upon which 14,078,600 bunches of the fruit were said to have been produced. As in all other products except sugar, provinces on Luzón produced more than those on any other island. The largest cultivated area and production of any single province was in Leyte, which shows a yield of more than double that of any other.

In the two following statements the provinces and islands are arranged, as in those immediately preceding, in accordance with their importance as producers of cultivated bananas, those producing less than 200,000 bunches being grouped as "all other:"

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Number of bunches of bananas produced (in hundreds).	Average bunches per hectare.
	Philippine Islands	33,913	140,786	415
1	Leyte	3,566	27,541	772
2	Cebú	1,412	12,127	859
3	Bohol	2,924	8,679	297
4	Misamis	1,974	5,889	298
5	Sámar	1,635	5,704	349
6	Iloilo	1,362	5,542	407
7	Surigao	1,996	5,384	270
8	La Laguna	897	5,348	596
9	Negros Occidental	1,165	4,979	427
10	Ambos Camarines	2,911	4,657	160
11	Tayabas ¹	1,530	4,647	304
12	Ilocos Norte	302	4,556	1,509
13	Pangasinán	769	4,118	536
14	Negros Oriental	555	3,810	686
15	Cápiz	1,385	3,412	246
16	La Unión	274	3,402	1,242
17	Cagayán	818	3,012	368
18	Batangas	602	2,758	458
19	Pampanga	537	2,695	502
20	Bulacán	643	2,350	365
21	Isabela	377	2,029	538
	All other provinces ²	6,279	18,147	289

¹Including the subprovince, Marinduque.

²Including comandancias.

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Number of bunches of bananas produced (in hundreds).	Average bunches per hectare.
	Philippine Islands	33,913	140,786	415
1	Luzón.....	12,653	48,850	386
2	Leyte	3,267	25,236	772
3	Mindanao.....	4,214	11,202	266
4	Cebú	1,188	9,722	854
5	Panay	2,773	8,673	313
6	Bohol	2,798	8,652	309
7	Negros.....	1,654	8,336	504
8	Samar.....	1,170	4,175	357
	All other islands.....	4,246	15,940	375

Betel nuts.—The use of the betel nut by the natives rivals that of tobacco, the latter being used almost exclusively for smoking, while the former is chewed. As a cultivated product, however, its area of production and yield are not extensive, and there are 19 provinces and 7 principal islands in which no production whatever was reported or the quantity reported was so insignificant as to be unworthy of mention. Only 6 provinces and 3 principal islands show cultivated areas of 100 hectares or over; the total area for the entire archipelago was 2,572 hectares, upon which 525,577 thousands of nuts were produced. The more important betel nut producing provinces and islands—those in which the yield was in excess of 2,000 thousands of nuts—are shown in the two following statements, arranged with reference to the magnitude of their respective production; those in which less than the amount above specified was produced are grouped as “all other:”

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Number of betel nuts produced (in thousands).	Average per hectare (in thousands).
	Philippine Islands	2,572	525,577	204
1	Ilocos Norte.....	83	179,912	2,168
2	La Laguna.....	895	147,208	164
3	Pangasinán.....	233	117,219	503
4	Negros Occidental.....	364	32,449	89
5	Iloilo.....	209	9,037	43
6	La Unión.....	47	8,106	172
7	Cagayán.....	158	6,510	41
8	Cápiz.....	182	5,422	30
9	Tárlac.....	14	3,761	269
10	Bulacán.....	23	3,651	159
11	Cavite.....	17	2,016	119
	All other provinces ¹	347	10,287	30

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Number of betel nuts produced (in thousands).	Average per hectare (in thousands).
	Philippine Islands	2,572	525,577	204
1	Luzón.....	1,623	475,954	293
2	Negros.....	353	32,539	92
3	Panay.....	443	12,921	29
	All other islands.....	153	4,163	27

¹Including comandancias.

Coconuts.—The planting of coco palms in groves throughout the archipelago generally has very materially added to the area upon which this useful tree grows. The wild growth, though no statistics regarding it can be given, is known to be enormous—probably greater than that designated as cultivated; and, as is the case with most other Philippine agricultural crops, the data given in the tables regarding the extent to which the tree is cultivated (i. e., planted) and the quantities of its different products, are useful only as indicating the extent to which native energy has been applied in increasing the natural, unaided growth.

Table 19 shows, in addition to the cultivated area and the number of nuts gathered, the quantities of copra, of tuba, and of oil yielded by the planted palms.

The product of greatest commercial importance, the exports of which to the United States and Europe are steadily increasing in volume and value, is copra, the dried kernel of the coconut; enormous quantities of tuba are also drawn from the trees, and the oil derived from the nuts is used by the inhabitants for illuminating and other purposes, as explained in previous pages. Reference to the table will disclose the sections in which nuts, tuba, and oil are most largely produced from planted trees; only the copra is dealt with in the two following statements, in which the provinces and principal islands are arranged in accordance with their importance as producers of this article of growing foreign demand; those in which less than 50,000 kilograms were produced are not shown separately, their cultivated area and yield being shown for “all other:”

In order of magnitude.	PROVINCE OR COMANDANCIA.	Area of cultivation in hectares.	Quantity of copra produced in kilograms.	Average kilo-grams per hectare.
	Philippine Islands.....	148,245	42,834,867	289
1	Tayabas ¹	37,822	21,629,476	572
2	La Laguna.....	24,801	9,193,008	371
3	Bohol.....	3,605	2,256,760	626
4	Leyte.....	4,854	1,675,780	345
5	Misamis.....	7,384	1,600,110	217
6	Samar.....	16,881	1,413,672	84
7	Surigao.....	1,675	1,249,130	746
8	Negros Oriental.....	1,427	1,083,438	759
9	Cotabato ²	75	638,848	8,518
10	Romblon.....	5,541	502,642	91
11	Cebú.....	2,471	347,070	140
12	Cápiz.....	6,245	387,962	54
13	Albay.....	5,837	190,900	33
14	Ambos Camarines.....	7,518	186,714	25
15	Dapitan ²	342	132,756	388
16	Masbate.....	1,791	99,969	56
17	Iloilo.....	2,718	75,578	28
18	Basilan ²	237	63,080	266
	All other provinces ³	17,021	157,974	9

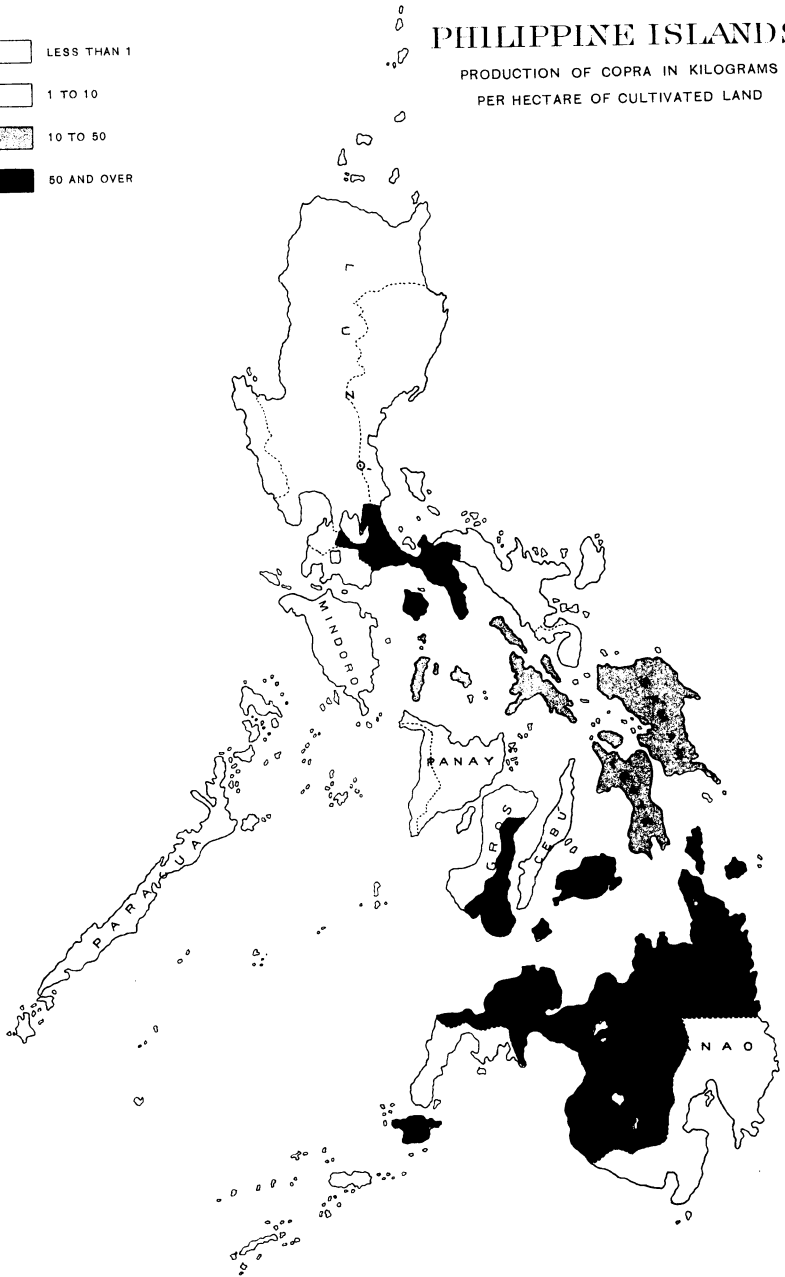
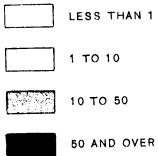
¹Including the subprovince, Marinduque.

²Comandancia.

³Including comandancias.

PHILIPPINE ISLANDS

PRODUCTION OF COPRA IN KILOGRAMS
PER HECTARE OF CULTIVATED LAND





In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of copra produced in kilograms.	Average kilograms per hectare.
	Philippine Islands.....	148, 245	42, 834, 867	289
		84, 066	30, 782, 552	362
1	Luzón.....	7, 915	3, 313, 609	419
2	Mindanao.....	4, 473	1, 658, 750	371
3	Leyte.....	11, 086	1, 398, 421	126
4	Sámar.....	3, 254	1, 118, 008	344
5	Negros.....	2, 920	1, 907, 972	341
6	Bohol.....	9, 136	414, 532	45
7	Panay.....	2, 987	347, 070	166
8	Cebu.....	896	98, 471	110
9	Masbate.....	2, 155	89, 884	42
10	Marinduque.....	20, 257	2, 705, 598	134
	All other islands.....			

Guavas, lanzones, and oranges.—These fruits are not cultivated to any great extent. The largest areas devoted to guavas were in the provinces of Tayabas and Ambos Camarines, in which 211 and 173 hectares, respectively, were reported as planted in this fruit. The cultivated area did not amount to as much as 100 hectares in any other province or district. The total amount of such area was only 1,052 hectares, and the total reported production for the entire archipelago was only 496,575 hundreds of the fruit. Lanzones were cultivated on a still more limited scale. The total cultivated area was returned as 614 hectares, of which 417 were in the province of La Laguna, and the total production was given as 67,585,686 liters, of which nearly 97 per cent was grown in the province named. The reports show that 100,178 hundreds of oranges were gathered from trees planted on 871 hectares in all the islands. Five hundred and forty-seven hectares in Batangas province, Luzón, were reported as yielding 62,115 hundreds. In other provinces and islands the cultivated area and crop were insignificant.

Mangoes.—The mango, sometimes designated as the “king of fruits,” attains its greatest perfection in size and flavor in the Philippines. It grows wild in most of the inhabited portions of the archipelago, and is shown by the census returns to have been more extensively cultivated than all other fruits combined, except bananas and coconuts. Nearly all provinces and principal islands are represented in the tables as producing mangoes. Though the separate cultivated areas are small, their aggregate amounted to 3,317 hectares, which produced something over 100,000,000 of the fruit. The two statements that follow show the provinces and islands in which more than half a million mangoes were gathered, arranged in the order of their importance as measured by the quantity of the fruit reported by the census enumerators as having been produced in 1902:

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Number of mangoes produced (in hundreds).	Average per hectare (in hundreds).
	Philippine Islands.....	3,317	1,041,877	314
1	Nueva Ecija.....	188	218,593	1,163
2	Iloilo.....	495	106,467	215
3	Pangasinán.....	257	90,520	352
4	Cavite.....	338	81,950	242
5	Ilocos Sur.....	35	75,161	2,147
6	Ilocos Norte.....	117	69,798	597
7	Zambales.....	174	62,658	360
8	Bulacán.....	182	44,107	242
9	La Unión.....	52	33,581	646
10	Batangas.....	108	27,673	256
11	Cebú.....	101	27,358	271
12	Ambos Camarines.....	125	24,551	196
13	Tárlac.....	83	21,698	261
14	Pampanga.....	64	20,634	322
15	Surigao.....	82	20,358	248
16	La Laguna.....	94	16,529	176
17	Rizal.....	146	14,380	98
18	Negros Oriental.....	45	12,386	275
19	Cagayán.....	171	11,063	65
20	Misamis.....	42	8,587	204
21	Bohol.....	41	8,112	198
22	Tayabas ¹	32	7,771	243
23	Antique.....	42	5,606	133
	All other provinces ²	303	32,336	107

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Number of mangoes produced (in hundreds).	Average per hectare (in hundreds).
	Philippine Islands.....	3,317	1,041,877	314
1	Luzón.....	2,309	835,545	362
2	Panay.....	507	102,390	202
3	Mindanao.....	133	25,561	192
4	Cebú.....	86	24,953	290
5	Negros.....	85	14,373	169
6	Bohol.....	33	6,797	206
	All other islands.....	164	32,258	197

¹ Including the subprovince, Marinduque.

² Including comandancias.

GRAMINEOUS PLANTS.

Corn.—This cereal, locally known as maize, is cultivated more or less extensively in all the provinces and principal islands. The total area in 1902 was reported as 107,981 hectares, upon which 1,195,254 hectoliters of the grain were produced. This is one of the few Philippine crops requiring cultivation, therefore the data given in the tables may be taken as representing its entire area and production. The two following statements show the relative importance as corn producers of provinces and islands in which the reported yield amounted to 5,000 hectoliters and upward in 1902:



MANGO TREE LADENED WITH FRUIT.

In order of magnitude.	PROVINCE.	Area of cultivation in hectares.	Quantity of corn produced in hectoliters.	Average liters per hectare.
	Philippine Islands.....	107,981	1,195,254	1,107
1	Cebu.....	38,325	400,764	1,046
2	Negros Oriental.....	10,465	140,458	1,342
3	Isabela.....	4,523	122,455	2,707
4	Cagayán.....	11,598	121,372	1,046
5	Negros Occidental.....	3,572	60,675	1,699
6	Leyte.....	2,828	54,464	1,926
7	Bohol.....	4,994	35,566	712
8	Ilocos Sur.....	3,160	34,784	1,101
9	Abra.....	3,812	33,682	884
10	Misamis.....	3,887	30,203	777
11	Bulacán.....	2,179	24,073	1,105
12	Iloilo.....	2,797	18,249	652
13	Pangasinán.....	1,457	17,171	1,179
14	Batangas.....	2,919	15,803	541
15	La Unión.....	1,030	14,063	1,365
16	Ilocos Norte.....	1,321	13,574	1,028
17	Cápiz.....	1,244	9,645	775
18	Masbate.....	535	7,181	1,342
19	Antique.....	1,177	6,704	570
20	Pampanga.....	1,177	5,143	437
	All other provinces ¹	4,981	29,225	585

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of corn produced in hectoliters.	Average liters per hectare.
	Philippine Islands.....	107,981	1,195,254	1,107
1	Luzón.....	35,610	417,513	1,173
2	Cebu.....	35,929	375,759	1,046
3	Negros.....	10,675	195,704	1,833
4	Leyte.....	2,605	49,744	1,910
5	Mindanao.....	4,388	34,798	793
6	Panay.....	4,754	31,373	660
7	Bohol.....	4,257	30,098	707
	All other islands.....	9,763	60,265	617

¹Including comandancias.

Grass.—Many varieties of grass are grown in the islands for stock feeding purposes. When cut it is usually tied in small bundles immediately and used in its green, uncured state. Several crops are ordinarily cut from the same meadow each year and, as it is not weighed but sold by the hundred bundles, which are of various sizes, according to the kind and quality of the grass and the custom of cutters and purveyors in different localities, the number of kilograms produced can only be estimated. The largest areas and yields are naturally in provinces containing cities or in those situated near centers of population. Of the latter class is the province of Rizal, adjoining the municipality of Manila, in which nearly 20,000,000 kilograms are reported as having been produced—more than half the reported production of the entire archipelago, which is given as nearly 37,000,000

kilograms. About 3,000,000 kilograms were produced within the corporate limits of the city of Manila. The only other provinces producing 1,000,000 kilograms and upward were Albay, Iloilo, and La Unión. Of the islands Luzón produced nearly 30,000,000 kilograms, about 80 per cent of the entire yield, the only other important producing island having been Panay, upon which a little over 6,000,000 were reported.

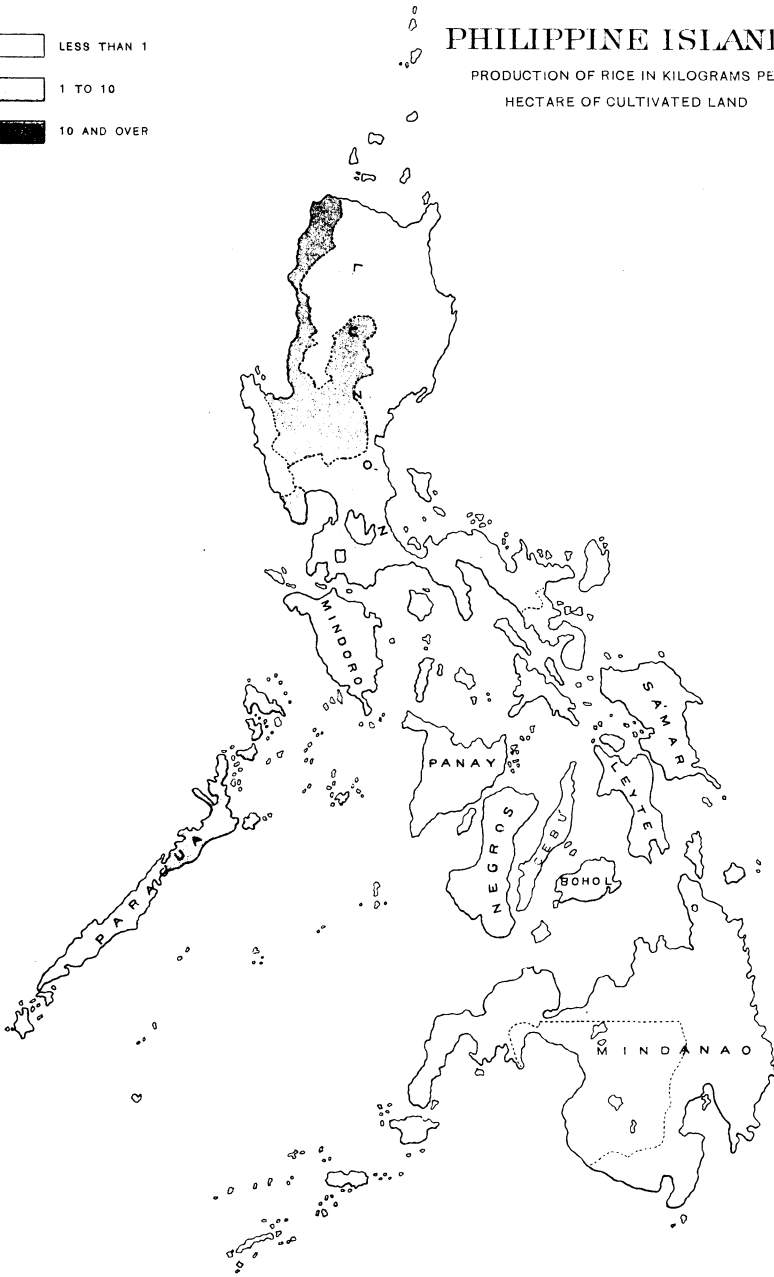
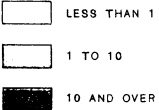
Paddy (unhulled rice).—The production of rice is the most important agricultural industry of the Philippines, as far as the domestic economy of the people is concerned. When obtainable, it is the principal vegetable food of nearly all Filipinos, who, in common with the populace of other oriental countries, value it more highly than any other comestible. The islands have not, for many years, produced this article of prime necessity in sufficient quantities to supply domestic requirements, and the annual deficiency has been made good by imports from foreign countries, the extent of which, from year to year, can be seen by reference to the tabular statement of rice imports given on page 87. In 1902 the reported insular yield amounted to 8,599,233 hectoliters from 592,766 hectares of land, an area far in excess of that devoted to any other cultivated crop; in addition it was necessary to import something over 290,000,000 kilograms of the grain to meet the requirements of the people. This condition is likely to continue indefinitely, it being more profitable to raise other crops, particularly hemp. The proceeds derived from the sale of hemp from a given amount of land will purchase much more rice than could be grown on the same area, and as long as this remains true the islands will undoubtedly depend to a large degree on importations of the grain.

It is grown in every province, comandancia, and principal island of the archipelago, though in some of them the quantity produced is small. The average yield per hectare in all the islands in 1902 was 1,451 liters, from which there were wide variations in the different provincial and insular sections.

The two following statements show the provinces and islands in which 50,000 hectoliters and upward of rice were reported as produced in 1902, arranged with reference to their importance as producers of this staple, with the cultivated area, total yield, and average yield per hectare in each:

PHILIPPINE ISLANDS

PRODUCTION OF RICE IN KILOGRAMS PER
HECTARE OF CULTIVATED LAND



In order of magnitude.	PROVINCE OR COMANDANCIA.	Area of cultivation in hectares.	Quantity of rice produced in hectoliters.	Average liters per hectare.
	Philippine Islands.....	592,766	8,599,233	1,451
1	Pangasinán.....	66,530	1,454,601	2,186
2	Nueva Ecija.....	24,883	855,935	3,440
3	Negros Occidental.....	25,236	638,083	2,528
4	Tárlac.....	35,119	599,327	1,707
5	Ilocos Norte.....	29,536	483,520	1,637
6	La Unión.....	23,391	441,098	1,886
7	Pampanga.....	38,491	426,727	1,109
8	Ilocos Sur.....	29,153	425,231	1,459
9	Iloilo.....	43,953	387,815	882
10	Bulacán.....	51,394	300,062	584
11	Cápiz.....	16,088	262,844	1,634
12	Antique.....	19,641	215,137	1,095
13	Cavite.....	15,306	199,076	1,301
14	Zambales.....	25,312	188,553	745
15	Tayabas ¹	16,210	164,775	1,016
16	Sámar.....	8,930	133,304	1,493
17	Leyte.....	6,232	131,852	2,116
18	La Laguna.....	9,877	121,447	1,230
19	Surigao.....	8,438	108,521	1,286
20	Cottabato ²	1,107	101,211	9,143
21	Abra.....	7,246	96,844	1,337
22	Batangas.....	12,649	93,770	741
23	Cagayán.....	11,919	89,285	749
24	Romblón.....	4,759	73,784	1,550
25	Bohol.....	5,063	72,876	1,439
26	Rizal.....	4,537	72,145	1,590
27	Misamis.....	3,042	63,901	2,101
	All other provinces ³	48,724	397,509	816

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of rice produced in hectoliters.	Average liters per hectare.
	Philippine Islands.....	592,766	8,599,233	1,451
1	Luzón.....	431,015	6,189,448	1,436
2	Panay.....	77,526	845,418	1,090
3	Negros.....	26,594	655,354	2,464
4	Mindanao.....	15,211	298,014	1,959
5	Sámar.....	8,567	125,527	1,465
6	Leyte.....	5,523	115,693	2,095
7	Bohol.....	4,647	66,771	1,437
	All other islands.....	23,683	303,008	1,279

¹ Including the subprovince, Marinduque. ² Comandancia. ³ Including comandancias.

Sugar cane.—The industry of sugar cane growing and sugarmaking is shown by the census returns to have been carried on in all the provinces and comandancias except five, namely, Benguet, Cottabato, Joló, Paragua Sur, and Siassi. In several of the others the production was too small to be of commercial importance, and in a few it was apparently not large enough to supply local requirements. In the archipelago as a whole, however, a large surplus of sugar was manufactured and exported, the value of sugar exports having been greater than that of any other insular commodity except hemp. Small quantities of molasses were also reported as produced in several

of the provinces, the amount in the aggregate being only 17,844 hectoliters. The aggregate amount of sugar shown by the census enumeration to have been produced in 1902 was 180,217,383 kilograms, of which 87,524,476 kilograms, or 48.6 per cent, were the product of the province of Negros Occidental. Pampanga ranked second as a sugar producer, with a total of 14,317,776 kilograms. No other province produced as much as 10,000,000 kilograms, though the yield of several ranged from near that figure down to about 1,000,000 kilograms. The island of Negros produced 93,041,886 kilograms, or 51.7 per cent, of the total production, and the yield of Luzón was 69,230,884 kilograms, or 38.4 per cent of the entire yield, of which only 9.9 per cent was produced in other islands of the archipelago.

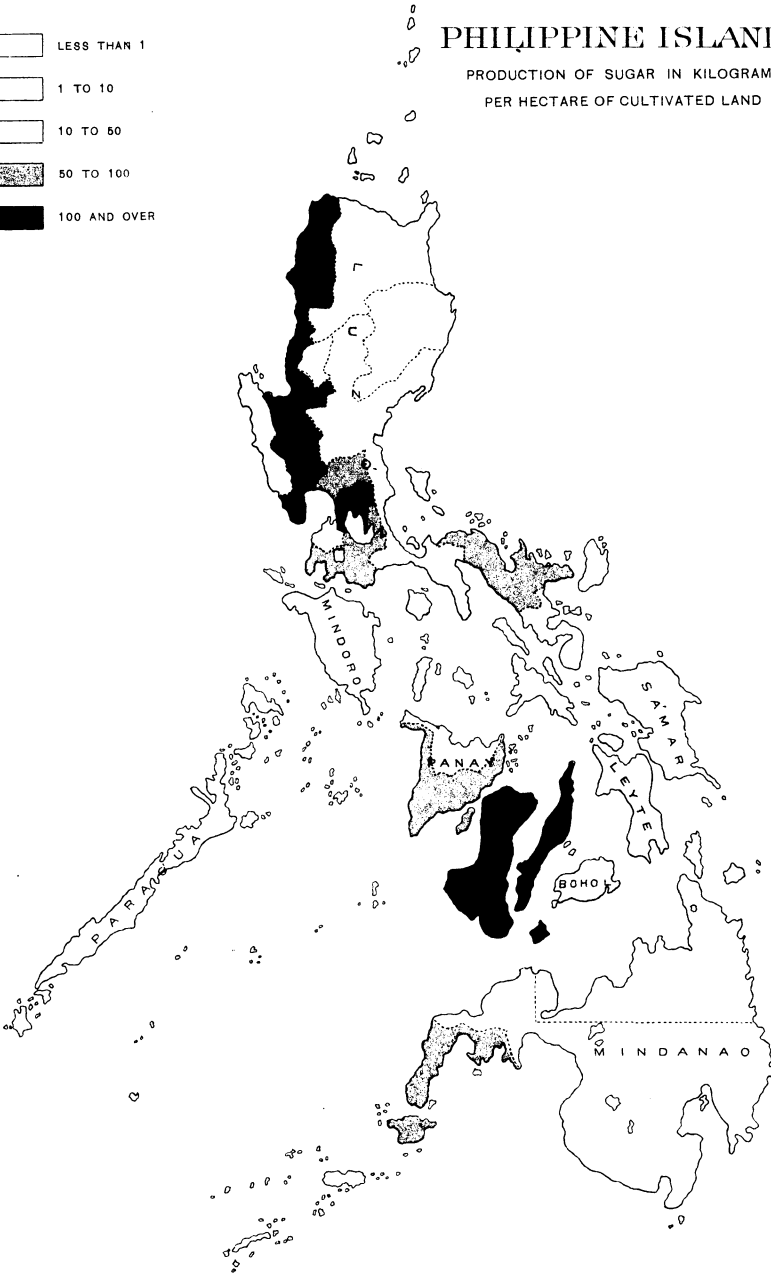
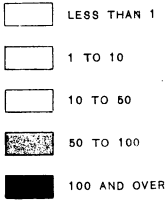
The two following statements show the provinces and islands which produced 50,000 kilograms and upward, arranged in accordance with their importance as sugar producers. Those in which smaller quantities than the amount specified were reported are grouped as "all other."

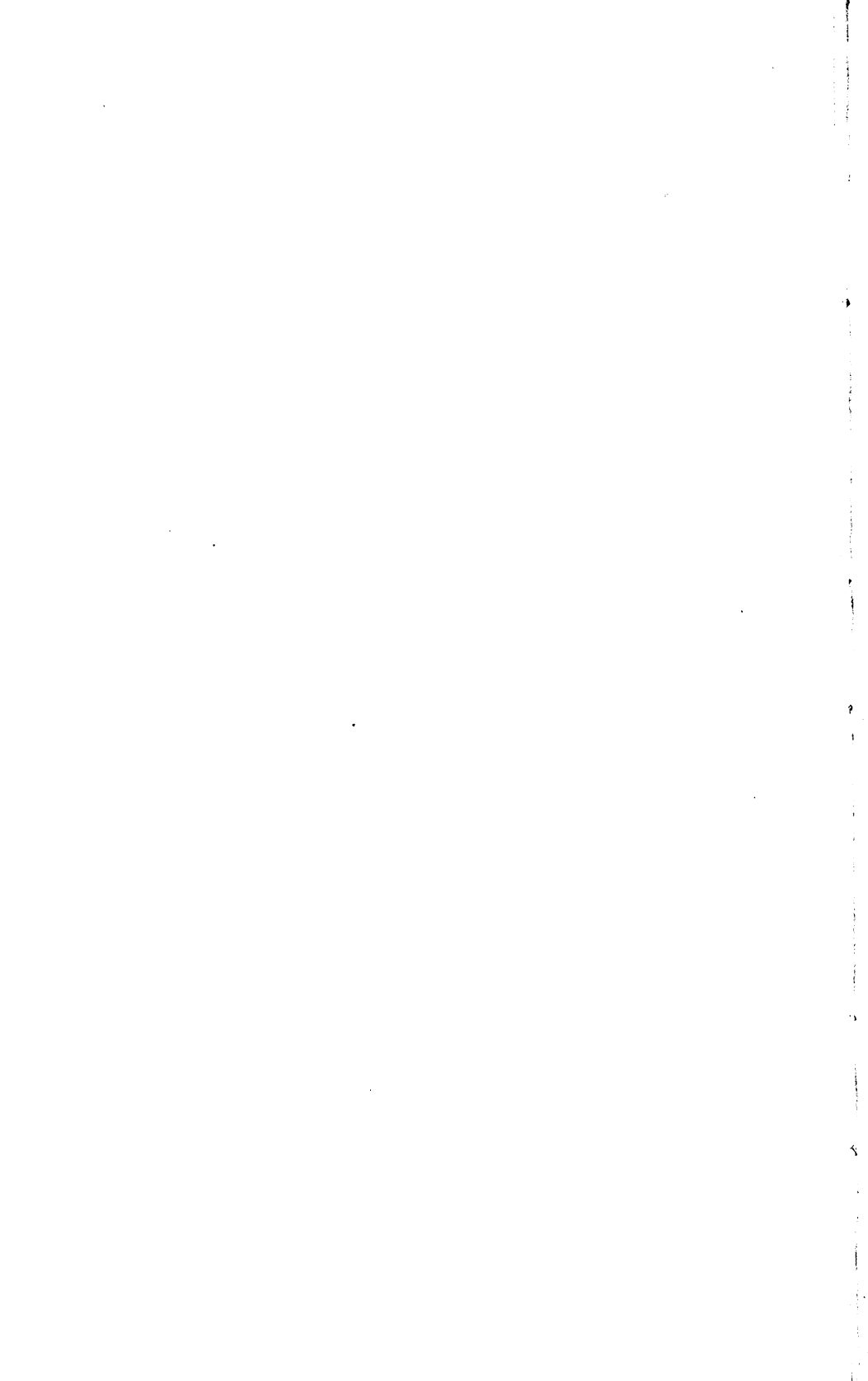
In order of magnitude.	PROVINCE OR COMANDANCIA.	Area of cultivation in hectares.	Quantity of sugar produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	71,885	180,217,383	2,507
1	Negros Occidental	27,459	87,524,476	3,188
2	Pampanga	12,477	14,317,776	1,148
3	Pangasinán	4,044	9,373,862	2,318
4	Cebú	3,309	8,325,836	2,516
5	Ilocos Sur	2,517	8,060,350	3,202
6	Ilocos Norte	2,796	7,238,011	2,589
7	Bulacán	2,297	5,855,679	2,549
8	Negros Oriental	1,539	5,532,834	3,595
9	Iloilo	1,768	4,523,757	2,566
10	Ambos Camarines	1,573	3,831,264	2,436
11	Tárlac	1,569	3,772,893	2,405
12	La Laguna	1,219	3,003,456	2,464
13	La Unión	1,335	2,966,724	2,222
14	Rizal	1,808	2,154,423	1,192
15	Cavite	1,085	2,037,681	1,878
16	Batangas	697	1,759,091	2,524
17	Antique	601	1,488,462	2,477
18	Abra	181	1,196,644	6,611
19	Tayabas ¹	454	1,125,022	2,478
20	Cápiz	368	907,405	2,466
21	Leyte	488	894,139	1,833
22	Zambales	336	612,896	1,824
23	Sorsogón	224	567,791	2,535
24	Bataán	454	500,552	1,103
25	Zamboanga ²	182	445,743	2,449
26	Bohol	178	427,170	2,400
27	Nueva Ecija	157	416,557	2,653
28	Albay	150	318,388	2,123
29	Cagayán	117	310,428	2,653
30	Sámar	121	289,202	2,390
31	Misamis	157	151,616	966
32	Basilan ²	29	61,024	2,104
33	Surigao	40	55,292	1,382
	All other provinces and comandancias	161	170,939	1,062

¹ Including the subprovince, Marinduque.² Comandancia.

PHILIPPINE ISLANDS

PRODUCTION OF SUGAR IN KILOGRAMS
PER HECTARE OF CULTIVATED LAND





In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of sugar produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	71,885	180,217,383	2,507
1	Negros	28,994	93,041,886	3,209
2	Luzón	35,524	69,230,384	1,949
3	Cebú	3,293	8,283,384	2,516
4	Panay	2,589	6,795,424	2,625
5	Leyte	473	854,341	1,806
6	Mindanao	380	650,398	1,712
7	Bohol	173	413,904	2,393
8	Sámar	74	107,870	1,458
	All other islands.....	385	839,292	2,180

Beans, gabe, and tomatoes.—These three vegetables are cultivated to a comparatively small extent in most of the islands and provinces. In a majority of them the production is too small to be of other than slight local importance. The total cultivated area reported for all three amounted to only 6,694 hectares, of which 3,170 were in beans, 2,271 in gabe, and 1,253 in tomatoes. The total production of each was reported as follows: Beans, 1,752,283 liters; gabe, 4,827,155 kilograms; and tomatoes, 2,856,341 kilograms.

Sweet potatoes.—The tuber known throughout the islands as “camote” is, in point of importance, a domestic food product second only to rice. It grows profusely and yields abundantly in all sections, and is a favorite article of diet. The cultivated area and yield of this vegetable by no means cover the extent to which it is grown and produced; they only indicate the degree to which the natives have exerted themselves in its production. When once planted, the sweet potato is said to grow with very little or no further attention, and spreads without cultivation into new ground, yielding what are sometimes called “volunteer” crops in large quantities.

The two following statements show the provinces and islands arranged with reference to the magnitude of the cultivated sweet potato yield in each. Those in which less than 100,000 kilograms were produced are not shown separately, but are grouped as “all other.” The wide variations in the average yield per hectare is accounted for in this, as in other crops, by the fact that, in some sections, adverse conditions, such as droughts or insect pests, affected the growth, more or less, while in other sections the conditions were favorable to better yields; and by the fact that the natives gather only such quantities as they have use for or can readily dispose of, the amount so gathered being the measure of the yield.

In order of magnitude.	PROVINCE OR COMANDANCIA.	Area of cultivation in hectares.	Quantity of sweet potatoes produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	23, 873	65, 542, 716	2, 745. 5
1	Sámar	2, 351	23, 641, 792	10, 056. 1
2	La Unión	358	10, 864, 004	30, 346. 4
3	Cağayán	657	5, 415, 626	8, 243. 0
4	Leyte	1, 882	4, 808, 550	2, 552. 4
5	Surigao	3, 014	4, 127, 442	1, 369. 4
6	Bohol	2, 789	3, 607, 296	1, 293. 4
7	Cebú	700	2, 039, 318	2, 913. 3
8	Ambos Camarines	2, 248	1, 521, 404	676. 8
9	Ilocos Norte	297	1, 457, 280	4, 906. 6
10	Cápiç	1, 006	1, 187, 122	1, 180. 0
11	Masbate	1, 118	758, 063	678. 1
12	Misamis	534	547, 446	1, 025. 2
13	Iloilo	691	531, 116	768. 6
14	Negros Occidental	414	494, 822	1, 195. 2
15	Albay	1, 036	466, 578	450. 4
16	Romblón	291	464, 508	1, 596. 2
17	Dávao ¹	455	421, 452	926. 3
18	Pangasinán	939	298, 540	317. 9
19	Negros Oriental	190	293, 250	1, 543. 4
20	Tárlac	152	264, 592	1, 740. 7
21	Zambales	417	214, 958	515. 5
22	Ilocos Sur	417	205, 237	492. 2
23	Sorsogón	540	197, 708	366. 1
24	Antique	203	192, 602	948. 8
25	Tayabas ²	305	179, 284	581. 3
26	Paragua	128	137, 586	1, 074. 9
27	Pampanga	122	114, 448	938. 1
28	Isabela	97	110, 906	1, 143. 4
	All other provinces ³	522	986, 786	1, 890. 4

In order of magnitude.	ISLAND.	Area of cultivation in hectares.	Quantity of sweet potatoes produced in kilograms.	Average kilograms per hectare.
	Philippine Islands	23, 873	65, 542, 716	2, 745. 5
1	Luzón	6, 981	18, 492, 792	2, 649. 0
2	Sámar	2, 022	20, 416, 757	10, 097. 3
3	Mindanao	3, 746	5, 113, 937	1, 365. 2
4	Leyte	1, 712	4, 365, 671	2, 550. 0
5	Bohol	2, 511	3, 235, 037	1, 233. 3
6	Panay	1, 438	1, 566, 037	1, 089. 1
7	Cebú	453	1, 284, 586	2, 855. 7
8	Negros	589	785, 734	1, 334. 0
9	Masbate	857	581, 051	678. 0
	All other islands	3, 564	9, 701, 093	2, 722. 0

¹ Comandancia.² Including the subprovince, Marinduque.³ Includes comandancias.

As compared with average or normal yields, the crops of all kinds gathered in 1902 were very small. The destruction of carabao and horses by rinderpest and surra, the devastations of insect pests, the prevalence of drought in many sections of the archipelago, and the ravages of cholera inevitably resulted in heavily diminishing the yields of all agricultural products.

Effort was made, through inquiries in Schedule No. 5, to secure statistics along this line; but the lack of records and the prevailing inability of the agricultural population to supply definite information regarding yields of previous years, as compared with those of 1902,

prevented the securing of specific data. Information of a general character was, however, obtained, upon which it is possible to base the statement that the yield of crops was on the whole, not more than half the normal amount.

The special agents attempted to secure data regarding the agricultural pursuits of the non-Christian tribes in the different provinces and islands inhabited by them, as called for by the schedule used in enumerating the wild tribes, the form of which is shown on page 11, Volume II.

Before the census was taken, it was not believed to be practicable to secure this information in such detail as to be of statistical value; nevertheless, the effort was made. The results of the canvass verified the expectations regarding their probable lack of completeness. It was found that the furnishing of information regarding areas and quantities of production was quite beyond the capacity of the wild people who, as a rule, have no proper conception of the meaning of numbers and who were totally unable, except in occasional instances, to answer questions, the replies to which involved the giving of mathematical expression to agricultural operations.

All that could be done, in most cases, was to secure lists, more or less complete, of the different products derived from the soil by the various tribes; approximate numbers of different kinds of domestic animals owned by them; and a little meager information regarding their industries aside from that of agriculture.

With regard to their farming, it is sufficient to say that they cultivate substantially the same plants, fruits, and vegetables as their Christianized compatriots. To give a list of these products is deemed unnecessary, as it would simply be a repetition of the names of products already specified as cultivated by the civilized tribes.

Of all the wild tribes, the Igorots, inhabiting the mountains of northern Luzón, are undoubtedly the most expert and industrious agriculturists. Their methods of cultivation, particularly those used in the cultivation of rice, and their irrigation systems have been described and illustrated in various official and other publications, and nothing can be said here in addition to what has been heretofore published in respect to them. For the benefit, however, of such readers as have not been previously informed regarding this remarkable people, the following extract is given from the official report, dated July 8, 1902, of Mr. Elmer D. Merrill, the botanist of the Insular Bureau of Agriculture, on an overland trip made by him from Manila to Aparri during the months of May and June, 1902:

Rice.—This is the staple crop and was cultivated in most localities visited on the trip. Methods of cultivation are very crude, and, with the exception of lands cultivated by the Igorotes, but one crop is produced in a year, and that is grown during the rainy season. * * * In and about Quiangán, Nueva Vizcaya, the Igorotes,

by artificial irrigation, produce two crops each year, their rice being of superior quality, with larger, practically awnless heads and larger grains than seen elsewhere. * * * During our stay at Quianḡán we had abundant opportunity to observe the methods of agriculture pursued by these people. Rice is the staple crop; but corn, potatoes, cabbage, camotes, beans, tomatoes, gourds, etc., are raised. Their system of agriculture is the most carefully observed in the island, the ground being carefully prepared and kept scrupulously free from weeds during the growing season.

The Igorrote uses no beast of burden, carabao and ponies being valued only as food. Pigs and chickens are raised, however. All the work is done by hand, the enormous system of rice paddies, extending for 2 or 3 miles up the steep mountain sides, on all sides of Quianḡán, being evidently the results of the work of generations of these people—their only agricultural implements being a bolo and a heavy wooden shovel, the blade of which is about 8 inches wide. All these rice paddies are irrigated by utilizing the mountain streams, two crops of rice being produced each year, the rice being of superior quality to that grown down in the valleys by the Ilocanos and Tagálogs. For guarding against the heavy rains of the wet season, they have an ingenious method of sluiceways to carry off the surplus water. Often the terrace banks will be 8 or 10 feet high, and many of the terraces are no more than 1 yard in width, the average size of the paddies being very small. They are very similar to those in the mountains of Ceylon, in the neighborhood of Kandy.

The Igorrotes value seeds of new plants very highly, and would certainly make good use of any that might be sent them. They now raise potatoes and other vegetables in considerable quantities, which they offer for sale in the various market towns in the valleys. In the opinion of Governor Ney, of Nueva Vizcaya, the one method that would be productive of the best results in bringing these people under control would be by the distribution of garden seeds among them. At present they are under little or no control; but, with the exception of those tribes known as the "head-hunters," they lead peaceable lives so long as they are unmolested.

None of the other wild tribes approach the Igorots in point of industry and agricultural production. By all, the methods and implements used are of the crudest, most primitive sort, and the extent and results of their labor are, as a rule, barely sufficient to supply the demands of a very limited home consumption of such products as they cultivate.

DOMESTIC ANIMALS.

The data collected by enumerators relative to domestic animals and poultry, embraced not only the number and value of such animals as were owned by the civilized population at the time of enumeration, but also the number that died of disease and that were slaughtered for food, respectively, in 1902, the year preceding that of the census.

The results of the enumeration are given in six general tables, numbered from 20 to 25 inclusive.

It will be observed that Tables 20, 22, and 24 relate to provinces, and Tables 21, 23, and 25 to islands; also that Tables 22 and 23 are confined to live stock on farms, while Tables 20 and 21 include only such stock as was not on farms, but found in the centers of population which in the United States would be designated as cities, towns,

or villages, while in Tables 24 and 25 the figures in the preceding tables are consolidated for the provinces and islands—thus presenting the total figures for animals both on farms and not on farms.

The different kinds and classes of animals to which the statistics relate are as follows: Carabao bulls, carabao steers, carabao cows, carabao calves, other neat cattle, American horses, Australian horses, native horses, other horses, mules, sheep, goats, swine, chickens, turkeys, ducks, and geese. The classification of "other neat cattle" includes those of Indian and Australian origin and such cross breeds as could not be given any special designation.

The islands embraced by Tables 21, 23, and 25 include the 11 islands named in preceding tables relating to areas, tenures, and production, and, in addition, 22 other islands. The live stock statistics for these additional islands are given, in order that the insular distribution of carabao and other domestic animals may be more fully set forth than was deemed necessary in regard to the other agricultural data.

A recapitulation of the live stock tables shows for the archipelago, as a whole, the following results:

DOMESTIC ANIMALS.	AT DATE OF ENUMERATION.			Number of deaths from disease in 1902.	Number slaughtered for food in 1902.
	Number.	Total value (pesos).	Average value (pesos).		
All neat cattle	768, 430	55, 512, 570	72. 24	629, 176	79, 820
Carabao bulls	122, 979	10, 385, 125	84. 45	138, 334	17, 018
Carabao steers	189, 818	19, 381, 305	102. 10	109, 483	12, 591
Carabao cows	234, 763	16, 756, 356	71. 38	176, 312	17, 448
Carabao calves	93, 311	2, 796, 969	29. 97	67, 867	7, 882
Other neat cattle	127, 559	6, 192, 815	48. 55	137, 180	24, 881
All horses	144, 171	7, 137, 158	49. 50	87, 761	13, 019
American horses	860	331, 224	385. 14	195	22
Australian horses	205	67, 307	328. 33	128	5
Native horses	142, 992	6, 711, 665	46. 94	87, 437	12, 992
Other horses	114	26, 962	236. 51	1	.....
Mules	290	32, 380	111. 66	180	131
Sheep	30, 428	131, 161	4. 31	9, 583	8, 979
Goats	124, 334	367, 886	2. 96	34, 245	32, 404
Swine	1, 179, 371	6, 374, 304	5. 40	661, 512	433, 160
All poultry	5, 564, 599	2, 668, 530	0. 48	3, 834, 921	4, 933, 934
Chickens	5, 470, 981	2, 561, 764	0. 47	3, 804, 570	4, 914, 089
Turkeys	9, 201	27, 878	3. 03	3, 861	2, 456
Ducks	78, 215	66, 475	0. 85	24, 190	15, 623
Geese	6, 202	12, 413	2. 00	2, 300	1, 766

The number of American horses and the number of mules shown in the tables—860 and 290, respectively—do not represent the total number of these animals in the islands at the taking of the census; the United States Government owned and used several thousand which were not enu-

merated; the figures in the tables cover the number in existence when the census was taken that had been sold, from time to time, at regular Government sales to private parties.

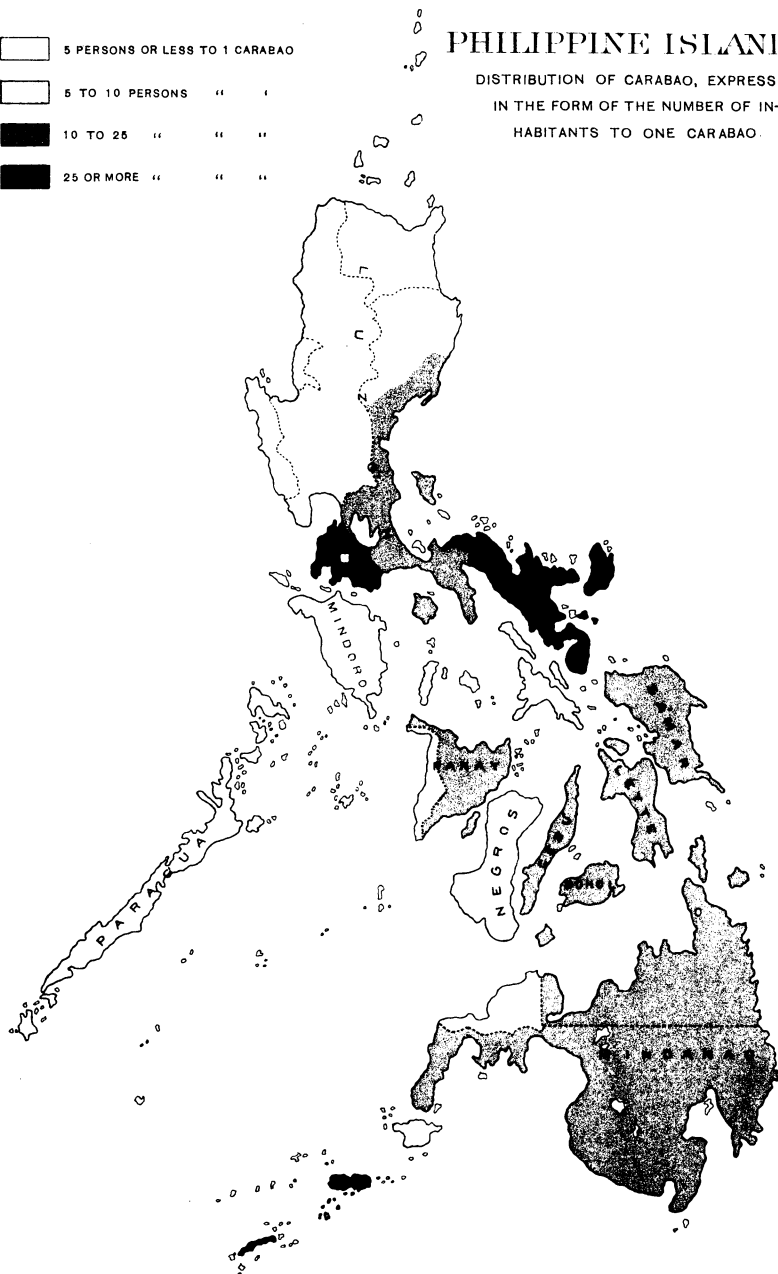
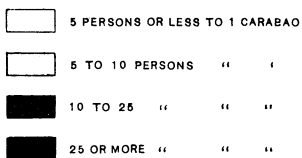
The most striking feature of the above statement is that relating to deaths of live stock from disease. The ravages of the rinderpest among neat cattle and surra among equines were appalling, and the deaths among other domestic animals reached enormous proportions. It is remarkable that under such conditions the agricultural production of the islands should have attained the magnitude shown in Table 19.

A statement showing the percentages of the various classes of live stock that died of disease in 1902 will convey a clearer idea of the extent of loss than the actual figures; such a statement is given below, and was constructed on the following plan: The number of carabao bulls, steers, and cows, respectively, that were in existence at the time of enumeration in 1903, is combined with the number of each class that died or were slaughtered in 1902, the result being the approximate number that was in existence in 1902, though it does not include those that died or were slaughtered during the first two months of 1903. This total is used as a factor in computing the percentage of deaths from disease. In ascertaining the number of carabao calves that were living in 1902 it is assumed that two-twelfths of the number reported in 1903 were born during the first two months of that year, preceding the taking of the census, and the remaining ten-twelfths, or 83.3 per cent, are assumed to have been in existence in 1902. This 83.3 per cent of calves is added to the number that died and the number that were slaughtered, to determine the total number for 1902, and upon the total thus ascertained the percentage of deaths from disease is calculated. This method in dealing with the calves is, of course, not exactly accurate, but it is approximately so, and sufficiently serves the purpose. "Other neat cattle" includes those of Indian and Australian origin, and in estimating the number of calves born in 1903 the same percentage was used as in the case of the carabao calves. After deducting the estimated number of calves so born from the total number of "other neat cattle," the numbers that died and were slaughtered were added to the number living in 1902 and the death rate computed accordingly.

In calculating the death rate of American and Australian horses as well as mules no deductions are made for colts born in 1903, because practically all these animals were imported. Native horses, however, and sheep, goats, and swine are dealt with in the same manner as "other neat cattle," viz, the number of colts, etc., born in 1903 were estimated on the same percentage basis. No percentages are given for

PHILIPPINE ISLANDS

DISTRIBUTION OF CARABAO, EXPRESSED
IN THE FORM OF THE NUMBER OF IN-
HABITANTS TO ONE CARABAO.



poultry, it being impracticable to arrive at a satisfactory basis for computation.

It should be understood that during 1903, prior to the taking of the census, the pestilences which had decimated live stock of all classes in 1902 were under control, and there were comparatively few deaths from diseases among domestic animals in 1903.

With the foregoing explanation, the following table will be readily understood:

DOMESTIC ANIMALS.	Estimated number in existence in 1902.	DEATHS FROM DISEASE IN 1902.	
		Number.	Per cent.
All neat cattle	1,458,743	629,176	43.1
Carabao bulls	278,331	138,384	49.7
Carabao steers	311,892	109,483	35.1
Carabao cows	428,523	176,312	41.1
Carabao calves	153,477	67,867	44.2
Other neat cattle	286,520	137,180	47.9
All horses	241,476	87,761	36.3
American horses	1,077	195	18.1
Australian horses	338	128	37.9
Native horses	239,946	87,437	36.4
Other horses	115	1	0.9
Mules	601	180	30.0
Sheep	48,251	9,583	19.9
Goats	187,962	34,245	18.2
Swine	2,245,384	661,512	29.5

In the above statement it is noticeable that the heaviest percentage of deaths among neat cattle was in carabao bulls and the lowest in carabao steers. The immunity of American horses, among which the deaths were only 18.1 per cent of the total number, as compared with the heavy mortality of native and Australian horses, amounting to 36.4 and 37.9 per cent, respectively, is also noteworthy. This is probably due to the fact that few of them were fed on native grass, by which the infection was carried.

The destruction of carabao by the rinderpest and other diseases of minor fatality affected the islands economically, much more disastrously than the heavy mortality among other domestic animals. The carabao is the principal work and draft animal of the Filipinos, and many branches of agriculture are almost wholly dependent upon it. It will therefore be interesting to ascertain the relative extent to which the different sections of the archipelago were afflicted by the loss of this mainstay of insular agriculture.

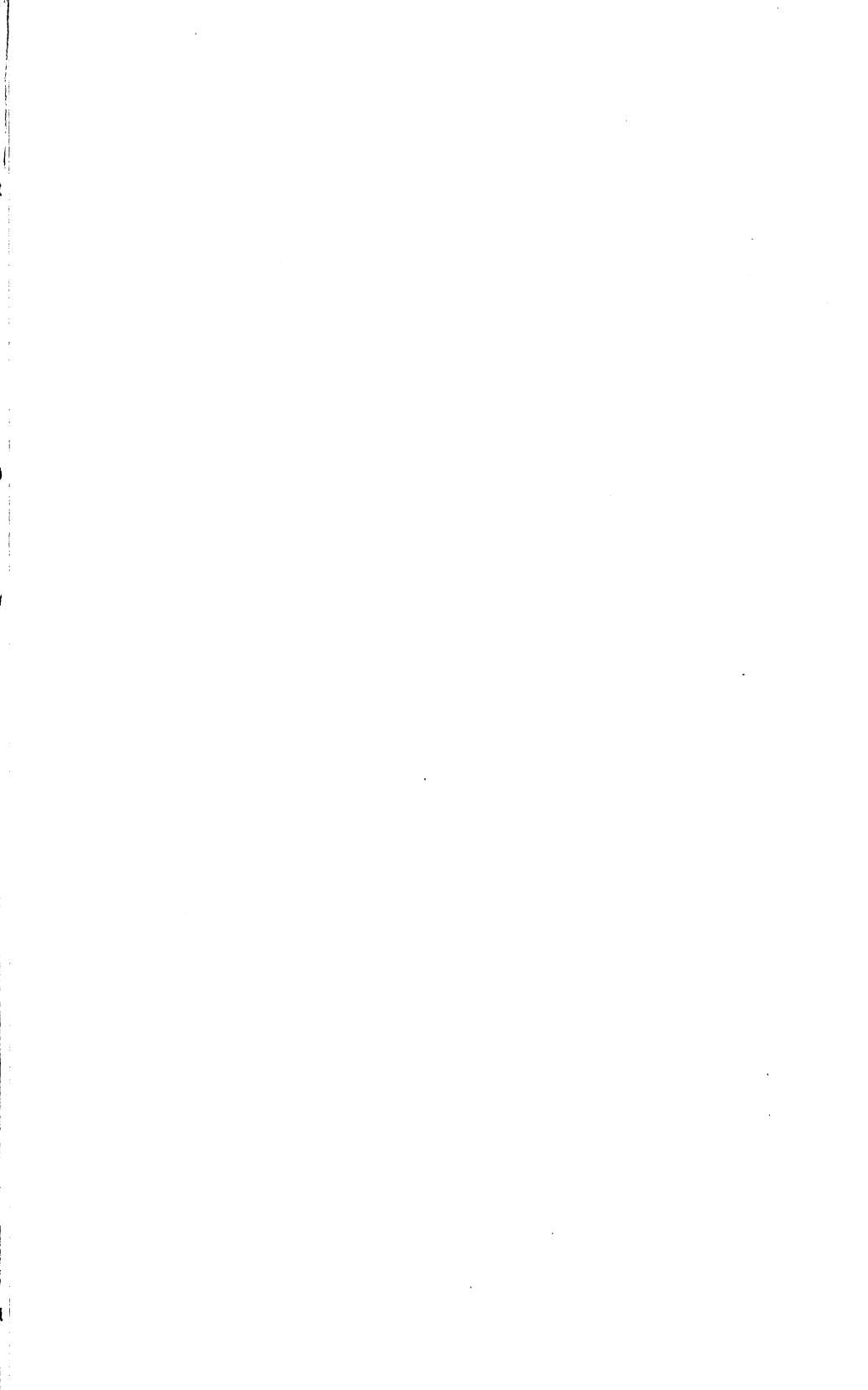
In the two following tables the provinces and islands are arranged with reference to the magnitude of the death rate of all carabao, including bulls, steers, cows, and calves:

Death rate from disease of carabao (bulls, steers, cows, and calves) in 1902, by provinces and comandancias arranged with reference to the magnitude of rate.

In order of magnitude.	PROVINCE OR COMANDANCIA.	Estimated number in existence in 1902.	DEATHS FROM DISEASE IN 1902.	
			Number.	Per cent.
	Philippine Islands	1, 172, 223	491, 996	42. 0
1	Bohol	63, 157	44, 349	70. 2
2	Surigao	28, 612	19, 618	68. 6
3	Cottabato ¹	417	275	65. 9
4	Benguet	256	166	64. 8
5	Leyte	73, 928	44, 918	60. 8
6	Misamis	31, 445	18, 862	59. 9
7	Ambos Camarines	16, 812	9, 041	53. 8
8	Cebu	90, 781	48, 871	53. 8
9	Negros Oriental	43, 237	23, 271	53. 8
10	Samar	34, 288	18, 203	53. 1
11	Tayabas ²	41, 649	22, 104	53. 1
12	Cápiiz	30, 517	15, 794	51. 8
13	Antique	29, 251	14, 737	50. 4
14	Iloilo	75, 999	34, 670	45. 6
15	Negros Occidental	78, 643	34, 961	44. 5
16	Zambales	34, 615	14, 771	42. 7
17	La Laguna	15, 635	7, 036	42. 3
18	Albay	11, 572	4, 840	41. 8
19	Cavite	13, 431	5, 188	38. 6
20	Bataán	7, 411	2, 766	37. 3
21	Sorsogón	6, 744	2, 508	37. 2
22	Pangasinán	83, 450	27, 475	32. 9
23	Pampanga	43, 611	14, 093	32. 3
24	Batangas	14, 989	4, 743	31. 6
25	Zamboanga ¹	1, 825	549	30. 1
26	Nueva Ecija	20, 312	5, 826	28. 7
27	Rizal	12, 024	3, 457	28. 7
28	Mindoro	9, 826	2, 802	28. 5
29	Isabela	21, 158	6, 010	28. 4
30	Cagayán	39, 405	10, 616	26. 7
31	Tárlac	30, 676	7, 921	25. 8
32	La Unión	32, 833	7, 705	23. 5
33	Nueva Vizcaya	3, 442	797	23. 1
34	Bulacán	29, 434	6, 371	21. 6
35	Masbate	5, 454	1, 002	18. 4
36	Basilan ¹	153	22	14. 4
37	Dapitan ¹	3, 896	324	8. 3
38	Manila city	1, 870	152	8. 1
39	Ilocos Norte	33, 888	2, 235	6. 6
40	Dávao ¹	2, 787	181	6. 5
41	Abra	6, 727	411	6. 1
42	Ilocos Sur	30, 110	1, 691	5. 6
43	Romblón	11, 316	556	4. 9
44	Paragua	3, 092	102	3. 3
45	Lepanto-Bontoc	356	4	1. 1
46	Paragua Sur ¹	177	2	1. 1
47	Joló ¹	6		
48	Siassi ¹	6		

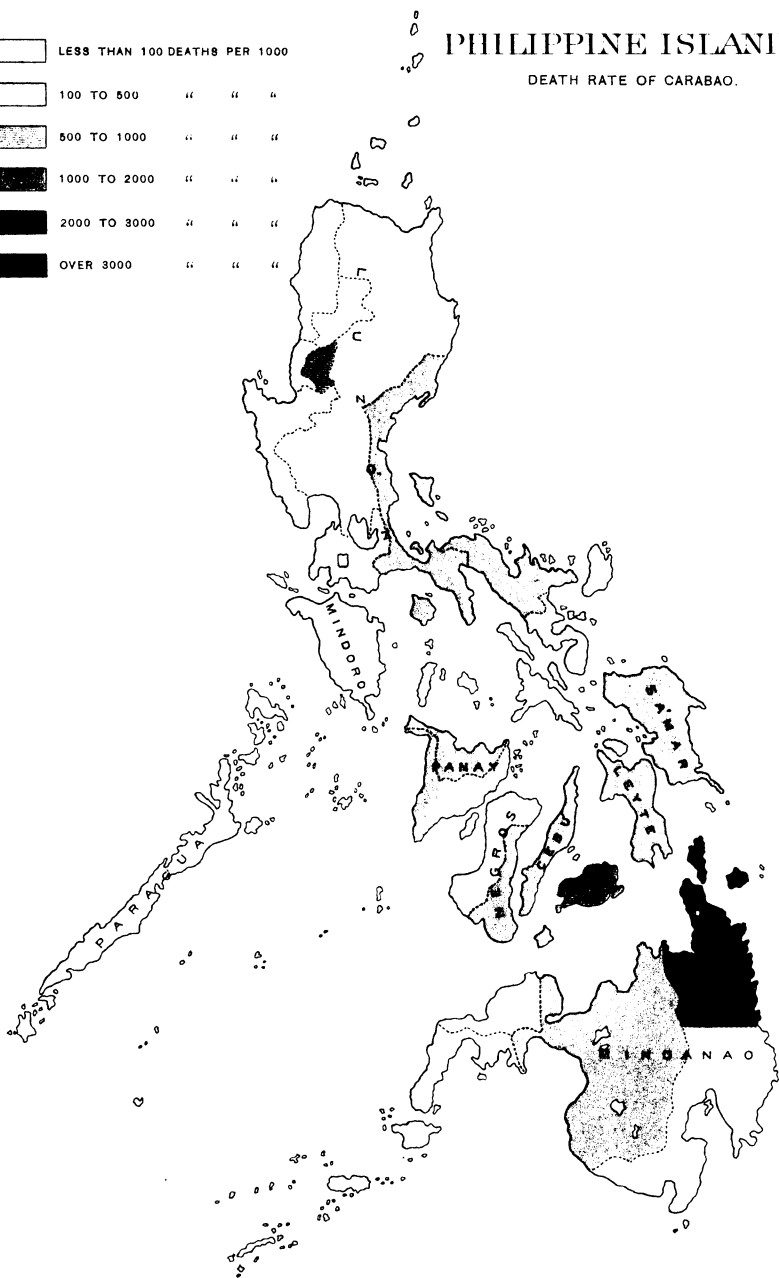
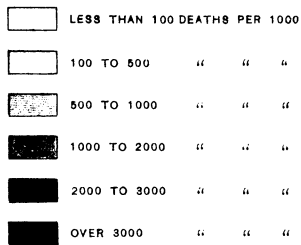
¹ Comandancia.

² Including the subprovince, Marinduque.



PHILIPPINE ISLANDS

DEATH RATE OF CARABAO.



Death rate from disease of carabao (bulls, steers, cows, and calves) in 1902, by islands arranged with reference to the magnitude of rate.

In order of magnitude.	ISLAND.	Estimated number in existence in 1902.	DEATHS FROM DISEASE IN 1902.	
			Number.	Per cent.
	Philippine Islands	1, 172, 223	491, 996	42. 0
1	Poro.....	4, 778	3, 754	78. 6
2	Marinduque.....	9, 535	6, 884	72. 2
3	Siargao	1, 967	1, 417	72. 0
4	Bohol	61, 167	43, 363	70. 9
5	Mactán	1, 046	709	67. 8
6	Leyte.....	70, 761	43, 010	60. 8
7	Biliran	2, 691	1, 570	60. 6
8	Pasijan	2, 502	1, 488	59. 5
9	Dinágat	352	204	58. 0
10	Panaón.....	526	305	58. 0
11	Mindanao.....	60, 666	34, 998	57. 7
12	Sámar	32, 166	17, 435	54. 2
13	Camiguín	5, 802	3, 096	53. 4
14	Cebú	80, 270	41, 573	51. 8
15	Negros	113, 516	57, 454	50. 6
16	Laguán.....	452	227	50. 2
17	Guimarás.....	4, 018	1, 990	49. 5
18	Panay	131, 575	62, 837	47. 8
19	Bantayán	818	383	46. 8
20	Mindoro.....	6, 448	2, 690	41. 7
21	Panglao	901	346	38. 4
22	Luzón	585, 120	158, 729	29. 7
23	Masbate	4, 463	989	22. 2
24	Siquijor	8, 174	664	8. 1
25	Romblón	920	65	7. 2
26	Sibuyán	1, 713	101	5. 9
27	Tablas	8, 052	359	4. 5
28	Paragua	254	10	3. 9
29	Lubang.....	2, 402	59	2. 5
30	Catanduanes.....	1, 499	28	1. 9
31	Ticao	661	12	1. 8
32	Batán	1		
33	Cuyo	79		
34	All other islands.....	17, 028	5, 247	30. 8

The percentages of mortality among carabao were ascertained by the method, mentioned on page 226, employed in calculating the death rates. It is not deemed necessary to present tables of this character for domestic animals other than carabao; if the information is desired, it can be deduced readily from the general tables.

It is to be borne in mind that the mortuary statistics presented in these tables relate only to the year 1902, and that during the year preceding—for which no actual figures are available—carabao and other domestic animals died, by thousands upon thousands. The death rate of 42 per cent among carabao represents, probably, somewhere near half the rate that would be shown for the entire period during which the pestilence prevailed, were the data obtainable.

Taking up the question of live stock values, before discussing that of numbers, the tables show that the total reported value of all classes of domestic animals and poultry owned by the Christian population of the Philippines amounted to 72,223,989 pesos. The value of each class is shown in the statement on page 225, from which it is

seen that the aggregate value of all carabao was 49,319,755 pesos, or 68.3 per cent of the grand total, and that other neat cattle were valued at 6,192,815 pesos, or 8.5 per cent.

Horses of all kinds were reported as worth 7,137,158 pesos, equivalent to 9.8 per cent of all live stock values, while mules, sheep, goats, and swine were valued at 32,380 pesos, 131,161 pesos, 367,886 pesos, and 6,374,304 pesos, respectively, their combined values constituting 9.6 per cent of the whole. Poultry—consisting of chickens, turkeys, ducks, and geese—of which the number was vastly greater than that of all other animals combined, amounted in value to 2,668,530 pesos, or 3.7 per cent of the total.

In the two tables immediately following, the data relating to the values of live stock are summarized, by provinces and islands, so as to show the total value, the value exclusive of poultry, and the value of poultry, with columns giving similar information regarding animals not on farms and on farms. The provinces, comandancias, and islands are arranged with reference to their importance as measured by the value of live stock in each.

Value of live stock not on farms and on farms, by provinces and comandancias.

In order of magnitude.	PROVINCE OR COMANDANCIA.	VALUE OF LIVE STOCK, IN PESOS.								
		All live stock.			Not on farms.					
		Total.	Domestic animals.	Poultry.	Total.	Domestic animals.	Poultry.			
	Philippine Islands	72,223,989	69,555,459	2,668,530	21,876,408	20,936,728	939,675	50,347,586	48,618,731	1,728,855
1	Pangasinán	5,332,268	5,114,730	217,538	1,675,824	1,599,162	76,662	3,656,444	3,515,568	140,876
2	Negros Occidental	4,016,599	3,940,582	76,017	316,672	302,804	14,871	3,698,327	3,664,771	33,556
3	Cebu	3,853,109	3,648,452	204,657	589,785	502,276	87,509	3,313,324	3,064,176	249,148
4	Cagayán	3,744,433	3,675,844	70,589	571,281	564,038	7,243	3,733,792	3,199,808	534,984
5	Pampanga	3,485,173	3,075,984	132,189	2,194,381	2,086,231	108,150	1,750,792	1,268,758	482,034
6	Iloilo	3,186,566	3,097,250	89,316	1,064,233	1,027,932	36,301	1,750,333	2,069,658	52,675
7	Ilocos Sur	3,146,272	3,090,862	55,410	1,111,847	1,090,439	21,408	2,034,425	2,000,423	34,002
8	Leyte	3,051,892	2,843,750	208,142	1,620,949	1,585,336	35,613	2,430,943	2,268,574	172,369
9	Ilocos Norte	2,866,367	2,822,958	43,409	1,546,332	1,528,928	17,404	1,730,015	1,694,295	35,720
10	Tayabas	2,733,692	2,632,122	101,570	1,525,381	1,502,923	22,458	2,204,860	2,180,099	24,761
11	Batangas	2,711,714	2,632,470	79,244	1,835,458	1,802,904	32,554	1,874,333	1,830,376	43,957
12	Bulacán	2,587,795	2,436,709	151,086	1,852,381	1,827,933	24,448	2,240,276	2,190,270	50,006
13	La Unión	2,410,449	2,373,718	36,731	1,930,219	1,918,627	11,592	2,240,576	2,190,270	50,306
14	Isabela	2,373,718	2,293,067	80,651	1,852,381	1,827,933	24,448	2,240,276	2,190,270	50,006
15	Tárlac	2,410,449	2,373,718	36,731	1,930,219	1,918,627	11,592	2,240,576	2,190,270	50,306
16	Zamboales	1,805,600	1,775,954	29,646	1,402,474	1,392,117	1,036	2,240,576	2,190,270	50,306
17	Manila City	1,805,600	1,775,954	29,646	1,402,474	1,392,117	1,036	2,240,576	2,190,270	50,306
18	Negros Oriental	1,673,217	1,624,481	48,736	1,730,745	1,718,403	12,342	2,240,576	2,190,270	50,306
19	Ambos Camarines	1,471,623	1,364,991	106,632	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
20	Nueva Ecija	1,440,240	1,372,439	67,801	1,402,474	1,392,117	1,036	2,240,576	2,190,270	50,306
21	Albay	1,370,698	1,292,809	77,889	1,402,474	1,392,117	1,036	2,240,576	2,190,270	50,306
22	Palawan	1,348,457	1,264,865	83,592	1,402,474	1,392,117	1,036	2,240,576	2,190,270	50,306
23	Maguindá	1,193,337	1,092,973	100,369	1,730,745	1,718,403	12,342	2,240,576	2,190,270	50,306
24	Samar	1,144,094	1,083,696	60,398	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
25	Marikina	1,133,097	1,083,696	49,401	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
26	Bohol	1,065,642	1,020,522	45,120	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
27	Cápi	1,060,824	1,020,522	40,302	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
28	Antique	1,039,784	992,052	47,732	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
29	Cavite	942,905	924,065	18,840	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
30	Sorsogón	895,856	831,275	64,581	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
31	Abra	786,638	772,194	14,444	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
32	Mindoro	709,386	708,759	5,627	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306
33	Romblón	653,352	635,278	18,074	1,151,279	1,105,242	46,037	2,240,576	2,190,270	50,306

1 Including the subprovince, Marinduque.

Value of live stock not on farms and on farms, by provinces and comandancias—Continued.

In order of mag- nitude.	PROVINCE OR COMANDANCIA.	VALUE OF LIVE STOCK, IN PESOS.											
		All live stock.			Not on farms.			On farms.					
		Total.	Domestic animals.	Poultry.	Total.	Domestic animals.	Poultry.	Total.	Domestic animals.	Poultry.			
	Philippine Islands—Continued.												
34	Masbate.....	605,822	590,115	15,707	59,306	58,993	313	546,516	531,122	15,394			
35	Bataan.....	440,490	426,237	14,253	62,045	55,658	6,387	378,445	370,579	7,866			
36	Surigao.....	409,772	387,483	22,339	71,932	65,304	2,628	341,840	322,129	19,711			
37	Nueva Vizcaya.....	329,842	322,288	7,554	13,720	13,296	424	316,122	308,992	7,130			
38	Paragua.....	235,809	230,298	5,511	33,809	33,728	81	202,000	196,570	5,430			
39	Davao ¹	220,573	216,608	3,965	6,097	5,769	328	214,476	210,839	3,637			
40	Dapitan ¹	139,809	138,191	1,618	2,145	2,126	19	137,664	136,065	1,599			
41	Zamboanga ¹	100,103	95,183	4,920	21,240	19,600	1,640	78,863	75,583	3,280			
42	Lepanto-Bontoc.....	69,620	68,466	1,154	10,074	9,738	336	59,546	58,728	818			
43	Paragua Sur ¹	26,820	25,942	878	15,586	15,270	316	11,234	10,672	562			
44	Benguet.....	21,722	20,662	1,060	6,108	5,696	412	15,614	14,966	648			
45	Basilan ¹	18,411	18,062	349	304	303	1	18,107	17,769	348			
46	Cotabato ¹	7,966	7,418	548	422	410	12	7,544	7,008	536			
47	Jolo ¹	2,268	2,230	38	.....	.....	.....	2,268	2,230	38
48	Siassi ¹	328	309	19	.....	.....	.....	328	309	19

¹ Comandancia.

Value of live stock not on farms and on farms, by islands.

In order of magnitude.	ISLAND.	VALUE OF LIVE STOCK, IN PESOS.								
		All live stock.			Not on farms.		On farms.			
		Total.	Domestic animals.	Poultry.	Total.	Domestic animals.	Poultry.	Total.	Domestic animals.	Poultry.
	Philippine Islands	72, 223, 989	69, 555, 459	2, 668, 530	21, 876, 403	20, 936, 728	939, 675	50, 347, 586	48, 618, 731	1, 728, 856
1	Luzon	46, 021, 695	44, 827, 578	1, 694, 117	17, 631, 102	16, 882, 169	748, 933	28, 890, 593	27, 445, 409	945, 184
2	Negros	5, 241, 073	5, 124, 771	116, 302	451, 364	116, 302	19, 457	4, 789, 709	4, 692, 962	96, 845
3	Panay	4, 945, 477	4, 794, 403	151, 074	1, 456, 065	1, 401, 061	55, 004	3, 489, 412	3, 393, 842	96, 070
4	Cebu	3, 528, 954	3, 344, 391	182, 563	498, 441	462, 292	36, 149	3, 028, 513	2, 892, 099	146, 414
5	Leyte	2, 931, 819	2, 730, 445	201, 374	615, 574	580, 083	35, 491	2, 316, 245	2, 150, 362	165, 883
6	Mindanao	1, 725, 349	1, 661, 166	64, 183	365, 227	352, 886	12, 341	1, 360, 122	1, 308, 280	51, 842
7	Bohol	994, 805	958, 692	41, 113	75, 570	72, 611	2, 959	919, 235	881, 081	38, 154
8	Samar	974, 415	924, 715	49, 700	108, 954	101, 632	7, 322	865, 461	823, 063	42, 378
9	Marinduque	465, 719	453, 219	12, 500	53, 189	51, 273	1, 916	412, 530	401, 946	10, 584
10	Siquijor	440, 092	431, 547	8, 545	16, 161	15, 867	1, 294	423, 931	415, 680	8, 251
11	Masbate	433, 680	426, 369	7, 311	45, 380	45, 804	176	387, 700	380, 565	7, 135
12	Mindoro	429, 126	425, 445	3, 681	46, 426	45, 816	610	382, 700	379, 629	3, 071
13	Tablas	388, 741	377, 713	6, 028	17, 989	17, 180	809	365, 752	360, 533	5, 219
14	Catanduanes	358, 956	344, 947	14, 009	92, 095	89, 279	2, 816	266, 861	255, 668	11, 193
15	Camaguin	249, 852	234, 451	15, 401	98, 700	93, 431	5, 269	141, 020	141, 020	10, 132
16	Lubang	231, 512	230, 098	1, 414	6, 963	6, 438	65	225, 009	223, 660	1, 349
17	Gumara	185, 937	179, 739	6, 178	48, 411	46, 244	2, 177	142, 526	138, 525	4, 001
18	Sibuyan	141, 236	138, 447	2, 789	10, 166	9, 926	240	131, 070	128, 521	2, 549
19	Ricao	122, 736	115, 770	7, 026	7, 615	7, 610	5	115, 181	108, 160	7, 021
20	Biliran	97, 522	92, 988	4, 534	4, 770	4, 328	242	92, 752	88, 460	4, 292
21	Bantayan	93, 714	90, 956	2, 758	32, 161	31, 346	815	61, 953	59, 580	2, 373
22	Romblon	81, 941	80, 285	1, 656	2, 418	2, 369	998	83, 254	81, 004	2, 250
23	Pandan	84, 806	82, 336	2, 470	3, 687	3, 589	98	84, 806	83, 567	1, 239
24	Palawan	84, 806	82, 336	2, 470	3, 687	3, 589	98	84, 806	83, 567	1, 239
25	Pasigian	73, 080	72, 002	6, 485	5, 282	5, 093	146	84, 806	83, 567	1, 239
26	Macian	43, 180	42, 002	4, 278	2, 409	2, 029	380	43, 180	42, 002	1, 178
27	Pangasinan	41, 105	38, 540	2, 565	17, 568	17, 242	326	41, 105	40, 777	328
28	Panay	33, 946	33, 642	1, 304	17, 568	17, 242	326	41, 105	40, 777	328
29	Chico	25, 948	23, 665	1, 612	17, 370	16, 821	549	24, 930	23, 320	1, 610
30	Saraga	19, 277	17, 421	1, 856	3, 127	2, 350	777	16, 821	18, 315	1, 506
31	Panay	16, 897	15, 666	1, 231	3, 783	3, 593	190	18, 672	16, 856	1, 816
32	Laguán	16, 897	15, 666	1, 231	3, 783	3, 593	190	18, 672	16, 856	1, 816
33	Dinagat	6, 905	6, 100	89, 712	161, 252	157, 526	3, 726	6, 905	6, 100	895
	All other islands	1, 678, 500	1, 638, 788	39, 712	161, 252	157, 526	3, 726	1, 517, 248	1, 481, 262	35, 986

In regard to the actual numbers of domestic animals enumerated in the several provinces and islands, it may be said that while some of them are insignificant, their very smallness justifies their presentation in the tables for the purpose of showing the scarcity, in certain sections of the archipelago, of the animals to which they relate. The distribution of live stock of every description is extremely unequal, and bears no proportion to the relative requirements of the people in the various portions of the country. This, of course, is largely due to the fact that, during the years immediately preceding the census, disease raged with much greater violence and resulted in much heavier death rates in some sections than in others.

Notwithstanding the decimation of domestic animals by disease prior to 1903, it appears from statistics published in the annual official document, *Guía Oficial de Filipinas*, for 1891 that there were actually more carabao in the islands when the census was taken than thirteen years previous. According to the publication referred to there were 595,632 carabao in 1891; the census shows 640,871 in 1903, an increase of 7.6 per cent during the period. Figures are also given in the publication referred to purporting to represent the number of cattle other than carabao and the number of horses, according to which there was a tremendous falling off in each during the period from 1891 to 1903. The neat cattle, other than carabao, are stated to have numbered 402,630; and the horses, 214,266. At the census of 1903, 127,559 other neat cattle and 144,171 horses were enumerated, showing a loss, as compared with 1891, of 68.3 and 32.7 per cent, respectively.

An examination of the figures given in the *Guía Oficial de Filipinas* leads to the opinion, however, that they are essentially inaccurate. For several of the provinces they are plainly mere estimates, the numbers being given in round figures for each class of animals, and nearly all the figures are believed to be largely based on guesswork, as there is no record of any enumeration of domestic animals having been made in 1891, or at any other time prior to the present census. In regard to carabao, it is probable that their subjection to taxes induced lower reports of their numbers than were warranted by facts.

The following table shows the number of carabao, other neat cattle, and horses in 1891, as set forth in the *Guía Oficial de Filipinas*, in comparison with the number of each enumerated in 1903. The data are presented as being the only available statistics of live stock prior to 1903, and while no reliance is placed on their accuracy, they are given for such consideration as they may be deemed worth. The earlier figures are combined and arranged, by provinces, so as to render them, as nearly as possible, comparable with those of the census.

Number of carabao, other neat cattle, and horses in the Philippine Islands in 1891 and in 1903, by provinces and comandancias as existing in 1903.

PROVINCE OR COMANDANCIA.	CARABAO.			OTHER NEAT CATTLE.			HORSES.		
	1891	1903	Per cent increase.	1891	1903	Per cent decrease.	1891	1903	Per cent decrease.
Philippine Islands	595,632	640,871	7.6	402,630	127,569	68.3	214,266	144,171	32.7
Abra	3,370	6,331	87.9	2,238	1,029	54.0	4,014	7,049	175.6
Albay	226,178	¹ 10,774	458.8	² 15,980	³ 995	93.8	² 11,923	³ 6,774	43.2
Ambos Camarines	37,769	7,428	480.3	17,682	1,493	97.2	21,906	821	96.3
Antique	19,896	13,147	433.9	11,287	1,744	84.5	1,341	923	31.2
Basilan ⁶	100	132	32.0	359	186	48.2	40	45	112.5
Bataán	594	4,666	685.5	900	20	97.5	300	94	68.7
Batangas	13,506	8,858	434.4	17,469	15,331	12.2	12,427	15,598	125.5
Benguet	2,023	73	496.4	2,871	78	97.3	685	167	75.6
Bohol	2,064	16,325	690.9	12,828	2,321	81.9	23,400	2,158	90.8
Bulacán	4,000	22,937	473.4	2,900	314	65.1	2,500	1,781	28.8
Cagayán	16,964	28,136	65.9	12,761	22,189	173.9	5,245	6,904	131.6
Cápiz	35,405	13,784	461.1	7,018	580	91.7	1,649	682	58.6
Cavite	6,640	7,801	17.5	1,988	1,088	45.3	4,746	3,316	30.1
Cebú	27,066	38,204	41.2	6,532	4,960	24.1	3,030	8,427	178.1
Cottabato ⁶	400	138	465.5	1,400	28	98.0	30	26	13.3
Dápatan ⁶ .....	.....	.....	.....	.....	126	.....	.....	123	.....
Dávao ⁶	300	2,312	670.7	4,500	5,965	132.6	100	383	1288.0
Ilocos Norte	7,685	32,129	318.1	7,998	3,833	52.1	8,614	11,142	129.3
Ilocos Sur	1,000	28,449	2,744.9	13,000	9,053	30.4	7,400	3,594	51.4
Iloilo	11,115	36,823	231.3	10,383	4,693	54.8	6,067	1,798	70.4
Isabela	7,798	14,778	89.5	812	99	120.7	7,161	2,783	61.1
Joló ⁶ .....	.....	5	.....	.....	3	.....	.....	3	.....
La Laguna	13,736	8,237	440.0	11,100	583	94.7	6,801	5,841	14.1
La Unión	7,589	25,041	232.2	5,257	2,053	60.9	6,385	2,019	68.4
Lepanto-Bontoc	5,579	359	493.6	1,771	668	62.3	1,118	269	75.9
Leyte	50,000	23,795	452.4	10,000	3,523	64.8	7,000	4,311	38.4
Manila city	⁽⁶⁾	⁽⁷⁾	⁽⁶⁾	⁽⁷⁾	⁽⁶⁾	⁽⁷⁾
Masbate	10,800	4,546	457.9	65,490	1,837	97.2	4,940	4,797	2.9
Mindoro	8,797	6,640	424.5	13,600	12,147	10.7	4,208	2,505	40.5
Misamis	17,668	10,638	439.8	17,500	798	95.4	3,000	7,110	137.0
Negros Occidental	129,394	42,707	467.0	62,915	4,232	93.3	10,463	2,017	80.7
Negros Oriental	9,473	18,429	94.5	5,987	2,276	62.0	870	4,295	1393.7
Nueva Ecija	2,760	14,361	420.3	1,250	418	66.6	4,598	539	88.3
Nueva Vizcaya	2,000	2,616	30.8	2,000	254	87.3	5,000	318	93.6
Pampanga	42,200	28,706	432.0	780	276	64.6	4,200	1,741	58.5
Pangasinán	16,964	53,836	217.4	3,186	3,136	1.6	7,459	1,733	76.8
Paragua	1,609	2,987	85.6	3,626	5,240	144.5	134	174	129.9
Paragua Sur ⁶ .....	.....	177	.....	.....	694	.....	.....	17	.....
Rizal	⁶ 4,387	79,975	127.4	⁶ 750	7,424	43.5	⁶ 1,957	⁷ 10,203	421.4
Romblón	3,985	10,125	154.1	8,400	4,582	45.5	1,320	1,458	10.5
Sámar	10,343	12,986	25.6	20,494	1,161	94.3	435	713	163.9
Siassi ⁶ .....	.....	6	.....	.....	.....	.....	.....	4	.....
Sorsogón	⁽²⁾	⁽³⁾	⁽²⁾	⁽³⁾	⁽²⁾	⁽³⁾
Surigón	9,000	6,507	427.7	400	409	12.3	.....	883	.....
Tarlac	6,000	21,836	263.9	2,000	564	71.8	9,000	662	92.6
Tayabas ⁸	17,000	17,935	5.5	13,008	4,303	66.9	8,500	14,301	168.2
Zambales	1,025	20,245	1,875.1	2,150	1,854	13.8	4,000	3,116	22.1
Zamboanga ⁶	1,500	1,292	413.9	2,160	92	95.7	300	554	184.7

¹Increase.

²The numbers for Sorsogón are inseparably combined with those for Albay.

³The numbers for Sorsogón are combined with those for Albay for purposes of comparison.

⁴Decrease.

⁶Comandancia.

⁶The numbers for Manila city are inseparably combined with those for Rizal.

⁷The numbers for Manila city are combined with those for Rizal for purposes of comparison.

⁸Including the subprovince, Marinduque.

The ratio of domestic animals to population is the true criterion of their plentifulness or scarcity. Actual numbers do not reveal their real relationship to the necessities of the people unless considered in connection with the number of people who have, or may have, need of them. In order that this relationship may be clearly brought out, the following tables are presented in which the number of animals of each

specified class per 100 of population is shown, by provinces, comandancias, and islands. The provinces are arranged with reference to their geographic location, beginning with the northernmost province on Luzón Island and proceeding southward, thus enabling the reader to observe the relative proportions in contiguous provinces. The islands are arranged in similar order.

Number of domestic animals of specified classes per 100 of civilized population, by provinces and comandancias, arranged geographically.

PROVINCE OR COMANDANCIA.	Civilized population.	NUMBER PER 100 OF POPULATION.							
		Cara- bao.	Other neat cattle.	Horses (includ- ing mules, if any).	Sheep.	Goats.	Swine.	Chick- ens.	Tur- keys, ducks, and geese.
Philippine Is- lands	6, 987, 686	9.2	1.8	2.1	0.4	1.8	16.9	78.3	1.3
Ilocos Norte.....	176, 785	18.2	2.2	6.3	1.1	3.1	27.7	92.0	0.8
Cagayán.....	142, 825	19.7	15.5	4.8	0.7	1.8	32.4	99.5	0.7
Ilocos Sur.....	173, 800	16.4	5.2	2.1	1.7	4.2	14.0	75.3	0.4
Abra.....	37, 823	16.7	2.7	18.6	0.5	2.2	21.0	93.5	0.5
Lepanto-Bontoc.....	2, 467	14.6	27.1	10.9	2.4	4.7	11.6	91.5	0.8
Isabela.....	68, 793	21.5	1.4	4.0	0.5	0.6	39.4	113.0	0.6
La Unión.....	127, 789	19.6	1.6	1.6	1.6	9.2	19.7	71.6	0.2
Benguet.....	917	8.0	8.5	18.2	6.1	16.9	8.6	150.7	0.9
Nueva Vizcaya.....	16, 026	16.3	1.6	2.0	.....	0.2	31.2	101.0	1.5
Zambales.....	101, 381	20.0	1.8	3.1	0.6	0.6	26.6	92.2	0.2
Pangasinán.....	394, 516	13.6	0.8	0.4	0.2	4.2	15.5	126.4	1.6
Nueva Ecija.....	132, 999	10.8	0.3	0.4	0.2	1.0	28.5	133.4	1.9
Tarlac.....	133, 513	16.4	0.4	0.5	0.7	3.4	27.2	195.8	1.6
Pampanga.....	222, 656	12.9	0.1	0.8	1.5	4.2	29.5	125.9	5.4
Bulacán.....	223, 327	10.3	0.1	0.8	0.1	0.6	28.8	123.6	6.8
Bataán.....	45, 166	10.3	(¹)	0.2	0.3	0.8	14.7	61.6	0.5
Rizal.....	148, 502	5.6	0.1	0.8	(¹)	0.7	13.9	81.1	16.2
Manila city.....	219, 928	0.8	0.1	4.1	(¹)	0.2	2.7	23.5	1.7
Cavite.....	134, 779	5.8	0.8	2.5	0.1	0.2	22.6	90.2	0.4
La Laguna.....	148, 606	5.5	0.4	3.9	0.1	0.4	21.6	84.4	1.0
Batangas.....	257, 715	3.4	5.9	6.1	0.1	1.2	22.9	76.0	0.1
Tayabas ²	201, 936	8.9	2.1	7.1	(¹)	0.5	17.0	70.4	0.3
Ambos Camarines.....	233, 472	3.2	0.2	0.4	0.1	1.3	6.1	56.0	0.4
Albay.....	239, 434	2.7	0.1	1.3	(¹)	0.6	6.2	35.7	0.2
Sorsogón.....	120, 454	3.5	0.5	3.1	(¹)	0.6	7.9	54.4	0.4
Mindoro.....	32, 318	20.5	37.6	7.8	.....	0.7	7.6	38.3	0.2
Romblón.....	52, 848	19.2	8.7	2.8	0.1	2.1	14.7	77.1	0.5
Masbate.....	43, 675	10.4	4.2	11.0	0.1	0.4	12.6	60.3	0.3
Sámar.....	265, 549	4.9	0.4	0.3	0.1	0.3	8.1	36.2	0.1
Leyte.....	388, 922	6.1	0.9	1.1	0.2	0.4	9.3	70.9	0.3
Bohol.....	269, 223	6.1	0.9	0.8	0.1	0.2	17.1	65.7	0.1
Cebú.....	653, 727	5.8	0.8	1.3	0.3	3.5	23.1	94.6	0.3
Negros Oriental.....	184, 889	10.0	1.2	2.3	0.9	3.2	28.1	75.9	0.1
Negros Occidental.....	303, 660	14.1	1.4	0.7	2.3	2.1	13.3	59.6	2.1
Iloilo.....	403, 932	9.1	1.2	0.4	0.3	0.7	10.2	52.4	0.9
Cápiz.....	226, 092	6.1	0.3	0.3	0.1	1.2	5.5	54.9	0.9
Antique.....	131, 245	10.0	1.3	0.7	0.2	0.4	7.2	45.7	0.1
Paragua.....	27, 493	10.9	19.1	0.6	0.1	0.8	6.2	84.4	0.2
Paragua Sur ³	1, 359	13.0	51.1	1.3	.....	2.4	12.9	128.3	1.5
Surigao.....	99, 298	6.6	0.4	0.9	0.1	0.4	13.2	45.1	0.4
Misamis.....	135, 473	7.9	0.6	5.4	0.6	1.4	17.6	72.0	0.5
Dapitan ³	17, 154	21.3	0.7	0.7	0.1	0.7	7.8	30.8	0.6
Zamboanga ³	20, 692	6.2	0.4	2.7	0.8	6.2	29.8	48.4	2.1
Cottabato ³	20, 224	6.0	1.2	1.1	1.4	0.3	1.0	61.6	0.7
Dávao ³	2, 313	11.4	29.5	1.9	0.1	0.5	11.9	44.5	0.3
Basilan ³	1, 331	9.9	14.0	3.5	.....	1.4	11.8	71.8	2.6
Joló ³	1, 270	0.4	3.1	0.2	.....	.....	2.8	1.0	0.2
Siassi ³	297	2.0	.....	1.3	.....	.....	.....	20.9	2.4

¹ Less than one-tenth.² 51,674 in Marinduque added to Tayabas.³ Comandancia.

Number of domestic animals of specified classes per 100 of civilized population, by islands, arranged geographically.

ISLAND.	Civilized population.	NUMBER PER 100 OF POPULATION.							
		Carabao.	Other neat cattle.	Horses (including mules, if any).	Sheep.	Goats.	Swine.	Chickens.	Turkeys, ducks, and geese.
Philippine Islands	6,987,686	9.2	1.8	2.1	0.4	1.8	16.9	78.3	1.3
Batán	5,332	(1)	85.7	0.2	1.8	11.5	39.0	48.2	0.5
Luzón	3,575,001	10.3	1.3	2.6	0.4	2.0	19.1	90.8	2.1
Catanduanes	39,288	3.9	0.4	5.2	0.1	0.2	8.4	39.3	0.3
Lubang	6,370	34.6	58.8	23.6	(1)	0.4	11.2	50.1	(2)
Mindoro	21,097	16.7	38.2	4.2	(3)	0.9	6.3	34.2	0.3
Marinduque	50,601	4.9	2.9	7.7	(3)	0.2	11.7	52.5	0.2
Tablas	24,648	29.1	8.3	3.1	(2)	1.2	11.4	54.1	0.2
Romblón	9,347	9.0	6.5	0.2	0.1	1.6	25.0	156.6	2.3
Sibuyán	10,716	14.9	14.0	4.5	0.1	1.8	8.0	55.3	0.2
Masbate	29,451	12.1	5.6	9.5	0.2	0.4	9.6	45.6	0.3
Ticao	10,183	6.5	1.4	13.2	(2)	0.1	23.0	100.0	0.2
Samar	222,002	5.3	0.4	0.3	(1)	0.2	7.7	35.7	0.1
Laguán	8,386	2.5	(2)	0.2	(2)	(2)	2.8	20.1	0.2
Biliran	19,147	4.6	0.4	0.5	0.4	0.4	11.3	30.1	0.6
Leyte	357,641	6.4	1.0	1.2	0.1	0.4	9.2	74.3	0.3
Pasijan	8,110	8.7	0.2	1.3	0.4	2.7	26.7	263.2	(1)
Poro	8,552	10.2	0.7	1.6	0.2	2.2	22.5	167.2	0.9
Panaón	8,610	1.7	0.3	0.3	1.0	1.5	10.1	41.4	0.1
Bohol	243,148	6.3	0.6	0.9	0.1	0.1	17.6	66.2	0.1
Panglao	14,437	3.8	3.8	0.1	0.1	0.3	13.9	74.1	(2)
Siquijor	46,023	16.1	0.8	2.3	0.2	1.0	31.3	64.6	(1)
Mactán	17,540	1.9	0.4	1.1	0.3	4.7	15.0	67.5	0.2
Cebú	592,247	6.0	0.6	1.2	0.3	3.7	23.7	93.2	0.3
Bantayán	18,325	2.4	6.2	4.2	0.1	0.5	9.0	53.7	0.7
Negros	439,559	12.3	1.4	1.2	1.9	2.7	17.5	65.8	1.5
Guimaras	21,306	9.1	3.4	1.8	0.2	0.5	11.4	59.9	0.6
Panay	723,713	8.5	0.8	0.4	0.2	0.8	8.3	52.1	0.7
Cuyo	7,545	1.1	15.4	1.5	(2)	0.1	3.4	96.8	(2)
Paragua	5,412	4.4	19.9	0.4	(2)	0.9	6.5	69.5	0.4
Dinágat	5,243	2.0	0.1	0.2	0.1	(1)	10.5	30.7	0.1
Siargao	9,556	3.8	(1)	0.2	0.7	0.3	13.7	43.1	0.3
Camiguín	30,754	7.0	0.6	4.8	0.7	2.2	11.5	72.1	1.3
Mindanao	246,694	8.9	2.9	3.1	0.4	1.3	16.7	56.6	0.5
All other islands	146,702	7.3	16.0	1.7	0.3	1.5	15.4	59.1	0.2

¹ Less than one-tenth.

² None reported.

The distribution of domestic animals as between rural and urban localities—which is fully shown in the general tables, both for separate provinces and for islands—is summarized for the archipelago as a whole in the following table, which gives the number and percentage of each class enumerated on farms and not on farms in 1903. The term “not on farms” is used to designate centers of population, either small or large, such as would be known in the United States as villages, towns, or cities.

DOMESTIC ANIMALS.	Total.	ON FARMS.		NOT ON FARMS.	
		Number.	Per cent.	Number.	Per cent.
All neat cattle.....	768,430	571,803	74.4	196,627	25.6
Neat cattle, other than carabao.....	127,559	103,923	81.5	23,636	18.5
All carabao.....	640,871	467,880	73.0	172,991	27.0
Carabao bulls.....	122,979	98,622	80.2	24,357	19.8
Carabao steers.....	189,818	129,789	68.4	60,029	31.6
Carabao cows.....	234,763	170,735	72.7	64,028	27.3
Carabao calves.....	93,311	68,734	73.7	24,577	26.3
All horses.....	144,171	96,029	66.6	48,142	33.4
American horses.....	860	100	11.6	760	88.4
Australian horses.....	205	52	25.4	153	74.6
Native horses.....	142,932	95,877	67.1	47,115	32.9
Other horses.....	114	.....	.....	114	100.0
Mules.....	290	106	36.6	184	63.4
Sheep.....	30,428	20,935	68.8	9,493	31.2
Goats.....	124,334	86,157	69.3	38,177	30.7
Swine.....	1,179,371	751,130	63.7	428,241	36.3
All poultry.....	5,564,599	3,576,160	64.3	1,988,439	35.7
Chickens.....	5,470,981	3,530,896	64.5	1,940,085	35.5
Turkeys.....	9,201	3,829	41.6	5,372	58.4
Ducks.....	78,215	37,856	48.4	40,359	51.6
Geese.....	6,202	3,579	57.7	2,623	42.3

It is noticeable, in the above table, that nearly three-fourths of neat cattle—73 per cent of carabao and 74.4 per cent of all neat cattle—were on farms; and that two-thirds—66.6 per cent—of all horses were similarly placed.

The actual number of each of the different classes of neat cattle is shown in the two following tables for the separate provinces, comandancias, and specified islands, arranged with reference to the magnitude of the total number of neat cattle in each:

Number of neat cattle of specified classes, by provinces and comandancias, arranged in the order of the magnitude of total number of neat cattle.

In order of magnitude.	PROVINCE OR COMANDANCIA.	Total number of neat cattle.	CARABAO.					Other neat cattle.
			Total.	Steers.	Bulls.	Cows.	Calves.	
	Philippine Islands.	768, 430	640, 871	189, 818	122, 979	234, 763	93, 311	127, 559
1	Pangasinán	56, 972	53, 836	21, 178	6, 759	18, 518	7, 381	3, 136
2	Cagayán	50, 325	28, 136	7, 039	5, 964	9, 867	5, 266	22, 189
3	Negros Occidental	46, 939	42, 707	18, 887	5, 561	13, 448	4, 811	4, 232
4	Cebú	43, 164	38, 204	2, 050	21, 705	11, 233	3, 216	4, 960
5	Iloilo	41, 516	36, 823	12, 796	2, 353	16, 625	5, 049	4, 693
6	Ilocos Sur	37, 502	28, 449	11, 381	2, 901	8, 940	5, 227	9, 053
7	Ilocos Norte	35, 962	32, 129	7, 538	4, 993	13, 205	6, 393	3, 833
8	Pampanga	28, 982	28, 706	14, 343	1, 431	10, 630	2, 302	276
9	Leyte	27, 818	23, 795	1, 799	10, 542	8, 223	3, 231	3, 523
10	La Unión	27, 094	25, 041	7, 589	3, 371	9, 220	4, 861	2, 053
11	Batangas	24, 189	8, 858	2, 919	1, 909	3, 188	842	15, 331
12	Bulacán	23, 251	22, 937	9, 735	1, 241	8, 826	3, 135	314
13	Tarlac	22, 400	21, 836	9, 983	1, 333	8, 420	2, 100	564
14	Tayabas ¹	22, 238	17, 935	4, 048	3, 890	7, 004	2, 993	4, 303
15	Zambales	22, 099	20, 245	5, 814	2, 799	7, 433	4, 199	1, 854
16	Negros Oriental	20, 705	18, 429	3, 242	6, 791	6, 321	2, 075	2, 276
17	Mindoro	18, 787	6, 640	1, 465	1, 028	2, 786	1, 361	12, 147
18	Bohol	18, 646	16, 325	83	8, 986	5, 304	1, 952	2, 321
19	Isabela	15, 758	14, 778	6, 598	3, 031	3, 323	1, 826	980
20	Antique	14, 891	13, 147	4, 960	1, 016	5, 449	1, 722	1, 744
21	Nueva Ecija	14, 779	14, 361	5, 928	1, 075	5, 248	2, 110	418
22	Romblón	14, 707	10, 125	1, 921	1, 320	4, 503	2, 381	4, 582
23	Cápiç	14, 364	13, 784	4, 294	1, 837	5, 919	1, 734	580
24	Sámar	14, 147	12, 986	907	1, 666	8, 195	2, 215	1, 161
25	Misamis	11, 436	10, 638	793	4, 597	3, 304	1, 944	798
26	Cavite	8, 889	7, 801	3, 695	824	2, 493	789	1, 088
27	La Laguna	8, 820	8, 237	3, 771	1, 333	2, 485	648	583
28	Rizal	8, 382	8, 268	3, 471	661	3, 104	1, 032	114
29	Dávao ²	8, 277	2, 312	38	664	1, 049	561	5, 965
30	Paragua	8, 227	2, 987	628	472	979	908	5, 240
31	Ambos Camarines	7, 921	7, 428	1, 455	1, 798	3, 083	1, 092	493
32	Abra	7, 360	6, 331	1, 625	1, 176	2, 408	1, 122	1, 029
33	Surigao	6, 916	6, 507	98	2, 345	2, 747	1, 317	409
34	Albay	6, 866	6, 523	2, 029	1, 212	2, 452	830	343
35	Masbate	6, 383	4, 546	624	1, 035	1, 946	941	1, 837
36	Sorsogón	4, 893	4, 251	782	939	1, 719	811	642
37	Bataán	4, 686	4, 666	2, 011	122	1, 900	633	20
38	Dapitan ²	3, 785	3, 659	70	713	1, 524	1, 352	126
39	Nueva Vizcaya	2, 870	2, 616	485	512	1, 033	586	264
40	Manila city	2, 017	1, 707	916	571	153	67	310
41	Zamboanga ²	1, 384	1, 292	659	221	262	150	92
42	Lepanto-Bontoc	1, 027	359	70	95	147	47	668
43	Paragua Sur ²	871	177	23	36	68	50	694
44	Basilan ²	318	132	64	26	28	14	186
45	Cottabato ²	166	138	3	99	22	14	78
46	Benguet	151	73	11	23	23	16	78
47	Joló ²	44	5	.....	1	3	1	39
48	Siassi ²	6	6	.....	2	3	1	.....

¹Including the subprovince, Marinduque.

²Comandancia.

Number of neat cattle of specified classes, by islands, arranged in the order of the magnitude of total number of neat cattle.

In order of magnitude.	ISLAND.	Total number of neat cattle.	CARABAO.					Other neat cattle.
			Total.	Steers.	Bulls.	Cows.	Calves.	
	Philippine Islands.	768, 430	640, 871	189, 818	122, 979	234, 763	93, 311	127, 559
1	Luzón	413, 262	367, 175	132, 680	48, 401	131, 333	54, 761	46, 087
2	Panay	68, 119	62, 101	22, 353	4, 921	26, 794	8, 033	6, 018
3	Negros	59, 738	53, 651	20, 924	9, 338	17, 299	6, 090	6, 087
4	Cebú	39, 099	35, 508	1, 943	20, 387	10, 265	2, 913	3, 591
5	Mindanao	29, 001	21, 880	1, 632	7, 194	8, 093	4, 961	7, 121
6	Leyte	26, 170	22, 748	1, 713	10, 117	7, 858	3, 060	3, 422
7	Bohol	16, 864	15, 382	72	8, 429	5, 034	1, 847	1, 482
8	Sámar	12, 654	11, 783	758	1, 450	7, 591	1, 984	871
9	Mindoro	11, 581	3, 518	682	542	1, 490	804	8, 063
10	Tablas	9, 225	7, 174	1, 355	892	3, 178	1, 749	2, 051
11	Siquijor	7, 792	7, 408	1, 202	2, 981	2, 438	787	384
12	Lubang	5, 948	2, 205	651	361	832	361	3, 743
13	Masbate	5, 199	3, 552	502	760	1, 540	780	1, 647
14	Batán	4, 568	1	1				4, 567
15	Marinduque	3, 943	2, 500	916	297	1, 020	267	1, 443
16	Sibuyán	3, 098	1, 594	324	210	652	408	1, 504
17	Guimarás	2, 653	1, 936	566	178	857	335	717
18	Camiguín	2, 324	2, 145	19	1, 225	600	301	179
19	Catanduanes	1, 685	1, 517	219	393	584	321	168
20	Bantayán	1, 563	434	61	172	182	19	1, 129
21	Romblón	1, 444	840	116	136	441	147	604
22	Paragua	1, 319	240	29	72	80	59	1, 079
23	Cuyo	1, 246	81	36	13	21	11	1, 165
24	Panglao	1, 094	549	1	300	187	61	545
25	Billiran	954	886	78	336	318	154	68
26	Poro	927	869	27	455	269	118	58
27	Ticao	803	658	72	224	248	114	145
28	Pasijan	718	705	3	316	286	100	13
29	Mactán	413	337	7	223	78	29	76
30	Siargao	364	363	6	153	151	53	1
31	Laguán	212	212	4	5	177	26	.....
32	Panaón	171	143	8	76	44	15	28
33	Dinágat	110	105	.....	34	46	25	5
	All other islands	34, 169	10, 671	858	2, 418	4, 777	2, 618	23, 498

The distribution of equines, except mules, is shown in the two tables that follow, for the provinces, comandancias, and islands, in the same manner as that of neat cattle in the tables immediately preceding. Mules are omitted because they were so few in number as to be of no comparative consequence. Only 290 of these animals were enumerated in the entire archipelago; of these 115 were in the province of Pangpanga, 39 in Manila city, 18 in Bulacán, 13 in Cebú, 13 in Iloílo, 12 in Sámar, 11 in Rizal, and 10 in Misamis. No other province had as many as 10, while in 22 provinces and comandancias there were none. Considered by islands, there were 204 on Luzón, 20 on Panay, 13 on Cebú, 12 on Sámar, and 10 on Mindanao; the remaining 31 were scattered among a few islands, none of which possessed as many as 10.

Number of horses of specified classes, by provinces and comandancias, arranged in the order of the magnitude of total number.

In order of magnitude.	PROVINCE OR COMANDANCIA.	HORSES.				
		Total.	Native.	American.	Australian.	All other.
	Philippine Islands.....	144,171	142,992	860	205	114
1	Batangas.....	15,598	15,582	9	7	
2	Tayabas ¹	14,301	14,288	10	2	1
3	Ilocos Norte.....	11,142	11,182	8	2	
4	Manila city.....	8,977	8,262	556	53	106
5	Cebu.....	8,427	8,420	3	4	
6	Misamis.....	7,110	7,084	24	2	
7	Abra.....	7,049	7,048	1		
8	Cagayan.....	6,904	6,885	18	1	
9	La Laguna.....	5,841	5,820	18	8	
10	Masbate.....	4,797	4,796	1		
11	Leyte.....	4,311	4,280	13	68	
12	Negros Oriental.....	4,295	4,294	1		
13	Sorsogon.....	3,777	3,776	1		
14	Ilocos Sur.....	3,594	3,570	24		
15	Cavite.....	3,316	3,312	4		
16	Zambales.....	3,116	3,114	2		
17	Albay.....	2,997	2,975	14	7	1
18	Isabela.....	2,783	2,782	1		
19	Mindoro.....	2,505	2,505			
20	Bohol.....	2,158	2,155		3	
21	La Union.....	2,019	2,019			
22	Negros Occidental.....	2,017	2,016	1		
23	Iloilo.....	1,798	1,791	5	2	
24	Bulacan.....	1,781	1,702	52	27	
25	Pampanga.....	1,741	1,784	7		
26	Pangasinan.....	1,733	1,717	12	8	1
27	Romblon.....	1,458	1,457		1	
28	Rizal.....	1,226	1,189	29	8	
29	Antique.....	923	915	3	5	
30	Surigao.....	883	883			
31	Ambos Camarines.....	821	788	33		
32	Samar.....	713	711	2		
33	Capiz.....	682	680	2		
34	Tarlac.....	662	659	1	2	
35	Zamboanga ²	554	551	3		
36	Nueva Ecija.....	539	537	1		1
37	Davao ²	383	383			
38	Nueva Vizcaya.....	318	314			4
39	Lepanto-Bontoc.....	269	269			
40	Paragua.....	174	174			
41	Benguet.....	167	167			
42	Dapitan ²	123	123			
43	Bataan.....	94	91	3		
44	Basilan ²	45	45			
45	Cotabato ²	26	26			
46	Paragua Sur ²	17	14	3		
47	Siasi ²	4	4			
48	Jolo ²	3	3			

¹Including the subprovince, Marinduque.

²Comandancia.

Number of horses of specified classes, by islands, arranged in the order of the magnitude of total number.

In order of magnitude.	ISLAND.	HORSES.				
		Total.	Native.	American.	Australian.	All other.
	Philippine Islands.....	144, 171	142, 992	860	205	114
1	Luzón	93, 693	92, 661	799	119	114
2	Mindanao	7, 571	7, 547	24		
3	Cebu	7, 134	7, 131	3		
4	Negros	5, 252	5, 250	2		
5	Leyte	4, 179	4, 098	13	68	
6	Marinduque.....	3, 894	3, 894			
7	Panay	2, 972	2, 957	9		
8	Masbate	2, 796	2, 795	1		6
9	Bohol	2, 118	2, 110			3
10	Catanduanes.....	2, 034	2, 034			
11	Lubang	1, 504	1, 504			
12	Camiguín.....	1, 471	1, 466	3		2
13	Ticao	1, 341	1, 341			
14	Siquijor.....	1, 053	1, 053			
15	Mindoro	896	896			
16	Bantayán.....	774	770			4
17	Tablas	770	770			
18	Samar	560	560			
19	Sibuyán.....	486	486			
20	Guimará's.....	385	388	1		1
21	Mactán	193	193			
22	Poro	134	134			
23	Cuyo	112	112			
24	Pasijan	107	107			
25	Billiran	89	89			
26	Panaón	30	30			
27	Romblón	21	20			1
28	Siargao	19	19			
29	Paragua	17	14	3		
30	Laguán	14	12	2		
31	Batán	11	10			1
32	Dinágat.....	10	10			
33	Panglao	10	10			
	All other islands	2, 526	2, 526			

Swine numerically exceed all other domestic animals combined, and are found in every province and island. The relative importance of swine, gauged by the total number, is shown in the next two tables, which are arranged on the plan of the preceding tables. The number of goats and sheep are, for convenience, also stated in these tables.

Number of swine, goats, and sheep, by provinces and comandancias, arranged in the order of the magnitude of number of swine.

In order of magnitude.	PROVINCE OR COMANDANCIA.	NUMBER OF—		
		Swine.	Goats.	Sheep.
	Philippine Islands	1, 179, 371	124, 334	30, 428
1	Cebú	150, 905	23, 188	2, 037
2	Pampanga	65, 631	9, 390	3, 408
3	Bulacán	64, 296	1, 295	312
4	Pangasinán	61, 176	16, 376	616
5	Batangas	58, 943	3, 108	138
6	Negros Oriental	51, 904	5, 954	1, 740
7	Ilocos Norte	48, 981	5, 458	1, 979
8	Cagayán	46, 253	2, 602	973
9	Bohol	46, 007	435	185
10	Iloilo	41, 212	3, 025	1, 142
11	Negros Occidental	40, 285	6, 442	6, 911
12	Nueva Ecija	37, 855	1, 230	329
13	Tárlac	36, 317	4, 529	914
14	Leyte	36, 080	1, 483	628
15	Tayabas ¹	34, 272	1, 022	60
16	La Laguna	32, 047	556	85
17	Cavite	30, 428	302	72
18	Isabela	27, 109	422	333
19	Zambales	26, 990	656	578
20	La Unión	25, 201	11, 811	2, 078
21	Ilocos Sur	24, 343	7, 260	2, 838
22	Misamis	23, 784	1, 961	813
23	Samar	21, 583	1, 679	169
24	Rizal	20, 570	1, 102	50
25	Albay	14, 869	1, 374	117
26	Ambos Camarines	14, 337	2, 935	261
27	Surigao	13, 148	374	143
28	Cápiz	12, 284	2, 797	327
29	Sorsogón	9, 547	784	57
30	Antique	9, 426	560	216
31	Abra	7, 933	833	202
32	Romblón	7, 761	1, 108	40
33	Bataán	6, 623	344	132
34	Zamboanga ²	6, 164	1, 274	165
35	Manila city	5, 996	449	65
36	Masbate	5, 516	156	51
37	Nueva Vizcaya	5, 006	39	.....
38	Mindoro	2, 444	225	2
39	Dávao ²	2, 401	101	27
40	Paragua	1, 704	232	34
41	Dapitan ²	1, 336	195	9
42	Lepanto-Bontoc	286	116	66
43	Paragua Sur ²	175	33	.....
44	Basilan ²	157	18	.....
45	Benguet	79	155	56
46	Joló ²	35	.....	.....
47	Cotabato ²	22	6	33
48	Siassi ² .....	.....	.....	.....

¹ Including the subprovince, Marinduque.

² Comandancia.

Number of swine, goats, and sheep, by islands, arranged in the order of the magnitude of number of swine.

In order of magnitude.	ISLAND.	NUMBER OF—		
		Swine.	Goats.	Sheep.
	Philippine Islands	1, 179, 371	124, 334	30, 428
1	Luzón.....	684, 108	72, 466	15, 360
2	Cebu.....	140, 598	21, 713	1, 914
3	Negros.....	77, 086	11, 915	8, 562
4	Panay.....	60, 160	6, 100	1, 592
5	Bohol.....	42, 688	362	173
6	Mindanao.....	41, 284	8, 106	908
7	Leyte.....	32, 884	1, 268	465
8	Samar.....	16, 974	533	109
9	Siquijor.....	14, 417	477	89
10	Marinduque.....	5, 941	121	23
11	Camiguín.....	3, 548	688	213
12	Catanduanes.....	3, 282	71	28
13	Masbate.....	2, 831	119	49
14	Tablas.....	2, 816	290	.....
15	Mactán.....	2, 626	822	61
16	Guimarás.....	2, 428	117	45
17	Ticao.....	2, 343	15	.....
18	Romblón.....	2, 334	154	8
19	Biliran.....	2, 173	75	78
20	Pastjan.....	2, 165	219	30
21	Batán.....	2, 082	615	95
22	Panglao.....	2, 000	87	9
23	Poro.....	1, 928	184	20
24	Bantayán.....	1, 651	83	10
25	Mindoro.....	1, 323	182	.....
26	Siargao.....	1, 312	29	65
27	Panaón.....	872	133	85
28	Sibuyán.....	854	198	13
29	Lubang.....	711	23	2
30	Dinágat.....	552	1	4
31	Paragua.....	352	48	.....
32	Cuyo.....	260	7	.....
33	Laguán.....	233	.....	.....
	All other islands.....	22, 620	2, 178	418

The number of chickens, ducks, turkeys, and geese are shown in the next two tables, by provinces, comandancias, and islands, arranged according to the magnitude of the total number of poultry.

Number of poultry of specified classes, by provinces and comandancias, arranged in the order of the magnitude of total number.

In order of magnitude.	PROVINCE OR COMANDANCIA.	POULTRY.				
		Total.	Chickens.	Ducks.	Turkeys.	Geese.
	Philippine Islands	5, 564, 599	5, 470, 981	78, 215	9, 201	6, 202
1	Cebu	620, 090	618, 287	927	652	224
2	Pangasinán	504, 955	498, 794	5, 087	173	901
3	Pampanga	292, 329	280, 300	10, 780	1, 011	238
4	Bulacán	291, 147	275, 928	13, 667	1, 349	208
5	Leyte	276, 906	275, 680	1, 072	69	85
6	Tárlac	263, 565	261, 483	1, 398	290	454
7	Iloilo	215, 361	211, 829	2, 312	757	463
8	Batangas	196, 138	195, 942	154	10	82
9	Negros Occidental	187, 344	180, 929	4, 454	1, 080	931
10	Nueva Ecija	179, 962	177, 387	2, 304	28	243
11	Bohol	177, 052	176, 798	200	9	45
12	Ilocos Norte	164, 089	162, 617	1, 381	6	85
13	Rizal	144, 496	120, 474	22, 290	1, 608	129
14	Cagayán	143, 142	142, 161	789	65	127
15	Tayabas ¹	142, 789	142, 225	469	56	89
16	Negros Oriental	140, 542	140, 372	77	60	93
17	Ambos Camarines	131, 627	130, 650	681	62	234
18	Ilocos Sur	131, 510	130, 869	578	21	42
19	La Laguna	126, 892	125, 354	853	580	105
20	Cápiz	125, 625	123, 624	1, 867	64	70
21	Cavite	122, 149	121, 555	528	27	89
22	Misamis	98, 196	97, 545	583	34	84
23	Samar	96, 375	96, 021	320	24	10
24	Zambales	93, 660	93, 435	180	20	25
25	La Unión	91, 827	91, 510	203	13	101
26	Albay	85, 893	85, 368	310	69	146
27	Isabela	78, 186	77, 757	281	36	112
28	Sorsogón	66, 003	65, 558	344	40	61
29	Antique	60, 163	59, 990	119	17	37
30	Manila city	55, 303	51, 581	2, 148	994	580
31	Surigao	45, 226	44, 814	395	11	6
32	Romblón	41, 017	40, 735	254	7	21
33	Abra	35, 535	35, 352	179	3	1
34	Bataán	28, 045	27, 807	229	8	1
35	Masbate	26, 458	26, 331	69	37	21
36	Paragua	23, 260	23, 202	27	7	24
37	Nueva Vizcaya	16, 432	16, 193	64	7	168
38	Míndoro	12, 464	12, 387	56	.....	21
39	Zamboanga ²	10, 444	10, 018	364	3	59
40	Dávao ²	9, 065	9, 002	49	.....	14
41	Dapitan ²	6, 390	6, 279	111	.....	.....
42	Lepanto-Bontoc	2, 278	2, 258	20	.....	.....
43	Paragua Sur ²	1, 764	1, 743	4	.....	17
44	Cottabato ²	1, 441	1, 425	5	4	7
45	Benguet	1, 390	1, 382	6	.....	2
46	Basilan ²	990	955	20	5	10
47	Siassi ²	69	62	7	.....	.....
48	Joló ²	15	13	.....	.....	2

¹Including the subprovince, Marinduque.

²Comandancia.

Number of poultry of specified classes, by islands, arranged in the order of the magnitude of total number.

In order of magnitude	ISLAND.	POULTRY.				
		Total.	Chickens.	Ducks.	Turkeys.	Geese.
	Philippine Islands	5,564,599	5,470,981	78,215	9,201	6,202
1	Luzón	3,320,684	3,245,518	64,818	6,329	4,019
2	Cebú	553,380	551,823	763	650	144
3	Panay	384,808	379,341	4,112	796	554
4	Negros	295,780	289,204	4,522	1,090	964
5	Leyte	266,836	265,727	957	69	83
6	Bohol	161,206	160,952	200	9	45
7	Mindanao	140,769	139,522	1,099	40	108
8	Sámar	79,640	79,337	279	20	4
9	Siquijor	29,718	29,709	9	.....	.....
10	Marinduque	26,644	26,566	38	40	.....
11	Camiguín	22,579	22,175	387	5	12
12	Pasijan	21,344	21,342	2	.....	.....
13	Catanduanes	15,544	15,426	52	17	49
14	Romblón	14,850	14,638	205	2	5
15	Poro	14,374	14,296	3	.....	75
16	Masbate	13,537	13,437	58	21	21
17	Tablas	13,370	13,328	38	.....	4
18	Guimarás	12,903	12,765	86	36	16
19	Mactán	11,877	11,840	32	.....	5
20	Panglao	10,700	10,700	.....	.....	.....
21	Ticao	10,203	10,183	4	16	.....
22	Bantayán	9,970	9,841	127	2	.....
23	Mindoro	7,288	7,218	49	.....	21
24	Cuyo	7,205	7,205	.....	.....	.....
25	Sibuyán	5,957	5,931	9	5	12
26	Biliran	5,861	5,755	104	.....	2
27	Sargao	4,144	4,118	19	7	.....
28	Paragua	3,782	3,761	4	.....	17
29	Panaón	3,573	3,565	8	.....	.....
30	Lubang	3,190	3,190	.....	.....	.....
31	Batán	2,601	2,572	4	25	.....
32	Laguán	1,700	1,683	8	4	.....
33	Dinágat	1,610	1,607	3	.....	.....
	All other islands	86,977	86,706	216	18	37

Domestic animals owned by the various non-Christian tribes inhabiting the different sections of the archipelago are not included in the general tables to which the foregoing discussion relates. The attempt was made by the special agents employed in securing information regarding the wild tribes to ascertain the number of each class of domestic animals, but their success in this was no greater than it was in obtaining crop statistics, to which reference has been made on page 223. However, the data secured, though incomplete, give indication of the character and, to some extent, the number of carabao, horses, swine, poultry, etc., in the possession of the uncivilized portion of the Philippine population, and are therefore presented in the following table which shows the number of each class of animals reported for each province inhabited by these people:

Number of domestic animals reported as owned by non-Christian tribes, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	CARABAO.				
	Total.	Bulls.	Steers.	Cows.	Calves.
Philippine Islands.....	21, 276	120	19, 262	1, 213	681
Abra.....	3, 801	120	2, 590	660	431
Ambos Camarines.....	9		9		
Antique.....	845		845		
Basilan ¹					
Bataan.....	1, 805		1, 805		
Benguet.....	153		153		
Cagayán.....					
Cápiz.....	90		90		
Cottabato ¹	66		66		
Dapitan ¹	471		471		
Dávao ¹	198		198		
Ilocos Norte.....	1, 640		1, 640		
Ilocos Sur.....	133		133		
Iloilo.....	103		47	56	
Isabela.....	1, 640		1, 640		
Joló ¹	1, 581		1, 581		
La Laguna.....	789		789		
La Unión.....	5, 677		5, 427		250
Lepanto-Bontoc.....	16		16		
Mindoro.....	1, 120		649	471	
Misamis and Iligan.....	8		8		
Negros Occidental.....	189		189		
Negros Oriental.....	10		10		
Nueva Ecija.....	12		12		
Nueva Vizcaya.....					
Pampanga.....	219		193	26	
Pangasinán.....					
Paragua.....	15		15		
Paragua Sur ¹					
Rizal.....	17		17		
Sámar.....					
Sorsogón.....	505		505		
Siassi ¹	2		2		
Surigao.....	7		7		
Tárlac.....	1		1		
Tawi Tawi ¹	3		3		
Zambales.....			151		
Zamboanga ¹	151				

¹ Comandancia.

Number of domestic animals reported as owned by non-Christian tribes, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	Neat cattle, other than carabao.	Horses.	Swine.	Goats.	Sheep.	POULTRY.	
						Chickens.	Ducks.
Philippine Islands	12,561	12,410	56,269	8,949	576	286,597	12,755
Abra	136	147	2,771	345	.....	14,500	129
Ambos Camarines .....	.....	227	62	.....	.....	453	.....
Antique	2	.....	12	.....	.....	428	.....
Basilan ² .....	.....	1,119	.....	115	.....	1,402	210
Bataán .....	.....	.....	.....	.....	.....	.....	.....
Benguet	3,184	730	7,884	209	24	15,568	.....
Cagayán	6	79	776	.....	.....	1,887	.....
Cápiz .....	.....	.....	177	.....	.....	5,444	.....
Cottabato ²	51	128	.....	.....	.....	.....	.....
Dapitan ² .....	.....	10	277	2	.....	1,736	.....
Davao ²	256	1,143	2,964	508	.....	24,149	.....
Ilocos Norte	45	83	393	12	.....	1,443	.....
Ilocos Sur	251	422	1,781	499	5	4,397	.....
Iloilo .....	.....	.....	419	.....	.....	1,377	.....
Isabela .....	.....	58	1,459	.....	.....	5,268	.....
Joló ²	5,863	3,770	.....	3,666	.....	66,885	.....
La Laguna	349	2,550	.....	1,872	327	.....	.....
La Unión	117	115	2,537	.....	92	3,740	.....
Lepanto-Bontoc	1,602	748	7,675	110	38	27,610	30
Mindoro .....	.....	.....	422	.....	.....	1,153	.....
Misamis and Iligan	9	508	1,046	.....	.....	16,526	.....
Negros Occidental .....	.....	.....	561	.....	.....	19,127	.....
Negros Oriental	19	16	2,321	20	.....	8,490	.....
Nueva Ecija	1	.....	84	.....	.....	336	.....
Nueva Vizcaya	8	.....	20,600	12	.....	42,490	2,486
Pampanga .....	.....	.....	2	.....	.....	286	.....
Pangasinán	21	4	691	185	.....	4,441	.....
Paragua .....	.....	.....	1	.....	.....	41	.....
Paragua Sur ²	98	1	.....	186	30	10,599	.....
Rizal .....	.....	.....	10	.....	.....	450	.....
Sámar .....	.....	.....	8	.....	.....	181	.....
Sorsogón .....	.....	.....	.....	720	60	.....	.....
Siassi ²	340	260	.....	.....	.....	.....	.....
Surigao .....	.....	.....	1,271	.....	.....	4,244	.....
Tárlac .....	.....	.....	57	.....	.....	528	.....
Tawi Tawi ²	92	225	.....	348	.....	.....	.....
Zambales .....	.....	.....	8	.....	.....	1,300	.....
Zamboanga ²	111	67	.....	140	.....	118	.....

¹Including 7 geese.

²Comandancia.

The general tables, numbered from 1 to 25 inclusive, embracing agricultural and live stock statistics pertaining to the civilized or Christian population, are presented in the pages immediately following.

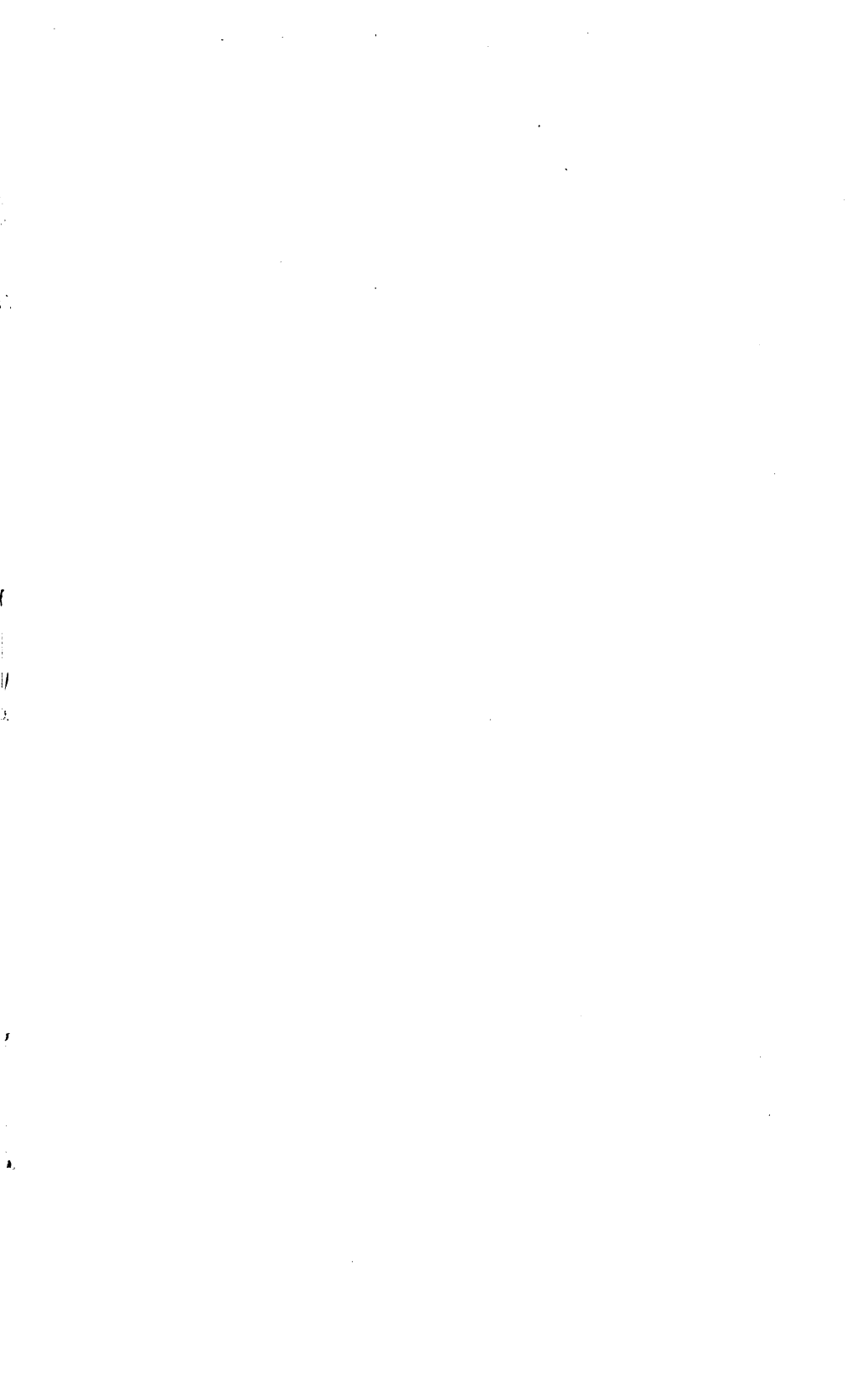


TABLE 1.—Number of farms and other parcels of land used for

	PROVINCE OR COMANDANCIA.	Total number of farms, etc.	NUMBER OF HECTARES IN FARMS, ETC.		
			Total.	Cultivated.	Uncultivated.
1	Philippine Islands.....	815, 453	2, 827, 704	1, 298, 845	1, 528, 859
2	Abra.....	13, 655	52, 086	12, 208	39, 878
3	Albay.....	32, 794	116, 084	85, 147	30, 937
4	Ambos Camarines.....	12, 863	106, 371	59, 683	46, 688
5	Antique.....	18, 110	27, 194	21, 622	5, 572
6	Basilan ¹	115	2, 277	583	1, 694
7	Bataan.....	2, 304	8, 232	3, 485	4, 747
8	Batangas.....	23, 295	117, 422	21, 652	95, 770
9	Benguet.....	76	233	71	162
10	Bohol.....	36, 869	58, 098	23, 247	34, 851
11	Bulacán.....	21, 095	90, 220	60, 570	29, 650
12	Cagayán.....	18, 204	138, 166	35, 430	102, 736
13	Cápiz.....	24, 969	108, 692	36, 965	71, 727
14	Cavite.....	9, 640	40, 881	20, 811	20, 070
15	Cebu.....	80, 231	130, 624	53, 283	77, 341
16	Cottabato ¹	32	5, 286	383	4, 903
17	Dapitan ¹	1, 203	5, 374	2, 232	3, 142
18	Dávao ¹	1, 309	16, 343	3, 769	12, 574
19	Ilocos Norte.....	64, 812	56, 633	40, 233	15, 400
20	Ilocos Sur.....	21, 479	47, 176	39, 739	7, 437
21	Iloilo.....	34, 666	176, 965	57, 081	119, 874
22	Isabela.....	11, 738	67, 716	16, 752	50, 964
23	Joló ¹	9	23	19	4
24	La Laguna.....	22, 025	86, 426	41, 016	45, 410
25	La Unión.....	38, 219	43, 077	30, 850	12, 227
26	Lepanto-Bontoc.....	159	1, 741	374	1, 367
27	Leyte.....	37, 081	133, 620	42, 898	90, 722
28	Manila city.....	637	738	473	265
29	Masbate.....	3, 090	9, 798	7, 429	2, 369
30	Mindoro.....	2, 100	42, 424	4, 768	37, 656
31	Misamis.....	25, 679	59, 269	29, 346	29, 923
32	Negros Occidental.....	6, 976	177, 642	72, 928	104, 714
33	Negros Oriental.....	26, 434	37, 971	21, 383	16, 588
34	Nueva Ecija.....	13, 381	90, 367	26, 763	63, 604
35	Nueva Vizcaya.....	1, 807	4, 421	2, 332	1, 589
36	Pampanga.....	10, 031	105, 677	63, 840	41, 837
37	Pangasinán.....	54, 712	119, 771	81, 472	38, 299
38	Paragua.....	2, 673	9, 032	2, 999	6, 033
39	Paragua Sur ¹	131	626	110	516
40	Rizal.....	11, 564	14, 787	9, 934	4, 853
41	Romblón.....	6, 823	23, 546	13, 243	10, 303
42	Sámar.....	25, 218	101, 481	43, 073	58, 408
43	Siassi ¹	3	133	30	103
44	Sorsogón.....	14, 567	88, 829	54, 668	34, 161
45	Surigao.....	7, 412	49, 060	24, 250	24, 810
46	Tárlac.....	11, 160	78, 923	37, 332	41, 591
47	Tayabas ²	42, 236	120, 754	57, 575	63, 179
48	Zambales.....	24, 367	45, 917	27, 386	18, 531
49	Zamboanga ¹	2, 600	10, 588	6, 908	3, 680

¹ Comandancia.² Including the subprovince, Marinduque.

CLASSIFICATION OF LANDS.

251

agriculture, and classification of lands, by provinces and comandancias.

NUMBER OF HECTARES IN FARMS, ETC.—continued.									AVERAGE SIZE OF FARMS, ETC., IN ACRES.	
Uncultivated.					Per cent.			All land.	Culti- vated land.	
Forest land.				Other land.	Culti- vated land.	Forest land.	Other land.			
Total.	Large timber.	Small timber.	Mixed timber.							
384,400	51,250	180,711	152,439	1,144,459	45.9	13.6	40.5	346.8	159.3	1
1,069	31	595	443	38,809	23.4	2.1	74.5	381.4	89.4	2
7,590	1,080	4,608	1,902	23,347	73.4	6.5	20.1	354.0	259.6	3
11,510	2,715	7,391	1,404	35,178	56.1	10.8	33.1	827.0	464.0	4
960	382	564	14	4,612	79.5	3.5	17.0	207.4	164.9	5
1,319	84	985	250	375	25.6	57.9	16.5	1,980.0	507.0	6
684	149	477	58	4,063	42.3	8.3	49.4	357.3	151.3	7
31,952	4,643	25,106	2,203	63,818	18.4	27.2	54.4	504.1	92.4	8
73	-----	73	-----	89	30.5	31.3	38.2	306.6	93.4	9
137	34	81	22	34,714	40.0	0.2	59.8	157.6	63.1	10
6,547	1,587	2,422	2,538	23,103	67.1	3.3	29.6	427.7	287.1	11
69,559	4,606	4,030	60,923	33,177	25.6	50.4	24.0	759.0	194.6	12
20,981	746	7,607	12,628	50,746	34.0	19.3	46.7	435.3	148.0	13
1,824	238	1,384	202	18,246	50.9	4.5	44.6	424.1	215.9	14
8,711	496	7,567	648	68,630	40.8	6.7	52.5	162.8	66.4	15
16	-----	16	-----	4,887	7.2	0.3	92.5	16,518.8	1,196.9	16
1,505	44	1,461	-----	1,637	41.5	28.0	30.5	446.7	185.5	17
6,142	296	4,802	1,044	6,432	23.1	37.6	39.3	1,248.5	287.9	18
4,632	673	3,311	648	10,768	72.3	8.3	19.4	85.8	62.1	19
1,822	52	1,280	490	5,615	84.2	3.9	11.9	219.6	185.0	20
19,502	3,479	6,750	9,273	100,372	32.3	11.0	56.7	510.5	164.7	21
4,118	753	2,535	830	46,846	24.7	6.1	69.2	576.9	142.7	22
-----	-----	-----	-----	4	82.6	-----	-----	17.4	255.6	23
10,963	2,344	2,283	6,336	34,447	47.5	12.7	39.8	392.4	186.2	24
4,944	437	3,765	742	7,283	71.6	11.5	16.9	112.7	80.7	25
9	-----	9	-----	1,358	21.5	0.5	78.0	1,095.0	235.2	26
9,635	1,845	5,987	1,803	81,087	32.1	7.2	60.7	360.3	115.7	27
26	20	1	5	239	64.1	3.5	32.4	137.4	88.1	28
1,285	32	986	267	1,084	75.8	13.1	11.1	317.1	240.4	29
11,762	54	3,516	8,192	25,894	11.2	27.7	61.1	2,020.2	227.0	30
5,586	1,671	3,442	473	24,337	49.5	9.4	41.1	230.8	114.3	31
16,314	3,047	10,487	2,780	88,400	41.0	9.2	49.8	2,546.5	1,045.4	32
1,712	60	1,414	238	14,876	56.3	4.5	39.2	143.6	80.9	33
10,303	2,422	5,779	2,102	53,301	29.6	11.4	59.0	675.3	200.0	34
185	-----	181	4	1,404	64.1	4.2	31.7	244.7	156.7	35
6,501	2,061	2,883	1,557	35,336	60.4	6.2	33.4	1,053.5	636.4	36
17,005	151	16,798	56	21,294	68.0	14.2	17.8	218.9	148.9	37
5,408	1,557	2,824	1,027	625	33.2	59.9	6.9	337.9	112.2	38
339	-----	-----	339	177	17.6	54.1	28.3	477.9	84.0	39
818	5	275	38	4,535	67.2	2.2	30.6	127.9	85.9	40
2,279	703	1,044	532	8,024	56.2	9.7	34.1	945.1	194.1	41
20,496	4,081	13,820	2,595	37,912	42.4	20.2	37.4	402.4	170.8	42
-----	-----	-----	-----	103	22.6	-----	-----	4,433.3	1,000.0	43
9,201	1,659	5,029	2,513	24,960	61.5	10.4	28.1	609.8	375.3	44
5,351	1,324	3,163	864	19,459	49.4	10.9	39.7	661.9	327.2	45
14,168	936	3,438	9,794	27,423	47.3	18.0	34.7	707.2	334.5	46
26,827	4,570	8,663	18,604	36,352	47.7	22.2	30.1	255.9	136.3	47
305	44	175	86	18,226	59.6	0.7	39.7	188.4	112.4	48
2,825	139	1,714	972	855	65.2	26.7	8.1	407.2	265.7	49

TABLE 2.—Number of farms and other parcels of land used

ISLAND.	Total number of farms, etc.	NUMBER OF HECTARES IN FARMS, ETC.				
		Total.	Cultivated.	Uncultivated.	Uncultivated.	
					Forest land.	
					Total.	Large timber.
1 Philippine Islands ...	815, 453	2, 827, 704	1, 298, 845	1, 528, 859	384, 400	51, 250
2 Bohol	35, 093	53, 160	21, 503	31, 657	123	34
3 Cebu	75, 382	119, 989	49, 148	70, 841	8, 245	474
4 Leyte	34, 203	123, 754	37, 950	85, 804	8, 933	1, 693
5 Luzón	447, 267	1, 592, 288	806, 376	785, 912	234, 306	29, 994
6 Marinduque	17, 979	15, 598	5, 039	10, 559	3, 756	692
7 Masbate	1, 818	5, 222	3, 980	1, 242	659	.....
8 Mindanao	30, 877	127, 534	57, 552	69, 982	18, 739	2, 906
9 Mindoro	1, 680	39, 138	3, 213	35, 925	11, 599	54
10 Negros	25, 814	210, 452	90, 151	120, 301	17, 912	3, 047
11 Panay	71, 379	294, 487	110, 240	184, 247	38, 830	4, 316
12 Samar	20, 536	85, 892	34, 898	50, 994	19, 349	3, 714
13 Other islands	53, 445	160, 190	78, 795	81, 395	21, 949	4, 326

for agriculture, and classification of lands, by principal islands.

NUMBER OF HECTARES IN FARMS, ETC.—continued.						AVERAGE SIZE OF FARMS, ETC., IN ACRES.		
Uncultivated—Continued.			Per cent.			All land.	Cultivated land.	
Forest land—Cont'd.		Other land.	Cultivated land.	Forest land.	Other land.			
Small timber.	Mixed timber.							
180,711	152,439	1,144,459	45.9	13.6	40.5	346.8	159.3	1
70	19	31,534	40.5	0.2	59.3	151.5	61.3	2
7,166	605	62,596	40.9	6.9	52.2	159.2	65.2	3
5,557	1,683	76,871	30.7	7.2	62.1	361.8	111.0	4
96,057	108,255	551,606	50.7	14.7	34.6	356.0	180.3	5
2,960	104	6,803	32.3	24.1	43.6	86.8	28.0	6
403	256	583	76.2	12.6	11.2	287.2	218.9	7
12,564	3,269	51,243	45.1	14.7	40.2	413.0	186.4	8
3,353	8,192	24,326	8.2	29.6	62.2	2,357.7	193.6	9
11,854	3,011	102,389	42.8	8.5	48.7	815.3	349.2	10
13,597	20,917	145,417	87.4	13.2	49.4	412.6	154.4	11
13,050	2,585	31,645	40.6	22.5	36.9	418.3	169.9	12
14,080	3,543	59,446	49.2	13.7	37.1	299.7	147.4	13

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Philippine Islands.....	815,453	778	308	813,382	959	26
Owners.....	658,543	608	266	656,836	814	19
Cash tenants.....	14,403	93	12	14,204	94	7
Share tenants.....	182,444	22	18	182,366	31	
Labor tenants.....	1,233	2		1,231		
No rental.....	8,890	53	12	8,745	20	
Abra.....	13,655	3		13,651		1
Owners.....	9,917	2		9,915		
Cash tenants.....	138			138		
Share tenants.....	3,522			3,521		1
Labor tenants.....						
No rental.....	78	1		77		
Albay.....	82,794	142	8	32,519	125	
Owners.....	32,190	126	7	31,989	118	
Cash tenants.....	411	1	1	406	3	
Share tenants.....	75	3		71	1	
Labor tenants.....						
No rental.....	118	12		103	3	
Ambos Camarines.....	12,863	55	20	12,717	71	
Owners.....	11,991	53	11	11,860	67	
Cash tenants.....	13			13		
Share tenants.....	364			362	2	
Labor tenants.....	2			2		
No rental.....	493	2	9	480	2	
Antique.....	13,110	12	8	13,033	57	
Owners.....	13,056	12	8	12,979	57	
Cash tenants.....	7			7		
Share tenants.....	27			27		
Labor tenants.....						
No rental.....	20			20		
Basilan ¹	115	8		107		
Owners.....	115	8		107		
Cash tenants.....						
Share tenants.....						
Labor tenants.....						
No rental.....						
Bataan.....	2,304	1	3	2,300		
Owners.....	1,157	1	1	1,155		
Cash tenants.....	52			52		
Share tenants.....	1,073		2	1,071		
Labor tenants.....	1			1		
No rental.....	21			21		
Batangas.....	23,295	6	5	23,273	11	
Owners.....	19,017	5	3	18,999	10	
Cash tenants.....	146	1		145		
Share tenants.....	3,475		2	3,472	1	
Labor tenants.....						
No rental.....	657			657		
Benguet.....	76	7		69		
Owners.....	1			1		
Cash tenants.....						
Share tenants.....						
Labor tenants.....						
No rental.....	75	7		68		

¹ Comandancia.

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Bohol	36,869	5	5	36,838	21	.....
Owners	34,212	5	5	34,182	20	.....
Cash tenants	5	.....	.....	5	.....	.....
Share tenants	2,401	.....	.....	2,400	1	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	251	.....	.....	251	.....	.....
Bulacán	21,095	17	3	21,064	11	.....
Owners	5,218	7	1	5,207	3	.....
Cash tenants	3,458	2	.....	3,448	8	.....
Share tenants	12,114	6	2	12,106	.....	.....
Labor tenants	4	.....	.....	.....	.....	.....
No rental	301	2	.....	299	.....	.....
Cagayán	18,204	5	.....	18,199	.....	.....
Owners	16,539	8	.....	16,536	.....	.....
Cash tenants	41	.....	.....	41	.....	.....
Share tenants	1,588	2	.....	1,586	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	36	.....	.....	36	.....	.....
Cápiz	24,969	17	8	24,942	2	.....
Owners	23,940	12	5	23,921	2	.....
Cash tenants	58	4	1	53	.....	.....
Share tenants	844	1	2	841	.....	.....
Labor tenants	8	.....	.....	8	.....	.....
No rental	119	.....	.....	119	.....	.....
Cavite	9,640	2	1	9,636	1	.....
Owners	5,996	2	1	5,993	.....	.....
Cash tenants	265	.....	.....	264	1	.....
Share tenants	2,429	.....	.....	2,429	.....	.....
Labor tenants	15	.....	.....	15	.....	.....
No rental	935	.....	.....	935	.....	.....
Cebú	80,231	5	14	80,174	26	12
Owners	50,545	3	12	50,509	14	7
Cash tenants	73	1	.....	70	2	.....
Share tenants	28,975	1	2	28,958	9	5
Labor tenants	23	.....	.....	23	.....	.....
No rental	615	.....	.....	614	1	.....
Cottabato ¹	32	4	.....	25	3	.....
Owners	32	4	.....	25	3	.....
Cash tenants .....	.....	.....	.....	.....	.....	.....
Share tenants .....	.....	.....	.....	.....	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental .....	.....	.....	.....	.....	.....	.....
Dapitan ¹	1,203	.....	.....	1,203	.....	.....
Owners	1,199	.....	.....	1,199	.....	.....
Cash tenants .....	.....	.....	.....	.....	.....	.....
Share tenants	1	.....	.....	1	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	3	.....	.....	3	.....	.....
Dávao ¹	1,309	22	1	1,281	5	.....
Owners	1,233	19	1	1,208	5	.....
Cash tenants	11	1	.....	10	.....	.....
Share tenants	2	.....	.....	2	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	63	2	.....	61	.....	.....

¹ Comandancia.

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Ilocos Norte	64,812	3	1	64,808		
Owners	46,327	2	1	46,324		
Cash tenants	3			3		
Share tenants	17,283			17,283		
Labor tenants	997	1		996		
No rental	202			202		
Ilocos Sur	21,479			21,478		1
Owners	11,987			11,986		1
Cash tenants	17			17		
Share tenants	9,384			9,384		
Labor tenants						
No rental	91			91		
Iloilo	34,666	45	10	34,607	4	
Owners	33,838	43	9	33,783	8	
Cash tenants	162	1		161		
Share tenants	402		1	401		
Labor tenants						
No rental	264	1		262	1	
Isabela	11,738	8	21	11,706	2	1
Owners	8,859	7	21	8,828	2	1
Cash tenants	963			963		
Share tenants	1,706			1,706		
Labor tenants	82	1		81		
No rental	128			128		
Joló ¹	9			4	5	
Owners	6			2	4	
Cash tenants						
Share tenants	3			2	1	
Labor tenants						
No rental						
La Laguna	22,025	4	8	22,008	5	
Owners	20,184	3	7	20,169	5	
Cash tenants	772			772		
Share tenants	340	1	1	338		
Labor tenants	7			7		
No rental	722			722		
La Unión	38,219			38,219		
Owners	33,713			33,713		
Cash tenants	42			42		
Share tenants	4,455			4,455		
Labor tenants						
No rental	9			9		
Lepanto-Bontoc	159	9		147	3	
Owners	156	8		145	3	
Cash tenants						
Share tenants	2			2		
Labor tenants						
No rental	1	1				
Leyte	37,081	13	10	37,028	29	1
Owners	33,660	11	8	33,613	28	
Cash tenants	33	1		32		
Share tenants	2,991	1	2	2,986	1	
Labor tenants	23			23		
No rental	874			874		

¹ Comandancia.

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Manila city	537	25	8	494	10	.....
Owners.....	252	5	7	240	.....	.....
Cash tenants.....	259	20	1	228	10	.....
Share tenants.....	17	.....	.....	17	.....	.....
Labor tenants.....	2	.....	.....	2	.....	.....
No rental.....	7	.....	.....	7	.....	.....
Masbate	3,090	3	.....	3,086	1	.....
Owners.....	2,955	1	.....	2,953	1	.....
Cash tenants.....	8	.....	.....	8	.....	.....
Share tenants.....	66	.....	.....	66	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	61	2	.....	59	.....	.....
Mindoro.....	2,100	4	1	2,094	.....	1
Owners.....	1,767	4	1	1,761	.....	1
Cash tenants.....	3	.....	.....	3	.....	.....
Share tenants.....	806	.....	.....	306	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	24	.....	.....	24	.....	.....
Misamis.....	25,679	23	11	25,425	220	.....
Owners.....	25,264	21	10	25,022	211	.....
Cash tenants.....	7	.....	.....	6	1	.....
Share tenants.....	220	.....	.....	220	.....	.....
Labor tenants.....	2	.....	.....	2	.....	.....
No rental.....	186	2	1	175	8	.....
Negros Occidental.....	6,976	95	49	6,803	29	.....
Owners.....	6,166	61	38	6,040	27	.....
Cash tenants.....	230	26	7	196	1	.....
Share tenants.....	410	2	2	405	1	.....
Labor tenants.....	1	.....	.....	1	.....	.....
No rental.....	169	6	2	161	.....	.....
Negros Oriental.....	26,434	12	.....	26,411	11	.....
Owners.....	25,923	8	.....	25,905	10	.....
Cash tenants.....	7	3	.....	4	.....	.....
Share tenants.....	427	1	.....	425	1	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	77	.....	.....	77	.....	.....
Nueva Ecija.....	13,381	6	.....	13,375	.....	.....
Owners.....	9,944	5	.....	9,939	.....	.....
Cash tenants.....	2,215	.....	.....	2,215	.....	.....
Share tenants.....	290	1	.....	289	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	932	.....	.....	932	.....	.....
Nueva Vizcaya.....	1,807	.....	.....	1,807	.....	.....
Owners.....	1,514	.....	.....	1,514	.....	.....
Cash tenants.....	12	.....	.....	12	.....	.....
Share tenants.....	280	.....	.....	280	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	1	.....	.....	1	.....	.....
Pampanga.....	10,031	19	3	9,998	11	.....
Owners.....	6,498	19	2	6,467	10	.....
Cash tenants.....	861	.....	.....	860	1	.....
Share tenants.....	2,505	.....	1	2,504	.....	.....
Labor tenants.....	1	.....	.....	1	.....	.....
No rental.....	166	.....	.....	166	.....	.....

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Pangasinán	54,712	8	5	54,693	6	.....
Owners.....	85,872	7	5	35,857	3	.....
Cash tenants.....	2,086	1	.....	2,082	3	.....
Share tenants.....	16,461	.....	.....	16,461	.....	.....
Labor tenants.....	14	.....	.....	14	.....	.....
No rental.....	329	.....	.....	329	.....	.....
Paragua	2,673	9	2	2,660	2	.....
Owners.....	2,538	9	2	2,525	2	.....
Cash tenants.....	6	.....	.....	6	.....	.....
Share tenants.....	57	.....	.....	57	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	72	.....	.....	72	.....	.....
Paragua Sur ¹	131	.....	.....	127	4	.....
Owners.....	128	.....	.....	125	3	.....
Cash tenants.....	.....	.....	.....	.....	.....	.....
Share tenants.....	.....	.....	.....	.....	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	8	.....	.....	2	1	.....
Rizal	11,564	23	28	11,513	.....	.....
Owners.....	10,052	2	27	10,023	.....	.....
Cash tenants.....	777	20	1	756	.....	.....
Share tenants.....	641	.....	.....	641	.....	.....
Labor tenants.....	1	.....	.....	1	.....	.....
No rental.....	93	1	.....	92	.....	.....
Romblón	6,823	23	34	6,765	1	.....
Owners.....	5,891	23	34	5,833	1	.....
Cash tenants.....	81	.....	.....	81	.....	.....
Share tenants.....	727	.....	.....	727	.....	.....
Labor tenants.....	24	.....	.....	24	.....	.....
No rental.....	100	.....	.....	100	.....	.....
Samar	25,218	12	1	25,193	12	.....
Owners.....	24,525	12	1	24,500	12	.....
Cash tenants.....	168	.....	.....	168	.....	.....
Share tenants.....	372	.....	.....	372	.....	.....
Labor tenants.....	1	.....	.....	1	.....	.....
No rental.....	152	.....	.....	152	.....	.....
Siassi ¹	3	.....	.....	3	.....	.....
Owners.....	3	.....	.....	3	.....	.....
Cash tenants.....	.....	.....	.....	.....	.....	.....
Share tenants.....	.....	.....	.....	.....	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	.....	.....	.....	.....	.....	.....
Sorsogón	14,567	27	8	14,438	94	.....
Owners.....	14,350	22	8	14,228	92	.....
Cash tenants.....	1	.....	.....	1	.....	.....
Share tenants.....	197	.....	.....	197	.....	.....
Labor tenants.....	.....	.....	.....	.....	.....	.....
No rental.....	19	5	.....	12	2	.....
Surigao.....	7,412	5	.....	7,401	6	.....
Owners.....	7,052	5	.....	7,041	6	.....
Cash tenants.....	.....	.....	.....	.....	.....	.....
Share tenants.....	840	.....	.....	840	.....	.....
Labor tenants.....	1	.....	.....	1	.....	.....
No rental.....	19	.....	.....	19	.....	.....

¹ Comandancia.

TABLE 3.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Tárlac	11,160	15	6	11,131	8	.....
Owners	8,507	10	5	8,488	4	.....
Cash tenants	760	.....	.....	760	.....	.....
Share tenants	1,667	2	1	1,660	4	.....
Labor tenants	8	.....	.....	8	.....	.....
No rental	218	3	.....	215	.....	.....
Tayabas ¹	42,236	26	16	42,178	18	3
Owners	38,059	25	15	38,000	16	3
Cash tenants	138	.....	1	137	.....	.....
Share tenants	3,733	.....	.....	3,731	2	.....
Labor tenants	12	.....	.....	12	.....	.....
No rental	294	1	.....	293	.....	.....
Zambales	24,367	7	9	24,355	11	5
Owners	14,035	7	9	14,009	5	5
Cash tenants	5	.....	.....	5	.....	.....
Share tenants	10,182	.....	.....	10,176	6	.....
Labor tenants	4	.....	.....	4	.....	.....
No rental	141	.....	.....	141	.....	.....
Zamboanga ²	2,600	43	1	2,421	134	1
Owners	2,160	26	1	2,065	87	1
Cash tenants	159	11	.....	84	64	.....
Share tenants	90	1	.....	88	1	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	191	5	.....	184	2	.....

¹ Including the subprovince, Marinduque.² Comandancia.

TABLE 4.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by principal islands.

ISLAND AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Philippine Islands	815,453	778	308	813,382	959	26
Owners	658,543	608	266	656,836	814	19
Cash tenants	14,403	93	12	14,204	94	.....
Share tenants	132,444	22	18	132,366	31	7
Labor tenants	1,233	2	.....	1,231	.....	.....
No rental	8,830	53	12	8,745	20	.....
Bohol	35,093	5	5	35,063	20	.....
Owners	32,543	5	5	32,514	19	.....
Cash tenants	4	.....	.....	4	.....	.....
Share tenants	2,306	.....	.....	2,305	1	.....
Labor tenants .....	.....	.....	.....	.....	.....	.....
No rental	240	.....	.....	240	.....	.....
Cebú	75,382	5	14	75,325	26	12
Owners	46,858	3	12	46,822	14	7
Cash tenants	68	1	.....	65	2	.....
Share tenants	27,865	1	2	27,848	9	5
Labor tenants	23	.....	.....	23	.....	.....
No rental	568	.....	.....	567	1	.....

TABLE 4.—Number of farms and other parcels of land used for agriculture, classified by tenure and color of occupant, by principal islands—Continued.

ISLAND AND TENURE.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY COLOR OF FARMER.				
		White.	Mixed.	Brown.	Yellow.	Unknown.
Leyte.....	34,208	13	10	34,154	25	1
Owners.....	31,131	11	8	31,088	24	
Cash tenants.....	33	1		32		
Share tenants.....	2,647	1	2	2,642	1	1
Labor tenants.....	23			23		
No rental.....	369			369		
Luzón.....	447,267	331	149	446,397	381	9
Owners.....	334,001	235	127	333,299	332	8
Cash tenants.....	13,111	45	4	13,036	26	
Share tenants.....	93,098	15	9	93,057	16	1
Labor tenants.....	1,150	2		1,148		
No rental.....	5,907	34	9	5,857	7	
Marinduque.....	17,979	16	4	17,957		2
Owners.....	17,696	15	4	17,675		2
Cash tenants.....	31			31		
Share tenants.....	114			114		
Labor tenants.....						
No rental.....	138	1		137		
Masbate.....	1,818	1		1,817		
Owners.....	1,747	1		1,746		
Cash tenants.....	7			7		
Share tenants.....	59			59		
Labor tenants.....						
No rental.....	5			5		
Mindanao.....	30,877	95	13	30,482	286	1
Owners.....	29,826	73	12	29,530	210	1
Cash tenants.....	174	12		97	65	
Share tenants.....	507	1		505	1	
Labor tenants.....	3			3		
No rental.....	367	9	1	347	10	
Mindoro.....	1,660	2	1	1,656		1
Owners.....	1,394	2	1	1,390		1
Cash tenants.....	3			3		
Share tenants.....	242			242		
Labor tenants.....						
No rental.....	21			21		
Negros.....	25,814	106	49	25,619	40	
Owners.....	24,742	68	38	24,599	37	
Cash tenants.....	237	29	7	200	1	
Share tenants.....	592	3	2	585	2	
Labor tenants.....	1			1		
No rental.....	242	6	2	234		
Panay.....	71,379	74	22	71,220	63	
Owners.....	69,628	67	18	69,481	62	
Cash tenants.....	201	5	1	195		
Share tenants.....	1,150	1	3	1,146		
Labor tenants.....	8			8		
No rental.....	392	1		390	1	
Samar.....	20,536	9	1	20,518	8	
Owners.....	19,939	9	1	19,921	8	
Cash tenants.....	161			161		
Share tenants.....	300			300		
Labor tenants.....						
No rental.....	136			136		
Other islands.....	53,445	121	40	53,174	110	
Owners.....	49,038	119	40	48,771	108	
Cash tenants.....	373			373		
Share tenants.....	3,564			3,563	1	
Labor tenants.....	25			25		
No rental.....	445	2		442	1	

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ABES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
Owners	2,137,776	965,248	45.2	324.6	146.6
Cash tenants.....	109,674	57,447	52.4	761.5	398.8
Share tenants.....	488,878	245,123	50.1	369.1	185.1
Labor tenants.....	1,849	670	30.8	150.0	46.2
No rental	89,527	30,457	34.0	1,013.9	344.9
Abra	52,086	12,208	23.4	381.4	89.4
Owners	10,014	7,704	76.9	101.0	77.7
Cash tenants.....	88	83	94.3	63.8	60.1
Share tenants.....	41,877	4,848	10.4	1,189.0	123.5
Labor tenants.....					
No rental	107	73	68.2	137.2	93.6
Albay	116,084	85,147	73.4	354.0	259.6
Owners	110,348	81,505	73.9	342.8	253.2
Cash tenants.....	632	469	74.2	153.8	114.1
Share tenants.....	637	569	89.3	849.3	758.7
Labor tenants.....					
No rental	4,467	2,604	58.3	3,785.6	2,206.8
Ambos Camarines.....	106,371	59,683	56.1	827.0	464.0
Owners	93,292	52,948	56.8	778.0	441.6
Cash tenants.....	220	110	50.0	1,692.3	846.2
Share tenants.....	3,930	1,772	45.1	1,079.7	486.8
Labor tenants.....	9	8	88.9	450.0	400.0
No rental	8,920	4,845	54.3	1,809.3	982.8
Antique.....	27,194	21,622	79.5	207.4	164.9
Owners	26,756	21,357	79.8	204.9	163.6
Cash tenants.....	106	67	63.2	1,514.3	957.1
Share tenants.....	228	133	58.3	844.4	492.6
Labor tenants.....					
No rental	104	65	62.5	520.0	325.0
Basilan ¹	2,277	583	25.6	1,980.0	507.0
Owners	2,277	583	25.6	1,980.0	507.0
Cash tenants.....					
Share tenants.....					
Labor tenants.....					
No rental					
Bataan.....	8,232	3,485	42.3	357.3	151.3
Owners	5,952	1,718	28.9	514.4	148.5
Cash tenants.....	310	138	44.5	596.2	265.4
Share tenants.....	1,934	1,609	83.2	180.2	150.0
Labor tenants.....	2	2	100.0	200.0	200.0
No rental	34	18	52.9	161.9	38.1
Batangas.....	117,422	21,652	18.4	504.1	92.9
Owners	89,724	15,315	17.1	471.8	86.5
Cash tenants.....	1,848	278	15.0	1,265.8	190.4
Share tenants.....	21,829	5,373	24.6	628.2	154.6
Labor tenants.....					
No rental	4,021	686	17.1	612.0	104.4
Benguet	233	71	30.5	306.6	93.4
Owners	11	10	90.9	1,100.0	1,000.0
Cash tenants.....					
Share tenants.....					
Labor tenants.....					
No rental	222	61	27.5	296.0	81.3

¹ Comandancia.

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Bohol	58,098	23,247	40.0	157.5	63.1
Owners	51,091	21,059	41.2	149.3	61.6
Cash tenants	13	1	7.7	260.0	20.0
Share tenants	6,544	2,036	31.1	272.6	84.8
Labor tenants					
No rental	450	151	30.6	179.3	60.2
Bulacán	90,220	60,570	67.1	427.7	287.1
Owners	24,066	12,444	51.7	461.2	238.5
Cash tenants	19,914	16,024	80.5	575.9	463.4
Share tenants	44,626	31,461	70.7	367.6	259.7
Labor tenants					
No rental	1,714	641	37.4	569.4	213.0
Cagayán	138,166	35,430	25.6	758.9	194.6
Owners	124,335	31,027	24.9	751.7	187.5
Cash tenants	225	134	59.6	548.8	326.8
Share tenants	13,467	4,203	31.2	848.0	264.7
Labor tenants					
No rental	139	66	47.5	386.1	183.3
Cápiz	108,692	36,965	34.0	435.3	148.0
Owners	91,792	32,361	35.3	383.4	135.2
Cash tenants	428	261	61.0	737.9	450.0
Share tenants	13,072	2,994	22.9	1,548.8	354.7
Labor tenants	97	57	58.8	1,212.5	712.5
No rental	3,303	1,292	39.1	2,775.6	1,085.7
Cavite	40,881	20,811	50.9	424.1	215.9
Owners	26,427	12,731	48.2	440.7	212.3
Cash tenants	1,093	493	45.1	412.5	186.0
Share tenants	8,781	4,849	55.2	361.5	199.6
Labor tenants	33	17	51.5	220.0	113.3
No rental	4,547	2,721	59.8	486.3	291.0
Cebú	130,624	53,283	40.8	162.8	66.4
Owners	81,055	30,562	37.7	160.4	60.5
Cash tenants	378	116	30.7	517.8	158.9
Share tenants	48,096	22,192	46.1	166.0	76.6
Labor tenants	140	69	49.3	608.7	300.0
No rental	955	344	36.0	155.3	55.9
Cottabato ¹	5,286	383	7.2	16,518.8	1,196.9
Owners	5,286	383	7.2	16,518.8	1,196.9
Cash tenants					
Share tenants					
Labor tenants					
No rental					
Dapitan ¹	5,374	2,232	41.5	446.7	185.5
Owners	5,353	2,228	41.6	446.5	185.8
Cash tenants					
Share tenants					
Labor tenants					
No rental	21	4	19.0	700.0	133.3
Dávao ¹	16,343	3,769	23.1	1,248.5	287.9
Owners	15,258	3,580	23.5	1,237.5	290.8
Cash tenants	390	69	17.7	3,545.5	627.8
Share tenants	3	2	66.7	150.0	100.0
Labor tenants					
No rental	692	118	17.1	1,098.4	187.3

¹ Comandancia.

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Ilocos Norte	55,633	40,233	72.3	85.8	62.1
Owners	34,261	25,294	73.8	74.0	54.6
Cash tenants.....	12	1	8.3	400.0	33.3
Share tenants.....	20,621	14,635	71.0	119.3	84.7
Labor tenants.....	221	103	46.6	22.2	10.3
No rental.....	518	200	38.6	256.4	99.0
Ilocos Sur.....	47,176	39,739	84.2	219.6	185.0
Owners	16,123	13,384	83.0	134.5	111.7
Cash tenants.....	87	42	48.3	511.8	247.1
Share tenants.....	30,401	26,137	86.0	324.0	278.5
Labor tenants.....					
No rental.....	560	176	31.4	615.4	198.4
Iloilo	176,955	57,081	32.3	510.5	164.7
Owners	162,358	53,271	32.8	479.8	157.4
Cash tenants.....	4,688	1,205	25.7	2,898.8	743.8
Share tenants.....	6,100	1,635	26.8	1,517.4	406.7
Labor tenants.....					
No rental.....	3,809	970	25.5	1,442.8	367.4
Isabela.....	67,716	16,752	24.7	576.9	142.7
Owners	55,644	12,145	21.8	628.1	137.1
Cash tenants.....	6,316	2,435	38.7	707.8	252.9
Share tenants.....	2,912	1,918	65.9	170.7	112.4
Labor tenants.....	818	110	13.4	997.6	134.1
No rental.....	1,526	144	9.4	1,192.2	112.6
Joló ¹	23	19	82.6	255.6	211.1
Owners	5	5	100.0	83.3	83.3
Cash tenants.....					
Share tenants.....	18	14	77.8	600.0	466.7
Labor tenants.....					
No rental.....					
La Laguna.....	86,426	41,016	47.5	392.4	186.2
Owners	65,381	37,657	57.6	323.9	186.6
Cash tenants.....	9,138	1,260	13.8	1,133.7	163.2
Share tenants.....	1,927	1,097	56.9	566.8	322.6
Labor tenants.....	8	6	75.0	114.3	85.7
No rental.....	9,972	996	10.0	1,381.2	138.0
La Unión	43,077	30,850	71.6	112.7	80.7
Owners	32,062	25,470	79.4	95.1	75.5
Cash tenants.....	499	157	31.5	1,188.1	373.8
Share tenants.....	10,012	5,062	50.6	224.7	113.6
Labor tenants.....					
No rental.....	504	161	31.9	5,600.0	1,788.9
Lepanto-Bontoc	1,741	374	21.5	1,095.0	235.2
Owners	1,010	360	35.6	647.4	230.8
Cash tenants.....					
Share tenants.....	3			150.0	
Labor tenants.....					
No rental.....	728	14	1.9	72,800.0	1,400.0
Leyte	133,620	42,898	32.1	360.3	115.7
Owners	111,051	35,581	32.0	329.9	105.7
Cash tenants.....	75	95	46.7	227.3	106.1
Share tenants.....	21,435	6,881	31.9	716.6	223.4
Labor tenants.....	47	6	12.8	204.3	26.1
No rental.....	1,012	445	44.0	270.6	119.0

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Manila city	738	473	64.1	137.4	88.1
Owners	350	213	60.9	138.9	84.5
Cash tenants	362	244	67.4	139.8	94.2
Share tenants	12	9	75.0	70.6	52.9
Labor tenants					
No rental	14	7	50.0	200.0	100.0
Masbate	9,798	7,429	75.8	317.1	240.4
Owners	8,414	6,405	76.1	284.7	216.8
Cash tenants	250	167	66.8	3,125.0	2,087.5
Share tenants	476	365	76.7	721.2	553.0
Labor tenants					
No rental	658	492	74.8	1,078.7	806.6
Mindoro	42,424	4,768	11.2	2,020.2	227.0
Owners	36,880	3,118	8.4	2,087.2	176.2
Cash tenants	506			16,866.7	
Share tenants	4,764	1,616	33.9	1,566.9	528.1
Labor tenants					
No rental	274	39	14.2	1,141.7	162.5
Misamis	59,269	29,346	49.5	230.8	114.3
Owners	57,855	28,457	49.2	229.0	112.6
Cash tenants	94	91	96.8	1,342.9	1,300.0
Share tenants	438	257	58.7	199.1	116.8
Labor tenants					
No rental	882	541	61.3	474.2	290.9
Negros Occidental	177,642	72,928	41.0	2,546.5	1,045.4
Owners	119,444	46,945	39.3	1,937.1	761.4
Cash tenants	18,907	9,743	51.5	8,220.4	4,236.1
Share tenants	30,251	12,632	41.8	7,378.3	3,081.0
Labor tenants	135	75	55.6	13,500.0	7,500.0
No rental	8,905	3,533	39.7	5,269.2	2,090.5
Negros Oriental	37,971	21,383	56.3	143.6	80.9
Owners	34,269	19,385	56.6	132.2	74.8
Cash tenants	661	368	55.7	9,442.9	5,257.1
Share tenants	2,251	1,250	55.5	527.2	292.7
Labor tenants					
No rental	790	380	48.1	1,026.0	493.5
Nueva Écija	90,367	26,763	29.6	675.3	200.0
Owners	60,399	17,815	29.5	607.4	179.2
Cash tenants	12,453	4,174	33.5	562.2	188.4
Share tenants	8,016	2,908	36.3	2,764.1	1,002.8
Labor tenants					
No rental	9,499	1,866	19.6	1,019.2	200.2
Nueva Vizcaya	4,421	2,832	64.1	244.7	156.7
Owners	3,315	2,226	67.1	219.0	147.0
Cash tenants	22	14	63.6	183.3	116.7
Share tenants	1,082	592	54.7	386.4	211.4
Labor tenants					
No rental	2			200.0	
Pampanga	105,677	63,840	60.4	1,053.5	686.4
Owners	72,469	42,235	58.3	1,115.3	650.0
Cash tenants	14,802	9,465	63.9	1,719.2	1,099.3
Share tenants	15,904	11,039	69.4	634.9	440.7
Labor tenants					
No rental	2,502	1,101	44.0	1,507.2	663.3

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Pangasinán	119,771	81,472	68.0	218.9	148.9
Owners	63,094	43,050	68.2	175.9	120.0
Cash tenants	4,908	4,378	89.2	241.1	215.0
Share tenants	50,642	33,642	66.4	307.6	204.4
Labor tenants	24	16	66.7	171.4	114.3
No rental	1,103	386	35.0	335.3	117.3
Paragua	9,032	2,999	33.2	337.9	112.2
Owners	6,962	2,426	34.8	274.3	95.6
Cash tenants	279	88	31.5	4,650.0	1,466.7
Share tenants	712	232	32.6	1,249.1	407.0
Labor tenants .....	.....	.....	.....	.....	.....
No rental	1,079	253	23.5	1,498.6	351.4
Paragua Sur ¹	626	110	17.6	477.9	84.0
Owners	623	107	17.2	486.7	83.6
Cash tenants .....	.....	.....	.....	.....	.....
Share tenants .....	.....	.....	.....	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....
No rental	3	3	100.0	100.0	100.0
Rizal	14,787	9,934	67.2	127.9	85.9
Owners	11,649	8,517	73.1	115.9	84.7
Cash tenants	2,184	888	40.7	281.1	114.3
Share tenants	760	496	65.3	118.6	77.4
Labor tenants	6	6	100.0	600.0	600.0
No rental	188	27	14.4	202.2	29.0
Romblón	23,546	13,243	56.2	345.1	194.1
Owners	19,209	10,452	54.4	326.0	177.4
Cash tenants	230	153	66.5	284.0	188.9
Share tenants	3,564	2,343	65.7	490.2	322.3
Labor tenants	99	32	32.3	412.5	133.3
No rental	444	263	59.2	444.0	263.0
Sámar	101,481	43,073	42.4	402.4	170.8
Owners	98,205	40,679	41.4	400.4	165.9
Cash tenants	1,015	761	75.0	604.2	453.0
Share tenants	1,566	1,131	72.2	421.0	304.0
Labor tenants	7	6	85.7	700.0	600.0
No rental	688	496	72.1	452.6	326.3
Slasi ¹	133	30	22.6	4,433.3	1,000.0
Owners	133	30	22.6	4,433.3	1,000.0
Cash tenants .....	.....	.....	.....	.....	.....
Share tenants .....	.....	.....	.....	.....	.....
Labor tenants .....	.....	.....	.....	.....	.....
No rental .....	.....	.....	.....	.....	.....
Sorsogón	88,829	54,668	61.5	609.8	375.3
Owners	85,527	52,252	61.1	596.0	364.1
Cash tenants	140	28	20.0	14,000.0	2,800.0
Share tenants	811	440	54.3	411.7	223.4
Labor tenants .....	.....	.....	.....	.....	.....
No rental	2,351	1,948	82.9	12,373.7	10,252.6
Surigao	49,060	24,250	49.4	661.9	327.2
Owners	46,275	23,246	50.2	656.2	329.6
Cash tenants .....	.....	.....	.....	.....	.....
Share tenants	2,635	941	35.7	775.0	276.8
Labor tenants	9	4	44.4	900.0	400.0
No rental	141	59	41.8	742.1	310.5

¹ Comandancia.

TABLE 5.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Tarlac	78,923	37,332	47.3	707.2	334.5
Owners	51,293	27,544	53.7	603.0	323.8
Cash tenants.....	4,679	2,612	55.8	615.7	343.7
Share tenants.....	15,232	6,595	43.3	913.7	896.6
Labor tenants.....	109	22	20.2	1,362.5	275.0
No rental	7,610	559	7.3	3,490.8	256.4
Tayabas ¹	120,754	57,575	47.7	285.9	136.3
Owners	85,134	41,680	49.0	223.7	109.5
Cash tenants.....	858	573	66.8	621.7	415.2
Share tenants.....	32,274	14,528	45.0	864.6	899.2
Labor tenants.....	79	29	36.7	658.3	241.7
No rental	2,409	765	31.8	819.4	260.2
Zambales	46,917	27,386	59.6	188.4	112.4
Owners	26,773	12,265	45.8	190.8	87.4
Cash tenants.....	12	7	58.3	240.0	140.0
Share tenants.....	18,907	15,013	79.4	185.7	147.4
Labor tenants.....	6	2	33.3	150.0	50.0
No rental	219	99	45.2	155.3	70.2
Zamboanga ²	10,588	6,908	65.2	407.2	265.7
Owners	8,567	5,524	64.5	396.6	255.7
Cash tenants.....	852	315	39.5	221.4	198.1
Share tenants.....	228	224	98.2	253.3	248.9
Labor tenants.....	.....	.....	.....	.....	.....
No rental	1,441	845	58.6	754.5	442.4

¹Including the subprovince, Marinduque.²Comandancia.

TABLE 6.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by principal islands.

ISLAND AND TENURE	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands.....	2,827,704	1,298,845	45.9	346.8	159.3
Owners	2,137,776	965,248	45.2	324.6	146.6
Cash tenants.....	109,675	57,446	52.4	761.5	898.8
Share tenants.....	488,871	245,124	50.1	369.1	185.1
Labor tenants.....	1,849	570	30.8	150.0	46.2
No rental	89,527	80,457	84.0	1,018.9	344.9
Bohol	53,160	21,503	40.4	151.5	61.3
Owners	46,794	19,388	41.4	143.8	59.6
Cash tenants.....	13	.....	.....	325.0	.....
Share tenants.....	5,916	1,969	33.2	256.5	85.4
Labor tenants.....	.....	.....	.....	.....	.....
No rental	437	146	33.4	182.1	60.8
Cebu	119,989	49,148	40.9	159.2	65.2
Owners	73,580	27,641	37.6	157.0	59.0
Cash tenants.....	863	111	30.2	541.2	163.2
Share tenants.....	46,001	21,013	46.7	161.5	75.4
Labor tenants.....	140	69	49.3	608.7	800.0
No rental	900	314	34.9	158.5	55.8

TABLE 6.—Area and average size of farms and other parcels of land used for agriculture, classified by tenure, by principal islands—Continued.

ISLAND AND TENURE.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ACRES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Leyte	123,754	37,950	30.7	361.8	111.0
Owners	103,933	31,571	30.4	333.9	101.4
Cash tenants	75	35	46.7	227.3	106.1
Share tenants	18,700	5,903	31.6	706.5	228.0
Labor tenants	47	6	12.8	204.3	26.1
No rental	999	435	43.5	270.7	117.9
Luzón	1,592,288	806,376	50.6	356.0	180.8
Owners	1,102,963	555,223	50.3	330.2	166.2
Cash tenants	80,967	43,785	54.1	617.6	334.0
Share tenants	343,374	187,034	54.5	368.8	200.9
Labor tenants	1,315	321	24.4	114.3	27.9
No rental	63,669	20,013	31.4	1,077.9	338.8
Marinduque	15,598	5,039	32.3	86.8	28.0
Owners	15,163	4,966	32.8	85.7	28.1
Cash tenants	9	6	66.7	29.0	19.4
Share tenants	371	40	10.8	325.4	35.1
Labor tenants .....	.....	.....	.....	.....	.....
No rental	55	27	49.1	39.9	19.6
Masbate	5,222	3,980	76.2	287.2	218.9
Owners	4,505	3,457	76.7	257.9	197.9
Cash tenants	205	122	59.5	2,928.6	1,742.9
Share tenants	442	335	75.8	749.2	567.8
Labor tenants .....	.....	.....	.....	.....	.....
No rental	70	66	94.3	1,400.0	1,320.0
Mindanao	127,534	57,552	45.1	413.0	186.4
Owners	120,871	54,456	45.1	405.3	182.6
Cash tenants	829	471	56.8	476.4	270.7
Share tenants	2,899	1,246	43.0	571.8	245.8
Labor tenants	9	4	44.4	300.0	138.3
No rental	2,926	1,375	47.0	797.3	374.7
Mindoro	39,138	3,213	8.2	2,357.7	193.6
Owners	34,848	2,238	6.4	2,499.9	160.5
Cash tenants	506	.....	.....	16,866.7	.....
Share tenants	3,533	945	26.7	1,459.9	390.5
Labor tenants .....	.....	.....	.....	.....	.....
No rental	251	30	12.0	1,195.2	142.9
Negros	210,452	90,151	42.8	815.3	349.2
Owners	148,984	62,498	41.9	602.2	252.6
Cash tenants	19,568	10,111	51.7	8,256.5	4,266.2
Share tenants	32,076	13,559	42.3	5,418.2	2,290.4
Labor tenants	135	75	55.5	13,500.0	7,500.0
No rental	9,689	3,908	40.3	4,003.7	1,614.9
Panay	294,487	110,240	37.4	412.6	154.4
Owners	266,919	102,453	38.4	383.4	147.1
Cash tenants	4,304	1,021	23.7	2,141.3	508.0
Share tenants	16,076	4,403	27.4	1,397.9	382.9
Labor tenants	97	57	58.8	1,212.5	712.5
No rental	7,091	2,306	32.5	1,808.9	588.3
Samar	85,892	34,898	40.6	418.3	169.9
Owners	82,857	32,645	39.4	415.6	163.7
Cash tenants	998	746	74.7	619.9	463.4
Share tenants	1,392	1,038	74.6	464.0	346.0
Labor tenants .....	.....	.....	.....	.....	.....
No rental	645	469	72.7	474.3	344.9
Other islands	160,190	78,795	49.2	299.7	147.4
Owners	136,359	68,712	50.4	278.1	140.1
Cash tenants	1,833	1,038	56.6	191.4	278.5
Share tenants	19,097	7,639	40.0	535.8	214.3
Labor tenants	106	88	35.8	424.0	152.0
No rental	2,795	1,368	48.9	628.1	307.4

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Philippine Islands	815,453	658,543	14,403	132,444	1,233	8,830
Under 0.35	176,653	150,778	1,311	21,981	876	1,707
0.35 and under 1	229,272	186,301	2,739	38,642	195	1,395
1 and under 2	167,966	129,825	3,994	32,688	49	1,410
2 and under 5	151,288	120,500	3,570	25,027	68	2,073
5 and under 10	52,867	42,417	1,194	8,287	28	941
10 and under 15	14,896	11,935	507	2,212	6	236
15 and under 30	12,495	9,781	449	1,891	3	371
30 and under 50	4,490	3,193	235	753	4	306
50 and under 100	3,222	2,240	232	493	3	254
100 and over	2,354	1,573	172	470	1	138
Abra	13,655	9,917	188	3,522	.....	78
Under 0.35	5,283	4,134	67	1,050	.....	32
0.35 and under 1	4,299	3,064	48	1,166	.....	21
1 and under 2	2,218	1,549	18	637	.....	14
2 and under 5	1,247	831	5	408	.....	8
5 and under 10	463	275	.....	186	.....	2
10 and under 15	59	32	.....	27	.....	.....
15 and under 30	57	18	.....	39	.....	.....
30 and under 50	18	10	.....	7	.....	1
50 and under 100	7	4	.....	3	.....	.....
100 and over	4	.....	.....	4	.....	.....
Albay	32,794	32,190	411	75	.....	118
Under 0.35	3,232	3,172	50	7	.....	8
0.35 and under 1	8,307	8,025	218	30	.....	36
1 and under 2	8,256	8,144	73	14	.....	25
2 and under 5	8,658	8,587	49	9	.....	13
5 and under 10	2,709	2,636	10	5	.....	8
10 and under 15	683	673	4	3	.....	3
15 and under 30	561	548	3	2	.....	8
30 and under 50	186	175	4	2	.....	5
50 and under 100	118	109	.....	2	.....	7
100 and over	84	73	.....	1	.....	10
Ambos Camarines	12,863	11,991	13	364	2	493
Under 0.35	401	348	.....	4	.....	49
0.35 and under 1	577	522	1	11	.....	43
1 and under 2	1,906	1,823	.....	32	.....	51
2 and under 5	4,773	4,538	4	126	1	104
5 and under 10	2,812	2,630	3	106	1	72
10 and under 15	1,007	925	2	32	.....	48
15 and under 30	843	759	1	28	.....	55
30 and under 50	297	245	.....	15	.....	37
50 and under 100	146	121	2	5	.....	18
100 and over	101	80	.....	5	.....	16
Antique	13,110	13,056	7	27	.....	20
Under 0.35	2,235	2,230	.....	2	.....	3
0.35 and under 1	3,690	3,684	.....	.....	.....	6
1 and under 2	3,667	3,659	1	5	.....	2
2 and under 5	2,541	2,526	1	12	.....	2
5 and under 10	648	643	1	2	.....	2
10 and under 15	147	143	.....	2	.....	2
15 and under 30	102	94	3	2	.....	3
30 and under 50	48	46	1	1	.....	.....
50 and under 100	26	25	.....	1	.....	.....
100 and over	6	6	.....	.....	.....	.....
Baslan ¹	115	115	.....	.....	.....	.....
Under 0.35	2	2	.....	.....	.....	.....
0.35 and under 1 .....	.....	.....	.....	.....	.....	.....
1 and under 2	23	23	.....	.....	.....	.....
2 and under 5	40	40	.....	.....	.....	.....
5 and under 10	17	17	.....	.....	.....	.....
10 and under 15	12	12	.....	.....	.....	.....
15 and under 30	13	13	.....	.....	.....	.....
30 and under 50	2	2	.....	.....	.....	.....
50 and under 100	3	3	.....	.....	.....	.....
100 and over	3	3	.....	.....	.....	.....

¹ Comandancia.

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Bataán	2,304	1,157	52	1,073	1	21
Under 0.35.....	314	203	8	101		2
0.35 and under 1.....	675	317	9	343		6
1 and under 2.....	608	224	15	361		8
2 and under 5.....	433	195	11	221	1	5
5 and under 10.....	135	94	4	37		
10 and under 15.....	39	36		3		
15 and under 30.....	64	51	1	2		
30 and under 50.....	26	20	2	4		
50 and under 100.....	15	12	2	1		
100 and over.....	5	5				
Batangas	23,295	19,017	146	3,475		657
Under 0.35.....	5,891	5,375	4	413		99
0.35 and under 1.....	4,791	4,003	12	664		112
1 and under 2.....	4,342	3,459	18	722		148
2 and under 5.....	4,383	3,327	84	855		167
5 and under 10.....	1,886	1,420	17	391		58
10 and under 15.....	719	524	14	161		20
15 and under 30.....	669	473	31	126		39
30 and under 50.....	257	179	10	59		9
50 and under 100.....	234	166	6	56		6
100 and over.....	123	91		28		4
Benguet	76	1				75
Under 0.35.....	33					33
0.35 and under 1.....	14					14
1 and under 2.....	13					13
2 and under 5.....	11					11
5 and under 10.....						
10 and under 15.....	3	1				2
15 and under 30.....	1					1
30 and under 50.....						
50 and under 100.....						
100 and over.....	1					1
Bohol	36,869	34,212	5	2,401		251
Under 0.35.....	19,086	17,933	8	1,050		100
0.35 and under 1.....	9,825	9,086	1	658		80
1 and under 2.....	4,221	3,884		306		81
2 and under 5.....	2,640	2,356		254		30
5 and under 10.....	762	683	1	71		7
10 and under 15.....	138	122		15		1
15 and under 30.....	111	81		28		2
30 and under 50.....	63	46		7		
50 and under 100.....	25	16		9		
100 and over.....	8	5		8		
Bulacáñ	21,095	5,218	3,458	12,114	4	301
Under 0.35.....	2,651	1,194	250	1,191	4	12
0.35 and under 1.....	5,135	1,552	694	2,866		23
1 and under 2.....	6,174	1,042	1,390	3,708		84
2 and under 5.....	4,889	775	781	3,128		205
5 and under 10.....	1,345	286	187	858		14
10 and under 15.....	279	129	27	118		5
15 and under 30.....	239	105	18	114		2
30 and under 50.....	95	59	7	29		
50 and under 100.....	141	46	73	22		
100 and over.....	147	30	31	80		6
Cagayáñ	18,204	16,539	41	1,588		36
Under 0.35.....	2,127	1,927	3	186		11
0.35 and under 1.....	4,376	3,878	7	437		4
1 and under 2.....	4,642	4,234	10	390		8
2 and under 5.....	4,699	4,376	12	305		6
5 and under 10.....	1,432	1,296	4	125		4
10 and under 15.....	399	363	1	34		1
15 and under 30.....	344	311	1	31		1
30 and under 50.....	86	75	3	7		1
50 and under 100.....	58	49		9		
100 and over.....	41	30		11		

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Cápiz	24,969	23,940	58	844	8	119
Under 0.35	5,063	5,026	5	26	1	5
0.35 and under 1	5,460	5,363	17	87	4	10
1 and under 2	5,462	5,244	15	178	1	19
2 and under 5	5,265	4,943	6	282	1	24
5 and under 10	1,961	1,811	10	125	1	19
10 and under 15	678	604	4	54	1	10
15 and under 30	596	543	16	43	1	6
30 and under 50	207	185	9	16	1	5
50 and under 100	147	125	1	9	1	12
100 and over	130	96	1	24	1	9
Cavite	9,640	5,996	265	2,429	15	935
Under 0.35	1,415	972	26	350	5	62
0.35 and under 1	1,688	1,180	34	381	1	92
1 and under 2	2,242	1,275	148	617	5	197
2 and under 5	2,719	1,600	9	704	2	404
5 and under 10	896	564	19	197	1	115
10 and under 15	251	146	13	62	1	39
15 and under 30	250	145	8	79	1	18
30 and under 50	91	50	7	26	1	8
50 and under 100	60	42	1	12	1	6
100 and over	28	22	1	1	1	4
Cebu	80,231	50,545	73	28,975	23	615
Under 0.35	16,961	12,117	12	4,687	1	145
0.35 and under 1	28,724	17,600	25	10,887	2	210
1 and under 2	18,783	10,881	14	7,748	1	140
2 and under 5	11,115	6,965	10	4,033	19	88
5 and under 10	3,820	2,162	4	1,129	1	24
10 and under 15	698	434	3	256	1	5
15 and under 30	482	282	1	147	1	2
30 and under 50	121	58	1	62	1	1
50 and under 100	51	29	3	17	1	1
100 and over	26	17	1	9	1	1
Cottabato ¹	32	32	1	1	1	1
Under 0.35	5	5	1	1	1	1
0.35 and under 1	2	2	1	1	1	1
1 and under 2	5	5	1	1	1	1
2 and under 5	4	4	1	1	1	1
5 and under 10	9	9	1	1	1	1
10 and under 15	2	2	1	1	1	1
15 and under 30	1	1	1	1	1	1
30 and under 50	4	4	1	1	1	1
50 and under 100	1	1	1	1	1	1
100 and over	4	4	1	1	1	1
Dapitan ¹	1,203	1,199	1	1	1	3
Under 0.35	273	272	1	1	1	1
0.35 and under 1	166	165	1	1	1	1
1 and under 2	227	226	1	1	1	1
2 and under 5	294	293	1	1	1	1
5 and under 10	130	130	1	1	1	1
10 and under 15	39	39	1	1	1	1
15 and under 30	50	49	1	1	1	1
30 and under 50	15	15	1	1	1	1
50 and under 100	6	6	1	1	1	1
100 and over	4	4	1	1	1	1
Davao ¹	1,309	1,233	11	2	1	63
Under 0.35	7	4	1	1	1	2
0.35 and under 1	32	26	1	1	1	6
1 and under 2	302	279	1	2	1	20
2 and under 5	478	454	1	1	1	23
5 and under 10	252	246	2	1	1	4
10 and under 15	68	67	1	1	1	1
15 and under 30	73	72	1	1	1	1
30 and under 50	36	31	4	1	1	1
50 and under 100	25	22	1	1	1	2
100 and over	36	32	1	1	1	3

¹ Comandancia.

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Ilocos Norte	64,812	46,327	8	17,283	997	202
Under 0.35	26,403	19,815	1	5,629	836	122
0.35 and under 1	23,388	17,935	1	5,268	125	59
1 and under 2	10,509	6,061	.....	4,424	21	13
2 and under 5	8,541	2,021	.....	1,510	6	4
5 and under 10	751	408	.....	342	6	.....
10 and under 15	107	66	1	88	2	.....
15 and under 30	57	24	.....	32	1	.....
30 and under 50	18	3	.....	13	.....	2
50 and under 100	27	3	.....	23	.....	1
100 and over	11	6	.....	4	.....	1
Ilocos Sur	21,479	11,987	17	9,384	.....	91
Under 0.35	7,718	5,132	1	2,553	.....	32
0.35 and under 1	6,182	3,596	4	2,555	.....	27
1 and under 2	3,475	1,712	1	1,758	.....	4
2 and under 5	2,400	989	5	1,392	.....	14
5 and under 10	1,033	335	2	692	.....	4
10 and under 15	251	78	.....	172	.....	1
15 and under 30	259	113	4	142	.....	.....
30 and under 50	91	19	.....	69	.....	3
50 and under 100	49	9	.....	34	.....	6
100 and over	21	4	.....	17	.....	.....
Iloilo	34,666	33,838	162	402	.....	264
Under 0.35	6,789	6,719	18	32	.....	20
0.35 and under 1	7,385	7,327	21	20	.....	17
1 and under 2	6,780	6,621	20	76	.....	63
2 and under 5	7,374	7,144	39	122	.....	69
5 and under 10	3,156	3,035	20	62	.....	39
10 and under 15	1,090	1,036	10	31	.....	13
15 and under 30	1,185	1,127	14	23	.....	21
30 and under 50	409	383	6	13	.....	7
50 and under 100	277	255	4	11	.....	7
100 and over	221	191	10	12	.....	8
Isabela	11,738	8,859	963	1,706	82	128
Under 0.35	477	381	28	51	1	16
0.35 and under 1	3,735	2,347	278	1,020	45	45
1 and under 2	4,436	3,658	225	524	1	23
2 and under 5	2,438	1,954	391	48	22	28
5 and under 10	323	261	1	42	13	6
10 and under 15	65	60	2	8	.....	.....
15 and under 30	117	74	80	12	.....	1
30 and under 50	17	14	2	1	.....	.....
50 and under 100	60	55	.....	.....	.....	5
100 and over	70	56	6	5	.....	4
Joló¹	9	6	.....	8	.....	.....
Under 0.35	3	3	.....	.....	.....	.....
0.35 and under 1	2	2	.....	.....	.....	.....
1 and under 2	1	.....	.....	1	.....	.....
2 and under 5	1	1	.....	.....	.....	.....
5 and under 10	1	.....	.....	1	.....	.....
10 and under 15	1	.....	.....	1	.....	.....
15 and under 30 .....	.....	.....	.....	.....	.....	.....
30 and under 50 .....	.....	.....	.....	.....	.....	.....
50 and under 100 .....	.....	.....	.....	.....	.....	.....
100 and over .....	.....	.....	.....	.....	.....	.....
La Laguna	22,025	20,184	772	340	7	722
Under 0.35	2,012	1,917	4	23	.....	68
0.35 and under 1	5,106	4,923	2	46	3	182
1 and under 2	5,795	5,585	4	66	2	75
2 and under 5	5,454	5,075	177	125	2	75
5 and under 10	1,643	1,275	205	45	.....	118
10 and under 15	1,083	780	236	12	.....	5
15 and under 30	677	445	139	13	.....	80
30 and under 50	125	94	8	4	.....	24
50 and under 100	218	77	1	4	.....	136
100 and over	22	13	1	2	.....	6

¹ Comandancia.

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
La Unión	38,219	33,713	42	4,455		9
Under 0.35.....	6,244	6,027		217		
0.35 and under 1.....	19,578	17,112		2,459		7
1 and under 2.....	8,586	7,801	10	775		
2 and under 5.....	3,151	2,422	2	727		
5 and under 10.....	470	290	1	179		
10 and under 15.....	97	53	27	17		
15 and under 30.....	38	5		33		
30 and under 50.....	37	2		35		
50 and under 100.....	6		2	4		
100 and over.....	12	1		9		2
Lepanto-Bontoc	159	156		2		1
Under 0.35.....	15	15				
0.35 and under 1.....	25	25				
1 and under 2.....	37	35		2		
2 and under 5.....	49	49				
5 and under 10.....	14	14				
10 and under 15.....	7	7				
15 and under 30.....	8	8				
30 and under 50.....	1	1				
50 and under 100.....						
100 and over.....	3	2				1
Leyte	37,081	33,660	33	2,991	23	374
Under 0.35.....	6,979	6,486	12	402	12	67
0.35 and under 1.....	10,472	9,766	11	619	6	70
1 and under 2.....	8,408	7,736	4	581	3	84
2 and under 5.....	7,299	6,491	2	705	1	100
5 and under 10.....	2,518	2,129	2	354		33
10 and under 15.....	721	549		160		12
15 and under 30.....	459	343	2	107		7
30 and under 50.....	114	85		28	1	
50 and under 100.....	66	49		16		1
100 and over.....	45	26		19		
Manila city	537	252	259	17	2	7
Under 0.35.....	241	108	121	9	2	1
0.35 and under 1.....	123	63	56	3		1
1 and under 2.....	69	39	24	3		8
2 and under 5.....	70	29	37	2		2
5 and under 10.....	27	10	17			
10 and under 15.....	4	1	3			
15 and under 30.....	2	1	1			
30 and under 50.....						
50 and under 100.....	1	1				
100 and over.....						
Masbate	3,090	2,955	8	66		61
Under 0.35.....	237	281		6		
0.35 and under 1.....	574	571	1	2		
1 and under 2.....	899	884	1	11		3
2 and under 5.....	888	858	1	21		8
5 and under 10.....	346	301	1	9		35
10 and under 15.....	87	71		9		7
15 and under 30.....	41	30		6		5
30 and under 50.....	9	4	2	2		1
50 and under 100.....	7	3	2			2
100 and over.....	2	2				
Mindoro	2,100	1,767	3	306		24
Under 0.35.....	190	187		2		1
0.35 and under 1.....	326	312		13		1
1 and under 2.....	429	396		27		6
2 and under 5.....	517	446		66		5
5 and under 10.....	290	220		64		6
10 and under 15.....	131	92		36		3
15 and under 30.....	122	76	1	44		1
30 and under 50.....	46	13		33		
50 and under 100.....	26	8	1	17		
100 and over.....	23	17	1	4		1

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Misamis	25, 679	25, 264	7	220	2	186
Under 0.35	6, 271	6, 170	1	49	2	49
0.35 and under 1	7, 328	7, 206	.....	84	.....	38
1 and under 2	5, 355	5, 262	2	43	.....	28
2 and under 5	4, 688	4, 612	3	29	.....	44
5 and under 10	1, 309	1, 286	.....	8	.....	15
10 and under 15	352	346	.....	1	.....	5
15 and under 30	236	229	.....	4	.....	8
30 and under 60	73	69	.....	2	.....	2
50 and under 100	67	65	1	.....	.....	1
100 and over	20	19	.....	.....	.....	1
Negros Occidental	6, 976	6, 166	230	410	1	169
Under 0.35	520	494	.....	4	.....	22
0.35 and under 1	583	561	17	9	.....	6
1 and under 2	1, 197	1, 143	19	24	.....	11
2 and under 5	1, 785	1, 629	24	92	.....	40
5 and under 10	878	813	11	40	.....	14
10 and under 15	370	356	5	24	.....	5
15 and under 30	480	417	15	33	.....	15
30 and under 50	263	198	31	22	.....	12
50 and under 100	358	251	37	55	.....	15
100 and over	542	334	71	107	1	29
Negros Oriental	26, 434	25, 923	7	427	.....	77
Under 0.35	3, 777	3, 758	.....	19	.....	.....
0.35 and under 1	18, 377	18, 268	.....	99	.....	10
1 and under 2	2, 211	2, 029	1	161	.....	20
2 and under 5	1, 204	1, 084	.....	98	.....	22
5 and under 10	465	419	.....	27	.....	9
10 and under 15	166	159	.....	5	.....	2
15 and under 30	119	100	2	10	.....	7
30 and under 50	37	33	1	.....	.....	8
50 and under 100	46	38	1	4	.....	8
100 and over	42	35	2	4	.....	1
Nueva Ecija	13, 381	9, 944	2, 215	290	.....	932
Under 0.35	1, 881	1, 405	173	2	.....	801
0.35 and under 1	920	851	21	20	.....	28
1 and under 2	2, 352	1, 663	567	58	.....	64
2 and under 5	4, 439	3, 256	941	48	.....	194
5 and under 10	2, 187	1, 589	378	44	.....	176
10 and under 15	498	434	27	36	.....	1
15 and under 30	538	491	11	14	.....	22
30 and under 60	399	175	54	30	.....	140
50 and under 100	102	47	38	17	.....	.....
100 and over	65	33	5	21	.....	6
Nueva Vizcaya	1, 807	1, 514	12	280	.....	1
Under 0.35	316	281	.....	35	.....	.....
0.35 and under 1	423	356	2	65	.....	.....
1 and under 2	414	337	3	74	.....	.....
2 and under 5	469	393	4	71	.....	1
5 and under 10	131	112	3	16	.....	.....
10 and under 15	21	18	.....	3	.....	.....
15 and under 30	23	14	.....	9	.....	.....
30 and under 60	7	5	.....	4	.....	.....
50 and under 100	2	.....	.....	2	.....	.....
100 and over	1	.....	.....	1	.....	.....
Pampanga	10, 081	6, 498	861	2, 505	1	166
Under 0.35	687	550	15	111	1	10
0.35 and under 1	1, 680	1, 143	63	460	.....	14
1 and under 2	2, 306	1, 362	253	662	.....	29
2 and under 5	2, 360	1, 397	182	731	.....	50
5 and under 10	1, 220	809	89	295	.....	27
10 and under 15	495	349	65	77	.....	4
15 and under 30	550	370	73	95	.....	12
30 and under 60	318	225	54	29	.....	10
50 and under 100	257	185	39	26	.....	7
100 and over	158	108	28	19	.....	3

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Pangasinán	54,712	35,872	2,036	16,461	14	329
Under 0.35.....	10,113	8,122	74	1,821	9	87
0.35 and under 1.....	16,368	11,797	656	3,822	1	92
1 and under 2.....	13,286	8,251	754	4,222	1	58
2 and under 5.....	10,987	5,770	460	4,686	1	70
5 and under 10.....	2,661	1,384	37	1,278	1	11
10 and under 15.....	615	291	10	310	1	3
15 and under 30.....	417	210	20	184	.....	3
30 and under 50.....	157	53	19	32	.....	8
50 and under 100.....	74	28	6	89	.....	1
100 and over.....	34	16	.....	17	.....	1
Paragua	2,673	2,538	6	57	.....	72
Under 0.35.....	287	274	1	.....	.....	12
0.35 and under 1.....	835	824	.....	3	.....	8
1 and under 2.....	766	751	.....	6	.....	9
2 and under 5.....	550	508	.....	25	.....	17
5 and under 10.....	109	91	2	8	.....	8
10 and under 15.....	37	29	.....	2	.....	6
15 and under 30.....	46	32	1	6	.....	7
30 and under 50.....	32	25	1	4	.....	2
50 and under 100.....	5	3	.....	2	.....	.....
100 and over.....	6	1	1	1	.....	8
Paragua Sur¹	131	128	.....	.....	.....	3
Under 0.35.....	59	58	.....	.....	.....	1
0.35 and under 1.....	20	19	.....	.....	.....	1
1 and under 2.....	30	30	.....	.....	.....	.....
2 and under 5.....	19	18	.....	.....	.....	1
5 and under 10.....	.....	.....	.....	.....	.....	.....
10 and under 15.....	1	1	.....	.....	.....	.....
15 and under 30.....	.....	.....	.....	.....	.....	.....
30 and under 50.....	1	1	.....	.....	.....	.....
50 and under 100.....	.....	.....	.....	.....	.....	.....
100 and over.....	1	1	.....	.....	.....	.....
Rizal	11,564	10,052	777	641	1	93
Under 0.35.....	9,678	9,112	250	230	.....	86
0.35 and under 1.....	766	393	210	163	.....	.....
1 and under 2.....	503	184	148	169	.....	2
2 and under 5.....	339	191	87	60	.....	1
5 and under 10.....	116	57	45	13	1	.....
10 and under 15.....	33	24	5	4	.....	.....
15 and under 30.....	55	34	19	.....	.....	2
30 and under 50.....	26	16	8	1	.....	1
50 and under 100.....	24	18	4	1	.....	1
100 and over.....	24	23	1	.....	.....	.....
Romblón	6,823	5,891	81	727	24	100
Under 0.35.....	192	162	1	29	.....	.....
0.35 and under 1.....	1,174	985	17	148	10	14
1 and under 2.....	2,049	1,784	25	199	8	33
2 and under 5.....	2,492	2,202	29	221	3	37
5 and under 10.....	671	569	7	88	1	6
10 and under 15.....	132	106	1	19	1	6
15 and under 30.....	76	56	1	16	.....	3
30 and under 50.....	17	13	.....	2	1	1
50 and under 100.....	5	4	.....	1	.....	.....
100 and over.....	15	10	.....	4	.....	1
Samar	25,218	24,525	168	372	1	152
Under 0.35.....	2,424	2,402	8	11	.....	3
0.35 and under 1.....	4,780	4,704	11	39	.....	26
1 and under 2.....	5,693	5,536	29	100	.....	28
2 and under 5.....	7,828	7,559	64	141	.....	64
5 and under 10.....	3,009	2,901	37	53	1	17
10 and under 15.....	772	748	5	13	.....	6
15 and under 30.....	516	489	9	12	.....	6
30 and under 50.....	110	103	4	2	.....	1
50 and under 100.....	55	53	.....	1	.....	1
100 and over.....	31	30	1	.....	.....	.....

¹ Comandancia.

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Slassi ¹	3	3				
Under 0.35.....						
0.35 and under 1.....						
1 and under 2.....						
2 and under 5.....						
5 and under 10.....						
10 and under 15.....						
15 and under 30.....						
30 and under 50.....	2	2				
50 and under 100.....	1	1				
100 and over.....						
Sorsogón.....	14,567	14,350	1	197		19
Under 0.35.....	42	42				
0.35 and under 1.....	249	249				
1 and under 2.....	1,601	1,569		30		2
2 and under 5.....	8,528	8,389		137		2
5 and under 10.....	3,328	3,302		26		1
10 and under 15.....	311	309		1		1
15 and under 30.....	252	244		3		5
30 and under 50.....	111	111				
50 and under 100.....	88	84				4
100 and over.....	57	51	1			5
Surigao.....	7,412	7,052		340	1	19
Under 0.35.....	60	59		1		
0.35 and under 1.....	327	311		16		
1 and under 2.....	972	940		30		2
2 and under 5.....	2,740	2,612		125		3
5 and under 10.....	1,966	1,860		94	1	11
10 and under 15.....	694	657		36		1
15 and under 30.....	486	461		24		1
30 and under 50.....	110	99		10		1
50 and under 100.....	46	42		4		
100 and over.....	11	11				
Tarlac.....	11,160	8,507	760	1,667	8	218
Under 0.35.....	1,670	1,316	121	161	1	71
0.35 and under 1.....	2,763	2,143	251	342	2	25
1 and under 2.....	2,333	1,805	143	354	2	29
2 and under 5.....	2,332	1,778	126	391	1	36
5 and under 10.....	967	716	54	176		21
10 and under 15.....	343	244	21	71		7
15 and under 30.....	374	255	20	93		6
30 and under 50.....	162	107	6	36	1	12
50 and under 100.....	128	92	8	22	1	5
100 and over.....	88	51	10	21		6
Tayabas².....	42,236	38,059	138	3,733	12	294
Under 0.35.....	12,407	11,510	27	749	1	120
0.35 and under 1.....	8,523	8,206	10	266		41
1 and under 2.....	7,463	6,988	19	430	1	25
2 and under 5.....	8,331	7,406	40	855	6	24
5 and under 10.....	3,315	2,630	12	643	1	29
10 and under 15.....	1,010	670	12	312	1	15
15 and under 30.....	779	456	12	289	2	20
30 and under 50.....	203	96	5	91		11
50 and under 100.....	144	75	1	62		6
100 and over.....	61	22		36		3
Zambales.....	24,367	14,035	5	10,182	4	141
Under 0.35.....	3,554	2,745	1	765	1	42
0.35 and under 1.....	9,019	5,473	1	3,507		38
1 and under 2.....	6,406	3,223	1	3,139	1	37
2 and under 5.....	4,131	1,393	1	2,221	2	14
5 and under 10.....	945	494	1	444		6
10 and under 15.....	145	91		52		2
15 and under 30.....	112	65		46		2
30 and under 50.....	35	30		5		
50 and under 100.....	11	9		2		
100 and over.....	8	7		1		

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 7.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No. rental.
Zamboanga ¹	2, 600	2, 160	159	90	.....	191
Under 0.35.....	428	383	25	2	.....	18
0.35 and under 1.....	483	380	57	14	.....	32
1 and under 2.....	599	499	36	19	.....	45
2 and under 5.....	647	516	23	46	.....	62
5 and under 10.....	255	214	11	9	.....	21
10 and under 15.....	84	76	3	.....	.....	5
15 and under 30.....	66	59	4	.....	.....	3
30 and under 50.....	20	18	.....	.....	.....	2
50 and under 100.....	9	9	.....	.....	.....	.....
100 and over.....	9	6	.....	.....	.....	3

¹ Comandancia.

TABLE 8.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by principal islands.

ISLAND AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No. rental.
Philippine Islands.....	815, 453	658, 543	14, 403	132, 444	1, 233	8, 830
Under 0.35.....	176, 653	150, 778	1, 311	21, 981	876	1, 707
0.35 and under 1.....	229, 272	186, 301	2, 739	38, 642	195	1, 395
1 and under 2.....	167, 966	129, 825	3, 994	32, 688	49	1, 410
2 and under 5.....	151, 238	120, 500	3, 570	25, 027	68	2, 073
5 and under 10.....	52, 867	42, 417	1, 194	8, 287	28	941
10 and under 15.....	14, 896	11, 935	507	2, 212	6	236
15 and under 30.....	12, 495	9, 781	449	1, 891	3	371
30 and under 50.....	4, 490	3, 193	235	753	4	305
50 and under 100.....	3, 222	2, 240	232	493	3	254
100 and over.....	2, 354	1, 573	172	470	1	188
Bohol.....	35, 093	32, 543	4	2, 306	.....	240
Under 0.35.....	18, 368	17, 258	2	1, 011	.....	97
0.35 and under 1.....	9, 363	8, 649	1	637	.....	76
1 and under 2.....	3, 946	3, 624	.....	294	.....	28
2 and under 5.....	2, 447	2, 173	.....	245	.....	29
5 and under 10.....	681	609	1	64	.....	7
10 and under 15.....	112	98	.....	13	.....	1
15 and under 30.....	98	70	.....	26	.....	2
30 and under 50.....	49	43	.....	6	.....	.....
50 and under 100.....	23	15	.....	8	.....	.....
100 and over.....	6	4	.....	2	.....	.....
Cebu.....	75, 382	46, 858	68	27, 865	23	568
Under 0.35.....	15, 941	11, 216	10	4, 589	.....	126
0.35 and under 1.....	27, 543	16, 655	23	10, 668	2	195
1 and under 2.....	17, 798	10, 176	14	7, 470	.....	138
2 and under 5.....	10, 052	6, 241	10	3, 703	19	79
5 and under 10.....	2, 872	1, 849	3	997	1	22
10 and under 15.....	599	374	3	217	.....	5
15 and under 30.....	382	246	1	133	.....	2
30 and under 50.....	119	56	1	62	.....	.....
50 and under 100.....	50	28	3	17	1	1
100 and over.....	26	17	.....	9	.....	.....
Leyte.....	34, 208	31, 131	33	2, 647	23	369
Under 0.35.....	6, 464	5, 997	12	377	12	66
0.35 and under 1.....	9, 611	8, 996	11	529	6	69
1 and under 2.....	7, 827	7, 231	4	506	3	83
2 and under 5.....	6, 878	6, 122	2	654	1	99
5 and under 10.....	2, 217	1, 876	2	307	.....	82
10 and under 15.....	632	477	.....	143	.....	12
15 and under 30.....	379	288	2	82	.....	7
30 and under 50.....	93	74	.....	18	1	.....
50 and under 100.....	61	47	.....	13	.....	1
100 and over.....	41	23	.....	18	.....	.....

TABLE 8.—Number of farms and other parcels of land used for agriculture, classified by size and tenure, by principal islands—Continued.

ISLAND AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Luzón	447,267	334,001	13,111	93,098	1,150	5,907
Under 0.35	94,230	75,524	1,164	15,514	861	1,167
0.35 and under 1	120,256	91,070	2,432	25,758	177	819
1 and under 2	95,017	67,237	3,787	25,111	34	848
2 and under 5	86,895	63,493	3,337	18,594	44	1,427
5 and under 10	29,723	21,868	1,086	6,074	24	671
10 and under 15	8,215	6,082	467	1,515	5	146
15 and under 30	7,100	5,070	388	1,363	3	276
30 and under 50	2,727	1,729	184	547	1	266
50 and under 100	1,956	1,220	182	345	1	208
100 and over	1,148	708	84	277	.....	79
Marinduque	17,979	17,696	31	114	.....	198
Under 0.35	8,429	8,253	24	61	.....	91
0.35 and under 1	5,840	5,770	5	31	.....	84
1 and under 2	2,520	2,499	2	9	.....	10
2 and under 5	960	941	.....	6	.....	3
5 and under 10	148	147	.....	1	.....	.....
10 and under 15	42	41	.....	1	.....	.....
15 and under 30	32	29	.....	3	.....	.....
30 and under 50	7	7	.....	.....	.....	.....
50 and under 100	5	5	.....	.....	.....	.....
100 and over	6	4	.....	2	.....	.....
Masbate	1,818	1,747	7	59	.....	5
Under 0.35	225	220	.....	5	.....	.....
0.35 and under 1	384	381	1	2	.....	.....
1 and under 2	575	564	1	9	.....	1
2 and under 5	411	389	1	21	.....	.....
5 and under 10	119	110	1	6	.....	2
10 and under 15	67	59	.....	8	.....	.....
15 and under 30	25	18	.....	6	.....	1
30 and under 50	7	3	1	2	.....	1
50 and under 100	4	2	2	.....	.....	.....
100 and over	1	1	.....	.....	.....	.....
Mindanao	30,877	29,826	174	507	3	367
Under 0.35	5,250	5,135	27	50	2	36
0.35 and under 1	6,268	6,040	57	113	.....	68
1 and under 2	6,067	5,861	38	88	.....	80
2 and under 5	7,391	7,150	25	98	.....	118
5 and under 10	3,580	3,437	13	85	1	44
10 and under 15	1,013	971	3	30	.....	9
15 and under 30	846	808	4	27	.....	7
30 and under 50	241	220	4	12	.....	6
50 and under 100	144	135	2	4	.....	3
100 and over	77	69	1	.....	.....	7
Mindoro	1,600	1,394	3	242	.....	21
Under 0.35	146	143	.....	2	.....	1
0.35 and under 1	194	180	.....	13	.....	1
1 and under 2	343	318	.....	24	.....	6
2 and under 5	430	370	.....	50	.....	4
5 and under 10	263	207	.....	51	.....	5
10 and under 15	110	80	.....	28	.....	2
15 and under 30	94	61	1	31	.....	1
30 and under 50	33	12	.....	21	.....	.....
50 and under 100	21	7	1	13	.....	.....
100 and over	21	16	1	3	.....	1
Negros	25,814	24,742	237	592	1	242
Under 0.35	2,543	2,509	.....	12	.....	22
0.35 and under 1	14,321	14,254	17	34	.....	16
1 and under 2	2,521	2,391	20	83	.....	27
2 and under 5	2,718	2,489	24	143	.....	62
5 and under 10	1,298	1,205	11	59	.....	23
10 and under 15	533	494	5	27	.....	7
15 and under 30	593	512	17	42	.....	22
30 and under 50	299	280	32	22	.....	15
50 and under 100	404	289	38	59	.....	18
100 and over	584	369	73	111	1	30

TABLE 8.—Number of farms and other parcels of land used for agriculture classified by size and tenure, by principal islands—Continued.

ISLAND AND SIZE OF FARM IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.				
		Owners.	Cash tenants.	Share tenants.	Labor tenants.	No rental.
Panay	71,379	69,628	201	1,150	8	392
Under 0.35	13,991	13,893	20	49	1	28
0.35 and under 1	16,430	16,275	19	104	.....	32
1 and under 2	15,660	15,304	35	236	4	81
2 and under 5	14,738	14,219	52	375	1	91
5 and under 10	5,548	5,291	22	176	.....	69
10 and under 15	1,841	1,722	17	78	.....	24
15 and under 30	1,797	1,688	19	60	.....	30
30 and under 50	626	580	7	26	1	12
50 and under 100	422	383	4	16	1	18
100 and over	326	273	6	30	.....	17
Samar	20,586	19,939	161	300	.....	136
Under 0.35	1,716	1,701	7	8	.....	.....
0.35 and under 1	3,830	3,763	11	33	.....	23
1 and under 2	4,520	4,399	26	71	.....	24
2 and under 5	6,527	6,292	62	118	.....	60
5 and under 10	2,639	2,589	36	48	.....	16
10 and under 15	667	645	5	12	.....	5
15 and under 30	461	434	9	12	.....	6
30 and under 50	100	93	4	2	.....	1
50 and under 100	53	51	.....	1	.....	1
100 and over	23	22	1	.....	.....	.....
Other islands	53,445	49,038	373	3,564	25	445
Under 0.35	9,350	8,929	45	303	.....	73
0.35 and under 1	15,232	14,268	162	720	10	72
1 and under 2	11,167	10,221	67	787	8	84
2 and under 5	11,801	10,621	57	1,018	3	102
5 and under 10	3,779	3,279	19	420	2	59
10 and under 15	1,065	892	7	140	1	25
15 and under 30	688	557	8	106	.....	17
30 and under 50	189	146	2	35	1	5
50 and under 100	79	58	.....	17	.....	4
100 and over	95	67	6	18	.....	4

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
Under 0.35	33,196	25,223	76.0	18.8	14.3
0.35 and under 1	145,969	109,003	74.7	63.7	47.5
1 and under 2	234,505	161,869	69.0	139.6	96.4
2 and under 5	462,445	282,866	61.2	305.8	187.0
5 and under 10	358,163	186,803	52.2	677.5	353.4
10 and under 15	177,884	83,659	47.0	1,194.2	661.6
15 and under 30	252,751	108,183	42.8	2,022.8	1,065.6
30 and under 50	170,040	67,512	39.7	3,787.1	1,803.8
50 and under 100	215,022	86,229	40.1	6,673.6	2,676.3
100 and over	777,729	187,498	24.1	33,038.6	7,965.1
Abra	52,086	12,208	23.4	381.4	89.4
Under 0.35	906	869	95.9	17.1	16.4
0.35 and under 1	2,649	2,437	92.0	61.6	56.7
1 and under 2	3,105	2,684	86.4	140.0	121.0
2 and under 5	3,657	2,810	76.8	293.3	225.3
5 and under 10	3,077	1,755	57.0	664.6	379.0
10 and under 15	804	455	56.6	1,362.7	771.2
15 and under 30	1,106	575	52.0	1,940.4	1,008.8
30 and under 50	687	259	37.7	3,816.7	1,438.9
50 and under 100	455	290	63.7	6,500.0	4,142.9
100 and over	35,640	74	0.2	891,000.0	1,850.0

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Albay	116,084	85,147	73.3	354.0	259.6
Under 0.35	511	442	86.5	15.8	13.7
0.35 and under 1	5,074	4,338	85.5	61.1	52.2
1 and under 2	11,249	8,799	78.2	136.3	106.6
2 and under 5	26,449	19,809	74.9	305.5	228.8
5 and under 10	18,462	13,857	75.1	681.5	511.6
10 and under 15	8,245	5,968	72.4	1,207.2	873.8
15 and under 30	11,584	8,384	72.7	2,056.0	1,494.5
30 and under 50	7,127	5,220	73.2	3,831.7	2,806.5
50 and under 100	8,019	5,927	73.9	6,795.8	5,022.9
100 and over	19,414	12,403	63.9	23,111.9	14,765.5
Ambos Camarines	106,371	59,683	56.1	827.0	464.0
Under 0.35	68	57	83.8	17.0	14.2
0.35 and under 1	360	272	75.6	62.4	47.1
1 and under 2	2,205	1,805	81.9	115.7	94.7
2 and under 5	13,789	9,575	69.4	288.9	200.6
5 and under 10	18,597	11,274	60.6	661.3	400.9
10 and under 15	11,826	6,714	56.8	1,174.4	666.7
15 and under 30	16,707	8,939	53.5	1,981.9	1,060.4
30 and under 50	11,048	5,487	49.7	3,719.9	1,847.5
50 and under 100	9,926	4,902	49.4	6,798.6	3,357.5
100 and over	21,845	10,658	48.8	21,628.7	10,552.5
Antique	27,194	21,622	79.5	207.4	164.9
Under 0.35	378	350	92.6	16.9	15.7
0.35 and under 1	2,222	2,093	94.2	60.2	56.7
1 and under 2	4,582	4,143	90.4	125.0	113.0
2 and under 5	7,155	6,199	86.6	281.6	244.0
5 and under 10	4,215	3,591	85.2	650.5	554.2
10 and under 15	1,748	1,398	80.0	1,189.1	951.0
15 and under 30	2,098	1,631	77.7	2,056.9	1,599.0
30 and under 50	1,730	968	55.9	3,004.2	2,016.7
50 and under 100	1,754	1,076	61.3	6,746.2	4,138.5
100 and over	1,312	173	13.2	21,866.7	2,883.3
Basilan ¹	2,277	583	25.6	1,980.0	507.0
Under 0.35					
0.35 and under 1					
1 and under 2	27	22	81.5	117.4	95.7
2 and under 5	124	91	73.4	310.0	227.5
5 and under 10	109	88	80.7	641.2	517.6
10 and under 15	146	96	65.8	1,216.7	800.0
15 and under 30	260	113	43.5	2,000.0	869.2
30 and under 50	68	33	48.5	3,400.0	1,650.0
50 and under 100	220	55	25.0	7,333.3	1,833.3
100 and over	1,323	85	6.4	44,100.0	2,833.3
Bataan	8,232	3,485	42.3	357.3	151.3
Under 0.35	70	51	72.9	22.3	16.2
0.35 and under 1	444	354	79.7	65.8	52.4
1 and under 2	842	682	81.0	138.5	112.2
2 and under 5	1,283	926	72.2	296.3	213.9
5 and under 10	886	409	46.2	656.3	303.0
10 and under 15	452	161	33.4	1,235.9	412.8
15 and under 30	1,177	391	33.2	2,179.6	724.1
30 and under 50	1,001	214	21.4	3,850.0	823.1
50 and under 100	1,074	286	26.6	7,160.0	1,906.7
100 and over	973	11	1.1	19,460.0	220.0
Batangas	117,422	21,652	18.4	504.1	92.9
Under 0.35	844	518	61.4	14.3	8.8
0.35 and under 1	3,034	1,292	42.6	63.3	27.0
1 and under 2	6,069	2,081	34.3	139.8	47.9
2 and under 5	13,502	4,079	30.2	308.1	93.1
5 and under 10	12,765	3,116	24.4	676.8	165.2
10 and under 15	8,691	1,718	19.8	1,208.8	238.9
15 and under 30	13,693	2,731	19.9	2,046.8	408.2
30 and under 50	9,650	1,656	17.2	3,754.9	644.4
50 and under 100	15,272	2,253	14.8	6,526.5	962.8
100 and over	33,902	2,208	6.5	27,562.6	1,795.1

¹ Comandancia.

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Benguet	233	71	30.5	306.6	93.4
Under 0.35	7	7	100.0	21.2	21.2
0.35 and under 1	7	6	85.7	50.0	42.9
1 and under 2	16	13	81.2	123.1	100.0
2 and under 5	28	21	75.0	254.5	190.9
5 and under 10					
10 and under 15	38	21	55.3	1,266.7	700.0
15 and under 30	15	1	6.7	1,500.0	100.0
30 and under 50					
50 and under 100					
100 and over	122	2	1.6	12,200.0	200.0
Bohol	58,098	23,247	40.0	157.6	63.1
Under 0.35	5,635	2,832	50.3	29.5	14.8
0.35 and under 1	9,313	3,349	36.0	94.8	34.1
1 and under 2	8,419	3,238	38.5	199.5	76.7
2 and under 5	12,683	4,283	33.8	480.4	162.2
5 and under 10	7,616	2,958	38.8	999.5	388.2
10 and under 15	2,044	807	39.5	1,481.2	584.8
15 and under 30	3,277	958	29.2	952.2	863.1
30 and under 50	2,474	600	24.3	4,667.9	1,132.1
50 and under 100	2,439	1,954	80.1	9,756.0	7,816.0
100 and over	4,198	2,268	54.0	52,476.0	28,350.0
Bulacáñ	90,220	60,570	67.1	427.7	287.1
Under 0.35	534	413	77.3	20.1	15.6
0.35 and under 1	3,510	3,034	86.4	68.4	59.1
1 and under 2	9,120	7,343	80.5	147.7	118.9
2 and under 5	14,667	10,715	73.1	300.0	219.2
5 and under 10	8,999	4,991	55.5	669.1	371.1
10 and under 15	3,556	1,885	53.0	1,274.6	675.6
15 and under 30	4,894	1,817	37.1	2,047.7	760.3
30 and under 50	3,573	1,284	35.9	3,761.1	1,351.6
50 and under 100	10,414	8,516	81.8	7,385.8	6,039.7
100 and over	30,953	20,572	66.5	21,066.5	13,994.6
Cagayáñ	138,166	35,430	25.6	758.9	194.6
Under 0.35	369	293	79.4	17.3	13.8
0.35 and under 1	2,838	2,299	81.0	64.9	52.5
1 and under 2	6,518	4,914	75.4	140.4	105.9
2 and under 5	14,389	9,618	66.8	306.2	204.7
5 and under 10	9,608	5,241	54.5	670.9	366.0
10 and under 15	4,805	2,086	43.4	1,204.3	522.8
15 and under 30	6,826	2,418	35.4	1,984.3	702.9
30 and under 50	3,299	1,174	35.6	3,836.0	1,365.1
50 and under 100	3,978	1,337	33.6	6,858.6	2,305.2
100 and over	85,536	6,050	7.1	208,624.4	14,756.1
Cápiz	108,692	36,965	34.0	435.3	148.0
Under 0.35	813	625	76.9	16.1	12.3
0.35 and under 1	3,282	2,421	73.8	60.1	44.3
1 and under 2	7,198	4,485	62.3	131.8	82.1
2 and under 5	15,406	8,063	52.3	292.6	153.1
5 and under 10	12,863	5,576	43.3	655.9	284.3
10 and under 15	7,840	2,970	37.9	1,156.3	438.1
15 and under 30	12,003	3,895	32.5	2,013.9	653.5
30 and under 50	7,645	2,409	31.5	3,693.2	1,165.8
50 and under 100	9,551	2,728	28.6	6,497.3	1,858.8
100 and over	32,091	3,793	11.8	24,685.4	2,917.7
Cavite	40,881	20,811	50.9	424.1	215.9
Under 0.35	210	154	73.3	14.8	10.9
0.35 and under 1	1,032	726	70.3	61.1	43.0
1 and under 2	3,092	2,227	72.0	137.9	99.3
2 and under 5	8,305	5,539	66.7	305.4	203.7
5 and under 10	6,026	3,346	55.5	672.5	373.4
10 and under 15	3,035	1,297	42.7	1,209.2	516.7
15 and under 30	4,518	1,704	37.7	1,807.2	681.6
30 and under 50	3,502	1,016	29.0	3,848.4	1,116.5
50 and under 100	4,292	1,895	44.2	7,153.3	3,158.3
100 and over	6,869	2,907	42.3	24,532.1	10,382.1

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Cebu.....	130,624	53,283	40.8	162.8	66.4
Under 0.35.....	8,170	2,339	78.8	18.7	13.8
0.35 and under 1.....	18,529	11,837	63.9	64.5	41.2
1 and under 2.....	25,926	13,296	51.3	138.0	70.8
2 and under 5.....	32,369	12,126	37.5	291.2	109.1
5 and under 10.....	21,196	6,018	28.4	638.4	181.3
10 and under 15.....	8,108	2,117	26.1	1,161.6	303.3
15 and under 30.....	8,464	2,041	24.1	1,959.3	472.5
30 and under 50.....	4,582	1,236	27.0	3,786.8	1,021.5
50 and under 100.....	3,394	909	26.8	6,654.9	1,782.4
100 and over.....	4,886	1,364	27.9	18,792.3	5,246.2
Cottabato ¹	5,286	383	7.2	16,518.8	1,196.9
Under 0.35.....					
0.35 and under 1.....					
1 and under 2.....					
2 and under 5.....	8	4	50.0	400.0	200.0
5 and under 10.....	36			720.0	
10 and under 15.....	42			1,050.0	
15 and under 30.....	176	97	55.1	1,955.6	1,077.8
30 and under 50.....	66	36	54.5	3,300.0	1,800.0
50 and under 100.....	53	40	75.5	5,300.0	4,000.0
100 and over.....	4,905	206	4.2	122,625.0	5,150.0
Dapitan ¹	5,374	2,232	41.5	446.7	185.5
Under 0.35.....	33	29	87.9	12.1	10.6
0.35 and under 1.....	102	85	83.3	61.8	51.5
1 and under 2.....	302	212	70.2	193.0	98.4
2 and under 5.....	856	549	64.1	291.2	136.7
5 and under 10.....	896	449	50.1	689.2	345.4
10 and under 15.....	475	143	30.1	1,217.9	366.7
15 and under 30.....	988	474	48.0	1,976.0	948.0
30 and under 50.....	577	179	31.0	3,846.7	1,193.8
50 and under 100.....	373	79	21.2	6,216.7	1,316.7
100 and over.....	772	33	4.3	19,300.0	825.0
Davao ¹	16,343	3,769	23.1	1,248.5	287.9
Under 0.35.....	2	1	50.0	28.6	14.3
0.35 and under 1.....	29	28	96.6	90.6	87.5
1 and under 2.....	404	279	69.1	133.8	92.4
2 and under 5.....	1,347	631	46.8	281.8	132.0
5 and under 10.....	1,672	674	40.3	663.5	267.5
10 and under 15.....	778	349	44.9	1,144.1	513.2
15 and under 30.....	1,331	588	42.6	1,891.8	805.5
30 and under 50.....	1,248	343	27.5	3,466.7	952.8
50 and under 100.....	1,698	252	14.8	6,792.0	1,008.0
100 and over.....	7,784	624	8.0	21,622.2	1,733.3
Ilocos Norte.....	55,633	40,233	72.3	85.8	62.1
Under 0.35.....	5,200	4,838	93.0	19.7	18.3
0.35 and under 1.....	13,990	11,267	80.5	59.8	48.2
1 and under 2.....	14,436	11,532	79.9	137.4	109.7
2 and under 5.....	10,054	6,808	67.7	283.9	192.3
5 and under 10.....	4,894	2,610	53.3	651.7	347.5
10 and under 15.....	1,313	531	40.4	1,227.1	496.3
15 and under 30.....	1,148	511	44.5	2,014.0	896.5
30 and under 50.....	687	436	63.5	3,816.7	2,422.2
50 and under 100.....	1,508	773	51.3	5,585.2	2,363.0
100 and over.....	2,403	927	38.6	21,845.5	8,427.3
Ilocos Sur.....	47,176	39,739	84.2	219.6	185.0
Under 0.35.....	1,337	1,232	92.1	17.3	16.0
0.35 and under 1.....	3,742	3,371	90.1	60.5	54.5
1 and under 2.....	4,862	4,254	87.5	139.9	122.4
2 and under 5.....	7,161	5,905	82.5	298.4	246.0
5 and under 10.....	7,145	5,868	82.1	691.7	568.1
10 and under 15.....	3,067	2,448	79.8	1,221.9	975.3
15 and under 30.....	5,148	4,034	78.4	1,937.6	1,557.5
30 and under 50.....	3,264	2,784	85.3	3,586.8	3,059.3
50 and under 100.....	3,433	2,436	70.3	7,067.3	4,971.4
100 and over.....	7,987	7,407	92.7	38,033.3	35,271.4

¹ Comandancia.

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Iloilo	176,955	57,081	32.3	510.5	164.7
Under 0.35	1,245	1,057	84.9	18.3	15.6
0.35 and under 1	4,597	3,391	73.8	62.2	45.9
1 and under 2	9,167	5,477	59.8	135.2	80.8
2 and under 5	22,171	11,605	52.3	300.7	157.4
5 and under 10	21,351	9,267	43.4	676.5	293.6
10 and under 15	12,765	4,683	36.7	1,171.1	429.6
15 and under 30	23,596	7,947	33.7	1,991.2	670.6
30 and under 50	15,432	4,251	27.5	3,781.9	1,039.4
50 and under 100	18,132	2,931	16.2	6,545.8	1,058.1
100 and over	48,499	6,472	13.3	21,945.2	2,928.5
Isabela	67,716	16,752	24.7	576.9	142.7
Under 0.35	95	88	87.4	19.9	17.4
0.35 and under 1	2,716	2,353	86.6	72.7	63.0
1 and under 2	6,221	4,745	76.3	140.2	107.0
2 and under 5	7,028	4,532	64.5	288.3	185.9
5 and under 10	2,871	884	30.8	888.9	273.7
10 and under 15	764	291	38.1	1,175.4	447.7
15 and under 30	2,682	597	22.3	2,292.3	510.3
30 and under 50	650	373	57.4	3,823.5	2,194.1
50 and under 100	4,357	903	20.7	7,261.7	1,505.0
100 and over	40,332	1,991	4.9	57,617.1	2,844.8
Jol6 ¹	23	19	82.6	255.6	211.1
Under 0.35	1	1	100.0	33.3	33.3
0.35 and under 1	1	1	100.0	50.0	50.0
1 and under 2	1	1	100.0	100.0	100.0
2 and under 5	3	3	100.0	300.0	300.0
5 and under 10	6	6	100.0	600.0	600.0
10 and under 15	11	7	63.6	1,100.0	700.0
15 and under 30 .....	.....	.....	.....	.....	.....
30 and under 50 .....	.....	.....	.....	.....	.....
50 and under 100 .....	.....	.....	.....	.....	.....
100 and over .....	.....	.....	.....	.....	.....
La Laguna	86,426	41,016	47.5	392.4	186.2
Under 0.35	404	301	74.5	20.1	15.0
0.35 and under 1	3,300	2,247	68.1	64.6	44.0
1 and under 2	8,255	5,593	67.8	143.9	97.5
2 and under 5	16,776	10,931	65.2	307.6	200.4
5 and under 10	11,060	5,923	53.6	673.2	360.5
10 and under 15	12,665	5,260	41.5	1,226.0	509.2
15 and under 30	13,813	5,248	38.0	2,040.3	775.2
30 and under 50	4,918	2,088	42.5	3,934.4	1,670.4
50 and under 100	10,012	2,953	29.5	4,592.7	1,854.6
100 and over	5,223	472	9.0	23,740.9	2,145.5
La Unión	43,077	30,850	71.6	112.7	80.7
Under 0.35	1,524	1,325	86.9	24.4	21.2
0.35 and under 1	11,982	10,752	89.7	61.2	54.9
1 and under 2	11,650	9,859	84.6	135.7	114.8
2 and under 5	8,604	6,022	70.0	273.1	191.1
5 and under 10	2,977	1,753	58.9	633.4	373.0
10 and under 15	1,082	332	30.7	1,115.5	342.3
15 and under 30	676	183	27.1	1,778.9	481.6
30 and under 50	1,050	179	17.0	2,837.8	483.8
50 and under 100	469	195	41.6	7,816.7	3,250.0
100 and over	3,063	250	11.4	25,525.0	2,916.7
Lepanto-Bontoc	1,741	374	21.5	1,095.0	235.2
Under 0.35	3	3	100.0	20.0	20.0
0.35 and under 1	14	11	78.6	56.0	44.0
1 and under 2	47	34	72.3	127.0	91.9
2 and under 5	128	85	66.4	261.2	173.5
5 and under 10	85	40	47.1	607.1	285.7
10 and under 15	83	37	44.6	1,185.7	528.6
15 and under 30	163	110	67.5	2,037.5	1,375.0
30 and under 50	40	.....	.....	4,000.0	.....
50 and under 100 .....	.....	.....	.....	.....	.....
100 and over	1,178	54	4.6	39,266.7	1,800.0

¹ Comandancia.

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Leyte	133,620	42,898	32.1	360.3	115.7
Under 0.35	1,373	978	71.2	19.7	14.0
0.35 and under 1	6,659	4,061	61.0	63.6	98.8
1 and under 2	11,572	6,153	53.2	137.6	73.2
2 and under 5	22,086	10,271	46.5	302.6	140.7
5 and under 10	17,035	7,503	44.0	676.5	298.0
10 and under 15	8,503	3,125	36.8	1,179.3	433.4
15 and under 30	9,154	3,059	33.4	1,994.3	666.4
30 and under 50	4,807	1,126	23.4	4,216.7	987.7
50 and under 100	5,052	1,429	28.3	7,654.5	2,165.2
100 and over	47,379	5,193	11.0	105,286.7	11,540.0
Manila city	738	473	64.1	137.4	88.1
Under 0.35	30	20	66.7	12.4	8.3
0.35 and under 1	78	64	82.1	63.4	52.0
1 and under 2	99	79	98.7	143.5	113.0
2 and under 5	206	140	70.0	294.3	200.0
5 and under 10	171	114	66.7	683.3	422.2
10 and under 15	45	1	2.2	1,125.0	25.0
15 and under 30	41	7	17.1	2,050.0	350.0
30 and under 50	88	48	70.6	6,800.0	4,800.0
50 and under 100	88	48	70.6	6,800.0	4,800.0
100 and over	88	48	70.6	6,800.0	4,800.0
Masbate	9,798	7,429	75.8	317.1	240.4
Under 0.35	47	34	72.3	19.8	14.3
0.35 and under 1	339	208	61.4	59.1	36.2
1 and under 2	1,210	810	66.9	134.6	90.1
2 and under 5	2,372	2,372	82.6	323.4	267.1
5 and under 10	2,327	1,988	85.4	672.5	574.6
10 and under 15	1,104	889	80.5	1,269.0	1,021.8
15 and under 30	762	608	79.8	1,858.5	1,482.9
30 and under 50	343	219	63.8	3,811.1	2,433.3
50 and under 100	540	269	49.8	7,714.3	3,842.9
100 and over	254	32	12.6	12,700.0	1,600.0
Mindoro	42,424	4,768	11.2	2,020.2	227.0
Under 0.35	33	31	93.9	17.4	16.3
0.35 and under 1	200	178	89.0	61.3	54.6
1 and under 2	575	427	74.3	134.0	99.5
2 and under 5	1,462	755	51.6	282.8	146.0
5 and under 10	1,999	666	33.3	689.3	229.7
10 and under 15	1,609	429	28.4	1,151.9	827.5
15 and under 30	2,451	886	36.2	2,009.0	726.2
30 and under 50	1,651	426	25.8	3,589.1	926.1
50 and under 100	1,680	343	20.4	6,461.5	1,319.2
100 and over	30,864	627	2.0	134,191.3	2,726.1
Misamis	59,269	29,346	49.5	230.8	114.8
Under 0.35	1,057	816	77.2	16.9	13.0
0.35 and under 1	4,536	3,238	71.4	61.9	44.2
1 and under 2	7,431	4,503	60.6	139.3	84.4
2 and under 5	14,183	7,868	55.5	302.5	167.8
5 and under 10	8,868	4,451	50.2	677.5	340.0
10 and under 15	4,247	1,956	47.0	1,206.5	567.0
15 and under 30	4,337	1,819	36.8	2,091.9	770.8
30 and under 50	2,778	1,198	43.1	3,805.5	1,641.1
50 and under 100	4,798	1,740	36.3	7,161.2	2,597.0
100 and over	6,434	1,717	26.7	32,170.0	8,585.0
Negros Occidental	177,642	72,928	41.0	2,546.5	1,045.4
Under 0.35	78	73	93.6	15.0	14.0
0.35 and under 1	351	322	91.7	60.2	55.2
1 and under 2	1,466	1,266	86.4	122.5	105.8
2 and under 5	5,110	3,935	77.0	286.3	220.4
5 and under 10	5,741	3,713	64.7	653.9	422.9
10 and under 15	4,304	2,296	53.3	1,163.2	620.5
15 and under 30	9,910	5,043	50.9	2,064.6	1,050.6
30 and under 50	9,832	4,909	49.9	3,738.4	1,866.5
50 and under 100	24,724	11,635	47.1	6,906.1	3,250.0
100 and over	116,126	39,736	34.2	21,425.5	7,831.4

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Negros Oriental	37,971	21,383	56.3	143.6	80.9
Under 0.35	1,068	898	83.6	28.3	23.6
0.35 and under 1	10,166	8,175	80.4	55.3	44.5
1 and under 2	2,877	2,158	75.0	130.1	97.6
2 and under 5	3,462	2,173	62.8	287.5	180.5
5 and under 10	2,955	1,498	50.7	649.5	329.2
10 and under 15	1,852	816	44.1	1,115.7	491.6
15 and under 30	2,388	1,062	44.5	2,006.7	892.4
30 and under 50	1,343	589	43.9	3,629.7	1,591.9
50 and under 100	3,011	1,202	39.9	6,545.7	2,613.0
100 and over	8,849	2,817	31.8	21,069.0	6,707.1
Nueva Ecija	90,367	26,763	29.6	675.3	200.0
Under 0.35	272	100	36.8	14.5	5.3
0.35 and under 1	572	287	50.2	62.2	31.2
1 and under 2	3,336	2,266	67.9	141.8	96.3
2 and under 5	14,513	8,801	60.6	326.9	198.3
5 and under 10	15,906	4,899	30.8	727.3	224.0
10 and under 15	5,997	2,314	38.6	1,204.2	464.7
15 and under 30	9,656	1,904	19.7	1,794.8	358.9
30 and under 50	14,695	2,555	17.4	3,688.0	640.4
50 and under 100	7,077	1,866	26.4	6,988.2	1,829.4
100 and over	18,343	1,771	9.7	28,220.0	2,724.6
Nueva Vizcaya	4,421	2,832	64.1	244.7	156.7
Under 0.35	54	41	75.9	17.1	13.0
0.35 and under 1	286	229	80.1	67.6	54.1
1 and under 2	579	461	79.6	139.9	111.4
2 and under 5	1,409	1,004	71.3	300.4	214.1
5 and under 10	858	563	65.6	655.0	429.8
10 and under 15	246	128	52.0	1,171.4	609.5
15 and under 30	478	249	52.6	2,056.5	1,082.6
30 and under 50	291	138	47.4	4,157.1	1,971.4
50 and under 100	113	15	13.3	5,650.0	750.0
100 and over	112	4	3.6	11,200.0	400.0
Pampanga	105,677	63,840	60.4	1,053.5	636.4
Under 0.35	139	122	87.8	20.2	17.8
0.35 and under 1	1,117	990	88.6	66.5	58.9
1 and under 2	3,384	2,917	86.2	146.7	126.5
2 and under 5	7,406	5,951	80.4	313.8	252.2
5 and under 10	8,394	5,904	70.3	688.0	483.9
10 and under 15	5,941	4,112	69.2	1,200.2	830.7
15 and under 30	11,733	7,304	62.3	2,133.3	1,328.0
30 and under 50	12,287	7,314	59.5	3,863.8	2,300.0
50 and under 100	17,599	9,869	56.1	6,847.9	3,840.1
100 and over	37,677	19,357	51.4	23,846.2	12,251.3
Pangasinán	119,771	81,472	68.0	218.9	148.9
Under 0.35	1,999	1,686	84.3	19.8	16.7
0.35 and under 1	10,512	8,966	85.3	64.2	54.8
1 and under 2	18,648	15,448	82.8	140.4	116.3
2 and under 5	33,048	25,687	77.7	300.7	233.8
5 and under 10	18,597	12,624	67.9	698.9	474.4
10 and under 15	7,438	4,840	65.1	1,209.4	787.0
15 and under 30	8,688	4,763	54.8	2,083.5	1,142.2
30 and under 50	6,176	2,736	44.3	3,933.8	1,742.7
50 and under 100	5,000	2,192	43.8	6,756.8	2,962.2
100 and over	9,665	2,530	26.2	28,426.5	7,441.2
Paragua	9,032	2,999	33.2	337.9	112.2
Under 0.35	60	52	86.7	20.9	18.1
0.35 and under 1	457	313	68.5	54.7	37.5
1 and under 2	923	556	60.2	120.5	72.6
2 and under 5	1,481	894	60.4	269.3	162.5
5 and under 10	701	344	49.1	643.1	315.6
10 and under 15	425	155	36.5	1,148.6	418.9
15 and under 30	939	238	25.3	2,041.3	517.4
30 and under 50	1,126	163	14.5	3,518.8	509.4
50 and under 100	270	105	38.9	5,400.0	2,100.0
100 and over	2,650	179	6.8	44,166.7	2,983.3

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Paragua Sur ¹	626	110	17.6	477.9	84.0
Under 0.35	4	4	100.0	6.8	6.8
0.35 and under 1	11	11	100.0	55.0	55.0
1 and under 2	33	33	100.0	110.0	110.0
2 and under 5	44	44	100.0	231.6	231.6
5 and under 10 .....	.....	.....	.....	.....	.....
10 and under 15	11	11	100.0	1,100.0	1,100.0
15 and under 30 .....	.....	.....	.....	.....	.....
30 and under 50	33	6	18.2	3,300.0	600.0
50 and under 100 .....	.....	.....	.....	.....	.....
100 and over	490	1	0.2	49,000.0	100.0
Rizal	14,787	9,934	67.2	127.9	85.9
Under 0.35	248	221	89.1	2.6	2.8
0.35 and under 1	407	304	74.7	53.1	39.7
1 and under 2	683	506	74.1	135.8	100.6
2 and under 5	1,005	727	72.3	296.5	214.5
5 and under 10	770	551	71.6	663.8	475.0
10 and under 15	396	314	79.3	1,200.0	951.5
15 and under 30	1,244	854	68.6	2,261.8	1,552.7
30 and under 50	1,005	745	74.1	3,865.4	2,865.4
50 and under 100	1,781	1,230	69.1	7,420.8	5,125.0
100 and over	7,248	4,482	61.8	30,200.0	18,675.0
Romblón	23,546	13,243	56.2	345.1	194.1
Under 0.35	34	30	88.2	17.7	15.6
0.35 and under 1	826	696	84.3	70.4	59.3
1 and under 2	2,990	2,209	73.9	145.9	107.8
2 and under 5	7,548	4,858	64.4	302.9	194.9
5 and under 10	4,386	2,399	54.7	653.7	367.5
10 and under 15	1,561	807	51.7	1,182.6	611.4
15 and under 30	1,508	643	42.6	1,984.2	846.1
30 and under 50	629	254	40.4	3,700.0	1,494.1
50 and under 100	329	146	44.4	6,580.0	2,920.0
100 and over	3,735	1,201	32.2	24,900.0	8,006.7
Sámar	101,481	43,073	42.4	402.4	170.8
Under 0.35	396	283	71.5	16.3	11.7
0.35 and under 1	3,227	1,993	61.8	67.5	41.7
1 and under 2	8,218	4,332	52.7	144.4	76.1
2 and under 5	24,895	11,039	44.5	318.0	141.7
5 and under 10	20,422	8,405	41.2	678.7	279.8
10 and under 15	9,218	3,934	42.7	1,194.0	509.6
15 and under 30	10,209	4,538	45.0	1,978.5	890.1
30 and under 50	4,141	2,067	49.9	3,764.5	1,879.1
50 and under 100	3,593	1,839	51.2	6,532.7	3,343.6
100 and over	17,162	4,538	26.4	55,361.3	14,638.7
Siassi ¹	133	30	22.6	4,433.3	1,000.0
Under 0.35 .....	.....	.....	.....	.....	.....
0.35 and under 1 .....	.....	.....	.....	.....	.....
1 and under 2 .....	.....	.....	.....	.....	.....
2 and under 5 .....	.....	.....	.....	.....	.....
5 and under 10 .....	.....	.....	.....	.....	.....
10 and under 15 .....	.....	.....	.....	.....	.....
15 and under 30 .....	.....	.....	.....	.....	.....
30 and under 50	75	30	40.0	3,750.0	1,500.0
50 and under 100	58	.....	.....	5,800.0	.....
100 and over .....	.....	.....	.....	.....	.....
Sorsogón	88,829	54,668	61.5	609.8	375.3
Under 0.35	12	9	75.0	28.6	21.4
0.35 and under 1	199	157	78.9	79.9	63.1
1 and under 2	2,617	1,880	71.8	168.5	117.4
2 and under 5	29,394	18,504	63.0	344.7	217.0
5 and under 10	21,968	13,066	59.5	660.1	392.6
10 and under 15	3,812	2,038	53.5	1,225.7	655.3
15 and under 30	5,478	3,459	63.1	2,173.8	1,372.6
30 and under 50	4,858	2,848	58.6	4,376.6	2,565.8
50 and under 100	6,143	3,930	64.0	6,980.7	4,465.9
100 and over	14,348	8,777	61.2	25,171.9	15,398.2

¹ Comandancia.

TABLE 9.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Surigao	49,060	24,250	49.4	661.9	327.2
Under 0.35	12	9	75.0	20.0	15.0
0.35 and under 1	212	140	66.0	64.8	42.8
1 and under 2	1,239	780	63.0	127.5	80.2
2 and under 5	8,213	4,789	58.3	299.7	174.8
5 and under 10	13,128	6,706	51.1	667.8	341.1
10 and under 15	7,974	3,780	47.4	1,149.0	544.7
15 and under 30	9,603	4,248	44.2	1,975.9	874.1
30 and under 50	3,995	1,819	45.5	3,631.8	1,653.6
50 and under 100	2,824	1,201	42.5	6,139.1	2,610.9
100 and over	1,860	778	41.8	16,909.1	7,072.7
Tarlac	78,923	37,332	47.3	707.2	334.5
Under 0.35	298	235	78.9	17.8	14.1
0.35 and under 1	1,783	1,536	86.1	64.5	55.6
1 and under 2	3,239	2,667	82.3	138.8	114.3
2 and under 5	7,102	5,252	74.0	304.5	225.2
5 and under 10	6,645	4,004	60.3	687.2	414.1
10 and under 15	4,192	2,444	58.3	1,222.2	712.5
15 and under 30	8,166	3,537	43.3	2,183.4	945.7
30 and under 50	6,203	2,186	35.2	3,829.0	1,349.4
50 and under 100	8,796	2,756	31.3	6,871.9	2,153.1
100 and over	32,499	12,715	39.1	36,980.7	14,448.9
Tayabas ¹	120,754	57,575	47.7	285.9	136.3
Under 0.35	1,794	1,087	60.6	14.5	8.8
0.35 and under 1	5,116	2,846	55.6	60.0	33.4
1 and under 2	9,951	5,891	59.2	133.3	78.9
2 and under 5	24,815	14,976	60.4	297.9	179.8
5 and under 10	21,993	13,037	59.3	663.4	393.3
10 and under 15	11,893	5,993	50.4	1,177.5	593.4
15 and under 30	15,483	6,831	44.1	1,987.5	876.9
30 and under 50	7,360	3,267	44.4	3,625.6	1,609.4
50 and under 100	9,350	2,804	30.0	6,493.1	1,947.2
100 and over	12,999	843	6.5	21,309.8	1,382.0
Zambales	45,917	27,386	59.6	188.4	112.4
Under 0.35	764	619	81.0	21.5	17.4
0.35 and under 1	5,838	4,654	79.7	64.7	51.6
1 and under 2	8,888	7,015	78.9	138.7	109.5
2 and under 5	12,260	9,260	75.5	296.8	224.2
5 and under 10	6,159	3,393	55.1	651.7	359.0
10 and under 15	1,797	797	44.4	1,239.3	549.7
15 and under 30	2,295	789	34.4	2,031.0	698.2
30 and under 50	1,327	240	18.1	3,791.4	685.7
50 and under 100	729	133	18.2	6,627.3	1,209.1
100 and over	5,860	486	8.3	73,250.0	6,075.0
Zamboanga ²	10,588	6,908	65.2	407.2	265.7
Under 0.35	165	59	90.8	15.2	13.8
0.35 and under 1	310	271	87.4	64.2	56.1
1 and under 2	834	695	83.3	139.2	116.0
2 and under 5	1,889	1,587	84.0	292.0	245.3
5 and under 10	1,728	1,281	74.1	677.6	502.4
10 and under 15	1,006	666	66.2	1,197.6	792.9
15 and under 30	1,290	900	69.8	1,954.5	1,363.6
30 and under 50	767	452	58.9	3,835.0	2,260.0
50 and under 100	634	287	45.3	7,044.4	3,188.9
100 and over	1,965	710	36.1	21,833.3	7,888.9

¹ Including the subprovince, Marinduque.

² Comandancia.

TABLE 10.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by principal islands.

ISLAND AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ACRES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2, 827, 704	1, 298, 845	45.9	346.8	159.3
Under 0.35	33, 196	25, 223	76.0	18.8	14.3
0.35 and under 1	145, 969	109, 003	74.7	63.7	47.5
1 and under 2	234, 505	161, 869	69.0	139.6	96.4
2 and under 5	462, 445	282, 866	61.2	305.8	187.0
5 and under 10	358, 163	186, 808	52.2	677.5	353.4
10 and under 15	177, 884	83, 659	47.0	1, 194.2	561.6
15 and under 30	252, 751	108, 183	42.8	2, 022.8	865.8
30 and under 50	170, 040	67, 512	39.7	3, 787.1	1, 503.6
50 and under 100	215, 022	86, 229	40.1	6, 673.6	2, 676.3
100 and over	777, 729	187, 498	24.1	33, 038.6	7, 965.1
Bohol	53, 160	21, 503	40.5	151.5	61.8
Under 0.35	5, 455	2, 739	50.2	29.7	14.9
0.35 and under 1	8, 875	3, 168	35.7	94.8	33.8
1 and under 2	7, 889	3, 002	38.1	199.9	76.1
2 and under 5	11, 757	3, 893	33.1	480.5	158.7
5 and under 10	6, 778	2, 621	38.7	995.3	384.9
10 and under 15	1, 666	636	38.2	1, 487.5	567.8
15 and under 30	2, 926	896	30.6	2, 985.7	914.3
30 and under 50	2, 271	552	34.3	4, 634.7	1, 126.5
50 and under 100	2, 234	1, 934	86.6	9, 713.0	8, 408.7
100 and over	3, 309	2, 062	62.3	55, 150.0	34, 366.7
Cebu	119, 989	49, 148	40.9	159.2	65.2
Under 0.35	2, 992	2, 207	73.8	18.8	13.8
0.35 and under 1	17, 768	11, 406	64.2	64.5	41.4
1 and under 2	24, 550	12, 675	51.6	137.9	71.2
2 and under 5	29, 180	10, 886	37.3	290.3	108.3
5 and under 10	18, 304	4, 941	27.0	637.3	172.0
10 and under 15	6, 956	1, 749	25.1	1, 161.3	292.0
15 and under 30	7, 497	1, 783	23.8	1, 962.6	466.8
30 and under 50	4, 515	1, 228	27.2	3, 794.1	1, 031.9
50 and under 100	3, 341	909	27.2	6, 682.0	1, 818.0
100 and over	4, 886	1, 364	27.9	18, 792.3	5, 246.2
Leyte	123, 754	37, 950	30.7	361.8	111.0
Under 0.35	1, 259	893	70.9	19.5	13.8
0.35 and under 1	6, 154	3, 708	60.3	64.0	38.6
1 and under 2	10, 764	5, 596	52.0	137.5	71.5
2 and under 5	20, 756	9, 424	45.4	301.8	137.0
5 and under 10	14, 958	6, 142	41.1	674.5	277.0
10 and under 15	7, 466	2, 540	34.0	1, 181.3	401.9
15 and under 30	7, 601	2, 418	31.8	2, 005.5	638.0
30 and under 50	4, 028	885	22.0	4, 331.2	951.6
50 and under 100	4, 046	1, 354	33.5	6, 632.8	2, 219.7
100 and over	46, 727	4, 991	10.7	113, 968.3	12, 173.2
Luzon	1, 592, 288	806, 376	50.6	356.0	180.3
Under 0.35	15, 912	13, 665	85.9	16.0	14.5
0.35 and under 1	75, 537	61, 913	82.0	62.8	51.1
1 and under 2	132, 492	102, 168	77.1	139.4	107.5
2 and under 5	265, 168	180, 595	68.1	305.2	207.8
5 and under 10	201, 727	114, 914	57.0	678.7	386.6
10 and under 15	99, 151	50, 515	50.9	1, 206.9	614.9
15 and under 30	144, 025	65, 888	45.7	2, 028.5	928.0
30 and under 50	103, 319	43, 581	42.2	3, 788.7	1, 598.1
50 and under 100	128, 893	57, 186	44.4	6, 589.6	2, 923.6
100 and over	426, 064	115, 951	27.2	37, 113.6	10, 100.3
Marinduque	15, 598	5, 039	32.3	86.8	28.0
Under 0.35	1, 466	823	56.1	17.4	9.8
0.35 and under 1	3, 459	1, 568	45.3	59.2	26.8
1 and under 2	8, 371	1, 251	14.8	133.8	49.6
2 and under 5	2, 619	840	32.1	275.7	88.4
5 and under 10	931	284	30.5	629.1	191.9
10 and under 15	502	151	30.1	1, 195.2	359.5
15 and under 30	676	78	11.5	2, 112.5	243.8
30 and under 50	261	12	4.6	3, 728.6	171.4
50 and under 100	299	19	6.4	5, 980.0	380.0
100 and over	2, 014	13	0.6	33, 566.7	216.7

TABLE 10.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by principal islands—Continued.

ISLAND AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Masbate.....	5,222	3,980	76.2	287.2	218.9
Under 0.35.....	45	33	73.3	20.0	14.7
0.35 and under 1.....	236	134	56.8	61.5	34.9
1 and under 2.....	754	505	67.0	131.1	87.8
2 and under 5.....	1,307	1,063	81.5	318.0	258.6
5 and under 10.....	846	760	89.8	710.9	638.7
10 and under 15.....	868	723	83.3	1,295.5	1,079.1
15 and under 30.....	462	393	85.1	1,848.0	1,572.0
30 and under 50.....	257	156	60.7	3,671.4	2,228.6
50 and under 100.....	315	211	67.0	7,875.0	5,275.0
100 and over.....	132	2	1.5	13,200.0	200.0
Mindanao.....	127,534	57,562	45.1	413.0	186.4
Under 0.35.....	843	651	77.2	16.1	12.4
0.35 and under 1.....	3,902	2,814	72.1	62.3	44.9
1 and under 2.....	8,302	5,125	61.7	136.8	84.5
2 and under 5.....	19,752	12,880	65.2	267.2	174.3
5 and under 10.....	23,402	11,985	51.2	673.7	334.8
10 and under 15.....	13,028	6,126	47.0	1,286.1	604.7
15 and under 30.....	16,889	7,350	43.5	1,996.3	868.8
30 and under 50.....	8,931	3,790	42.4	3,705.8	1,572.6
50 and under 100.....	9,729	3,483	35.8	6,756.2	2,418.8
100 and over.....	22,756	3,348	14.7	29,553.2	4,348.1
Mindoro.....	39,138	3,213	8.2	2,357.7	193.6
Under 0.35.....	25	23	92.0	17.1	15.8
0.35 and under 1.....	116	94	81.0	59.8	48.5
1 and under 2.....	469	318	67.8	134.8	91.4
2 and under 5.....	1,224	523	42.7	284.7	121.6
5 and under 10.....	1,524	519	28.5	693.5	197.3
10 and under 15.....	1,253	260	20.8	1,139.1	236.4
15 and under 30.....	1,889	459	24.3	2,009.6	488.3
30 and under 50.....	1,190	279	23.4	3,606.1	845.5
50 and under 100.....	1,386	199	14.4	6,600.0	947.6
100 and over.....	29,762	539	1.8	141,723.8	2,566.7
Negros.....	210,452	90,151	42.8	815.3	349.2
Under 0.35.....	646	517	80.0	25.4	20.3
0.35 and under 1.....	8,159	6,427	78.8	57.0	44.9
1 and under 2.....	3,179	2,517	79.2	126.1	99.8
2 and under 5.....	7,831	5,607	71.6	288.1	206.3
5 and under 10.....	8,480	5,060	59.7	653.3	389.8
10 and under 15.....	6,124	3,093	50.5	1,449.0	580.3
15 and under 30.....	12,178	6,062	49.8	2,053.6	1,022.3
30 and under 50.....	11,145	5,478	49.2	3,727.4	1,832.1
50 and under 100.....	27,785	12,887	46.3	6,865.1	3,177.5
100 and over.....	124,975	42,553	34.0	21,399.8	7,286.5
Panay.....	294,487	110,240	37.4	412.6	154.4
Under 0.35.....	2,419	2,017	83.4	17.3	14.4
0.35 and under 1.....	10,045	7,864	78.3	61.1	47.9
1 and under 2.....	20,649	13,914	67.4	131.9	88.9
2 and under 5.....	43,445	25,217	58.0	294.8	171.1
5 and under 10.....	37,034	17,808	48.1	667.5	321.0
10 and under 15.....	21,527	8,721	40.5	1,169.3	473.7
15 and under 30.....	36,084	12,939	35.9	2,008.0	720.0
30 and under 50.....	23,389	7,226	30.9	3,736.3	1,154.3
50 and under 100.....	27,643	6,357	23.0	6,550.5	1,506.4
100 and over.....	72,252	8,177	11.3	22,163.2	2,508.3
Samar.....	85,892	34,898	40.6	418.3	169.9
Under 0.35.....	286	201	70.3	16.7	11.7
0.35 and under 1.....	2,589	1,651	63.8	67.6	43.1
1 and under 2.....	6,520	3,544	54.4	144.2	78.4
2 and under 5.....	20,821	9,462	45.4	319.0	145.0
5 and under 10.....	17,937	7,532	42.0	679.7	285.4
10 and under 15.....	7,987	3,402	42.6	1,197.5	510.0
15 and under 30.....	9,161	4,128	45.1	1,987.2	895.4
30 and under 50.....	3,793	1,927	50.8	3,793.0	1,927.0
50 and under 100.....	3,446	1,754	50.9	6,501.9	3,809.4
100 and over.....	13,352	1,297	9.7	58,052.2	5,639.1

TABLE 10.—Area and average size of farms and other parcels of land used for agriculture, classified by size, by principal islands—Continued.

ISLAND AND SIZE OF FARM IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Other islands	160,190	78,795	49.2	299.7	147.4
Under 0.35	1,848	1,454	78.7	19.8	15.6
0.35 and under 1	9,129	6,756	74.0	59.9	44.4
1 and under 2	15,566	10,155	65.2	139.4	90.9
2 and under 5	38,585	21,476	55.7	327.0	182.0
5 and under 10	25,947	14,237	54.9	686.6	376.7
10 and under 15	11,356	5,743	50.6	1,066.2	539.2
15 and under 30	13,363	5,789	43.3	1,942.3	841.4
30 and under 50	6,941	2,398	34.5	3,672.5	1,268.8
50 and under 100	5,955	1,486	25.0	7,538.0	1,881.0
100 and over	31,500	9,301	29.5	33,157.9	9,790.5

TABLE 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Philippine Islands.....	815,453	176,653	229,272	167,966	151,238	52,867	14,896	12,495	4,490	3,222	2,354
White.....	778	41	98	81	113	63	35	71	46	69	161
Mixed.....	308	17	33	56	63	29	16	23	16	12	43
Brown.....	813,382	176,463	228,967	167,674	150,852	52,653	14,796	12,332	4,392	3,126	2,127
Yellow.....	959	128	160	153	209	121	49	69	34	15	21
Unknown.....	26	4	14	2	1	1	.....	.....	2	.....	2
Abra.....	13,655	5,283	4,299	2,218	1,247	463	59	57	18	7	4
White.....	3	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	13,651	5,283	4,298	2,217	1,247	461	59	57	18	7	4
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Albay.....	32,794	3,232	8,307	8,256	8,658	2,709	683	561	186	118	84
White.....	142	5	45	18	20	11	3	8	7	10	15
Mixed.....	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	32,519	3,222	8,236	8,214	8,615	2,670	676	544	168	107	67
Yellow.....	125	4	26	24	23	26	4	9	9	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ambos Camarines.....	12,863	401	577	1,906	4,773	2,812	1,007	843	297	146	101
White.....	55	.....	2	3	9	6	7	7	3	7	11
Mixed.....	20	.....	1	.....	1	3	3	8	4	.....	5
Brown.....	12,717	399	573	1,892	4,743	2,792	987	825	286	139	81
Yellow.....	71	2	1	11	20	11	10	8	4	.....	4
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Antique.....	13,110	2,235	3,690	3,667	2,541	648	147	102	48	26	6
White.....	12	5	.....	2	2	1	.....	1	.....	1	.....
Mixed.....	8	1	.....	.....	2	1	1	.....	2	1	.....
Brown.....	13,033	2,214	3,681	3,650	2,529	640	145	99	45	24	6
Yellow.....	57	15	9	15	8	6	1	2	1	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and un- der 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and un- der 50.	50 and un- der 100.	100 and over.
Basilan ¹	115	2	.....	23	40	17	12	13	2	3	3
White.....	8	.....	.....	1	1	.....	.....	2	1	2	1
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	107	2	.....	22	39	17	12	11	1	1	2
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bataán.....	2,304	314	675	608	433	135	39	54	26	15	5
White.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Mixed.....	3	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Brown.....	2,300	314	675	606	433	135	39	54	26	14	4
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Batangas.....	23,295	5,891	4,791	4,342	4,383	1,886	719	669	257	234	123
White.....	6	.....	.....	1	2	2	.....	.....	.....	.....	1
Mixed.....	5	.....	.....	.....	1	.....	.....	3	.....	.....	.....
Brown.....	23,273	5,889	4,791	4,339	4,378	1,883	717	665	257	233	121
Yellow.....	11	2	.....	2	2	1	1	1	.....	1	1
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Benguet.....	76	33	14	13	11	.....	3	1	.....	.....	1
White.....	7	.....	1	2	1	.....	1	1	.....	.....	1
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	69	33	13	11	10	.....	2	.....	.....	.....	.....
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bohol.....	36,869	19,086	9,825	4,221	2,640	762	138	111	53	25	8
White.....	5	.....	4	.....	1	.....	.....	.....	.....	.....	.....
Mixed.....	5	.....	4	.....	1	.....	.....	.....	.....	.....	.....
Brown.....	36,888	19,080	9,813	4,217	2,634	760	138	111	52	25	8
Yellow.....	21	6	4	4	4	2	.....	.....	1	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bulacán.....	21,095	2,651	5,135	6,174	4,889	1,345	279	239	95	141	147
White.....	17	7	5	2	.....	.....	.....	1	.....	.....	2
Mixed.....	3	.....	1	.....	.....	2	.....	.....	.....	.....	.....
Brown.....	21,064	2,644	5,129	6,171	4,887	1,335	279	238	95	141	145
Yellow.....	11	.....	.....	1	2	8	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cagayán.....	18,204	2,127	4,376	4,642	4,699	1,432	399	344	86	58	41
White.....	5	.....	1	.....	1	.....	1	.....	1	.....	1
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	18,199	2,127	4,375	4,642	4,698	1,432	398	344	85	58	40
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cápiz.....	24,969	5,063	5,460	5,462	5,265	1,961	678	596	207	147	130
White.....	17	.....	2	2	2	2	4	1	2	1	1
Mixed.....	8	.....	.....	2	3	2	.....	1	.....	.....	.....
Brown.....	24,942	5,062	5,457	5,468	5,260	1,957	674	594	205	146	129
Yellow.....	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cavite.....	9,640	1,406	1,680	2,239	2,714	895	255	254	95	67	35
White.....	2	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Mixed.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	9,636	1,405	1,680	2,237	2,714	895	255	254	95	66	35
Yellow.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Comandancia.

TABLE 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Cebú	80,231	16,961	28,724	18,783	11,115	3,320	698	432	121	51	26
White	5	1	1	1	1	1					
Mixed	14	4	4	1	6					1	2
Brown	80,174	16,951	28,706	18,772	11,105	3,316	698	431	121	50	24
Yellow	26	4	6	9	3	3		1			
Unknown	12	1	11		3	3					
Cottabato ¹	52	5			2	5	4	9	2	1	4
White	4							2			2
Mixed											
Brown	25	4			1	5	4	6	2	1	2
Yellow	3	1			1		1	1			
Unknown											
Dapitan ¹	1,203	273	165	227	294	130	39	50	15	6	4
White											
Mixed											
Brown	1,203	273	165	227	294	130	39	50	15	6	4
Yellow											
Unknown											
Dávao ¹	1,309	7	32	302	478	252	68	73	36	25	36
White	22			2	1	3	1	2	2	2	9
Mixed	1					1					
Brown	1,281	7	32	300	476	248	67	69	34	21	27
Yellow	5				1			2	2	2	2
Unknown											
Ilocos Norte	64,812	26,403	23,388	10,509	3,541	751	107	57	18	27	11
White	3	1						1			1
Mixed	1		1								
Brown	64,808	26,402	23,387	10,509	3,541	751	107	56	18	27	10
Yellow											
Unknown											
Ilocos Sur	21,479	7,718	6,182	3,475	2,400	1,033	251	259	91	49	21
White											
Mixed											
Brown	21,478	7,718	6,181	3,475	2,400	1,033	251	259	91	49	21
Yellow											
Unknown	1		1								
Iloilo	34,666	6,789	7,385	6,780	7,374	3,156	1,090	1,185	409	277	221
White	45	1	1	7	8	7		8	2	1	10
Mixed	10			1	1	2	1	2			3
Brown	34,607	6,788	7,383	6,771	7,365	3,145	1,089	1,175	407	276	208
Yellow	4		1	1		2					
Unknown											
Isabela	11,738	477	3,735	4,436	2,438	323	65	117	17	60	70
White	8	2		1	1	2					2
Mixed	21				21						
Brown	11,706	474	3,733	4,435	2,416	321	65	117	17	60	68
Yellow	2		2								
Unknown	1	1									
Joló ¹	9	3	2	1	1	1	1				
White											
Mixed											
Brown	4	1		1	1		1				
Yellow	5	2	2			1					
Unknown											

¹ Comandancia.

TABLE 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Negros Oriental.....	26,434	3,777	18,377	2,211	1,204	455	166	119	37	46	42
White.....	12				1		1		2	4	4
Mixed.....											
Brown.....	26,411	3,777	18,377	2,210	1,201	452	162	118	35	41	38
Yellow.....	11			1	2	3	3	1			
Unknown.....											
Nueva Ecija.....	13,381	1,881	920	2,352	4,439	2,187	498	538	399	102	65
White.....	6						1		1	3	1
Mixed.....											
Brown.....	13,375	1,881	920	2,352	4,439	2,187	497	538	398	99	64
Yellow.....											
Unknown.....											
Nueva Vizcaya.....	1,807	316	423	414	469	131	21	23	7	2	1
White.....											
Mixed.....											
Brown.....	1,807	316	423	414	469	131	21	23	7	2	1
Yellow.....											
Unknown.....											
Pampanga.....	10,031	687	1,680	2,306	2,360	1,220	495	550	318	257	158
White.....	19			1	3		1	1		9	4
Mixed.....	3				2	1					
Brown.....	9,998	686	1,680	2,302	2,354	1,218	494	546	317	248	153
Yellow.....	11	1		3	1	1		3	1		1
Unknown.....											
Pangasinán.....	54,712	10,113	16,368	13,286	10,987	2,661	615	417	157	74	34
White.....	8		2	2		3			1		
Mixed.....	5	1			1						1
Brown.....	54,693	10,109	16,363	13,283	10,986	2,657	615	417	156	74	33
Yellow.....	6	3	1	1		1					
Unknown.....											
Paragua.....	2,673	287	835	766	550	109	37	46	32	5	6
White.....	9		4		4						1
Mixed.....	2				1					1	
Brown.....	2,660	287	831	766	544	109	37	45	32	4	5
Yellow.....	2				1			1			
Unknown.....											
Paragua Sur ¹	131	59	20	30	19		1		1		1
White.....											
Mixed.....											
Brown.....	127	59	19	30	16		1		1		1
Yellow.....	4		1		3						
Unknown.....											
Rizal.....	11,564	9,678	766	503	339	116	38	55	26	24	24
White.....	23	1	3	10	6	1		1			1
Mixed.....	28	2	4	15	2		2	2			1
Brown.....	11,513	9,675	759	478	331	115	31	52	26	24	22
Yellow.....											
Unknown.....											
Romblón.....	6,823	192	1,174	2,049	2,492	671	132	76	17	5	15
White.....	23		4	1	4	1		5	1	2	5
Mixed.....	34			23			1				
Brown.....	6,785	192	1,160	2,025	2,487	670	131	71	16	3	10
Yellow.....	1				1						
Unknown.....											

¹ Comandancia.

TABLE 11.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Samar.....	25,218	2,424	4,780	5,693	7,828	3,009	772	516	110	55	31
White.....	12	1	.....	1	.....	1	.....	6	1	2	.....
Mixed.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	25,193	2,422	4,779	5,690	7,825	3,006	771	509	108	52	31
Yellow.....	12	1	1	2	3	2	1	1	1	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Siassi ¹	3	.....	.....	.....	.....	.....	.....	.....	2	1	.....
White.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	3	.....	.....	.....	.....	.....	.....	.....	2	1	.....
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sorsogón.....	14,567	42	249	1,601	8,528	3,328	311	252	111	88	57
White.....	27	.....	.....	.....	1	1	1	8	1	6	9
Mixed.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	14,438	42	248	1,591	8,475	3,321	306	230	105	75	45
Yellow.....	94	.....	1	10	52	6	1	13	4	7	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Surigao.....	7,412	60	327	972	2,740	1,966	694	486	110	46	11
White.....	5	.....	.....	.....	1	2	.....	.....	2	.....	.....
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	7,401	60	327	972	2,738	1,964	692	484	107	46	11
Yellow.....	6	.....	.....	.....	1	.....	2	2	1	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tarlac.....	11,160	1,670	2,763	2,333	2,332	967	343	374	162	128	88
White.....	15	1	.....	.....	3	3	1	1	.....	2	4
Mixed.....	6	.....	2	1	2	.....	.....	1	.....	.....	.....
Brown.....	11,131	1,669	2,761	2,332	2,327	964	342	371	159	126	80
Yellow.....	8	.....	.....	.....	.....	.....	.....	1	3	.....	4
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tayabas ²	42,236	12,407	8,523	7,463	8,331	3,315	1,010	779	203	144	61
White.....	26	8	5	4	5	2	1	.....	.....	1	.....
Mixed.....	16	5	4	2	2	.....	.....	.....	.....	.....	.....
Brown.....	42,173	12,391	8,512	7,452	8,319	3,310	1,006	776	203	143	61
Yellow.....	18	3	2	3	4	2	3	1	.....	.....	.....
Unknown.....	3	.....	.....	2	1	.....	.....	.....	.....	.....	.....
Zambales.....	24,367	3,554	9,019	6,406	4,131	945	145	113	35	11	8
White.....	7	.....	4	.....	2	.....	.....	.....	.....	.....	1
Mixed.....	9	1	3	.....	2	2	.....	1	.....	.....	.....
Brown.....	24,335	3,552	9,009	6,402	4,125	942	145	112	32	11	5
Yellow.....	11	1	2	4	2	1	.....	.....	1	.....	.....
Unknown.....	5	.....	1	.....	.....	.....	.....	.....	2	.....	2
Zamboanga ¹	2,600	428	483	599	647	255	84	66	20	9	9
White.....	43	3	6	11	11	2	3	2	2	1	2
Mixed.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Brown.....	2,421	396	442	563	617	244	76	55	14	8	6
Yellow.....	134	28	35	25	19	9	4	9	4	.....	1
Unknown.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Comandancia.² Including the subprovince, Marinduque.

SIZE OF FARMS AND COLOR OF OCCUPANT. 295

TABLE 12.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by principal islands.

ISLAND AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Philippine Islands.....	815, 458	176, 653	229, 272	167, 966	151, 238	52, 867	14, 896	12, 495	4, 490	3, 222	2, 354
White.....	778	41	98	81	113	63	35	71	46	69	161
Mixed.....	308	17	33	56	63	29	16	23	16	12	48
Brown.....	813, 382	176, 463	228, 967	167, 674	150, 852	52, 653	14, 796	12, 332	4, 392	3, 126	2, 127
Yellow.....	959	128	160	153	209	121	49	69	34	15	21
Unknown.....	26	4	14	2	1	1	.....	.....	.....	.....	2
Bohol.....	35, 093	18, 368	9, 363	3, 946	2, 447	681	112	98	49	23	6
White.....	5	.....	4	.....	1	.....	.....	.....	.....	.....	.....
Mixed.....	5	.....	4	.....	1	.....	.....	.....	.....	.....	.....
Brown.....	35, 063	18, 362	9, 351	3, 943	2, 441	679	112	98	48	23	6
Yellow.....	20	6	4	3	4	2	.....	.....	1	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cebu.....	75, 382	15, 941	27, 543	17, 798	10, 052	2, 872	599	382	119	50	26
White.....	5	1	1	1	1	1	.....	.....	.....	.....	2
Mixed.....	14	4	.....	1	6	.....	.....	.....	.....	1	.....
Brown.....	75, 325	15, 931	27, 525	17, 787	10, 042	2, 868	599	381	119	49	24
Yellow.....	26	4	6	9	3	3	.....	1	.....	.....	.....
Unknown.....	12	1	11	.....	.....	.....	.....	.....	.....	.....	.....
Leyte.....	34, 208	6, 464	9, 611	7, 827	6, 878	2, 217	632	379	93	61	41
White.....	13	.....	1	.....	4	.....	2	1	1	.....	3
Mixed.....	10	.....	.....	2	2	.....	1	1	2	1	.....
Brown.....	34, 154	6, 461	9, 602	7, 819	6, 864	2, 214	629	377	90	60	38
Yellow.....	25	2	8	5	8	2	.....	.....	.....	.....	.....
Unknown.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Luzon.....	447, 267	94, 230	120, 256	95, 017	86, 895	29, 723	8, 215	7, 100	2, 727	1, 956	1, 148
White.....	331	25	63	24	21	37	18	36	16	7	53
Mixed.....	149	11	19	25	38	12	10	12	7	3	12
Brown.....	446, 397	94, 170	120, 133	94, 907	86, 727	29, 614	8, 168	7, 016	2, 682	1, 907	1, 078
Yellow.....	381	23	38	61	108	60	19	36	20	8	8
Unknown.....	9	1	3	.....	1	.....	.....	.....	2	.....	2
Marinduque ..	17, 979	8, 429	5, 840	2, 520	950	148	42	32	7	5	6
White.....	16	4	5	3	2	1	1	.....	.....	.....	.....
Mixed.....	4	.....	4	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	17, 957	8, 425	5, 831	2, 515	948	147	41	32	7	5	6
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	2	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Masbate.....	1, 818	225	384	575	411	119	67	25	7	4	1
White.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Mixed.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown.....	1, 817	225	384	575	411	118	67	25	7	4	1
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mindanao.....	30, 877	5, 250	6, 268	6, 067	7, 391	3, 580	1, 013	846	241	144	77
White.....	95	4	8	17	20	8	4	7	8	4	15
Mixed.....	13	1	.....	.....	5	6	1	.....	.....	.....	.....
Brown.....	30, 482	5, 190	6, 198	6, 006	7, 312	3, 538	994	819	228	137	60
Yellow.....	286	54	62	44	54	28	14	20	5	3	2
Unknown.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mindoro.....	1, 660	146	194	348	430	263	110	94	33	21	21
White.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Mixed.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Brown.....	1, 656	146	194	348	430	262	110	94	33	20	19
Yellow.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....

TABLE 12.—Number of farms and other parcels of land used for agriculture, classified by size and color of occupant, by principal islands—Continued.

ISLAND AND COLOR OF OCCUPANT.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY SIZE IN HECTARES.									
		Under 0.35.	0.35 and under 1.	1 and under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 30.	30 and under 50.	50 and under 100.	100 and over.
Negros	25,814	2,543	14,321	2,521	2,718	1,298	533	593	299	404	584
White	106	.....	1	.....	2	1	4	14	17	64	
Mixed	49	.....	.....	2	1	5	1	6	5	26	
Brown	25,619	2,543	14,320	2,516	2,709	1,285	523	580	277	485	
Yellow	40	.....	.....	3	6	7	5	4	3	9	
Unknown .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Panay	71,379	13,991	16,430	15,660	14,738	5,548	1,841	1,797	626	422	326
White	74	6	3	11	12	10	4	10	4	3	11
Mixed	22	1	.....	2	3	5	2	3	2	1	3
Brown	71,220	13,968	16,416	15,631	14,715	5,525	1,834	1,782	619	418	312
Yellow	63	16	11	16	8	8	1	2	1	.....	.....
Unknown .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Samar	20,536	1,716	3,830	4,520	6,527	2,639	667	461	100	53	23
White	9	1	.....	.....	.....	.....	.....	6	1	1	.....
Mixed	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Brown	20,518	1,715	3,830	4,518	6,526	2,637	666	464	98	51	23
Yellow	8	.....	.....	2	1	2	1	1	1	.....	.....
Unknown .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other islands..	53,445	9,350	15,232	11,167	11,801	3,779	1,065	688	189	79	95
White	121	.....	12	24	50	4	2	8	2	6	13
Mixed	40	.....	.....	10	27	.....	1	1	.....	1	.....
Brown	53,174	9,329	15,187	11,123	11,710	3,763	1,053	674	184	72	79
Yellow	110	21	33	10	14	12	9	5	3	.....	3
Unknown .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
White	96,493	23,394	24.2	12,402.7	3,006.9
Mixed	16,434	5,840	35.5	5,335.7	1,896.1
Brown	2,704,385	1,263,965	46.7	332.5	155.4
Yellow	9,807	5,635	57.5	1,022.6	587.6
Unknown	585	11	1.9	2,250.0	42.3
Abra	52,086	12,208	23.4	381.4	89.4
White	18	16	88.9	600.0	533.8
Mixed .....	.....	.....	.....	.....	.....
Brown	52,068	12,192	23.4	381.4	89.8
Yellow .....	.....	.....	.....	.....	.....
Unknown .....	.....	.....	.....	.....	.....
Albay	116,084	85,147	73.4	354.0	259.6
White	5,933	4,331	73.0	4,178.2	3,050.0
Mixed	423	200	47.3	5,287.5	2,500.0
Brown	108,834	79,925	73.4	834.7	245.8
Yellow	894	691	77.3	715.2	552.8
Unknown .....	.....	.....	.....	.....	.....

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Ambos Camarines	106,371	59,683	56.1	827.0	464.0
White.....	4,101	3,316	80.9	7,456.4	6,029.1
Mixed.....	1,838	1,206	65.6	9,190.0	6,030.0
Brown.....	99,386	54,266	54.6	781.5	426.7
Yellow.....	1,046	895	85.6	1,473.2	1,260.6
Unknown.....					
Antique.....	27,194	21,622	79.5	207.4	164.9
White.....	115	93	80.9	958.3	775.0
Mixed.....	164	138	84.1	2,050.0	1,725.0
Brown.....	26,737	21,249	79.5	205.1	163.0
Yellow.....	178	142	79.8	312.3	249.1
Unknown.....					
Basilan ¹	2,277	583	25.6	1,980.0	507.0
White.....	1,116	174	15.6	13,950.0	2,175.0
Mixed.....					
Brown.....	1,161	409	35.2	1,085.0	382.2
Yellow.....					
Unknown.....					
Bataán.....	8,232	3,485	42.3	357.3	151.3
White.....	459			45,900.0	
Mixed.....	92	35	38.0	3,066.7	1,166.7
Brown.....	7,681	3,450	44.9	234.0	150.0
Yellow.....					
Unknown.....					
Batangas.....	117,422	21,652	18.4	504.1	92.9
White.....	124	45	36.3	2,066.7	750.0
Mixed.....	75	49	65.3	1,500.0	980.0
Brown.....	116,956	21,521	18.4	502.5	92.5
Yellow.....	267	37	13.9	2,427.3	386.4
Unknown.....					
Benguet.....	233	71	30.5	306.6	93.4
White.....	158	9	5.7	2,257.1	128.6
Mixed.....					
Brown.....	75	62	82.6	108.7	89.9
Yellow.....					
Unknown.....					
Bohol.....	58,098	23,247	40.0	157.5	63.1
White.....	8	7	87.5	160.0	140.0
Mixed.....	6	5	83.3	120.0	100.0
Brown.....	57,956	23,127	39.9	157.3	62.8
Yellow.....	128	108	84.4	609.5	514.3
Unknown.....					
Bulacán.....	90,220	60,570	67.1	427.7	287.1
White.....	1,223	144	11.8	7,194.1	847.1
Mixed.....	19	18	94.7	633.3	600.0
Brown.....	88,925	60,378	67.9	422.2	286.6
Yellow.....	53	30	56.6	481.8	272.7
Unknown.....					
Cagayán.....	138,166	35,430	25.6	758.9	194.6
White.....	210	86	41.0	4,200.0	1,720.0
Mixed.....					
Brown.....	137,956	35,344	25.6	758.0	194.2
Yellow.....					
Unknown.....					

¹ Comandancia.

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Cápiz	108,692	36,965	34.0	435.3	148.0
White.....	1,038	90	8.7	6,105.9	529.4
Mixed.....	47	31	66.0	587.5	387.5
Brown.....	107,607	36,844	34.2	431.4	147.7
Yellow.....					
Unknown.....					
Cavite	40,881	20,811	50.9	424.1	215.9
White.....	3	3	100.0	150.0	150.0
Mixed.....	96	34	35.4	9,600.0	3,400.0
Brown.....	40,782	20,774	50.9	423.2	215.6
Yellow.....					
Unknown.....					
Cebu.....	130,624	53,283	40.8	162.8	66.4
White.....	12	4	33.3	240.0	80.0
Mixed.....	584	518	88.7	4,171.4	3,700.0
Brown.....	129,942	52,732	40.6	162.1	65.8
Yellow.....	79	24	30.4	303.8	92.8
Unknown.....	7	5	71.4	58.8	41.7
Cottabato ¹	5,286	383	7.2	16,518.8	1,196.9
White.....	4,516	206	4.6	112,900.0	5,150.0
Mixed.....					
Brown.....	749	156	20.8	2,996.0	624.0
Yellow.....	21	21	100.0	700.0	700.0
Unknown.....					
Dapitan ¹	5,374	2,232	41.5	446.7	185.5
White.....					
Mixed.....					
Brown.....	5,374	2,232	41.5	446.7	185.5
Yellow.....					
Unknown.....					
Davao ¹	16,343	3,769	23.1	1,248.5	287.9
White.....	2,783	366	13.2	12,650.0	1,663.6
Mixed.....	5	5	100.0	500.0	600.0
Brown.....	13,383	3,374	25.2	1,044.7	263.4
Yellow.....	172	24	14.0	3,440.0	480.0
Unknown.....					
Ilocos Norte.....	55,633	40,233	72.3	85.8	62.1
White.....	422	5	1.2	14,066.7	166.7
Mixed.....					
Brown.....	55,211	40,228	72.9	85.2	62.1
Yellow.....					
Unknown.....					
Ilocos Sur.....	47,176	39,739	84.2	219.6	185.0
White.....					
Mixed.....					
Brown.....	47,176	39,739	84.2	219.6	185.0
Yellow.....					
Unknown.....					
Iloilo.....	176,955	57,081	32.3	510.5	164.7
White.....	4,802	864	7.6	10,671.1	808.9
Mixed.....	671	89	13.3	6,710.0	890.0
Brown.....	171,467	56,617	33.0	495.5	163.6
Yellow.....	15	11	73.3	875.0	275.0
Unknown.....					

¹ Comandancia.

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Isabela.....	67,716	16,752	24.7	576.9	142.7
White.....	1,210	8	0.7	15,125.0	100.0
Mixed.....	44	1	2.3	209.5	4.8
Brown.....	66,461	16,742	25.2	567.8	143.0
Yellow.....	1	1	100.0	50.0	50.0
Unknown.....					
Joló ¹	23	19	82.6	255.6	211.1
White.....					
Mixed.....					
Brown.....	15	11	73.3	375.0	275.0
Yellow.....	8	8	100.0	160.0	160.0
Unknown.....					
La Laguna.....	86,426	41,016	47.5	392.4	186.2
White.....	72	53	73.6	1,800.0	1,325.0
Mixed.....	33	8	24.2	412.5	100.0
Brown.....	86,289	40,930	47.4	392.1	186.0
Yellow.....	32	25	78.1	640.0	500.0
Unknown.....					
La Unión.....	43,077	30,850	71.6	112.7	80.7
White.....					
Mixed.....					
Brown.....	43,077	30,850	71.6	112.7	80.7
Yellow.....					
Unknown.....					
Lepanto-Bontoc.....	1,741	374	21.5	1,095.0	235.2
White.....	1,331	133	10.0	14,788.9	1,477.8
Mixed.....					
Brown.....	400	231	57.8	272.1	157.1
Yellow.....	10	10	100.0	333.3	333.3
Unknown.....					
Leyte.....	133,620	42,898	32.1	360.3	115.7
White.....	1,643	164	10.0	12,638.5	1,261.5
Mixed.....	346	39	11.3	3,460.0	390.0
Brown.....	131,569	42,666	32.4	355.3	115.2
Yellow.....	62	29	46.8	213.8	100.0
Unknown.....					
Manila city.....	738	473	64.1	137.4	88.1
White.....	144	65	45.1	576.0	260.0
Mixed.....	20	13	65.0	250.0	162.5
Brown.....	570	392	68.8	115.4	79.4
Yellow.....	4	3	75.0	40.0	30.0
Unknown.....					
Masbate.....	9,798	7,429	75.8	317.1	240.4
White.....	31	19	61.3	1,033.3	633.3
Mixed.....					
Brown.....	9,749	7,398	75.9	315.9	239.7
Yellow.....	18	12	66.7	1,800.0	1,200.0
Unknown.....					
Mindoro.....	42,424	4,768	11.2	2,020.2	227.0
White.....	24,730	5	(²)	618,250.0	125.0
Mixed.....	60			6,000.0	
Brown.....	17,625	4,760	27.0	841.7	227.3
Yellow.....					
Unknown.....	9	3	33.3	900.0	300.0

¹ Comandancia.

² Less than one-tenth of 1 per cent.

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Misamis.....	59,269	29,346	49.5	230.8	114.3
White.....	552	68	12.3	2,400.0	295.7
Mixed.....	52	18	34.6	472.7	163.6
Brown.....	57,490	28,716	49.9	226.1	112.9
Yellow.....	1,175	544	46.3	534.1	247.3
Unknown.....					
Negros Occidental.....	177,642	72,928	41.0	2,546.5	1,045.4
White.....	17,427	8,186	47.0	18,344.2	8,616.8
Mixed.....	8,090	2,364	29.2	16,510.2	4,824.5
Brown.....	150,232	61,507	40.9	2,208.3	904.1
Yellow.....	1,898	871	46.0	6,527.6	3,003.4
Unknown.....					
Negros Oriental.....	37,971	21,383	56.3	143.6	80.9
White.....	1,538	750	48.8	12,816.7	6,250.0
Mixed.....					
Brown.....	36,283	20,557	56.7	137.4	77.8
Yellow.....	150	76	50.7	1,363.6	690.9
Unknown.....					
Nueva Écija.....	90,367	26,763	29.6	675.3	200.0
White.....	487	36	7.4	8,116.7	600.0
Mixed.....					
Brown.....	89,880	26,727	29.7	672.0	199.8
Yellow.....					
Unknown.....					
Nueva Vizcaya.....	4,421	2,832	64.1	244.7	156.7
White.....					
Mixed.....					
Brown.....	4,421	2,832	64.1	244.7	156.7
Yellow.....					
Unknown.....					
Pampanga.....	105,677	63,840	60.4	1,053.5	636.4
White.....	1,822	515	28.3	9,589.5	2,710.5
Mixed.....	13	12	92.3	433.3	400.0
Brown.....	103,445	63,225	61.1	1,034.7	632.4
Yellow.....	397	88	22.2	3,609.1	800.0
Unknown.....					
Pangasinán.....	119,771	81,472	68.0	218.9	148.9
White.....	57	7	12.3	712.5	87.5
Mixed.....	240	7	2.9	4,800.0	140.0
Brown.....	119,466	81,454	68.2	218.4	148.9
Yellow.....	8	4	50.0	133.3	66.7
Unknown.....					
Paragua.....	9,032	2,999	33.2	337.9	112.2
White.....	1,611	71	4.4	17,900.0	788.9
Mixed.....	53	13	24.5	2,650.0	650.0
Brown.....	7,340	2,887	39.3	275.9	108.5
Yellow.....	28	28	100.0	1,400.0	1,400.0
Unknown.....					
Paragua Sur ¹	626	110	17.6	477.9	84.0
White.....					
Mixed.....					
Brown.....	617	101	16.4	485.8	79.5
Yellow.....	9	9	100.0	225.0	225.0
Unknown.....					

¹ Comandancia.

TABLE 13.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Rizal.....	14,787	9,984	67.2	127.9	85.9
White.....	266	24	9.0	1,156.5	104.3
Mixed.....	1,523			5,439.3	
Brown.....	12,998	9,910	76.3	112.9	86.1
Yellow.....					
Unknown.....					
Romblón.....	23,546	13,243	56.2	345.1	194.1
White.....	1,980	362	18.3	8,608.7	1,573.9
Mixed.....	54	43	79.6	158.8	126.5
Brown.....	21,509	12,835	59.7	317.9	189.7
Yellow.....	8	3	100.0	300.0	300.0
Unknown.....					
Sámar.....	101,481	43,073	42.4	402.4	170.8
White.....	324	165	50.9	2,700.0	1,375.0
Mixed.....	52	48	92.3	5,200.0	4,800.0
Brown.....	100,999	42,796	42.4	400.9	169.9
Yellow.....	106	64	60.4	883.3	533.3
Unknown.....					
Siassi ¹	133	30	22.6	4,433.3	1,000.0
White.....					
Mixed.....					
Brown.....	133	30	22.6	4,433.3	1,000.0
Yellow.....					
Unknown.....					
Sorsogón.....	88,829	54,668	61.5	609.8	375.3
White.....	3,487	2,745	78.7	12,914.8	10,166.7
Mixed.....	1,681	861	51.2	21,012.5	10,762.5
Brown.....	82,464	50,139	60.8	571.2	347.3
Yellow.....	1,197	923	77.1	1,273.4	981.9
Unknown.....					
Surigao.....	49,060	24,250	49.4	661.9	327.2
White.....	73	3	4.1	1,460.0	60.0
Mixed.....					
Brown.....	48,870	24,185	49.5	660.3	326.8
Yellow.....	117	62	53.0	1,950.0	1,033.3
Unknown.....					
Tárlac.....	78,923	37,332	47.3	707.2	334.5
White.....	8,053	110	1.4	53,686.7	733.3
Mixed.....	36	25	69.4	600.0	416.7
Brown.....	69,948	37,028	52.9	628.4	332.7
Yellow.....	886	169	19.1	11,075.0	2,112.5
Unknown.....					
Tayabas ²	120,754	57,575	47.7	285.9	136.3
White.....	111	24	21.6	426.9	92.3
Mixed.....	66	52	78.8	412.5	325.0
Brown.....	120,493	57,453	47.7	285.7	136.2
Yellow.....	79	43	54.4	438.9	238.9
Unknown.....	5	3	60.0	166.7	100.0
Zambales.....	45,917	27,386	59.6	188.4	112.4
White.....	1,611	3	0.2	23,014.3	42.9
Mixed.....	38			422.2	
Brown.....	43,640	27,375	62.7	179.3	112.5
Yellow.....	64	8	12.5	581.8	72.7
Unknown.....	564			11,280.0	
Zamboanga ¹	10,588	6,908	65.2	407.2	265.7
White.....	892	619	69.4	2,074.4	1,439.5
Mixed.....	13	8	61.5	1,300.0	800.0
Brown.....	8,976	5,609	62.5	370.8	231.7
Yellow.....	707	672	95.0	527.6	501.5
Unknown.....					

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 14.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by principal islands.

ISLAND AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
White	96,493	23,394	24.2	12,402.7	3,006.0
Mixed	16,434	5,840	35.5	5,355.7	1,896.1
Brown	2,704,385	1,268,965	46.7	332.5	155.4
Yellow	9,807	5,635	57.5	1,022.6	587.6
Unknown	685	11	1.9	2,250.0	42.3
Bohol	53,160	21,503	40.5	151.1	61.3
White	8	7	87.5	160.0	140.0
Mixed	6	5	83.3	120.0	100.0
Brown	53,020	21,383	40.3	151.2	60.9
Yellow	126	108	85.7	630.0	540.0
Unknown					
Cebú	119,989	49,148	40.9	159.2	65.2
White	12	4	33.3	240.0	80.0
Mixed	584	518	88.7	4,171.4	3,700.0
Brown	119,307	48,697	40.7	158.4	64.5
Yellow	79	24	30.4	303.8	92.3
Unknown	7	5	71.4	58.3	41.7
Leyte	123,754	37,950	30.7	361.8	111.0
White	1,643	164	10.0	12,638.5	1,261.5
Mixed	346	39	11.3	3,460.0	390.0
Brown	121,711	37,724	31.0	856.4	110.5
Yellow	54	23	42.6	216.0	92.0
Unknown					
Luzón	1,592,288	806,376	50.6	356.0	180.3
White	31,132	11,560	37.1	9,405.4	3,492.4
Mixed	6,235	2,520	40.4	4,184.6	1,691.3
Brown	1,549,438	789,386	50.9	347.1	176.8
Yellow	4,916	2,908	59.2	1,290.3	763.3
Unknown	567	2	0.4	6,300.0	22.2
Marinduque	15,698	5,039	32.3	86.8	28.0
White	30	12	40.0	187.5	75.0
Mixed	2	1	50.0	50.0	25.0
Brown	15,564	5,025	32.3	86.7	28.0
Yellow					
Unknown	2	1	50.0	100.0	50.0
Masbate	5,222	3,980	76.2	287.2	218.0
White	8			800.0	
Mixed					
Brown	5,214	3,980	76.3	286.9	219.0
Yellow					
Unknown					
Mindanao	127,534	57,552	45.1	413.0	186.4
White	8,716	1,228	14.1	9,174.7	1,292.6
Mixed	70	31	44.3	538.5	238.5
Brown	116,948	55,238	47.2	383.7	181.2
Yellow	1,800	1,055	58.6	629.4	368.9
Unknown					
Mindoro	39,138	3,213	8.2	2,357.7	193.6
White	23,716			1,185,800.0	
Mixed	60			6,000.0	
Brown	15,353	3,210	20.9	927.1	193.8
Yellow					
Unknown	9	3	33.3	900.0	300.0

TABLE 14.—Area and average size of farms and other parcels of land used for agriculture, classified by color of occupant, by principal islands—Continued.

ISLAND AND COLOR OF OCCUPANT.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ACRES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Negros.....	210,452	90,151	42.8	815.3	349.2
White.....	18,963	8,934	47.1	17,889.6	8,428.3
Mixed.....	8,090	2,364	29.2	16,510.2	4,824.5
Brown.....	181,356	77,906	43.0	707.9	304.1
Yellow.....	2,043	947	46.4	5,107.5	2,367.5
Unknown.....					
Paday.....	294,487	110,240	37.4	412.6	154.4
White.....	5,955	547	9.2	8,047.3	739.2
Mixed.....	872	253	29.0	3,963.6	1,150.0
Brown.....	287,467	109,287	38.0	403.6	153.4
Yellow.....	193	153	79.3	306.3	242.9
Unknown.....					
Samar.....	85,892	34,898	40.6	418.3	169.9
White.....	211	117	55.5	2,344.4	1,800.0
Mixed.....	52	48	92.3	5,200.0	4,800.0
Brown.....	85,528	34,673	40.5	416.8	169.0
Yellow.....	101	60	59.4	1,262.5	750.0
Unknown.....					
Other islands.....	160,190	78,795	49.2	299.7	147.4
White.....	6,099	821	13.5	5,040.5	678.5
Mixed.....	117	61	52.1	292.5	152.5
Brown.....	153,479	77,556	50.5	288.6	145.9
Yellow.....	495	357	72.1	450.0	324.5
Unknown.....					

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mixed.	Brown.	Yellow.	Un-known.
Philippine Islands.....	815,453	658,543	14,403	132,444	1,233	8,830	778	308	813,382	959	26
Under 0.35.....	290,770	250,715	2,418	33,555	1,067	3,015	167	108	290,254	231	10
0.35 and under 1.....	241,457	191,256	4,235	44,214	82	1,670	102	31	241,145	166	13
1 and under 2.....	141,712	108,068	3,692	28,649	34	1,269	78	42	141,450	140	2
2 and under 3.....	60,797	45,962	1,907	11,649	15	1,264	59	10	60,599	128	1
3 and under 5.....	41,636	32,655	999	7,278	9	695	47	23	41,481	85	
5 and under 10.....	24,783	19,523	397	4,395	18	450	34	12	24,618	35	
10 and under 15.....	6,155	4,613	186	1,198	2	156	62	18	6,074	35	
15 and under 30.....	4,656	3,447	182	873	3	151	62	18	4,533	43	
30 and under 50.....	1,648	1,166	133	286	1	62	37	10	1,576	25	
50 and over.....	1,839	1,138	254	347	2	98	135	31	1,652	21	
Abra.....	13,655	9,917	138	3,522		78	3		13,651		1
Under 0.35.....	5,711	4,476	73	1,128		34	1		5,710		
0.35 and under 1.....	4,533	3,194	44	1,274		21			4,582		1
1 and under 2.....	2,184	1,498	16	657		13			2,184		
2 and under 3.....	605	409	3	189		4			605		
3 and under 5.....	378	221	1	152		4			378		
5 and under 10.....	181	97	1	81		2			179		
10 and under 15.....	33	8		25					33		
15 and under 30.....	18	9		9					18		
30 and under 50.....	6	2		4					6		
50 and over.....	6	3		3					6		

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTI- VATED LAND IN FARMS IN HEC- TARES.	Total num- ber of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own- ers.	Cash ten- ants.	Share ten- ants.	Labor ten- ants.	No rental.	White.	Mix- ed.	Brown.	Yel- low.	Un- known.
Albay	32, 794	32, 190	411	75	.....	118	142	8	32, 519	125	.....
Under 0.35	4, 616	4, 519	74	8	.....	15	11	1	4, 591	13	.....
0.35 and under 1	10, 491	10, 189	228	36	.....	38	39	.....	10, 424	28	.....
1 and under 2	7, 961	7, 864	63	11	.....	23	19	.....	7, 920	22	.....
2 and under 3	3, 980	3, 948	26	5	.....	1	10	.....	3, 960	10	.....
3 and under 5	2, 792	2, 780	4	1	.....	7	10	.....	2, 764	18	.....
5 and under 10	1, 869	1, 842	12	7	.....	8	12	2	1, 839	16	.....
10 and under 15	462	455	1	2	.....	4	3	.....	455	4	.....
15 and under 30	356	349	2	1	.....	4	9	.....	336	11	.....
30 and under 50	123	118	1	1	.....	3	5	2	113	3	.....
50 and over	144	126	.....	3	.....	15	24	3	117	.....	.....
Ambos Cama- rines	12, 863	11, 991	13	364	2	493	55	20	12, 717	71	.....
Under 0.35	919	837	.....	10	.....	72	8	.....	909	2	.....
0.35 and under 1	1, 021	945	1	17	.....	58	2	1	1, 016	2	.....
1 and under 2	3, 068	2, 897	2	80	.....	89	2	1	3, 051	14	.....
2 and under 3	2, 597	2, 447	1	92	1	56	7	1	2, 581	8	.....
3 and under 5	2, 316	2, 173	6	73	.....	64	3	1	2, 295	17	.....
5 and under 10	1, 779	1, 673	1	57	1	47	4	2	1, 764	9	.....
10 and under 15	548	505	.....	15	.....	28	5	8	532	8	.....
15 and under 30	376	317	1	11	.....	47	5	5	360	6	.....
30 and under 50	125	105	.....	5	.....	15	1	1	122	1	.....
50 and over	114	92	1	4	.....	17	18	5	87	4	.....
Antique	13, 110	13, 056	7	27	.....	20	12	8	13, 033	57	.....
Under 0.35	3, 082	3, 018	.....	11	.....	8	5	1	3, 006	20	.....
0.35 and under 1	3, 616	3, 610	.....	.....	.....	6	1	.....	3, 608	7	.....
1 and under 2	3, 432	3, 425	1	4	.....	2	2	.....	3, 417	13	.....
2 and under 3	1, 305	1, 302	.....	2	.....	1	1	1	1, 297	6	.....
3 and under 5	921	913	1	6	.....	1	.....	1	917	3	.....
5 and under 10	568	559	3	.....	.....	6	1	1	562	4	.....
10 and under 15	113	112	.....	.....	.....	1	.....	2	110	1	.....
15 and under 30	82	77	2	3	.....	.....	1	.....	78	3	.....
30 and under 50	31	30	.....	1	.....	.....	.....	1	30	.....	.....
50 and over	10	10	.....	.....	.....	.....	1	1	8	.....	.....
Basilan ¹	115	115	.....	.....	.....	.....	8	.....	107	.....	.....
Under 0.35	5	5	.....	.....	.....	.....	.....	.....	5	.....	.....
0.35 and under 1	8	8	.....	.....	.....	.....	.....	.....	8	.....	.....
1 and under 2	29	29	.....	.....	.....	.....	2	.....	27	.....	.....
2 and under 3	18	18	.....	.....	.....	.....	.....	.....	18	.....	.....
3 and under 5	22	22	.....	.....	.....	.....	.....	.....	22	.....	.....
5 and under 10	18	18	.....	.....	.....	.....	1	.....	17	.....	.....
10 and under 15	9	9	.....	.....	.....	.....	.....	1	8	.....	.....
15 and under 30	5	5	.....	.....	.....	.....	3	.....	2	.....	.....
30 and under 50 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 and over	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Bataán	2, 304	1, 157	52	1, 073	1	21	1	3	2, 300	.....	.....
Under 0.35	667	541	10	111	.....	5	1	.....	666	.....	.....
0.35 and under 1	629	253	8	361	.....	7	.....	.....	629	.....	.....
1 and under 2	549	160	18	362	1	8	.....	2	547	.....	.....
2 and under 3	218	78	8	131	.....	1	.....	.....	218	.....	.....
3 and under 5	128	50	3	75	.....	.....	.....	.....	128	.....	.....
5 and under 10	66	41	.....	25	.....	.....	.....	.....	66	.....	.....
10 and under 15	24	15	4	5	.....	.....	.....	.....	24	.....	.....
15 and under 30	18	15	.....	3	.....	.....	.....	.....	18	.....	.....
30 and under 50	4	3	1	.....	.....	.....	.....	1	3	.....	.....
50 and over	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....
Batangas	23, 295	19, 017	146	3, 475	.....	657	6	5	23, 273	11	.....
Under 0.35	13, 983	12, 433	51	1, 190	.....	309	2	1	13, 976	4	.....
0.35 and under 1	4, 446	3, 346	24	914	.....	162	1	.....	4, 444	1	.....
1 and under 2	2, 589	1, 730	21	736	.....	102	1	1	2, 584	3	.....
2 and under 3	975	626	26	287	.....	36	.....	1	973	1	.....
3 and under 5	562	374	10	153	.....	25	1	.....	561	.....	.....
5 and under 10	451	309	11	115	.....	16	.....	.....	450	1	.....
10 and under 15	130	88	2	37	.....	3	.....	.....	130	.....	.....
15 and under 30	113	75	1	33	.....	4	.....	2	110	1	.....
30 and under 50	21	17	.....	4	.....	.....	1	.....	20	.....	.....
50 and over	25	19	.....	6	.....	.....	.....	.....	25	.....	.....

¹ Comandancia.

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTI- VATED LAND IN FARMS IN HEC- TARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own- ers.	Cash ten- ants.	Share ten- ants.	Labor ten- ants.	No. rental.	White.	Mix- ed.	Brown	Yel- low.	Un- known.
Benguet.....	76	1				75	7		69		
Under 0.35.....	38					38	2		36		
0.35 and under 1.....	16					16	1		15		
1 and under 2.....	13					13	2		11		
2 and under 3.....	6					5	1		4		
3 and under 5.....	2					2	1		1		
5 and under 10.....	2	1				1			2		
10 and under 15.....											
15 and under 30.....											
30 and under 50.....											
50 and over.....											
Bohol.....	36,869	34,212	5	2,401		251	5	5	36,838	21	
Under 0.35.....	27,590	25,852	5	1,557		176		2	27,578	10	
0.35 and under 1.....	6,230	5,650		521		59		4	6,221	3	
1 and under 2.....	1,834	1,648		179		7		1	1,830	3	
2 and under 3.....	609	529		75		5			606	3	
3 and under 5.....	373	320		52		1		1	372	1	
5 and under 10.....	176	161		12		3			175	1	
10 and under 15.....	22	22							22		
15 and under 30.....	23	19		4					23		
30 and under 50.....	6	6							5	1	
50 and over.....	6	5		1					6		
Bulacán.....	21,095	5,218	3,458	12,114	4	301	17	3	21,064	11	
Under 0.35.....	4,136	2,017	501	1,581	4	33	9		4,127		
0.35 and under 1.....	6,765	1,436	1,309	3,983		37	5	1	6,759		
1 and under 2.....	5,633	850	987	3,735		61			5,631	1	
2 and under 3.....	2,360	320	313	1,565		162			2,352	8	
3 and under 5.....	1,234	238	156	835		5			1,232	2	
5 and under 10.....	483	162	57	262		2		2	481		
10 and under 15.....	132	55	17	60			1		131		
15 and under 30.....	104	77	14	13					104		
30 and under 50.....	44	27	1	16					44		
50 and over.....	204	36	103	64		1	1		203		
Cagayán.....	18,204	16,539	41	1,588		36	5		18,199		
Under 0.35.....	4,383	4,023	3	339		18	1		4,382		
0.35 and under 1.....	5,133	4,686	10	432		6	1		5,132		
1 and under 2.....	4,370	3,928	11	424		7	1		4,369		
2 and under 3.....	1,997	1,842	8	146		1			1,997		
3 and under 5.....	1,362	1,233	3	125		1			1,362		
5 and under 10.....	678	597	4	74		3			678		
10 and under 15.....	134	113		21					134		
15 and under 30.....	84	66	1	16		1	1		83		
30 and under 50.....	28	23	1	4					28		
50 and over.....	35	28		7			1		34		
Cápiz.....	24,969	23,940	58	844	8	119	17	8	24,942	2	
Under 0.35.....	9,599	9,479	8	78	2	32	4		9,594	1	
0.35 and under 1.....	6,183	5,998	6	163		16	3		6,179	1	
1 and under 2.....	4,680	4,382	14	258	3	23	2	8	4,675		
2 and under 3.....	1,787	1,674	5	98	1	9	1		1,786		
3 and under 5.....	1,430	1,290	11	121		8		3	1,427		
5 and under 10.....	819	735	5	68		11	1	1	817		
10 and under 15.....	205	169	6	24		6	5	1	199		
15 and under 30.....	155	129	3	21	1	1	1		154		
30 and under 50.....	62	53		6	1	2			62		
50 and over.....	49	31		7		11			49		
Cavite.....	9,640	5,996	265	2,429	15	935	2	1	9,636	1	
Under 0.35.....	2,592	1,846	53	595	5	93			2,591	1	
0.35 and under 1.....	2,407	1,654	150	572	3	128			2,407		
1 and under 2.....	2,006	1,192	25	587	4	198	2		2,004		
2 and under 3.....	1,070	591	14	286	1	178			1,070		
3 and under 5.....	889	440	9	233	2	205			889		
5 and under 10.....	457	236	7	108		106			457		
10 and under 15.....	116	65	5	28		18			116		
15 and under 30.....	58	36	1	13		8			58		
30 and under 50.....	13	11		2			1		12		
50 and over.....	32	25	1	5		1			32		

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTI- VATED LAND IN FARMS IN HEC- TARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own- ers.	Cash ten- ants.	Share ten- ants.	Labor ten- ants.	No rental.	White.	Mix- ed.	Brown.	Yel- low.	Un- known.
Cebu	80,231	50,545	73	28,975	23	615	5	14	80,174	26	12
Under 0.35.....	35,162	24,796	28	10,009	20	309	3	5	35,138	13	3
0.35 and under 1.....	31,530	18,392	25	12,901	.....	212	.....	6	31,511	4	9
1 and under 2.....	9,728	5,423	8	4,230	.....	65	1	.....	9,720	7	.....
2 and under 3.....	2,116	1,086	1	1,006	.....	23	.....	.....	2,116	.....	.....
3 and under 5.....	913	1,467	2	440	.....	4	1	.....	911	1	.....
5 and under 10.....	537	257	7	271	.....	2	.....	.....	536	1	.....
10 and under 15.....	135	63	2	70	.....	.....	.....	.....	135	.....	.....
15 and under 30.....	76	42	.....	34	.....	.....	.....	.....	76	.....	.....
30 and under 50.....	20	11	.....	9	.....	.....	.....	.....	20	.....	.....
50 and over.....	14	8	.....	5	1	.....	.....	3	11	.....	.....
Cottabato ¹	32	32	.....	.....	.....	.....	4	.....	25	3	.....
Under 0.35.....	21	21	.....	.....	.....	.....	2	.....	18	1	.....
0.35 and under 1.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1 and under 2.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2 and under 3.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
3 and under 5.....	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....
5 and under 10.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 and under 15.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 and under 30.....	6	6	.....	.....	.....	.....	1	.....	4	1	.....
30 and under 50.....	2	2	.....	.....	.....	.....	.....	.....	2	.....	.....
50 and over.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Dapitan ¹	1,203	1,199	.....	1	.....	3	.....	.....	1,203	.....	.....
Under 0.35.....	373	372	.....	1	.....	.....	.....	.....	373	.....	.....
0.35 and under 1.....	227	226	.....	.....	.....	1	.....	.....	227	.....	.....
1 and under 2.....	276	275	.....	.....	.....	1	.....	.....	276	.....	.....
2 and under 3.....	132	131	.....	.....	.....	1	.....	.....	132	.....	.....
3 and under 5.....	105	105	.....	.....	.....	.....	.....	.....	105	.....	.....
5 and under 10.....	59	59	.....	.....	.....	.....	.....	.....	59	.....	.....
10 and under 15.....	11	11	.....	.....	.....	.....	.....	.....	11	.....	.....
15 and under 30.....	16	16	.....	.....	.....	.....	.....	.....	16	.....	.....
30 and under 50.....	4	4	.....	.....	.....	.....	.....	.....	4	.....	.....
50 and over.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Davao ¹	1,309	1,233	11	2	.....	63	22	1	1,281	5	.....
Under 0.35.....	88	83	1	.....	.....	4	1	.....	86	1	.....
0.35 and under 1.....	818	310	.....	.....	.....	8	.....	.....	318	.....	.....
1 and under 2.....	421	385	1	2	.....	33	2	.....	419	.....	.....
2 and under 3.....	159	148	3	.....	.....	8	2	.....	155	2	.....
3 and under 5.....	148	143	1	.....	.....	4	4	.....	144	.....	.....
5 and under 10.....	97	91	2	.....	.....	4	3	1	92	1	.....
10 and under 15.....	40	37	1	.....	.....	2	3	.....	37	.....	.....
15 and under 30.....	25	23	2	.....	.....	4	4	.....	20	1	.....
30 and under 50.....	8	8	.....	.....	.....	.....	1	.....	7	.....	.....
50 and over.....	5	5	.....	.....	.....	.....	2	.....	3	.....	.....
Ilocos Norte	64,812	46,327	3	17,283	997	202	3	1	64,808	.....	.....
Under 0.35.....	31,911	24,110	2	6,696	942	161	2	1	31,908	.....	.....
0.35 and under 1.....	22,552	16,799	1	5,678	44	30	.....	.....	22,552	.....	.....
1 and under 2.....	7,781	4,141	.....	3,624	8	8	.....	.....	7,781	.....	.....
2 and under 3.....	1,412	616	.....	796	.....	.....	.....	.....	1,412	.....	.....
3 and under 5.....	861	507	.....	353	1	.....	.....	.....	861	.....	.....
5 and under 10.....	200	114	.....	86	.....	.....	1	.....	199	.....	.....
10 and under 15.....	32	20	.....	11	1	.....	.....	.....	32	.....	.....
15 and under 30.....	45	12	.....	3	1	.....	.....	.....	45	.....	.....
30 and under 50.....	8	3	.....	32	.....	2	.....	.....	8	.....	.....
50 and over.....	10	5	.....	4	.....	1	.....	.....	10	.....	.....
Ilocos Sur	21,479	11,987	17	9,384	.....	91	.....	.....	21,478	.....	1
Under 0.35.....	8,543	5,676	5	2,818	.....	44	.....	.....	8,543	.....	.....
0.35 and under 1.....	6,223	3,520	5	2,675	.....	23	.....	.....	6,222	.....	1
1 and under 2.....	3,267	1,535	.....	1,724	.....	8	.....	.....	3,267	.....	.....
2 and under 3.....	1,232	497	1	726	.....	8	.....	.....	1,232	.....	.....
3 and under 5.....	874	328	2	543	.....	1	.....	.....	874	.....	.....
5 and under 10.....	833	272	4	553	.....	4	.....	.....	833	.....	.....
10 and under 15.....	215	71	.....	144	.....	.....	.....	.....	215	.....	.....
15 and under 30.....	178	63	.....	115	.....	.....	.....	.....	178	.....	.....
30 and under 50.....	67	14	.....	50	.....	3	.....	.....	67	.....	.....
50 and over.....	47	11	.....	36	.....	.....	.....	.....	47	.....	.....

¹ Comandancia.

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mixed.	Brown.	Yel-low.	Un-known.
Iloilo	34,666	33,838	162	402	.....	264	45	10	34,607	4	.....
Under 0.35.....	13,077	12,910	28	73	.....	66	15	.....	13,062	.....	.....
0.35 and under 1.....	8,793	8,680	27	53	.....	33	3	.....	8,789	1	.....
1 and under 2.....	5,656	5,497	27	72	.....	60	4	2	5,649	1	.....
2 and under 3.....	2,566	2,467	25	50	.....	24	5	1	2,560	.....	.....
3 and under 5.....	2,234	2,121	16	69	.....	28	3	1	2,229	1	.....
5 and under 10.....	1,445	1,363	11	42	.....	29	8	1	1,435	1	.....
10 and under 15.....	435	390	13	20	.....	12	2	3	430	.....	.....
15 and under 30.....	334	305	6	16	.....	7	.....	2	332	.....	.....
30 and under 50.....	91	79	4	4	.....	4	4	.....	87	.....	.....
50 and over.....	35	26	5	3	.....	1	1	.....	34	.....	.....
Isabela	11,738	8,859	963	1,706	82	128	8	21	11,706	2	1
Under 0.35.....	1,376	1,182	36	67	52	39	6	20	1,349	.....	1
0.35 and under 1.....	4,690	3,211	303	1,125	11	40	.....	.....	4,688	2	.....
1 and under 2.....	3,994	3,273	240	455	.....	26	.....	1	3,993	.....	.....
2 and under 3.....	1,186	788	353	22	6	17	.....	.....	1,186	.....	.....
3 and under 5.....	307	282	7	15	.....	8	1	.....	306	.....	.....
5 and under 10.....	103	70	15	3	13	2	1	.....	102	.....	.....
10 and under 15.....	20	15	1	4	.....	.....	.....	.....	20	.....	.....
15 and under 30.....	18	8	.....	9	.....	1	.....	.....	18	.....	.....
30 and under 50.....	30	24	2	4	.....	.....	.....	.....	30	.....	.....
50 and over.....	14	6	6	2	.....	.....	.....	.....	14	.....	.....
Joló ¹	9	6	.....	3	.....	.....	.....	.....	4	5	.....
Under 0.35.....	3	3	.....	.....	.....	.....	.....	.....	1	2	.....
0.35 and under 1.....	2	2	.....	.....	.....	.....	.....	.....	1	2	.....
1 and under 2.....	1	.....	.....	1	.....	.....	.....	.....	1	.....	.....
2 and under 3.....	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....
3 and under 5.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
5 and under 10.....	2	.....	.....	2	.....	.....	.....	.....	1	1	.....
10 and under 15.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 and under 30.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 and under 50.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 and over.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Laguna	22,025	20,184	772	340	7	722	4	8	22,008	5	.....
Under 0.35.....	5,438	5,113	5	41	2	277	.....	5	5,432	1	.....
0.35 and under 1.....	6,636	5,763	572	54	3	244	1	.....	6,634	1	.....
1 and under 2.....	4,558	4,429	6	86	1	36	2	2	4,554	.....	.....
2 and under 3.....	2,079	1,886	22	42	1	128	.....	.....	2,079	.....	.....
3 and under 5.....	1,561	1,322	153	70	.....	.....	.....	1	1,559	1	.....
5 and under 10.....	1,242	1,194	6	31	.....	11	.....	.....	1,241	1	.....
10 and under 15.....	261	249	2	6	.....	4	.....	.....	260	1	.....
15 and under 30.....	165	152	3	7	.....	3	.....	.....	165	.....	.....
30 and under 50.....	42	38	2	2	.....	.....	.....	.....	42	.....	.....
50 and over.....	43	38	1	1	.....	3	1	.....	42	.....	.....
La Unión.....	38,219	33,713	42	4,455	.....	9	.....	.....	38,219	.....	.....
Under 0.35.....	8,063	7,803	.....	279	.....	1	.....	.....	8,083	.....	.....
0.35 and under 1.....	20,911	18,145	20	2,739	.....	7	.....	.....	20,911	.....	.....
1 and under 2.....	7,174	6,299	17	858	.....	.....	.....	.....	7,174	.....	.....
2 and under 3.....	1,338	1,004	.....	334	.....	.....	.....	.....	1,338	.....	.....
3 and under 5.....	486	348	2	136	.....	.....	.....	.....	486	.....	.....
5 and under 10.....	199	101	1	97	.....	.....	.....	.....	199	.....	.....
10 and under 15.....	15	11	.....	4	.....	.....	.....	.....	15	.....	.....
15 and under 30.....	5	.....	.....	5	.....	.....	.....	.....	5	.....	.....
30 and under 50.....	4	2	1	1	.....	.....	.....	.....	4	.....	.....
50 and over.....	4	1	2	.....	.....	1	.....	.....	4	.....	.....
Lepanto-Bontoc	159	156	.....	2	.....	1	9	.....	147	8	.....
Under 0.35.....	27	25	.....	2	.....	.....	1	.....	26	.....	.....
0.35 and under 1.....	29	29	.....	.....	.....	.....	.....	.....	28	1	.....
1 and under 2.....	54	54	.....	.....	.....	.....	.....	.....	54	.....	.....
2 and under 3.....	23	23	.....	.....	.....	.....	.....	.....	22	1	.....
3 and under 5.....	11	11	.....	.....	.....	.....	1	.....	10	.....	.....
5 and under 10.....	5	5	.....	.....	.....	.....	.....	.....	4	1	.....
10 and under 15.....	3	2	.....	.....	.....	1	1	.....	2	.....	.....
15 and under 30.....	7	7	.....	.....	.....	.....	6	.....	1	.....	.....
30 and under 50.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 and over.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Comandancia.

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mix-ed.	Brown.	Yel-low.	Un-known.
Leyte	37,081	33,660	33	2,991	23	374	13	10	37,028	29	1
Under 0.35.....	15,111	14,165	15	765	15	151	6	2	15,092	10	1
0.35 and under 1.....	11,487	10,524	8	858	7	90	.....	2	11,473	12	.....
1 and under 2.....	5,712	5,035	5	600	1	71	3	2	5,702	5	.....
2 and under 3.....	2,148	1,851	2	265	.....	30	.....	.....	2,148	.....	.....
3 and under 5.....	1,446	1,226	1	204	.....	15	2	2	1,442	.....	.....
5 and under 10.....	883	659	2	209	.....	13	1	1	879	2	.....
10 and under 15.....	160	106	.....	52	.....	2	.....	.....	160	.....	.....
15 and under 30.....	79	56	.....	21	.....	2	.....	.....	79	.....	.....
30 and under 50.....	21	14	.....	7	.....	.....	.....	1	20	.....	.....
50 and over.....	34	24	.....	10	.....	.....	.....	1	33	.....	.....
Manila city.....	537	252	259	17	2	7	25	8	494	10	.....
Under 0.35.....	263	137	110	9	2	5	9	1	245	8	.....
0.35 and under 1.....	165	65	96	4	.....	.....	2	2	159	2	.....
1 and under 2.....	51	29	18	4	.....	.....	1	2	48	.....	.....
2 and under 3.....	28	11	16	.....	.....	1	3	2	23	.....	.....
3 and under 5.....	15	4	10	.....	.....	1	5	.....	10	.....	.....
5 and under 10.....	14	5	9	.....	.....	.....	5	1	8	.....	.....
10 and under 15.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 and under 30.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 and under 50.....	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....
50 and over.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Masbate.....	3,090	2,955	8	66	.....	61	3	.....	3,086	1	.....
Under 0.35.....	674	666	1	7	.....	.....	1	.....	673	.....	.....
0.35 and under 1.....	706	701	.....	5	.....	.....	.....	.....	706	.....	.....
1 and under 2.....	587	568	1	15	.....	3	.....	.....	587	.....	.....
2 and under 3.....	322	312	1	7	.....	2	.....	.....	322	.....	.....
3 and under 5.....	409	387	.....	11	.....	11	1	.....	408	.....	.....
5 and under 10.....	278	236	2	8	.....	32	.....	.....	278	.....	.....
10 and under 15.....	77	64	.....	6	.....	7	1	.....	75	1	.....
15 and under 30.....	27	18	.....	5	.....	4	.....	.....	27	.....	.....
30 and under 50.....	8	2	2	2	.....	2	.....	.....	8	.....	.....
50 and over.....	2	1	1	.....	.....	.....	.....	.....	2	.....	.....
Mindoro.....	2,100	1,767	3	306	.....	24	4	1	2,094	.....	1
Under 0.35.....	490	434	3	49	.....	4	2	1	487	.....	.....
0.35 and under 1.....	502	467	.....	30	.....	5	.....	.....	502	.....	.....
1 and under 2.....	606	539	.....	60	.....	7	1	.....	605	.....	.....
2 and under 3.....	190	150	.....	37	.....	3	.....	.....	189	.....	1
3 and under 5.....	121	85	.....	33	.....	3	1	.....	120	.....	.....
5 and under 10.....	91	47	.....	42	.....	2	.....	.....	91	.....	.....
10 and under 15.....	42	16	.....	26	.....	.....	.....	.....	42	.....	.....
15 and under 30.....	49	24	.....	25	.....	.....	.....	.....	49	.....	.....
30 and under 50.....	3	1	.....	2	.....	.....	.....	.....	3	.....	.....
50 and over.....	6	4	.....	2	.....	.....	.....	.....	6	.....	.....
Misamis.....	25,679	25,264	7	220	2	186	23	11	25,425	220	.....
Under 0.35.....	11,605	11,455	2	73	2	73	11	3	11,511	80	.....
0.35 and under 1.....	6,794	6,675	.....	86	.....	33	3	.....	6,734	57	.....
1 and under 2.....	3,830	3,763	2	31	.....	34	3	3	3,803	21	.....
2 and under 3.....	1,634	1,606	1	12	.....	14	4	2	1,605	23	.....
3 and under 5.....	974	948	1	12	.....	13	.....	3	959	12	.....
5 and under 10.....	570	557	.....	3	.....	10	.....	.....	554	16	.....
10 and under 15.....	137	132	.....	1	.....	4	.....	.....	130	7	.....
15 and under 30.....	72	69	.....	2	.....	.....	1	.....	69	2	.....
30 and under 50.....	33	31	.....	.....	.....	1	1	.....	31	1	.....
50 and over.....	30	28	1	.....	.....	1	.....	.....	29	1	.....
Negros Occi-dental.....	6,976	6,166	230	410	1	169	95	49	6,803	29	.....
Under 0.35.....	1,059	1,013	6	13	.....	27	5	13	1,039	2	.....
0.35 and under 1.....	879	841	18	14	.....	6	1	1	877	.....	.....
1 and under 2.....	1,392	1,318	27	34	.....	13	3	2	1,381	6	.....
2 and under 3.....	906	829	8	47	.....	22	1	.....	904	1	.....
3 and under 5.....	820	737	9	49	.....	25	1	4	814	1	.....
5 and under 10.....	675	600	14	45	.....	16	2	3	665	5	.....
10 and under 15.....	260	222	10	25	.....	3	4	2	249	5	.....
15 and under 30.....	366	268	31	46	.....	21	12	6	348	.....	.....
30 and under 50.....	204	120	33	41	.....	10	10	2	189	3	.....
50 and over.....	415	218	74	96	1	26	56	16	337	6	.....

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTI- VATED LAND IN FARMS IN HEC- TARES.	Total num- ber of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own- ers.	Cash ten- ants.	Share ten- ants.	Labor ten- ants.	No rental.	White.	Mix- ed.	Brown.	Yel- low.	Un- known.
Negros Oriental	26,434	25,923	7	427	.....	77	12	.....	26,411	11	.....
Under 0.35	9,180	9,133	.....	38	.....	9	1	.....	9,179	.....	.....
0.35 and under 1	14,170	13,999	.....	148	.....	23	.....	.....	14,170	.....	.....
1 and under 2	1,809	1,640	1	149	.....	19	1	.....	1,805	3	.....
2 and under 3	557	511	.....	40	.....	6	1	.....	556	.....	.....
3 and under 5	325	294	.....	23	.....	8	.....	.....	324	1	.....
5 and under 10	228	211	3	12	.....	2	.....	.....	225	3	.....
10 and under 15	59	51	.....	5	.....	3	1	.....	56	3	.....
15 and under 30	61	50	1	7	.....	8	1	.....	59	1	.....
30 and under 50	21	17	.....	2	.....	2	1	.....	20	.....	.....
50 and over	24	17	2	3	.....	2	6	.....	18	.....	.....
Nueva Ecija...	13,381	9,944	2,215	290	.....	932	6	.....	13,375	.....	.....
Under 0.35	8,700	2,961	357	21	.....	361	1	.....	3,699	.....	.....
0.35 and under 1	1,936	1,665	192	18	.....	61	.....	.....	1,936	.....	.....
1 and under 2	3,121	2,102	861	119	.....	39	.....	.....	3,121	.....	.....
2 and under 3	2,304	1,457	476	15	.....	356	1	.....	2,303	.....	.....
3 and under 5	1,497	1,109	309	11	.....	68	.....	.....	1,497	.....	.....
5 and under 10	567	505	11	38	.....	13	3	.....	564	.....	.....
10 and under 15	138	85	9	16	.....	28	1	.....	137	.....	.....
15 and under 30	59	31	.....	22	.....	6	.....	.....	59	.....	.....
30 and under 50	38	14	.....	24	.....	.....	.....	.....	38	.....	.....
50 and over	21	15	.....	6	.....	.....	.....	.....	21	.....	.....
Nueva Vizcaya	1,807	1,514	12	280	.....	1	.....	.....	1,807	.....	.....
Under 0.35	449	401	2	45	.....	1	.....	.....	449	.....	.....
0.35 and under 1	488	408	4	76	.....	.....	.....	.....	488	.....	.....
1 and under 2	408	332	4	72	.....	.....	.....	.....	408	.....	.....
2 and under 3	221	184	1	36	.....	.....	.....	.....	221	.....	.....
3 and under 5	156	122	1	33	.....	.....	.....	.....	156	.....	.....
5 and under 10	59	49	.....	10	.....	.....	.....	.....	59	.....	.....
10 and under 15	16	12	.....	4	.....	.....	.....	.....	16	.....	.....
15 and under 30	8	5	.....	3	.....	.....	.....	.....	8	.....	.....
30 and under 50	2	1	.....	1	.....	.....	.....	.....	2	.....	.....
50 and over .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pampanga	10,031	6,498	861	2,505	1	166	19	8	9,998	11	.....
Under 0.35	1,693	1,432	37	196	1	32	5	.....	1,685	8	.....
0.35 and under 1	1,733	1,156	87	475	.....	15	.....	.....	1,733	.....	.....
1 and under 2	2,236	1,279	249	676	.....	32	1	.....	2,235	.....	.....
2 and under 3	1,201	621	131	432	.....	17	1	.....	1,200	.....	.....
3 and under 5	975	583	60	303	.....	29	1	1	973	.....	.....
5 and under 10	973	635	81	244	.....	13	1	1	971	.....	.....
10 and under 15	393	248	67	70	.....	8	1	.....	391	1	.....
15 and under 30	418	281	58	65	.....	14	8	.....	409	1	.....
30 and under 50	200	123	50	24	.....	3	.....	.....	200	.....	.....
50 and over	204	140	41	20	.....	3	2	.....	201	1	.....
Pangasinán	54,712	35,872	2,036	16,461	14	329	8	5	54,693	6	.....
Under 0.35	14,478	11,410	140	2,778	9	141	6	1	14,468	3	.....
0.35 and under 1	16,547	11,615	640	4,212	1	79	1	2	16,543	1	.....
1 and under 2	12,215	7,186	769	4,209	1	50	.....	.....	12,214	1	.....
2 and under 3	5,824	2,773	327	2,695	1	28	.....	1	5,822	1	.....
3 and under 5	3,287	1,734	84	1,444	1	24	.....	1	3,286	.....	.....
5 and under 10	1,692	887	34	766	1	4	1	.....	1,691	.....	.....
10 and under 15	365	164	7	194	.....	.....	.....	.....	365	.....	.....
15 and under 30	203	78	10	113	.....	2	.....	.....	203	.....	.....
30 and under 50	57	13	19	24	.....	1	.....	.....	57	.....	.....
50 and over	44	12	6	26	.....	.....	.....	.....	44	.....	.....
Paragua	2,673	2,538	6	57	.....	72	9	2	2,660	2	.....
Under 0.35	758	734	1	1	.....	22	.....	.....	758	.....	.....
0.35 and under 1	978	966	.....	3	.....	9	5	.....	973	.....	.....
1 and under 2	529	504	.....	14	.....	11	1	.....	528	.....	.....
2 and under 3	198	173	.....	20	.....	5	2	.....	196	.....	.....
3 and under 5	143	121	.....	11	.....	11	.....	1	141	1	.....
5 and under 10	40	24	2	5	.....	9	.....	.....	40	.....	.....
10 and under 15	13	10	.....	1	.....	2	1	.....	12	.....	.....
15 and under 30	8	5	2	1	.....	.....	.....	.....	7	1	.....
30 and under 50	4	.....	1	.....	.....	8	.....	.....	4	.....	.....
50 and over	2	1	.....	1	.....	.....	1	.....	1	.....	.....

1 Comandancia.

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mixed.	Brown.	Yellow.	Un-known.
Paragua Sur¹.	131	128				3			127	4	
Under 0.35.....	59	58				1			59		
0.35 and under 1.....	20	19				1			19	1	
1 and under 2.....	31	31							31		
2 and under 3.....	17	16				1			16	1	
3 and under 5.....	2	2								2	
5 and under 10.....	1	1							1		
10 and under 15.....	1	1							1		
15 and under 30.....											
30 and under 50.....											
50 and over.....											
Rizal	11,604	10,052	777	641	1	93	23	28	11,513		
Under 0.35.....	10,095	9,155	551	301		88	11	28	10,056		
0.35 and under 1.....	630	398	87	144		1	2		628		
1 and under 2.....	385	169	67	148		1	6		379		
2 and under 3.....	139	93	21	25			2		137		
3 and under 5.....	116	85	16	14	1		1		115		
5 and under 10.....	81	55	18	5		3	1		80		
10 and under 15.....	25	18	3	4					25		
15 and under 30.....	39	31	8						39		
30 and under 50.....	20	16	4						20		
50 and over.....	34	32	2						34		
Romblón	6,823	5,891	81	727	24	100	23	34	6,765	1	
Under 0.35.....	514	473	6	31	2	2	2	1	511		
0.35 and under 1.....	2,029	1,771	27	194	10	27	6	13	2,010		
1 and under 2.....	2,318	2,021	25	230	8	34	2	19	2,297		
2 and under 3.....	1,027	873	7	123	1	23	4		1,022	1	
3 and under 5.....	582	471	11	90	3	7	1		581		
5 and under 10.....	284	234	4	44		2	1	1	282		
10 and under 15.....	40	27		10		3	2		38		
15 and under 30.....	14	11	1	2			2		12		
30 and under 50.....	7	5				2	1		6		
50 and over.....	8	5		3			2		6		
Sámar	25,218	24,525	168	372	1	152	12	1	25,193	12	
Under 0.35.....	7,316	7,233	12	57		14	2		7,311	3	
0.35 and under 1.....	8,004	7,846	44	75		39	2		8,000	2	
1 and under 2.....	4,875	4,729	28	92		26	1		4,873	1	
2 and under 3.....	1,993	1,902	22	47		22			1,991	2	
3 and under 5.....	1,584	1,469	42	41		32			1,584		
5 and under 10.....	971	916	3	39	1	12	2		966	3	
10 and under 15.....	229	214	4	11					229		
15 and under 30.....	163	142	10	5		6	2		160	1	
30 and under 50.....	47	40	2	5			3	1	43		
50 and over.....	36	34	1			1			36		
Siassi¹	3	3							3		
Under 0.35.....	2	2							2		
0.35 and under 1.....											
1 and under 2.....											
2 and under 3.....											
3 and under 5.....											
5 and under 10.....											
10 and under 15.....											
15 and under 30.....	1	1							1		
30 and under 50.....											
50 and over.....											
Sorsogón	14,567	14,350	1	197		19	27	8	14,438	94	
Under 0.35.....	354	354							354		
0.35 and under 1.....	1,118	1,075		43		2	1		1,118		
1 and under 2.....	4,290	4,235		53					4,279	10	
2 and under 3.....	4,571	4,491		78		2			4,520	51	
3 and under 5.....	2,850	2,833		17			2	1	2,842	5	
5 and under 10.....	928	922		4		2	3	3	915	7	
10 and under 15.....	130	129		1					130		
15 and under 30.....	168	162	1	1		4	2	1	162	3	
30 and under 50.....	69	69					6		52	11	
50 and over.....	89	80				9	13	3	66	7	

¹ Comandancia.

TABLE 15.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, etc.—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTI- VATED LAND IN FARMS IN HEC- TARES.	Total num- ber of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own- ers.	Cash ten- ants.	Share ten- ants.	Labor ten- ants.	No rental.	White.	Mixed.	Brown.	Yel- low.	Un- known.
Surigao.....	7,412	7,052		340	1	19	5		7,401	6	
Under 0.35.....	683	638		44		1	3		680		
0.35 and under 1.....	1,058	997		61					1,058		
1 and under 2.....	1,599	1,527		68		4	1		1,598		
2 and under 3.....	1,263	1,196		63		4	1		1,262		
3 and under 5.....	1,457	1,398		52	1	6			1,455	2	
5 and under 10.....	952	912		36		4			950	2	
10 and under 15.....	216	209		7					216		
15 and under 30.....	142	134		8					140	2	
30 and under 50.....	31	30		1					31		
50 and over.....	11	11							11		
Tarlac.....	11,160	8,507	760	1,667	8	218	15	6	11,131	8	
Under 0.35.....	2,817	2,245	231	234	2	105	8	5	2,800	4	
0.35 and under 1.....	2,815	2,169	220	391	3	32			2,815		
1 and under 2.....	2,341	1,832	119	358	1	31			2,341		
2 and under 3.....	1,128	842	53	220		13	2		1,125	1	
3 and under 5.....	837	619	45	157		16	2		835		
5 and under 10.....	715	491	43	169	1	11			715		
10 and under 15.....	229	209	22	62	1	5	1		228		
15 and under 30.....	176	107	14	52		3	1	1	173	1	
30 and under 50.....	65	38	5	12			1		54	1	
50 and over.....	47	25	8	12		2	1		45	1	
Tayabas ¹	42,236	38,059	138	3,733	12	294	26	16	42,173	18	3
Under 0.35.....	20,372	19,287	32	888	4	161	14	8	20,345	5	
0.35 and under 1.....	7,368	6,919	18	407		24	6	1	7,357	3	1
1 and under 2.....	6,132	5,454	26	616	3	33		2	6,126	2	2
2 and under 3.....	3,163	2,671	17	457	3	15	3		3,157	3	
3 and under 5.....	2,612	2,077	14	504	1	16	2	2	2,605	3	
5 and under 10.....	1,797	1,267	13	493		24	1	2	1,793	1	
10 and under 15.....	431	223	7	194		7			430	1	
15 and under 30.....	271	120	7	136	1	7		1	270		
30 and under 50.....	68	32	4	25		7			68		
50 and over.....	22	9		13					22		
Zambales.....	24,367	14,035	5	10,182	4	141	7	9	24,335	11	5
Under 0.35.....	7,153	5,672	2	1,409	3	67	3	9	7,131	6	4
0.35 and under 1.....	8,040	4,543	1	3,458		38	4		8,034	1	1
1 and under 2.....	5,415	2,389	1	2,997	1	27			5,412	3	
2 and under 3.....	1,887	732		1,150		5			1,887		
3 and under 5.....	1,267	466	1	798		2			1,266	1	
5 and under 10.....	516	192		322		2			516		
10 and under 15.....	51	19		32					51		
15 and under 30.....	29	15		14					29		
30 and under 50.....	5	5							5		
50 and over.....	4	2		2					4		
Zamboanga ²	2,600	2,160	159	90		191	43	1	2,421	134	1
Under 0.35.....	567	517	27	3		20	3		530	33	1
0.35 and under 1.....	601	492	59	14		36	9		558	34	
1 and under 2.....	572	471	33	19		49	9		539	24	
2 and under 3.....	306	237	15	28		26	8		293	5	
3 and under 5.....	251	195	8	19		29	3		235	13	
5 and under 10.....	198	161	11	7		19	2	1	186	9	
10 and under 15.....	48	39	3			6	2		43	3	
15 and under 30.....	36	31	3			2	2		26	8	
30 and under 50.....	15	14				1	3		8	4	
50 and over.....	6	3				3	2		3	1	

¹Including the subprovince, Marinduque.

²Comandancia.

TABLE 16.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, by principal islands—Continued.

ISLAND AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mix-ed.	Brown.	Yel-low.	Un-known.
Masbate.....	1,818	1,747	7	59	.....	5	1	.....	1,817	.....	.....
Under 0.35.....	498	491	1	6	.....	.....	1	.....	497	.....	.....
0.35 and under 1.....	504	500	.....	4	.....	.....	.....	.....	504	.....	.....
1 and under 2.....	317	301	1	14	.....	1	.....	.....	317	.....	.....
2 and under 3.....	130	122	1	7	.....	.....	.....	.....	130	.....	.....
3 and under 5.....	181	170	.....	11	.....	.....	.....	.....	181	.....	.....
5 and under 10.....	102	93	2	5	.....	2	.....	.....	102	.....	.....
10 and under 15.....	57	52	.....	5	.....	.....	.....	.....	57	.....	.....
15 and under 30.....	22	16	.....	5	.....	1	.....	.....	22	.....	.....
30 and under 50.....	5	1	1	2	.....	1	.....	.....	5	.....	.....
50 and over.....	2	1	1	.....	.....	.....	.....	.....	2	.....	.....
Mindanao.....	30,877	29,826	174	507	3	367	95	13	30,482	286	1
Under 0.35.....	10,550	10,412	29	49	2	58	19	3	10,439	88	1
0.35 and under 1.....	6,797	6,528	59	147	.....	63	11	.....	6,720	66	.....
1 and under 2.....	5,491	5,254	35	97	.....	105	16	3	5,433	39	.....
2 and under 3.....	2,928	2,782	18	83	.....	45	15	2	2,886	25	.....
3 and under 5.....	2,615	2,484	10	72	1	48	7	3	2,582	23	.....
5 and under 10.....	1,692	1,607	14	41	.....	30	5	2	1,666	19	.....
10 and under 15.....	402	380	4	8	.....	10	4	.....	391	7	.....
15 and under 30.....	269	253	5	9	.....	2	8	.....	248	13	.....
30 and under 50.....	91	88	.....	1	.....	2	5	.....	81	5	.....
50 and over.....	42	38	.....	.....	.....	4	5	.....	36	1	.....
Mindoro.....	1,660	1,394	3	242	.....	21	2	1	1,656	.....	1
Under 0.35.....	439	383	3	49	.....	4	2	1	436	.....	.....
0.35 and under 1.....	397	362	.....	30	.....	5	.....	.....	397	.....	.....
1 and under 2.....	482	422	.....	53	.....	7	.....	.....	482	.....	.....
2 and under 3.....	131	96	.....	34	.....	1	.....	.....	130	.....	1
3 and under 5.....	91	67	.....	22	.....	2	.....	.....	91	.....	.....
5 and under 10.....	72	38	.....	32	.....	2	.....	.....	72	.....	.....
10 and under 15.....	16	10	.....	6	.....	.....	.....	.....	16	.....	.....
15 and under 30.....	25	12	.....	13	.....	.....	.....	.....	25	.....	.....
30 and under 50.....	3	1	.....	2	.....	.....	.....	.....	3	.....	.....
50 and over.....	4	3	.....	1	.....	.....	.....	.....	4	.....	.....
Negros.....	25,814	24,742	237	592	1	242	106	49	25,619	40	.....
Under 0.35.....	7,729	7,659	6	28	.....	36	6	13	7,708	2	.....
0.35 and under 1.....	10,793	10,682	18	64	.....	29	1	1	10,791	.....	.....
1 and under 2.....	2,540	2,389	28	95	.....	28	4	2	2,525	9	.....
2 and under 3.....	1,357	1,250	8	71	.....	28	1	.....	1,355	1	.....
3 and under 5.....	1,103	1,002	9	59	.....	33	1	4	1,096	2	.....
5 and under 10.....	886	800	17	51	.....	18	2	3	873	8	.....
10 and under 15.....	317	272	10	29	.....	6	5	2	302	8	.....
15 and under 30.....	425	316	32	53	.....	24	13	6	405	1	.....
30 and under 50.....	225	137	33	43	.....	12	11	2	209	3	.....
50 and over.....	439	235	76	99	.....	1	28	16	355	6	.....
Panay.....	71,379	69,628	201	1,150	8	392	74	22	71,220	63	.....
Under 0.35.....	25,402	25,128	30	145	2	97	24	1	25,356	21	.....
0.35 and under 1.....	18,352	18,075	30	194	.....	53	7	.....	18,336	9	.....
1 and under 2.....	13,450	13,028	38	298	3	83	8	1	13,427	14	.....
2 and under 3.....	5,478	5,284	26	134	1	33	7	2	5,463	4	.....
3 and under 5.....	4,442	4,198	28	179	.....	37	3	5	4,430	4	.....
5 and under 10.....	2,738	2,575	17	102	.....	44	10	3	2,720	5	.....
10 and under 15.....	715	639	16	41	.....	19	7	6	701	1	.....
15 and under 30.....	542	485	11	37	1	8	2	2	535	3	.....
30 and under 50.....	178	157	3	11	1	6	4	1	173	.....	.....
50 and over.....	82	59	2	9	.....	12	2	1	79	.....	.....
Samar.....	20,536	19,939	161	300	.....	136	9	1	20,518	8	.....
Under 0.35.....	5,401	5,338	11	45	.....	7	2	.....	5,397	2	.....
0.35 and under 1.....	6,586	6,454	44	52	.....	36	2	.....	6,583	1	.....
1 and under 2.....	4,086	3,971	25	66	.....	24	1	.....	4,085	.....	.....
2 and under 3.....	1,759	1,676	21	42	.....	20	.....	.....	1,758	1	.....
3 and under 5.....	1,412	1,304	41	36	.....	31	.....	.....	1,412	.....	.....
5 and under 10.....	880	829	2	38	.....	11	2	.....	875	3	.....
10 and under 15.....	191	176	4	11	.....	.....	.....	.....	191	.....	.....
15 and under 30.....	151	130	10	5	.....	6	1	.....	149	1	.....
30 and under 50.....	42	35	2	5	.....	.....	1	1	40	.....	.....
50 and over.....	28	26	1	.....	.....	1	.....	.....	28	.....	.....

TABLE 16.—Number of farms and other parcels of land used for agriculture, classified by area of cultivated land, tenure, and color of occupant, by principal islands—Continued.

ISLAND AND AREA OF CULTIVATED LAND IN HECTARES.	Total number of farms, etc.	NUMBER OF FARMS, ETC., CLASSIFIED BY TENURE.					NUMBER OF FARMS CLASSIFIED BY COLOR OF OCCUPANT.				
		Own-ers.	Cash ten-ants.	Share ten-ants.	Labor ten-ants.	No rental.	White.	Mix-ed.	Brown.	Yel-low.	Un-known.
Other Islands..	53,445	49,038	373	3,564	25	445	121	40	53,174	110	.....
Under 0.35	16,851	15,948	87	697	2	117	53	1	16,765	32	.....
0.35 and under 1	16,990	15,661	152	1,089	10	78	13	13	16,932	32	.....
1 and under 2	9,817	8,861	66	800	8	82	9	23	9,777	8	.....
2 and under 3	4,342	3,878	25	386	1	52	12	.....	4,321	9	.....
3 and under 5	2,988	2,623	17	309	3	36	7	.....	2,972	9	.....
5 and under 10	1,788	1,535	11	189	1	52	5	1	1,770	12	.....
10 and under 15	377	305	4	53	.....	15	5	1	366	5	.....
15 and under 30	198	157	4	33	.....	4	7	.....	189	2	.....
30 and under 50	40	27	2	3	.....	8	3	1	36	.....	.....
50 and over	54	43	4	6	.....	6	7	.....	46	1	.....

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Percent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
Under 0.35	423,109	43,651	10.3	145.5	15.0
0.35 and under 1	319,174	148,947	46.7	132.2	61.7
1 and under 2	363,527	191,539	52.7	256.5	135.2
2 and under 3	264,467	142,921	54.0	435.0	235.1
3 and under 5	277,762	153,258	55.2	667.1	368.1
5 and under 10	518,933	161,485	30.9	1,286.9	651.6
10 and under 15	161,311	72,581	45.0	2,621.2	1,179.2
15 and under 30	185,960	94,733	50.9	3,993.1	2,034.8
30 and under 50	106,548	61,337	57.6	6,465.3	3,721.9
50 and over	406,913	228,388	56.1	22,126.9	12,419.1
Abra	52,086	12,208	23.4	381.4	89.4
Under 0.35	1,413	958	67.8	24.7	16.8
0.35 and under 1	3,645	2,777	76.2	80.4	61.3
1 and under 2	4,854	3,007	61.9	222.3	137.7
2 and under 3	1,861	1,447	77.8	307.6	239.2
3 and under 5	1,976	1,412	71.5	622.8	373.5
5 and under 10	36,490	1,248	3.4	20,160.2	689.5
10 and under 15	781	431	55.2	2,366.7	1,306.1
15 and under 30	350	340	97.1	1,944.4	1,888.9
30 and under 50	220	203	92.3	3,666.7	3,383.3
50 and over	496	885	77.6	8,266.7	6,416.7
Albay	116,084	85,147	73.4	354.0	259.6
Under 0.35	2,797	673	24.1	60.6	14.6
0.35 and under 1	9,764	6,296	64.5	93.1	60.0
1 and under 2	14,892	10,730	72.1	187.1	134.8
2 and under 3	13,010	9,580	73.6	326.9	240.7
3 and under 5	14,065	10,734	76.3	503.8	384.5
5 and under 10	16,161	12,709	78.6	864.6	680.0
10 and under 15	7,317	5,597	66.5	1,583.8	1,211.5
15 and under 30	10,307	7,361	71.4	2,895.2	2,067.7
30 and under 50	6,234	4,434	71.1	5,068.3	3,604.9
50 and over	21,537	17,033	79.1	14,956.2	11,828.5

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Ambos Camarines	106,371	59,683	56.1	827.0	464.0
Under 0.35	1,753	185	10.6	190.8	20.1
0.35 and under 1	2,181	606	27.8	213.6	59.4
1 and under 2	9,314	3,395	36.5	303.6	110.7
2 and under 3	12,079	5,246	43.4	465.1	202.0
3 and under 5	14,986	8,085	53.6	647.1	346.9
5 and under 10	19,013	11,197	58.9	1,068.7	629.4
10 and under 15	10,759	6,099	56.7	1,963.3	1,113.0
15 and under 30	11,894	7,340	61.7	3,163.3	1,952.1
30 and under 50	6,085	4,274	70.2	4,868.0	3,419.2
50 and over	18,307	13,306	72.7	16,058.8	11,671.9
Antique	27,194	21,622	79.5	207.4	164.9
Under 0.35	2,483	384	15.5	81.9	12.7
0.35 and under 1	2,477	2,152	86.9	68.5	59.5
1 and under 2	4,737	4,268	90.1	138.0	124.4
2 and under 3	3,107	2,938	94.6	238.1	225.1
3 and under 5	3,562	3,305	92.8	386.8	358.8
5 and under 10	4,935	3,685	74.7	868.8	648.8
10 and under 15	1,524	1,337	87.7	1,348.7	1,183.2
15 and under 30	1,960	1,685	86.0	2,390.2	2,054.9
30 and under 50	1,690	1,198	70.9	5,451.6	3,864.5
50 and over	719	670	93.2	7,190.0	6,700.0
Basilan ¹	2,277	583	25.6	1,980.0	507.0
Under 0.35	6	.....	.....	120.0	.....
0.35 and under 1	49	5	10.2	612.5	62.5
1 and under 2	64	37	57.8	220.7	127.6
2 and under 3	90	43	47.8	500.0	238.9
3 and under 5	618	83	13.4	2,809.1	377.3
5 and under 10	181	120	66.3	1,005.6	666.7
10 and under 15	159	111	69.8	1,766.7	1,233.3
15 and under 30	210	107	51.0	4,200.0	2,140.0
30 and under 50 .....	.....	.....	.....	.....	.....
50 and over	900	77	8.6	90,000.0	7,700.0
Bataán	8,232	3,485	42.3	357.3	151.3
Under 0.35	2,446	67	2.7	366.7	10.0
0.35 and under 1	587	403	68.7	93.3	64.1
1 and under 2	1,065	756	71.0	194.0	137.7
2 and under 3	895	521	58.2	410.6	239.0
3 and under 5	619	467	75.4	483.6	364.8
5 and under 10	905	411	45.4	1,371.2	622.7
10 and under 15	682	280	41.1	2,841.7	1,166.7
15 and under 30	687	376	54.7	3,816.7	2,088.9
30 and under 50	270	144	53.3	6,750.0	3,600.0
50 and over	76	60	78.9	7,600.0	6,000.0
Batangas	117,422	21,652	18.4	504.1	92.9
Under 0.35	30,486	1,286	4.2	218.0	9.2
0.35 and under 1	11,868	2,705	22.8	266.9	60.8
1 and under 2	15,119	3,283	21.7	584.0	126.8
2 and under 3	9,992	2,367	23.7	1,024.8	242.8
3 and under 5	7,633	2,152	28.2	1,358.2	332.9
5 and under 10	11,389	2,976	26.1	2,525.3	659.9
10 and under 15	6,131	1,726	28.2	4,716.2	1,327.7
15 and under 30	8,292	2,315	27.9	7,338.9	2,048.7
30 and under 50	3,516	787	22.4	16,742.9	3,747.6
50 and over	12,996	2,055	15.8	51,984.0	8,220.0
Benguet	233	71	30.5	306.6	93.4
Under 0.35	12	7	58.3	31.6	18.4
0.35 and under 1	24	9	37.5	150.0	56.2
1 and under 2	33	16	48.5	253.8	123.1
2 and under 3	132	11	8.3	2,640.0	220.0
3 and under 5	8	8	100.0	400.0	400.0
5 and under 10	24	20	83.3	1,200.0	1,000.0
10 and under 15 .....	.....	.....	.....	.....	.....
15 and under 30 .....	.....	.....	.....	.....	.....
30 and under 50 .....	.....	.....	.....	.....	.....
50 and over .....	.....	.....	.....	.....	.....

¹ Comandancia.

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Bohol	58,098	23,247	40.0	157.5	65.1
Under 0.35	20,794	7,432	35.7	75.4	26.9
0.35 and under 1	14,349	4,298	30.0	230.3	69.0
1 and under 2	7,670	3,516	45.8	418.2	191.7
2 and under 3	4,093	1,492	36.5	672.1	245.0
3 and under 5	3,181	1,443	45.4	852.8	386.9
5 and under 10	2,927	1,218	41.6	1,663.1	692.1
10 and under 15	476	276	58.0	2,163.6	1,254.5
15 and under 30	927	476	51.3	4,030.4	2,069.6
30 and under 50	273	232	85.0	4,550.0	3,866.7
50 and over	3,408	2,864	84.0	56,800.0	47,733.3
Bulacán	90,220	60,570	67.1	427.7	287.1
Under 0.35	10,152	611	6.0	245.5	14.8
0.35 and under 1	10,057	4,951	49.0	148.7	72.9
1 and under 2	12,509	7,868	62.9	222.1	139.7
2 and under 3	7,872	5,791	73.6	333.6	245.4
3 and under 5	5,796	4,566	78.6	469.7	369.2
5 and under 10	4,110	3,140	76.4	850.9	650.1
10 and under 15	2,002	1,526	76.2	1,516.7	1,156.1
15 and under 30	2,784	2,180	78.3	2,676.9	2,096.2
30 and under 50	4,730	1,684	35.6	10,750.0	3,827.3
50 and over	30,208	28,283	93.6	14,807.8	13,864.2
Cagayán	138,166	35,430	25.6	758.9	194.6
Under 0.35	15,832	601	3.8	361.2	13.7
0.35 and under 1	9,102	3,216	35.3	177.3	62.7
1 and under 2	10,564	6,004	56.8	241.7	137.4
2 and under 3	10,873	4,744	43.6	544.5	237.6
3 and under 5	7,618	5,072	66.6	559.3	372.4
5 and under 10	6,448	4,393	68.1	951.0	647.9
10 and under 15	4,139	1,605	38.8	3,088.8	1,197.8
15 and under 30	4,637	1,671	36.0	5,520.2	1,989.3
30 and under 50	2,292	1,038	45.3	8,185.7	3,707.1
50 and over	66,661	7,086	10.6	190,460.0	20,245.7
Cápi	108,692	36,965	34.0	435.3	148.0
Under 0.35	22,783	1,145	5.0	237.3	11.9
0.35 and under 1	11,191	3,702	33.1	181.0	59.9
1 and under 2	13,020	5,912	45.4	278.2	126.3
2 and under 3	9,406	4,024	42.8	526.4	225.2
3 and under 5	11,985	5,137	42.9	838.1	359.2
5 and under 10	12,852	5,240	40.8	1,569.2	639.8
10 and under 15	5,691	2,351	41.3	2,776.1	1,146.8
15 and under 30	9,743	3,061	31.4	6,285.8	1,974.8
30 and under 50	5,138	2,300	44.8	8,287.1	3,709.7
50 and over	6,883	4,093	59.5	14,046.9	8,353.1
Cavite	40,881	20,811	50.9	424.1	215.9
Under 0.35	4,949	335	6.8	190.9	12.9
0.35 and under 1	5,361	1,458	27.2	222.7	60.6
1 and under 2	5,696	2,716	47.8	283.9	135.4
2 and under 3	4,509	2,491	55.2	421.4	232.8
3 and under 5	6,080	3,336	54.9	683.9	375.3
5 and under 10	5,282	3,016	57.1	1,155.8	660.0
10 and under 15	2,687	1,371	51.0	2,316.4	1,181.9
15 and under 30	1,272	1,206	94.7	2,193.1	2,077.6
30 and under 50	604	504	83.4	4,646.2	3,876.9
50 and over	4,441	4,379	98.6	13,878.1	13,684.4
Cebú	130,624	53,283	40.8	162.8	66.4
Under 0.35	30,259	5,017	16.6	86.1	14.3
0.35 and under 1	43,222	19,151	44.3	137.1	60.7
1 and under 2	25,018	12,729	50.9	257.2	130.8
2 and under 3	9,621	4,884	50.8	454.7	230.8
3 and under 5	6,587	3,479	52.8	721.5	381.1
5 and under 10	6,998	3,067	43.8	1,303.2	571.1
10 and under 15	2,371	1,217	51.3	1,756.3	901.5
15 and under 30	3,319	1,422	42.8	4,367.1	1,871.1
30 and under 50	1,023	715	69.9	5,115.0	3,575.0
50 and over	2,206	1,602	72.6	15,757.1	13,442.9

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Cottabato ¹	5,286	383	7.2	16,518.8	1,196.9
Under 0.35	3,186			15,171.4	
0.35 and under 1					
1 and under 2					
2 and under 3					
3 and under 5	4	4	100.0	400.0	400.0
5 and under 10	300	8	2.7	30,000.0	800.0
10 and under 15					
15 and under 30	239	117	49.0	3,983.3	1,950.0
30 and under 50	89	76	85.4	4,450.0	3,800.0
50 and over	1,468	178	12.2	146,800.0	17,800.0
Dapitan ¹	5,374	2,232	41.5	446.7	185.5
Under 0.35	382	40	10.5	102.4	10.7
0.35 and under 1	317	139	43.8	139.6	61.2
1 and under 2	1,386	364	26.3	502.2	131.9
2 and under 3	647	298	46.1	490.2	225.8
3 and under 5	890	385	43.3	847.6	366.7
5 and under 10	748	398	53.2	1,267.8	674.6
10 and under 15	301	130	43.2	2,736.4	1,181.8
15 and under 30	551	328	59.5	3,443.8	2,050.0
30 and under 50	152	150	98.7	3,800.0	3,750.0
50 and over					
Davao ¹	16,343	3,769	23.1	1,248.5	287.9
Under 0.35	1,109	4	0.4	1,260.2	4.5
0.35 and under 1	892	219	24.6	280.5	68.9
1 and under 2	1,759	536	30.5	417.8	127.3
2 and under 3	1,137	327	28.8	715.1	205.7
3 and under 5	3,740	529	14.1	2,527.0	357.4
5 and under 10	2,578	599	23.2	2,657.7	617.5
10 and under 15	1,282	448	34.9	3,205.0	1,120.0
15 and under 30	1,908	466	24.4	7,632.0	1,864.0
30 and under 50	978	282	28.8	12,225.0	3,525.0
50 and over	960	359	37.4	19,200.0	7,180.0
Ilocos Norte	55,633	40,233	72.3	85.8	62.1
Under 0.35	10,316	5,821	56.4	32.3	18.2
0.35 and under 1	17,561	13,344	76.0	77.9	59.2
1 and under 2	12,827	10,577	82.5	164.9	135.9
2 and under 3	4,563	3,293	72.3	322.5	233.2
3 and under 5	4,138	3,070	74.2	480.6	356.6
5 and under 10	2,339	1,312	56.1	1,169.5	656.0
10 and under 15	527	383	72.7	1,646.9	1,196.9
15 and under 30	1,819	999	54.9	4,042.2	2,220.0
30 and under 50	358	319	89.1	4,475.0	3,987.5
50 and over	1,195	1,115	93.3	11,950.0	11,150.0
Ilocos Sur	47,176	39,739	84.2	219.6	185.0
Under 0.35	2,382	1,421	59.7	27.9	16.6
0.35 and under 1	4,741	3,712	78.3	76.2	59.6
1 and under 2	5,440	4,529	83.3	165.5	138.6
2 and under 3	3,732	2,924	78.3	302.9	237.3
3 and under 5	4,267	3,287	77.0	482.2	376.1
5 and under 10	6,606	5,647	85.5	793.0	677.9
10 and under 15	3,128	2,690	86.0	1,454.9	1,251.2
15 and under 30	4,212	3,845	91.3	2,366.3	2,160.1
30 and under 50	3,146	2,488	79.1	4,695.5	3,713.4
50 and over	9,522	9,196	96.6	20,259.6	19,566.0
Iloilo	176,955	57,081	32.3	510.5	164.7
Under 0.35	35,378	1,545	4.3	272.4	71.8
0.35 and under 1	13,606	5,600	41.2	154.7	63.7
1 and under 2	19,627	7,365	37.5	347.1	130.2
2 and under 3	14,925	5,810	38.9	581.6	226.4
3 and under 5	19,962	8,069	40.4	893.6	361.2
5 and under 10	23,385	9,485	40.5	1,618.3	656.4
10 and under 15	14,287	5,050	35.3	3,284.4	1,160.9
15 and under 30	17,261	6,574	38.1	5,168.0	1,968.3
30 and under 50	6,487	3,475	53.6	7,128.6	3,818.7
50 and over	12,037	4,108	34.1	34,891.4	11,737.1

¹ Comandancia.

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Isabela.....	67,716	16,752	24.7	576.9	142.7
Under 0.35	10,005	180	1.8	727.1	13.1
0.35 and under 1	10,284	3,145	30.6	219.3	67.1
1 and under 2	17,640	5,101	28.9	441.7	127.7
2 and under 3	4,368	2,711	62.1	368.3	228.6
3 and under 5	15,424	1,236	8.0	5,024.1	402.6
5 and under 10	1,669	686	41.1	1,620.4	666.0
10 and under 15	305	241	79.0	1,525.0	1,205.0
15 and under 30	421	333	79.1	2,338.9	1,850.0
30 and under 50	1,769	1,168	66.0	5,896.7	3,893.3
50 and over	5,830	1,951	33.5	41,642.9	13,935.7
Joló ¹	23	19	82.6	255.6	211.1
Under 0.35	1	1	100.0	33.3	33.3
0.35 and under 1	1	1	100.0	50.0	50.0
1 and under 2	1	1	100.0	100.0	100.0
2 and under 3	2	2	100.0	200.0	200.0
3 and under 5 .....	.....	.....	.....	.....	.....
5 and under 10	18	14	77.8	900.0	700.0
10 and under 15 .....	.....	.....	.....	.....	.....
15 and under 30 .....	.....	.....	.....	.....	.....
30 and under 50 .....	.....	.....	.....	.....	.....
50 and over .....	.....	.....	.....	.....	.....
La Laguna.....	86,426	41,016	47.5	392.4	186.2
Under 0.35	14,037	661	4.7	258.1	12.2
0.35 and under 1	16,593	4,259	25.7	250.0	64.2
1 and under 2	9,205	6,411	69.6	202.0	140.7
2 and under 3	11,631	4,996	43.0	559.5	240.3
3 and under 5	8,116	5,691	68.9	519.9	358.2
5 and under 10	12,815	8,422	65.7	1,031.8	678.1
10 and under 15	4,416	3,154	71.4	1,692.0	1,208.4
15 and under 30	4,170	3,303	79.2	2,527.3	2,001.8
30 and under 50	1,876	1,610	85.8	4,466.7	3,833.3
50 and over	3,567	2,609	73.1	8,295.3	6,067.4
La Unión.....	43,077	30,850	71.6	112.7	80.7
Under 0.35	3,128	1,746	55.8	38.7	21.6
0.35 and under 1	16,213	12,410	76.5	77.5	59.3
1 and under 2	13,290	9,532	71.7	185.3	132.9
2 and under 3	4,751	3,303	69.5	355.1	246.9
3 and under 5	2,004	1,724	86.0	412.3	354.7
5 and under 10	1,486	1,275	85.8	746.7	640.7
10 and under 15	195	171	87.7	1,300.0	1,140.0
15 and under 30	297	96	32.3	5,940.0	1,920.0
30 and under 50	182	139	76.4	4,550.0	3,475.0
50 and over	1,531	454	29.7	38,275.0	11,350.0
Lepanto-Bontoc.....	1,741	374	21.5	1,095.0	235.2
Under 0.35	58	5	8.6	214.8	18.5
0.35 and under 1	25	17	68.0	86.2	58.6
1 and under 2	122	64	52.5	225.9	118.5
2 and under 3	91	47	51.6	395.7	204.3
3 and under 5	73	39	53.4	663.6	354.5
5 and under 10	57	34	59.6	1,140.0	630.0
10 and under 15	762	36	4.8	25,066.7	1,200.0
15 and under 30	563	132	23.4	8,042.9	1,885.6
30 and under 50 .....	.....	.....	.....	.....	.....
50 and over .....	.....	.....	.....	.....	.....
Leyte.....	133,620	42,898	32.1	360.3	115.7
Under 0.35	15,128	2,302	15.2	100.1	15.2
0.35 and under 1	18,141	7,003	38.6	157.9	61.0
1 and under 2	19,706	7,575	38.4	345.0	132.6
2 and under 3	9,747	5,064	52.0	453.8	235.8
3 and under 5	11,212	5,242	46.8	775.4	362.5
5 and under 10	12,364	5,799	46.9	1,400.2	656.7
10 and under 15	31,085	1,819	5.9	19,428.1	1,136.9
15 and under 30	3,764	1,565	41.6	4,764.6	1,981.0
30 and under 50	2,578	717	27.8	12,276.2	3,414.3
50 and over	9,895	5,812	58.7	29,102.9	17,094.1

¹ Comandancia.

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Manila city	738	473	64.1	137.4	88.1
Under 0.35	156	43	27.6	59.8	16.3
0.35 and under 1	154	109	70.8	92.8	65.7
1 and under 2	109	65	59.6	218.0	130.0
2 and under 3	75	63	84.0	267.9	225.0
3 and under 5	63	58	92.1	420.0	386.7
5 and under 10	113	87	77.0	807.1	621.4
10 and under 15					
15 and under 30					
30 and under 50	68	48	70.6	6,800.0	4,800.0
50 and over					
Masbate	9,798	7,429	75.8	317.1	240.4
Under 0.35	390	128	32.8	57.9	19.0
0.35 and under 1	815	454	55.7	115.4	64.3
1 and under 2	1,137	842	74.1	193.7	143.4
2 and under 3	1,096	798	72.8	340.4	247.8
3 and under 5	1,878	1,561	83.1	459.2	381.7
5 and under 10	2,162	1,787	82.7	777.7	642.8
10 and under 15	1,069	932	87.2	1,388.3	1,210.4
15 and under 30	624	488	78.2	2,311.1	1,807.4
30 and under 50	472	284	60.2	5,900.0	3,550.0
50 and over	155	155	100.0	7,750.0	7,750.0
Mindoro	42,424	4,768	11.2	2,020.2	227.0
Under 0.35	29,185	53	0.2	5,956.1	10.8
0.35 and under 1	1,114	304	27.3	221.9	60.6
1 and under 2	2,606	816	31.3	430.0	134.7
2 and under 3	1,196	420	35.1	629.5	221.1
3 and under 5	2,055	439	21.4	1,698.3	362.8
5 and under 10	1,332	576	43.2	1,463.7	633.0
10 and under 15	1,039	482	46.4	2,473.8	1,147.6
15 and under 30	2,776	983	35.4	5,665.3	2,006.1
30 and under 50	248	111	44.8	8,266.7	3,700.0
50 and over	873	584	66.9	14,550.0	9,733.3
Misamis	59,269	29,346	49.5	230.8	114.3
Under 0.35	13,494	1,218	9.0	116.3	10.5
0.35 and under 1	7,944	4,184	52.7	116.9	61.6
1 and under 2	11,177	5,210	46.6	291.8	136.0
2 and under 3	6,058	4,035	66.6	370.7	246.9
3 and under 5	5,763	3,783	65.6	591.7	388.4
5 and under 10	5,215	3,834	73.5	914.9	672.6
10 and under 15	2,165	1,621	74.9	1,580.3	1,183.2
15 and under 30	1,982	1,414	71.3	2,752.8	1,963.9
30 and under 50	1,633	1,264	77.4	4,948.5	3,830.3
50 and over	3,838	2,783	72.5	12,793.3	9,276.7
Negros Occidental	177,642	72,928	41.0	2,546.5	1,045.4
Under 0.35	18,836	110	0.6	1,778.7	10.4
0.35 and under 1	2,453	516	21.0	279.1	58.7
1 and under 2	4,797	1,704	35.5	344.6	122.4
2 and under 3	5,794	1,960	33.8	639.5	216.3
3 and under 5	7,321	2,961	40.4	892.8	361.1
5 and under 10	10,468	4,418	42.2	1,549.3	654.5
10 and under 15	7,669	3,088	40.3	2,945.8	1,187.7
15 and under 30	18,493	7,535	40.7	5,052.7	2,058.7
30 and under 50	17,688	7,785	44.0	8,670.6	3,816.2
50 and over	84,143	42,851	50.9	20,275.4	10,325.5
Negros Oriental	37,971	21,383	56.3	143.6	80.9
Under 0.35	5,342	2,027	37.9	58.2	22.1
0.35 and under 1	9,194	7,811	85.0	64.9	55.1
1 and under 2	3,636	2,321	63.8	201.0	128.3
2 and under 3	2,331	1,285	55.1	418.5	230.7
3 and under 5	2,458	1,165	47.4	756.3	358.5
5 and under 10	3,339	1,325	39.7	1,464.5	581.1
10 and under 15	1,708	690	40.4	2,894.9	1,169.5
15 and under 30	2,816	1,225	43.5	4,616.4	2,008.2
30 and under 50	1,866	808	43.3	8,885.7	3,847.6
50 and over	5,281	2,726	51.6	22,004.2	11,368.3

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Nueva Écija	90,367	26,763	29.6	675.3	200.0
Under 0.35	20,050	319	1.6	541.9	8.6
0.35 and under 1	9,891	1,262	13.4	485.1	65.2
1 and under 2	12,446	4,492	36.1	398.8	143.9
2 and under 3	15,548	5,554	35.7	674.8	241.1
3 and under 5	12,408	5,563	44.8	828.9	371.6
5 and under 10	7,952	3,259	41.0	1,402.5	574.8
10 and under 15	4,610	1,600	34.7	3,340.6	1,159.4
15 and under 30	2,752	1,228	44.6	4,664.4	2,081.4
30 and under 50	2,623	1,510	57.6	6,902.6	3,973.7
50 and over	2,587	1,976	76.4	12,319.0	9,409.5
Nueva Vizcaya	4,421	2,832	64.1	244.7	156.7
Under 0.35	293	55	18.8	65.3	12.2
0.35 and under 1	504	316	62.7	103.3	64.8
1 and under 2	863	552	64.0	211.5	135.3
2 and under 3	810	517	63.8	366.5	233.9
3 and under 5	895	569	63.6	573.7	364.7
5 and under 10	449	382	85.1	761.0	647.5
10 and under 15	305	173	56.7	1,906.2	1,081.2
15 and under 30	22	194	86.6	2,800.0	2,425.0
30 and under 50	78	74	94.9	3,900.0	3,700.0
50 and over					
Pampanga	105,677	62,840	60.4	1,053.5	636.4
Under 0.35	10,573	157	1.5	622.7	9.2
0.35 and under 1	1,868	1,147	61.4	107.8	66.2
1 and under 2	4,946	3,208	64.9	221.2	143.5
2 and under 3	4,434	2,948	66.5	369.2	245.5
3 and under 5	4,666	3,659	78.4	478.6	375.3
5 and under 10	11,849	6,707	56.6	1,217.8	689.3
10 and under 15	7,824	4,697	60.0	1,990.8	1,195.2
15 and under 30	14,607	8,817	60.4	3,494.5	2,109.3
30 and under 50	10,821	7,527	69.6	5,410.5	3,763.5
50 and over	34,089	24,573	73.3	16,710.3	12,241.7
Pangasinán	119,771	81,472	68.0	218.9	148.9
Under 0.35	12,457	2,252	18.1	86.0	15.6
0.35 and under 1	15,587	10,450	67.0	94.2	63.2
1 and under 2	22,729	16,887	74.3	186.1	138.2
2 and under 3	20,031	13,731	68.5	343.9	235.8
3 and under 5	15,168	12,025	79.3	461.5	365.8
5 and under 10	14,641	11,016	75.2	865.3	651.1
10 and under 15	5,636	4,582	81.3	1,544.1	1,255.3
15 and under 30	5,500	4,260	77.5	2,709.4	2,098.5
30 and under 50	2,561	2,166	84.6	4,493.0	3,800.0
50 and over	5,461	4,103	75.1	12,411.4	9,325.0
Paragua	9,032	2,999	33.2	337.9	112.2
Under 0.35	798	123	15.4	105.3	16.2
0.35 and under 1	988	586	59.2	101.0	51.7
1 and under 2	1,677	685	37.9	317.0	120.0
2 and under 3	1,109	429	38.7	560.1	216.7
3 and under 5	910	489	53.7	636.4	342.0
5 and under 10	454	242	53.3	1,135.0	605.0
10 and under 15	388	144	37.1	2,984.6	1,107.7
15 and under 30	429	163	38.0	5,362.5	2,037.5
30 and under 50	614	140	22.8	15,350.0	3,500.0
50 and over	1,665	128	7.7	83,250.0	6,400.0
Paragua Sur ¹	626	110	17.6	477.9	84.0
Under 0.35	4	4	100.0	6.8	6.8
0.35 and under 1	11	11	100.0	55.0	55.0
1 and under 2	523	84	6.5	1,687.1	109.7
2 and under 3	37	37	100.0	217.6	217.6
3 and under 5	7	7	100.0	350.0	350.0
5 and under 10	33	6	18.2	3,900.0	600.0
10 and under 15	11	11	100.0	1,100.0	1,100.0
15 and under 30					
30 and under 50					
50 and over					

¹ Comandancia.

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Rizal.....	14,787	9,984	67.2	127.9	85.9
Under 0.35	3,706	240	6.5	86.7	2.4
0.35 and under 1.....	395	324	82.0	62.7	51.4
1 and under 2.....	570	492	86.3	148.1	127.8
2 and under 3.....	465	327	70.3	334.5	235.3
3 and under 5.....	1,116	418	37.5	962.1	360.3
5 and under 10.....	739	538	72.8	912.3	664.2
10 and under 15.....	305	305	100.0	1,220.0	1,220.0
15 and under 30.....	1,042	866	83.1	2,671.8	2,220.5
30 and under 50.....	758	755	99.6	3,790.0	3,775.0
50 and over.....	5,691	5,669	99.6	16,738.2	16,673.5
Romblón.....	23,546	13,243	56.2	345.1	194.1
Under 0.35	908	158	17.4	176.7	30.7
0.35 and under 1.....	2,819	1,355	48.1	138.9	66.8
1 and under 2.....	5,526	3,232	58.5	238.4	139.4
2 and under 3.....	3,904	2,399	61.4	380.1	233.6
3 and under 5.....	3,190	2,154	67.5	548.1	370.1
5 and under 10.....	2,804	1,803	64.3	987.3	634.9
10 and under 15.....	1,209	466	38.5	3,022.5	1,165.0
15 and under 30.....	917	279	30.4	6,550.0	1,992.9
30 and under 50.....	419	234	55.8	5,985.7	3,342.9
50 and over.....	1,850	1,163	62.9	23,125.0	14,537.5
Samar.....	101,481	43,073	42.4	402.4	170.8
Under 0.35	10,122	1,083	10.7	138.4	14.8
0.35 and under 1.....	18,518	5,022	27.1	231.4	62.7
1 and under 2.....	16,064	6,658	41.4	329.5	136.6
2 and under 3.....	9,390	4,784	50.9	471.1	240.0
3 and under 5.....	10,281	5,967	58.0	649.1	376.7
5 and under 10.....	10,233	6,465	63.2	1,058.9	665.8
10 and under 15.....	3,961	2,680	67.7	1,729.7	1,170.3
15 and under 30.....	14,306	3,169	22.2	8,776.7	1,944.2
30 and under 50.....	2,688	1,669	62.1	5,719.1	3,551.1
50 and over.....	5,918	5,576	94.2	16,438.9	15,488.9
Siassi ¹	133	30	22.6	4,433.3	1,000.0
Under 0.35	102	.....	.....	5,100.0	.....
0.35 and under 1.....	.....	.....	.....	.....	.....
1 and under 2.....	.....	.....	.....	.....	.....
2 and under 3.....	.....	.....	.....	.....	.....
3 and under 5.....	.....	.....	.....	.....	.....
5 and under 10.....	.....	.....	.....	.....	.....
10 and under 15.....	.....	.....	.....	.....	.....
15 and under 30.....	31	30	96.8	3,100.0	3,000.0
30 and under 50.....	.....	.....	.....	.....	.....
50 and over.....	.....	.....	.....	.....	.....
Sorsogón.....	88,829	54,668	61.5	609.8	375.3
Under 0.35	723	86	11.9	204.2	24.3
0.35 and under 1.....	2,391	1,154	48.3	213.9	103.2
1 and under 2.....	12,273	6,707	54.6	286.1	156.3
2 and under 3.....	18,795	11,250	59.9	411.2	246.1
3 and under 5.....	16,856	10,710	63.5	591.4	375.8
5 and under 10.....	9,771	5,860	60.0	1,052.9	631.5
10 and under 15.....	2,572	1,592	61.9	1,978.5	1,224.6
15 and under 30.....	5,878	3,611	61.4	3,498.8	2,149.4
30 and under 50.....	3,769	2,411	64.0	5,462.3	3,494.2
50 and over.....	15,801	11,287	71.4	17,753.9	12,682.0
Surigao.....	49,060	24,250	49.4	661.9	327.2
Under 0.35	2,177	89	4.1	318.7	13.0
0.35 and under 1.....	2,570	668	25.6	242.9	62.2
1 and under 2.....	5,357	2,067	38.4	335.0	128.6
2 and under 3.....	6,275	2,826	45.0	496.8	223.8
3 and under 5.....	10,097	5,213	51.6	693.0	357.8
5 and under 10.....	10,541	6,124	58.1	1,107.2	643.3
10 and under 15.....	4,378	2,509	57.3	2,026.9	1,161.6
15 and under 30.....	4,455	2,754	61.8	3,137.3	1,939.4
30 and under 50.....	1,765	1,184	64.2	5,693.5	3,658.1
50 and over.....	1,445	886	61.3	13,136.4	8,054.5

¹ Comandancia.

TABLE 17.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Tarlac	78,923	37,332	47.3	707.2	334.5
Under 0.35	16,335	320	2.0	579.9	11.4
0.35 and under 1.....	2,613	1,785	68.3	92.8	63.4
1 and under 2.....	5,002	3,151	63.0	213.7	134.6
2 and under 3.....	5,075	2,745	54.1	449.9	243.4
3 and under 5.....	5,076	3,114	61.3	606.5	372.0
5 and under 10.....	8,871	4,663	52.6	1,240.7	652.2
10 and under 15.....	5,959	2,677	44.9	2,602.2	1,169.0
15 and under 30.....	7,417	3,656	49.3	4,214.2	2,077.3
30 and under 50.....	3,997	2,114	52.9	7,267.3	3,848.6
50 and over.....	18,578	13,107	70.6	39,527.7	27,887.2
Tayabas ¹	120,754	57,575	47.7	285.9	136.3
Under 0.35	22,442	1,833	8.2	110.2	9.0
0.35 and under 1.....	9,988	4,364	43.7	135.6	59.2
1 and under 2.....	16,256	7,948	48.9	265.1	129.6
2 and under 3.....	12,516	7,259	58.0	395.7	229.5
3 and under 5.....	16,479	9,560	58.0	630.9	365.6
5 and under 10.....	20,472	11,976	58.5	1,139.2	666.4
10 and under 15.....	7,998	5,063	63.3	1,855.7	1,174.7
15 and under 30.....	8,606	5,462	63.5	3,175.6	2,015.5
30 and under 50.....	3,624	2,615	72.2	5,329.4	3,845.6
50 and over.....	2,373	1,495	63.0	10,786.4	6,795.5
Zambales	45,917	27,386	59.6	188.4	112.4
Under 0.35	13,459	841	6.2	188.2	11.8
0.35 and under 1.....	6,879	5,226	76.0	85.6	65.0
1 and under 2.....	8,963	7,444	83.1	165.5	137.5
2 and under 3.....	5,275	4,474	84.8	279.5	237.1
3 and under 5.....	5,218	4,483	85.9	411.8	353.8
5 and under 10.....	3,515	2,927	83.3	681.2	567.2
10 and under 15.....	784	640	81.6	1,537.3	1,254.9
15 and under 30.....	714	576	80.7	2,462.1	1,986.2
30 and under 50.....	175	164	93.7	3,500.0	3,280.0
50 and over.....	935	611	63.3	23,375.0	15,275.0
Zamboanga ²	10,588	6,908	65.2	407.2	265.7
Under 0.35	281	85	30.2	49.6	15.0
0.35 and under 1.....	727	381	52.4	121.0	63.4
1 and under 2.....	1,312	792	60.4	229.4	138.5
2 and under 3.....	1,129	726	64.3	369.0	237.3
3 and under 5.....	1,313	965	73.5	523.1	384.5
5 and under 10.....	1,910	1,371	71.8	964.6	692.4
10 and under 15.....	734	580	79.0	1,529.2	1,208.8
15 and under 30.....	804	730	90.8	2,233.3	2,027.8
30 and under 50.....	991	587	59.2	6,606.7	3,913.8
50 and over.....	1,387	691	49.8	23,116.7	11,516.7

¹ Including the subprovince, Marinduque.

² Comandancia.

TABLE 18.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by principal islands.

ISLAND AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Philippine Islands	2,827,704	1,298,845	45.9	346.8	159.3
Under 0.35	423,109	43,651	10.3	145.5	15.0
0.35 and under 1.....	319,174	148,947	46.7	132.2	61.7
1 and under 2.....	363,527	191,539	52.7	258.5	135.2
2 and under 3.....	264,467	142,921	54.0	435.0	235.1
3 and under 5.....	277,782	153,258	55.2	667.1	368.1
5 and under 10.....	318,933	161,485	50.6	1,286.9	651.6
10 and under 15.....	161,311	72,581	45.0	2,621.2	1,179.2
15 and under 30.....	185,960	94,738	50.9	3,993.1	2,034.8
30 and under 50.....	106,548	61,337	57.6	6,465.3	3,721.9
50 and over.....	406,913	228,388	56.1	22,126.9	12,419.1

TABLE 18.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by principal islands—Continued.

ISLAND AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ACRES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Bohol.....	53,160	21,503	40.5	151.1	61.3
Under 0.35.....	19,338	7,023	36.3	73.1	26.5
0.35 and under 1.....	13,144	4,062	30.9	224.3	69.3
1 and under 2.....	6,642	3,196	48.1	398.6	191.8
2 and under 3.....	3,729	1,358	36.4	669.5	243.8
3 and under 5.....	2,939	1,296	44.1	872.1	384.6
5 and under 10.....	2,579	1,023	39.7	1,730.9	686.6
10 and under 15.....	440	240	54.5	2,315.8	1,263.2
15 and under 30.....	927	476	51.3	4,030.4	2,069.5
30 and under 50.....	273	232	85.0	4,550.0	3,866.7
50 and over.....	3,149	2,597	82.5	52,483.3	43,283.3
Cebu.....	119,989	49,148	40.9	159.2	65.2
Under 0.35.....	28,363	4,755	16.8	85.7	14.4
0.35 and under 1.....	40,349	18,141	45.0	134.8	60.6
1 and under 2.....	22,705	11,771	51.8	251.3	130.3
2 and under 3.....	8,224	4,246	51.6	444.1	229.3
3 and under 5.....	5,577	2,975	53.3	715.9	381.9
5 and under 10.....	6,073	2,465	40.6	1,355.6	550.2
10 and under 15.....	2,179	1,074	49.3	1,771.5	873.2
15 and under 30.....	3,291	1,405	42.7	4,388.0	1,873.5
30 and under 50.....	1,023	715	69.9	5,115.0	3,575.0
50 and over.....	2,205	1,601	72.6	15,750.0	11,435.7
Leyte.....	123,754	37,950	30.7	361.8	111.0
Under 0.35.....	14,606	2,129	14.6	103.3	15.1
0.35 and under 1.....	16,996	6,523	38.4	158.7	60.9
1 and under 2.....	18,304	6,936	37.7	351.5	132.5
2 and under 3.....	8,959	4,634	51.7	454.1	234.9
3 and under 5.....	9,987	4,586	45.7	788.9	380.7
5 and under 10.....	9,954	4,241	42.6	1,731.4	652.5
10 and under 15.....	30,362	1,436	4.7	24,289.6	1,148.8
15 and under 30.....	2,968	1,242	41.8	5,030.5	2,105.1
30 and under 50.....	1,773	602	34.0	8,850.0	3,344.4
50 and over.....	9,761	5,641	57.8	30,503.1	17,628.1
Luzon.....	1,619,325	830,271	51.3	364.2	186.7
Under 0.35.....	199,292	18,749	9.4	148.8	14.0
0.35 and under 1.....	160,930	81,878	50.9	122.7	62.4
1 and under 2.....	209,761	120,884	57.6	236.2	136.1
2 and under 3.....	168,501	94,995	56.4	419.8	236.7
3 and under 5.....	163,811	96,985	59.2	621.6	368.0
5 and under 10.....	197,613	100,167	50.7	1,289.1	653.4
10 and under 15.....	78,008	45,398	58.2	2,051.8	1,194.1
15 and under 30.....	97,193	59,054	60.8	3,397.7	2,065.5
30 and under 50.....	59,081	37,584	63.6	5,501.0	3,499.4
50 and over.....	285,135	174,577	61.2	24,924.4	15,260.2
Marinduque.....	15,598	5,039	32.3	86.8	28.0
Under 0.35.....	7,811	1,333	17.1	56.4	9.6
0.35 and under 1.....	3,153	1,809	57.4	101.2	58.0
1 and under 2.....	1,885	1,015	53.8	242.9	130.8
2 and under 3.....	521	335	64.3	372.1	239.3
3 and under 5.....	1,162	172	14.8	2,526.1	373.9
5 and under 10.....	881	246	27.9	2,381.1	664.9
10 and under 15.....	110	93	84.5	1,571.4	1,328.6
15 and under 30.....	75	36	48.0	3,750.0	1,800.0
30 and under 50.....					
50 and over.....					
Masbate.....	5,222	3,980	76.2	287.2	218.9
Under 0.35.....	275	89	32.4	55.2	17.9
0.35 and under 1.....	579	317	54.7	114.9	62.9
1 and under 2.....	595	443	74.5	187.7	139.7
2 and under 3.....	538	308	57.2	413.8	236.9
3 and under 5.....	835	688	82.4	461.3	380.1
5 and under 10.....	834	713	85.5	817.6	699.0
10 and under 15.....	756	695	91.9	1,326.3	1,219.3
15 and under 30.....	436	399	91.5	1,981.8	1,813.6
30 and under 50.....	219	173	79.0	4,380.0	3,460.0
50 and over.....	155	155	100.0	7,750.0	7,750.0

TABLE 18.—Area and average size of farms and other parcels of land used for agriculture, classified by cultivated area, by principal islands—Continued.

ISLAND AND AREA OF CULTIVATED LAND IN FARMS IN HECTARES.	NUMBER OF HECTARES IN FARMS, ETC.			AVERAGE SIZE OF FARMS, ETC., IN ARES.	
	Total.	Cultivated.	Per cent cultivated.	All land.	Cultivated land.
Mindanao	127,534	57,552	45.0	413.0	186.1
Under 0.35	16,307	1,088	6.7	154.6	10.3
0.35 and under 1	10,156	3,910	38.5	149.4	57.5
1 and under 2	18,200	7,615	41.8	331.5	138.7
2 and under 3	13,005	7,053	54.2	444.2	240.9
3 and under 5	20,030	9,528	47.6	766.0	364.4
5 and under 10	19,463	11,072	56.9	1,150.3	654.4
10 and under 15	8,119	4,676	57.6	2,019.7	1,163.2
15 and under 30	9,211	5,240	56.9	3,424.2	1,948.0
30 and under 50	5,483	3,389	61.8	6,025.3	3,724.2
50 and over	7,560	3,981	52.7	18,000.0	9,478.6
Mindoro	39,138	3,213	8.2	2,357.7	193.6
Under 0.35	29,149	43	0.1	6,639.9	9.8
0.35 and under 1	954	228	23.9	240.3	57.4
1 and under 2	2,330	635	27.3	483.4	131.7
2 and under 3	1,046	286	27.3	798.5	218.3
3 and under 5	927	325	35.1	1,018.7	357.1
5 and under 10	1,184	449	37.9	1,644.4	623.6
10 and under 15	509	189	37.1	3,181.2	1,181.2
15 and under 30	2,080	507	24.3	8,320.0	2,024.0
30 and under 50	248	111	44.8	8,266.7	3,700.0
50 and over	711	440	61.9	17,775.0	11,000.0
Negros	210,452	90,151	42.8	815.3	349.2
Under 0.35	23,257	1,485	6.4	300.9	19.2
0.35 and under 1	9,175	6,221	67.8	85.0	57.6
1 and under 2	7,395	3,183	43.0	291.1	125.3
2 and under 3	7,791	3,000	38.5	574.1	221.1
3 and under 5	9,575	3,974	41.5	868.1	360.3
5 and under 10	13,681	5,637	41.2	1,544.0	636.2
10 and under 15	9,339	3,755	40.2	2,946.1	1,184.5
15 and under 30	21,261	8,726	41.0	5,002.6	2,053.2
30 and under 50	19,554	8,593	43.9	8,690.7	3,819.1
50 and over	89,424	45,577	51.0	20,369.9	10,382.0
Panay	294,487	110,240	37.4	412.6	154.4
Under 0.35	59,453	3,051	5.1	235.0	12.0
0.35 and under 1	26,629	11,316	42.5	145.1	61.7
1 and under 2	34,723	17,158	49.4	258.2	127.6
2 and under 3	25,601	12,376	48.3	467.3	225.9
3 and under 5	33,842	16,003	47.3	761.9	360.2
5 and under 10	38,777	17,781	45.9	1,416.3	649.4
10 and under 15	20,210	8,274	40.9	2,826.6	1,155.8
15 and under 30	27,298	10,721	39.2	5,050.3	1,977.7
30 and under 50	12,865	6,754	52.7	7,197.7	3,791.0
50 and over	15,089	6,806	46.6	18,924.7	8,827.1
Samar	85,892	34,898	40.6	418.3	169.9
Under 0.35	7,872	882	10.6	145.8	15.4
0.35 and under 1	15,720	4,122	26.2	238.7	92.6
1 and under 2	13,371	5,557	41.6	327.2	136.0
2 and under 3	8,420	4,225	50.2	478.7	240.2
3 and under 5	9,125	5,307	58.2	648.2	375.8
5 and under 10	9,393	5,881	62.6	1,067.4	668.3
10 and under 15	3,401	2,232	65.6	1,780.6	1,168.6
15 and under 30	14,025	2,915	20.8	9,288.1	1,930.5
30 and under 50	1,842	1,472	79.9	4,385.7	3,504.8
50 and over	2,723	2,355	86.5	9,725.0	8,410.7
Other islands	160,190	78,795	49.2	299.7	147.4
Under 0.35	16,616	3,058	18.4	98.6	18.1
0.35 and under 1	21,337	10,322	48.4	125.6	60.8
1 and under 2	27,515	13,125	47.7	280.3	133.7
2 and under 3	18,022	10,074	55.9	415.1	232.0
3 and under 5	19,202	11,360	59.2	642.6	380.2
5 and under 10	18,492	11,736	63.5	1,034.2	656.3
10 and under 15	7,839	4,469	57.0	2,079.3	1,185.4
15 and under 30	7,722	3,914	50.7	3,900.0	1,976.8
30 and under 50	3,992	1,517	38.0	9,980.0	3,792.5
50 and over	19,453	9,220	47.4	36,024.1	17,074.1

TABLE 19.—*Acreage and production of crops, by provinces, comandancias, and principal islands: 1902.*

PROVINCE, COMANDANCIA, OR ISLAND.	AROMATIC PLANTS.					
	Cocoa.		Coffee.		Tobacco.	
	Hec-tares.	Liters.	Hec-tares.	Liters.	Hec-tares.	Kilograms.
Philippine Islands.....	3, 521	689, 249	999	181, 091	31, 417	17, 009, 291
<i>Provinces and comandancias.</i>						
Abra.....	15	1, 125			456	325, 910
Albay.....	210	18, 375	30	13, 500		
Ambos Camarines.....	396	42, 825	33	900		15
Antique.....	15	1, 950	6	900	39	9, 338
Basilan ¹	4	75	21	75		
Bataán ¹	1	750			2	1, 012
Batangas.....	145	20, 100	145	18, 450	62	23, 506
Benguet.....			24	13, 050		
Bohol.....	115	65, 250	5	750	191	61, 392
Bulacán.....	5	3, 525	2	2, 850	88	24, 150
Cagayan.....	58	8, 475	86	1, 305	8, 901	2, 663, 296
Cápiz.....	23	4, 425	2	300	109	50, 324
Cavite.....	42	2, 405	330	10, 350	24	4, 416
Cebú.....	476	185, 475	7	2, 925	2, 750	1, 717, 318
Cottabato ¹	1		2	225		
Dapitan ¹	15	2, 775		30	3	3, 588
Dávao ¹	13	300	3		7	3, 082
Ilocos Norte.....	10	10, 725	16	23, 400	655	562, 212
Ilocos Sur.....	6	3, 975	1	782	91	24, 794
Iloilo.....	110	23, 532	9	825	390	248, 860
Isabela.....	16	9, 075	3	3, 275	9, 575	5, 691, 028
Joló ¹		75		75		
La Laguna.....	161	33, 600	8	1, 575	19	552
La Unión.....	49	18, 675	3	6, 225	3, 149	3, 752, 772
Lepanto-Bontoc.....			125	17, 400	1	644
Leyte.....	205	73, 425	10	6, 525	453	142, 278
Manila city.....		12		3		
Masbate.....	22	6, 825			192	26, 978
Mindoro.....	27	1, 425			1	414
Misamis.....	202	40, 575	4	8, 700	36	782
Negros Occidental.....	62	8, 700	7	525	606	327, 888
Negros Oriental.....	54	11, 925	3	1, 050	420	117, 484
Nueva Ecija.....	7	1, 725	15	1, 425	683	119, 121
Nueva Vizcaya.....	11	4, 425	18	19, 650	41	18, 538
Pampanga.....	12	8, 400	3	3, 525	3	736
Pangasinán.....	37	11, 475	21	4, 500	1, 569	686, 182
Paragua.....	41	8, 775	1	18	58	1, 840
Paragua Sur ¹		150		33		
Rizal.....	2	375	4	525	2	46
Romblón.....	34	2, 325	2	375	401	224, 112
Sámar.....	46	8, 025			172	40, 066
Siassi ¹						
Sorsogón.....	99	3, 675	3	609	4	2, 180
Surigao.....	161	20, 775		15	50	18, 906
Tárlac.....	2	1, 650	10	5, 775	107	66, 838
Tayabas ²	576	15, 900	21	4, 575	59	14, 723
Zambales.....	30	1, 050	10	3, 655	54	31, 970
Zamboanga ¹	5	150	3	300		
<i>Islands.</i>						
Bohol.....	113	64, 651	4	375	185	59, 715
Cebú.....	367	141, 808	7	2, 925	2, 649	1, 647, 632
Leyte.....	144	50, 948	1	675	388	138, 514
Luzón.....	1, 867	221, 465	912	157, 344	25, 523	14, 006, 254
Marinduque.....	5	1, 200	1	300		92
Masbate.....	9	2, 873			173	24, 367
Mindanao.....	378	60, 538	11	6, 370	91	25, 519
Mindoro.....	22	1, 342				
Negros.....	107	18, 479	9	1, 225	909	394, 570
Panay.....	140	29, 478	17	2, 025	535	306, 816
Sámar.....	32	5, 796			101	26, 220
All other islands.....	337	90, 671	37	9, 852	863	379, 592

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 19.—*Acreage and production of crops, by provinces, comandancias, and principal islands: 1902—Continued.*

PROVINCE, COMANDANCIA, OR ISLAND.	FIBER PLANTS.			
	Cotton.		Hemp.	
	Hectares.	Kilograms.	Hectares.	Kilograms.
Philippine Islands.....	3,053	1,322,118	217,806	66,756,200
<i>Provinces and comandancias.</i>				
Abra.....	97	22,402	3	5,014
Albay.....			57,646	11,080,710
Ambos Camarines.....			35,072	8,002,620
Antique.....	3	460	260	62,192
Basilan ¹			85	675
Bataán.....				
Batangas.....	239	21,206	308	62,376
Benguet.....				
Bohol.....	7	2,898	2,083	1,280,880
Bulacáñ.....	7	8,142		
Cagayán.....	1	1,104	5	4,600
Cápiz.....			2,243	470,718
Cavite.....			1,401	176,410
Cebú.....	52	17,434	1,820	1,091,704
Cottabato ¹			4	
Dapitan ¹			716	404,432
Dávao ¹	6		2,499	307,924
Ilocos Norte.....	1,591	605,029	386	552,000
Ilocos Sur.....	645	244,140	804	1,060,484
Iloilo.....		184	336	57,500
Isabela.....		46		
Joló ¹			1	368
La Laguna.....	2		879	378,626
La Unión.....	266	362,434	55	62,008
Lepanto-Bontoc.....				
Leyte.....			22,038	11,708,518
Manila city.....				
Masbate.....			1,642	1,465,131
Mindoro.....			739	163,760
Misamis.....			10,846	3,798,588
Negros Occidental.....	52	6,854	611	199,301
Negros Oriental.....	15	15,962	3,653	2,160,712
Nueva Ecija.....				
Nueva Vizcaya.....	2	552		
Pampanga.....				1,012
Pangasinán.....	54	4,922		2,438
Paragua.....			12	138
Paragua Sur ¹				
Rizal.....			2	675
Romblón.....			1,803	378,626
Sámar.....			12,368	6,485,586
Siasi ¹				
Sorsogón.....			45,020	10,262,094
Surigao.....			8,806	2,570,296
Tárlac.....		598	2	1,196
Tayabas ²	1	207	3,453	2,464,128
Zambales.....	13	7,544	51	15,864
Zamboanga ¹			154	16,836
<i>Islands.</i>				
Bohol.....	5	1,214	2,074	1,274,400
Cebú.....	52	17,434	1,763	1,055,050
Leyte.....			19,319	10,116,044
Luzón.....	2,918	1,278,303	116,937	24,941,363
Marinduque.....		23	851	601,312
Masbate.....			433	386,030
Mindanao.....	6		17,901	5,018,986
Mindoro.....			693	162,727
Negros.....	67	22,816	4,076	2,247,581
Panay.....	3	644	2,836	585,009
Sámar.....			11,192	5,956,586
All other islands.....	2	1,684	39,741	14,411,112

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 19.—Acreage and production of crops, by provinces, comandancias, and principal islands: 1902—Continued.

PROVINCE, COMANDANCIA, OR ISLAND.	COCONUTS.				
	Hectares.	Hundreds.	Copra in kilograms.	Tuba in liters.	Oil in liters.
Philippine Islands.....	148,245	2,323,148	42,834,867	11,388,072	1,571,092
<i>Provinces and comandancias.</i>					
Abra.....	3	25	276		75
Albay.....	5,837	80,734	190,900	798	
Ambos Camarines.....	7,518	97,891	186,714	822,984	203,169
Antique.....	948	5,415	1,978	959,325	18
Basilan ¹	237		63,080		
Bataan.....	4	333			
Batangas.....	126	43		15	
Benguet.....					
Bohol.....	3,605	97,044	2,256,760	105,016	
Bulacán.....	5	176		357	
Cagayán.....	902	12,120		10,125	
Cápiiz.....	6,245	73,390	337,962	2,257,305	
Cápiiz.....	203	5,707	27,002		
Cavite.....	2,471	106,554	347,070	874,626	17,625
Cebu.....	75	2	638,848	4,320	
Cottabato ¹	342	8,110	132,756		
Dapitan ¹	282	2,423	17,710		
Dávao ¹	49	3,207	322		1,482
Ilocos Norte.....	238	75,649			
Ilocos Sur.....	2,718	25,280	75,578	1,446,319	956
Iloilo.....	18	1,346	460		
Isabela.....	6	105			
Joló ¹	24,801	432,227	9,193,008	767,625	1,129,575
La Laguna.....	530	84,012			
La Unión.....					
Lepanto-Bontoc.....					
Leyte.....	4,854	175,612	1,675,780	409,875	178,425
Manila city.....					
Masbate.....	1,791	46,613	99,969	69,600	
Mindoro.....	664	2,695		720	
Misamis.....	7,384	107,758	1,600,110	20,778	87
Negros Occidental.....	2,135	36,046	34,914	2,859,066	
Negros Oriental.....	1,427	127,226	1,083,438	10,275	11
Nueva Ecija.....	13	443			
Nueva Vizcaya.....	2	288	230		
Pampanga.....	1	40	322		
Pangasinán.....	1,716	104,923	1,610	525	
Paragua.....	349	8,657	9,200	24,970	
Paragua Sur ¹	12	337	1,058		
Rizal.....	6	159			
Romblón.....	5,541	95,668	502,642		
Sámar.....	16,881	322,235	1,413,672	9,300	
Siasi ¹	32	7			
Sorsogón.....	5,891	81,224	10,442		
Surigao.....	1,675	1,888	1,249,130	683,055	9,990
Surigao.....	47	1,695	14,960	4,425	
Tárlac.....				23,718	29,679
Tayabas ²	37,822	49,779	21,629,476	22,950	
Zambales.....	685	12,289			
Zamboanga ¹	2,154	35,773	37,490		
<i>Islands.</i>					
Bohol.....	2,920	95,143	907,972	105,001	
Cebu.....	2,087	95,284	347,070	844,427	17,625
Leyte.....	4,473	164,373	1,658,750	409,255	178,425
Luzón.....	84,066	1,032,469	30,782,552	1,652,623	1,363,980
Marinduque.....	2,155	32,531	89,884	354	
Masbate.....	896	24,237	98,471	69,314	
Mindanao.....	7,915	133,496	3,313,609	696,878	9,801
Mindoro.....	550	2,479		720	
Negros.....	3,254	138,222	1,118,008	2,868,879	11
Panay.....	9,136	97,059	414,532	4,655,276	974
Sámar.....	11,086	243,004	1,398,421		
All other islands.....	19,707	264,851	2,705,598	85,345	276

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 19.—Acreage and production of crops, by provinces, comandancias, and principal islands: 1902—Continued.

PROVINCE, COMANDANCIA, OR ISLAND.	GRAMINEOUS PLANTS.						
	Corn.		Paddy (unhulled rice).		Sugar cane.		
	Hectares.	Hecto-liters.	Hectares.	Hecto-liters.	Hectares.	Sugar in kilograms.	Molasses in hecto-liters.
Philippine Islands	107,981	1,195,254	592,766	8,599,233	71,885	180,217,383	17,844
<i>Provinces and comandancias.</i>							
Abra	3,812	33,682	7,246	96,844	181	1,196,644	.....
Albay	212	1,096	16,076	30,199	150	318,388	20
Ambos Camarines	957	4,526	6,205	44,996	1,573	3,831,264	6,876
Antique	1,177	6,704	19,641	215,137	601	1,488,462	.....
Basilan ¹	1	5	213	992	29	61,024	.....
Bataán	18	220	2,688	42,336	454	500,552	.....
Batangas	2,919	15,803	12,649	93,770	697	1,759,091	199
Benguet	2	27	26	156	.....	.....	.....
Bohol	4,994	35,566	5,063	72,876	178	427,170	.....
Bulacán	2,179	24,073	51,394	300,062	2,297	5,855,079	100
Cagayán	11,598	121,372	11,919	89,285	117	310,428	1,142
Cápiz	1,244	9,645	16,088	262,844	368	907,405	1,152
Cavite	240	2,280	15,306	199,076	1,085	2,037,681	.....
Cebú	38,325	400,764	1,693	26,332	3,309	8,325,836	.....
Cottabato ¹	1	14	1,107	101,211	.....	.....	.....
Dapitan ¹	183	2,278	780	11,867	5	2,653	.....
Davao ¹	5	12	1,124	8,512	.....	.....	.....
Ilocos Norte	1,321	13,574	29,536	483,520	2,796	7,238,011	5,329
Ilocos Sur	3,160	34,784	29,153	425,231	2,517	8,060,350	298
Iloilo	2,797	18,249	43,953	387,815	1,763	4,523,757	2
Isabela	4,523	122,455	1,990	16,811	23	2,484	414
Joló ¹	2	19	2	150	.....	.....	.....
La Laguna	256	1,060	9,877	121,447	1,219	3,003,456	44
La Unión	1,030	14,063	23,391	441,098	1,335	2,966,724	.....
Lepanto-Bontoc	4	30	254	2,472	2	2,300	.....
Leyte	2,828	54,464	6,232	131,852	488	894,139	16
Manila city	1	14	726	17,991	22	34,028	10
Masbate	535	7,181	2,845	28,550	19	39,798	41
Mindoro	41	30,203	3,042	63,901	157	151,616	.....
Misamis	3,887	60,675	25,236	638,083	27,459	87,524,476	.....
Negros Occidental	3,572	60,675	25,236	638,083	27,459	87,524,476	.....
Negros Oriental	10,465	140,458	1,785	22,684	1,539	5,532,834	.....
Nueva Ecija	575	960	21,883	855,935	157	416,557	344
Nueva Vizcaya	3	159	2,879	36,536	73	48,700	.....
Pampanga	1,177	5,143	38,491	426,727	12,477	14,317,776	40
Pangasinán	1,457	17,171	66,530	1,454,601	4,044	9,373,862	921
Paragua	346	2,752	2,043	38,557	4	6,900	1
Paragua Sur ¹ .....	.....	.....	89	2,814	.....	.....	.....
Rizal	462	3,270	4,537	72,145	1,808	2,154,423	.....
Romblón	191	1,259	4,759	73,784	2	4,370	.....
Samar	359	3,230	8,930	133,304	121	289,202	1
Saasí ¹	4	.....	47	115	.....	.....	.....
Sorsogón	26	37	4,981	30,378	224	567,791	.....
Surigao	185	1,066	8,438	108,521	40	55,292	12
Tárlac	77	638	35,119	599,327	1,569	3,772,893	397
Tayabas ²	239	1,885	16,210	164,775	454	1,125,022	116
Zambales	442	534	25,312	188,553	336	612,896	369
Zamboanga ¹	149	1,399	2,102	26,629	182	445,743	.....
<i>Islands.</i>							
Bohol	4,257	30,098	4,647	66,771	173	413,904	.....
Cebú	35,929	375,759	1,430	22,237	3,293	8,283,384	.....
Leyte	2,605	49,744	5,523	115,693	473	854,341	16
Luzón	35,610	417,513	431,015	6,189,448	35,524	69,230,884	16,033
Marinduque	9	64	1,076	20,470	20	27,278	.....
Masbate	334	4,477	555	13,745	22	34,028	10
Mindanao	4,388	34,798	15,211	298,014	380	650,398	12
Mindoro	38	428	1,575	15,279	10	21,809	23
Negros	10,675	195,704	26,594	655,354	28,994	93,041,886	.....
Panay	4,754	31,473	77,526	845,418	2,589	6,795,424	1,154
Samar	187	1,591	8,567	125,527	74	107,870	1
All other islands	9,195	53,705	19,047	231,277	333	756,177	595

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	196,627	15,251,574	133,507	21,438
Abra	4,152	306,906	257	158
Albay	686	89,789	121	21
Ambos Camarines	673	88,484	522	64
Antique	2,527	140,779	2,570	354
Basilan ¹	4	200		
Bataan	486	37,003	218	7
Batangas	6,693	448,499	4,132	1,260
Benguet	33	2,210	14	2
Bohol	1,427	60,406	6,463	272
Bulacán	15,807	1,390,730	4,674	516
Cagayán	5,305	425,161	2,810	372
Cápiz	3,828	247,906	3,710	486
Cavite	3,490	271,935	2,388	260
Cebú	4,963	301,842	5,687	2,403
Cottabato ¹	7	330		
Dapitan ¹	45	1,924		
Dávao	182	4,549	2	37
Ilocos Norte	13,852	887,372	1,600	518
Ilocos Sur	12,524	952,812	807	570
Iloilo	13,383	877,403	13,787	2,673
Isabela	1,285	136,859	515	89
Joló	4,884	370,560	3,871	911
La Laguna	1,119	87,699	655	121
La Unión	121	6,112	1	
Lepanto-Bontoc				
Leyte	4,486	398,134	13,432	1,685
Manila city	1,868	231,336	423	19
Masbate	786	48,305	90	17
Mindoro	1,657	52,166	664	155
Misamis	3,547	242,987	4,553	824
Negros Occidental	3,262	242,116	2,749	423
Negros Oriental	1,688	94,647	4,452	480
Nueva Ecija	9,101	709,019	2,952	226
Nueva Vizcaya	69	6,490	20	1
Pampanga	16,857	1,657,250	8,047	833
Pangasinán	17,546	1,417,235	11,830	2,243
Paragua	1,077	31,827	7	5
Paragua Sur ¹	539	14,005		89
Rizal	1,569	168,608	609	126
Romblón	556	20,893	28	47
Sámar	1,163	81,926	1,449	335
Siassi ¹	36	4,180	10	
Sorsogón	795	41,895	2,357	302
Surigao				
Tárlac	12,781	1,116,853	4,074	935
Tayabas ²	3,869	310,767	6,700	1,122
Zambales	15,731	1,212,196	14,240	474
Zamboanga ¹	188	11,269	17	3

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Number.	Value (pesos).	Died.	Slaugh-tered.	Number.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands	24,357	2,087,062	23,570	4,291	60,029	6,076,641	30,570	4,444
Abra	602	55,740	51	30	930	76,680	32	24
Albay	119	20,845	49	7	118	21,768	35	3
Ambos Camarines	172	26,750	139	24	78	15,635	72	7
Antique	153	8,718	278	14	755	56,938	666	102
Basilan ¹	2	100						
Bataan	18	740	10		191	18,065	72	4
Batangas	538	45,520	616	113	698	67,692	459	91
Benguet	4	270			5	680		
Bohol	445	24,976	943	49	4	143	1	
Bulacán	826	73,480	469	44	6,587	711,139	2,020	205
Cagayán	1,065	99,877	850	63	1,212	131,050	461	40
Cápiz	481	33,691	664	119	1,110	97,447	984	83
Cavite	250	20,925	127	17	1,461	142,053	1,124	84
Cebu	2,466	189,877	3,112	1,266	228	16,503	469	360
Cotabato ¹	3	180						
Dapitan ¹	5	400						
Dávao ¹	20	644	1	15				
Ilocos Norte	1,936	147,913	272	68	3,117	263,909	338	155
Ilocos Sur	874	59,880	79	48	3,730	353,940	132	134
Iloilo	762	51,060	978	147	3,889	340,784	3,321	781
Isabela	172	23,130	60	21	559	71,649	180	13
Joló ¹								
La Laguna	633	51,171	512	181	2,122	193,943	1,927	286
La Unión	136	12,390	42	12	294	28,310	27	51
Lepanto-Bontoc	22	1,670			6	440		
Leyte	1,750	193,847	3,580	498	327	35,775	571	71
Manila city	523	68,605	36	5	870	115,536	43	5
Masbate	98	8,565	18	6	62	6,980	2	
Mindoro	123	5,081	67	13	99	6,420	57	29
Misamis	1,518	126,668	2,193	357	169	14,012	134	35
Negros Occidental	382	33,163	410	51	1,021	100,015	968	96
Negros Oriental	512	87,539	1,107	131	210	16,135	282	22
Nueva Ecija	617	53,858	206	12	3,808	356,738	1,457	91
Nueva Vizcaya	11	1,340	4		5	700	3	
Pampanga	864	87,499	518	74	8,108	933,237	3,589	442
Pangasinán	2,136	171,433	1,856	399	6,360	638,910	4,109	633
Paragua	86	4,210	2		84	5,130		
Paragua Sur ¹	7	270		1	23	930		1
Rizal	129	13,739	91	15	674	90,564	246	63
Romblón	68	2,430	4	2	89	6,455	4	9
Sámar	170	14,200	223	64	27	1,430	12	
Siassi ¹								
Sorsogón	8	1,350	4		10	1,500	2	
Surigao	265	19,760	683	154	6	480	1	
Tárlac	739	63,651	286	132	5,619	582,534	1,800	312
Tayabas ²	640	52,028	701	96	804	99,578	1,210	132
Zambales	1,957	174,812	2,315	41	4,510	452,239	3,760	79
Zamboanga ¹	60	3,067	14	2	50	2,575		1

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	64, 028	4, 824, 038	37, 860	4, 860
Abra	1, 350	104, 560	99	37
Albay	285	35, 567	25	10
Ambos Camarines	202	27, 625	245	23
Antique	1, 059	58, 906	848	88
Basilan ¹	2	100	.....	.....
Bataan	217	16, 291	91	3
Batangas	396	69, 159	474	101
Benguet	2	170	3	.....
Bohol	404	16, 578	1, 680	23
Bulacán	6, 051	517, 542	1, 705	155
Cagayán	1, 565	138, 619	767	59
Cápiz	1, 618	100, 017	1, 086	130
Cavite	1, 025	70, 797	699	35
Cebú	1, 073	51, 294	806	121
Cottabato ¹ .....	.....	.....	.....	.....
Dapitan ¹	13	720	.....	.....
Dávao ¹	13	325	1	3
Ilocos Norte	4, 618	286, 822	393	140
Ilocos Sur	2, 975	207, 510	157	89
Iloilo	5, 624	366, 697	3, 222	914
Isabela	191	20, 500	109	4
Joló ¹ .....	.....	.....	.....	.....
La Laguna	1, 459	92, 709	810	240
La Unión	308	19, 999	130	25
Lepanto-Bontoc	17	1, 040	.....	.....
Leyte	1, 512	122, 744	5, 919	581
Manila city	113	12, 104	42	3
Masbate	290	20, 870	28	9
Mindoro	353	14, 419	95	27
Misamis	981	75, 978	964	96
Negros Occidental	1, 088	78, 392	724	87
Negros Oriental	526	27, 917	817	130
Nueva Ecija	3, 259	247, 174	1, 013	82
Nueva Vizcaya	39	3, 750	7	1
Pampanga	6, 375	577, 605	2, 739	272
Pangasinán	5, 543	389, 672	3, 175	478
Paragua	156	6, 145	2	.....
Paragua Sur ¹	30	1, 120	.....	.....
Rizal	540	54, 719	211	48
Romblón	177	7, 595	4	8
Sámar	743	57, 548	981	205
Siassi ¹ .....	.....	.....	.....	.....
Sorsogón	11	1, 120	4	.....
Surigao	226	11, 535	877	79
Tárlac	4, 899	404, 407	1, 373	390
Tayabas ²	891	76, 171	994	75
Zambales	5, 297	428, 976	4, 539	85
Zamboanga ¹	12	530	2	.....

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands.	24,577	783,770	15,589	1,682	23,636	1,480,063	25,918	6,164
Abra	578	20,840	41	35	692	49,086	34	32
Albay	98	5,989	11	1	66	5,620	1	.....
Ambos Camarines	112	8,549	66	5	109	9,925	.....	126
Antique	311	5,682	323	24	249	10,535	455	.....
Basilan ¹ .....	.....	.....	.....	.....	.....	.....	.....	.....
Bataán	60	1,907	45	.....	.....	.....	.....	.....
Batangas	284	10,225	90	11	4,277	255,903	2,493	944
Benguet .....	.....	.....	.....	.....	22	1,090	11	2
Bohol	144	3,180	656	24	430	15,529	3,183	176
Bulacán	2,118	75,620	453	100	225	12,949	27	12
Cagayán	721	24,762	462	126	742	30,853	270	84
Cápiz	407	7,996	382	17	212	8,755	594	137
Cavite	395	15,035	267	20	359	23,125	171	104
Cebú	312	8,063	161	11	884	36,105	1,139	645
Cottabato ¹ .....	.....	.....	.....	.....	4	150	.....	.....
Dapitan ¹	11	135	.....	.....	16	669	.....	.....
Dávao ¹	7	85	.....	.....	142	3,495	.....	19
Ilocos Norte	2,360	75,243	169	53	1,821	113,485	428	102
Ilocos Sur	1,799	49,292	139	52	3,146	282,190	300	247
Iloilo	1,761	40,446	1,537	122	1,357	78,416	4,729	709
Isabela	117	5,900	76	2	246	15,680	90	49
Joló ¹ .....	.....	.....	.....	.....	.....	.....	.....	.....
La Laguna	384	11,161	274	41	286	21,576	348	163
La Unión	146	5,020	57	1	235	21,980	399	32
Lepanto-Bontoc	3	70	.....	.....	73	2,892	1	.....
Leyte	665	27,447	2,258	363	232	18,321	1,104	172
Manila city	54	1,992	2	6	308	33,099	300	.....
Masbate	138	2,640	31	.....	198	9,250	11	7
Mindoro	170	2,175	68	11	912	24,071	377	75
Misamis	601	12,054	538	123	278	14,275	724	213
Negros Occidental	481	11,634	273	31	290	18,912	374	158
Negros Oriental	133	2,186	312	44	307	10,870	1,934	153
Nueva Ecija	1,269	44,675	224	36	148	6,574	52	5
Nueva Vizcaya	11	550	4	.....	3	150	2	.....
Pampanga	1,426	53,474	1,127	32	84	5,435	74	13
Pangasinán	2,189	72,087	1,273	174	1,318	145,133	1,417	559
Paragua	115	1,356	.....	1	636	14,986	3	4
Paragua Sur ¹	14	200	.....	.....	465	11,485	.....	87
Rizal	221	9,236	61	.....	5	350	.....	.....
Romblón	79	1,528	6	26	123	2,885	10	2
Samar	151	5,070	154	37	72	3,678	79	29
Siassi ¹ .....	.....	.....	.....	.....	.....	.....	.....	.....
Sorsogón	7	210	.....	50	95	6,570	25	20
Surigao	203	3,550	771	.....	.....	.....	.....	.....
Tárlac	1,197	44,198	353	55	327	22,063	262	46
Tayabas ²	366	11,351	429	26	1,168	71,639	3,366	793
Zambales	2,949	100,860	2,495	22	1,018	55,309	1,131	247
Zamboanga ¹	10	97	1	.....	56	5,000	.....	.....

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	48,142	3,373,853	30,292	4,274
Abra	3,711	104,206	320	375
Albay	405	27,283	52	6
Ambos Camarines	63	8,495	136	15
Antique	96	3,141	95	15
Basilan ¹				
Bataan	29	3,722	77	
Batangas	5,851	235,657	3,109	1,006
Benguet	35	3,305	5	
Bohol	246	8,665	37	5
Bulacán	1,427	141,961	611	128
Cagayán	1,511	49,276	2,521	83
Capiz	233	10,122	526	24
Cavite	1,036	62,165	782	149
Cebu	2,081	119,492	379	19
Cotabato ¹	2	80		
Dapitan ¹	5	99		
Davao ¹	15	568	1	6
Ilocos Norte	4,286	133,328	693	112
Ilocos Sur	1,298	78,300	366	221
Iloilo	744	55,280	767	79
Isabela	369	17,930	232	7
Joló ¹				
La Laguna	1,725	112,436	2,832	294
La Unión	334	14,340	250	36
Lepanto-Bontoc	76	2,812		
Leyte	1,149	102,297	1,303	62
Manila city	8,895	1,447,332	927	60
Masbate	284	8,730	9	4
Mindoro	200	5,083	13	48
Misamis	2,342	72,497	1,029	120
Negros Occidental	320	22,504	433	33
Negros Oriental	705	24,235	333	84
Nueva Ecija	316	29,087	301	43
Nueva Vizcaya	74	4,607		
Pampanga	1,230	116,379	908	95
Pangasinán	705	50,706	195	295
Paragua	12	440		
Paragua Sur ¹	7	930		
Rizal	440	65,612	61	32
Romblón	142	6,085		
Samar	109	3,665	46	
Siassi ¹				
Sorsogón	53	3,040	21	
Surigao	113	4,875	11	26
Tárlac	479	35,956	761	88
Tayabas ²	2,986	112,587	5,994	638
Zambales	1,870	61,137	4,149	64
Zamboanga ¹	133	3,406	7	2

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	HORSES—continued.							
	American.				Australian.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands .	760	310, 180	81	1	153	64, 185	84	3
Abra	1	150						
Albay	8	2, 900	3		6	2, 740		
Ambos Camarines	6	1, 825						
Antique								
Basilan ¹								
Bataán	2	1, 050						
Batangas	4	610		1	2	1, 060		
Benguet								
Bohol								
Bulacáñ	51	12, 970	25		11	2, 625	50	
Cagayán	15	3, 650	4					
Cápiz	1	100						
Cavite	2	600						
Cebú	1	350						
Cotabato ¹								
Dapítan ¹								
Dávao ¹								
Ilocos Norte	8	1, 540			1	20		
Ilocos Sur	20	2, 965	1					
Iloilo	2	1, 150	2		1	400		
Isabela								
Joló ¹								
La Laguna	10	2, 358			1	90		1
La Unión								
Lepanto-Bontoc								
Leyte	13	9, 500			67	32, 710	18	
Manila city	552	250, 200	25		53	19, 395	2	
Masbate								
Mindoro								
Misamis	18	4, 910						
Negros Occidental								
Negros Oriental	1	400						
Nueva Ecija	1	17						
Nueva Vizcaya								
Pampanga	6	1, 510	1					
Pangasinán	12	1, 725	2		1	45	1	
Paragua								
Paragua Sur ¹	3	750						
Rizal	9	7, 000						
Romblón								
Sámar	2	160						
Siassi ¹								
Sorsogón								
Surigao								
Tárlac	1	90			2	150		
Tayabas ²	8	1, 550					13	2
Zambales	2	90	18					
Zamboanga ¹	1	60						

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	47, 115	2, 972, 526	30, 126	4, 270
Abra.....	3, 710	104, 056	320	375
Albay.....	390	21, 143	49	6
Ambos Camarines.....	57	6, 670	136	15
Antique.....	96	3, 141	95	15
Basilan ¹				
Bataan.....	27	2, 672	77	
Batangas.....	5, 845	238, 987	3, 109	1, 005
Benguet.....	35	3, 305	5	
Bohol.....	246	8, 665	37	5
Bulacán.....	1, 365	126, 366	536	128
Cagayán.....	1, 496	45, 626	2, 517	83
Cápiç.....	232	10, 022	526	24
Cavite.....	1, 034	61, 565	782	149
Cebú.....	2, 080	119, 142	379	19
Cotabato ¹	2	80		
Dapitan ¹	5	99		
Dávao ¹	15	568	1	6
Ilocos Norte.....	4, 277	131, 768	693	112
Ilocos Sur.....	1, 278	75, 355	365	221
Iloilo.....	741	53, 730	765	79
Isabela.....	369	17, 930	232	7
Joló ¹				
La Laguna.....	1, 714	109, 988	2, 832	293
La Unión.....	334	14, 340	250	36
Lepanto-Bontoc.....	76	2, 812		
Leyte.....	1, 069	60, 087	1, 285	62
Manila city.....	8, 184	1, 153, 182	900	60
Masbate.....	284	8, 730	9	4
Mindoro.....	200	5, 083	13	48
Misamis.....	2, 324	67, 587	1, 029	120
Negros Occidental.....	320	22, 504	433	33
Negros Oriental.....	704	23, 835	333	84
Nueva Ecija.....	314	28, 870	301	43
Nueva Vizcaya.....	70	3, 650		
Pampanga.....	1, 224	114, 869	907	95
Pangasinán.....	691	48, 436	191	295
Paragua.....	12	440		
Paragua Sur ¹	4	180		
Rizal.....	423	53, 662	61	32
Romblón.....	142	6, 085		
Sámar.....	107	3, 505	46	
Siassi ¹				
Sorsogón.....	53	3, 040	21	
Surigao.....	113	4, 875	11	26
Tárlac.....	476	35, 716	761	88
Tayabas ²	2, 977	110, 787	5, 981	636
Zambales.....	1, 868	61, 047	4, 131	64
Zamboanga ¹	132	3, 346	7	2

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	HORSES—continued.				MULES.			
	Other horses.				Number.	Value (pesos).	Died.	Slaughtered.
	Number.	Value (pesos).	Died.	Slaughtered.				
Philippine Islands	114	26,962	1	.....	184	29,842	31	65
Abra					1	30		
Albay	1	500						
Ambos Camarines								
Antique								
Basilan ¹					2	100	1	
Bataán								
Batangas								
Benguet								
Bohol							3	
Bulacán					18	1,688		
Cagayán					1	400		
Cápiz								
Cavite								
Cebú								
Cottabato ¹								
Dapitan ¹								
Dávao ¹								
Ilocos Norte								
Ilocos Sur								
Iloilo								
Isabela								
Joló ¹								
La Laguna								
La Unión								
Lepanto-Bontoc								
Leyte								
Manila city	106	24,555			39	20,178	12	
Masbate								
Mindoro								
Misamis								
Negros Occidental							1	
Negros Oriental								
Nueva Ecija	1	200						
Nueva Vizcaya	4	957			5	1,196		
Pampanga					114	4,800	14	65
Pangasinán	1	500	1					
Paragua					3	1,350		
Paragua Sur ¹								
Rizal					1	100		
Romblón								
Sámar								
Siassi ¹								
Sorsogón								
Surigao								
Tárlac								
Tayabas ²	1	250						
Zambales								
Zamboanga ¹								

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	SHEEP.				GOATS.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands....	9, 493	41, 249	2, 679	2, 458	38, 177	107, 856	10, 869	10, 702
Abra	126	272	18	31	558	1, 370	72	108
Albay					63	347	8	4
Ambos Camarines	9	120			199	1, 462	41	33
Antique	11	20			37	61	6	6
Basilan ¹								
Bataán	80	268		3	80	139	7	23
Batangas	85	188	15	11	1, 635	4, 193	440	393
Benguet					48	100		
Bohol	5	11	10	9	54	91	10	11
Bulacán	193	1, 393	32	31	1, 082	3, 568	94	197
Cagayán	406	1, 684	49	99	810	2, 884	176	231
Cápiz	120	706	75	30	831	2, 188	752	383
Cavite	39	247	5		198	643	17	18
Cebu ¹	656	2, 828	204	213	3, 061	7, 526	707	1, 140
Cottabato ¹								
Dapitan ¹					31	40		
Dávao ¹	3	18			16	50		17
Ilocos Norte	1, 512	4, 828	293	410	2, 850	7, 350	2, 185	964
Ilocos Sur	1, 140	4, 200	136	210	2, 785	6, 702	450	314
Iloilo	401	1, 703	61	44	1, 438	2, 383	433	302
Isabela	108	598	70	29	170	947	129	21
Joló ¹								
La Laguna	35	200	9		371	1, 194	70	103
La Unión	370	1, 742	137	108	924	3, 276	294	443
Lepanto-Bontoc	18	88			50	158	5	
Leyte	312	1, 314	183	115	510	1, 781	278	207
Manila city	65	472	36	17	411	1, 806	29	61
Masbate	10	5			41	158		3
Mindoro					46	122	30	
Misamis	341	973	159	124	784	2, 099	173	222
Negros Occidental	232	960	128	196	803	2, 799	175	329
Negros Oriental	348	1, 209	171	160	942	2, 398	425	434
Nueva Ecija	194	1, 196	17	50	1, 033	2, 090	225	240
Nueva Vizcaya								
Pampanga	1, 191	6, 155	398	251	5, 997	17, 019	996	1, 184
Pangasinán	286	1, 428	98	74	5, 313	14, 889	1, 439	2, 196
Paragua					7	10		
Paragua Sur ¹					22	43		
Rizal	28	241	2	1	224	934	30	42
Romblón					58	331	2	11
Sámar	23	95	23	2	159	834	119	6
Siassi ¹								
Sorsogón					13	35	3	5
Surigao	116	360	16	24	195	686	27	49
Tárlac	547	2, 770	159	130	2, 774	8, 273	516	772
Tayabas ²	26	254	17	2	649	2, 340	318	62
Zambales	551	2, 691	158	84	611	1, 921	169	159
Zamboanga ¹	6	12			299	615	24	9

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	SWINE.				FOWLS.			
	Number.	Value (pesos).	Died.	Slaughtered.	Chickens.			
					Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands...	428, 241	2, 132, 354	202, 886	172, 766	1, 940, 085	881, 710	1, 299, 435	1, 786, 656
Abra	5, 172	18, 446	5, 300	2, 232	21, 457	9, 065	10, 403	19, 762
Albay	1, 615	23, 732	438	211	7, 249	6, 891	4, 386	3, 220
Ambos Camarines	568	7, 081	309	272	6, 392	5, 436	1, 306	6, 392
Antique	2, 164	7, 297	1, 196	520	13, 807	4, 164	4, 452	11, 546
Basilan ¹	1	3			3	1		
Bataan	2, 648	14, 526	785	514	11, 597	6, 360	5, 287	6, 759
Batangas	29, 404	113, 557	16, 158	11, 513	88, 137	35, 115	86, 690	53, 893
Benguet	8	81	4	2	505	412	49	210
Bohol	3, 705	9, 268	2, 566	990	13, 538	3, 251	7, 787	10, 178
Bulacán	51, 607	177, 123	14, 201	10, 163	207, 394	105, 792	113, 927	95, 907
Cagayán	10, 410	84, 633	4, 206	4, 822	37, 589	6, 646	24, 510	34, 392
Cápiiz	5, 078	22, 787	3, 696	2, 371	41, 069	15, 964	69, 258	73, 348
Cavite	14, 736	59, 525	7, 950	6, 859	54, 001	25, 998	30, 766	32, 168
Cebú	15, 881	70, 588	15, 218	9, 532	66, 755	36, 049	45, 898	109, 608
Cottabato ¹					50	12		
Dapitan ¹	7	63			40	19		
Dávao ¹	292	584	12	54	652	326	23	78
Ilocos Norte	25, 270	95, 410	5, 747	9, 188	64, 928	17, 459	64, 471	163, 579
Ilocos Sur	9, 635	48, 425	5, 890	2, 468	50, 726	21, 068	23, 101	19, 370
Iloilo	18, 833	90, 823	5, 291	8, 623	86, 170	33, 613	50, 751	125, 974
Isabela	2, 909	26, 593	1, 187	11, 721	7, 634	6, 922	6, 356	14, 732
Joló ¹	15, 580	85, 576	12, 521	9, 647	67, 947	42, 198	50, 913	44, 942
La Laguna	1, 276	6, 731	766	651	4, 855	2, 581	2, 358	6, 093
La Unión	106	568	27	4	972	326	33	86
Lepanto-Bontoc	7, 605	81, 650	7, 171	6, 071	46, 728	84, 873	34, 259	53, 014
Leyte	5, 684	42, 279	546	1, 188	48, 716	39, 106	11, 259	45, 415
Manila city	165	1, 795	18	25	571	293	163	246
Masbate	387	1, 666	61	91	1, 759	729	197	1, 093
Mindoro	9, 146	37, 922	6, 344	4, 652	26, 978	13, 416	18, 848	31, 357
Misamis	7, 090	34, 422	2, 880	4, 468	36, 555	13, 318	16, 994	52, 808
Negros Occidental	5, 137	23, 733	6, 319	3, 048	12, 804	5, 008	16, 088	13, 232
Negros Oriental	25, 714	110, 365	6, 900	4, 570	113, 104	39, 903	74, 341	71, 690
Nueva Ecija	235	1, 003	11	22	773	414	56	217
Nueva Vizcaya	55, 318	284, 628	19, 835	12, 514	233, 550	100, 217	133, 504	117, 019
Pampanga	20, 021	114, 904	19, 958	17, 289	191, 576	73, 493	146, 404	253, 430
Pangasinán	40	101	7	2	298	75	184	4
Paragua	55	292			626	311		
Paragua Sur ¹	5, 379	33, 613	1, 230	1, 898	39, 700	27, 726	14, 031	14, 885
Rizal	367	3, 318	36	295	3, 756	1, 914	453	6, 514
Romblón	2, 816	22, 417	1, 384	1, 085	10, 066	7, 515	9, 798	7, 991
Sámar	144	1, 998	36	15	1, 006	883	307	352
Siassi ¹	1, 683	17, 488	2, 990	1, 050	4, 616	2, 466	4, 508	4, 656
Sorsogón	26, 262	161, 265	8, 626	7, 076	189, 555	75, 924	111, 090	139, 706
Surigao	11, 495	76, 075	7, 966	7, 305	36, 849	26, 213	41, 019	30, 253
Tárlac	24, 843	113, 702	6, 568	7, 500	84, 179	30, 807	60, 126	104, 249
Tayabas ²	1, 750	4, 298	540	245	2, 853	1, 438	3, 096	788
Zambales								
Zamboanga ¹								

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 20.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Number.	Value (pe-sos).	Died.	Slaugh-tered.	Number.	Value (pe-sos).	Died.	Slaugh-tered.	Number.	Value (pe-sos).	Died.	Slaugh-tered.
Philippine Islands	5,372	16,725	1,701	1,529	40,359	35,789	9,964	7,443	2,623	5,501	657	485
Abra					72	57	34	12				
Albay	9	34			14	26			16	16		
Ambos Cama-rines	15	112		7	66	93	1	20	113	217	37	33
Antique					12	15		2	8	27	2	6
Basilan ¹												
Bataán	3	3			45	24						
Batangas	7	32	7	4	99	131	83	70	14	9		
Benguet												
Bohol					57	29	7	1				
Bulacáan	1,144	3,259	319	179	9,997	9,750	1,579	1,531	105	224	25	11
Cagayán	28	94	2		220	299	60	59	54	214	20	4
Cápiz	45	85	14	9	880	528	218	81	37	52	6	53
Cavite	12	48	15	17	294	348	47	59	13	34	4	
Cebú	307	840	125	36	478	506	106	25	40	114	10	2
Cottabato ¹												
Dapitan ¹												
Dávao ¹					3	2						
Ilocos Norte	6	22	2	3	703	512	173	95	79	71	71	14
Ilocos Sur	5	36	1		240	250	30	9	14	54		
Iloilo	404	1,481	105	107	1,031	999	364	264	204	548	54	31
Isabela	12	112	42	13	67	122	42	1	31	136	20	11
Joló ¹												
La Laguna	544	1,172	1		587	602	124	70	58	146	10	3
La Unión	5	34	4	1	57	77	9	5	20	50	5	
Lepanto-Bontoc					7	10						
Leyte	9	18	43	20	606	863	658	581	7	19	2	2
Manila city	897	4,261	87	272	2,084	2,969	278	484	559	1,006	17	62
Masbate	15	15			2	2				3		
Mindoro					18	16						
Misamis	21	55	13	2	285	302	129	136	9	16	1	
Negros Occi-dental	189	501	47	101	975	574	740	953	174	478	48	34
Negros Oriental	7	21			22	13	5	10	12	15		
Nueva Ecija	24	92	17		1,498	1,140	1,057	235	98	152	21	3
Nueva Vizcaya									4	10		
Pampanga	689	2,326	218	197	8,627	5,335	989	749	173	272	21	31
Pangasinán	33	11	22	7	2,467	2,325	682	446	395	833	108	101
Paragua	3	3			3	3						
Paragua Sur ¹					2	5						
Rizal	735	1,582	536	478	6,848	5,843	1,560	1,127	48	124	10	3
Romblón	2	4			211	198		100	4	4		
Sámar	6	20			142	213	50	1	8	39		
Siassi ¹												
Sorsogón	2	10							2	2		
Surigao	11	38	5		149	124	61	38				
Tárlac	135	264	60	45	874	667	509	192	271	505	163	81
Tayabas ²	28	84	3	25	275	442	98	59	14	70	2	
Zamboales	18	48	13	6	146	147	81	26	25	25		
Zamboanga ¹	2	8			196	178	190	2	9	16		

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands.

ISLAND.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	196,627	15,251,574	133,507	21,438
Bantayán.....	523	21,292	395	45
Batán.....	57	8,545	90	4
Biliran.....	1,273	56,229	6,402	257
Bohol.....	933	61,145	1,466	265
Camiguín.....	465	57,734	6	2
Catanduanes.....	4,354	275,382	5,120	2,318
Cebú.....	9	168		
Cuyo.....				
Dinágat.....	551	33,534	840	72
Guimaráz.....				
Laguán.....	44	2,786		1
Leyte.....	4,426	394,489	13,324	1,675
Luzang.....	152	5,345	2	15
Luzón.....	148,936	12,205,647	69,655	10,568
Mactán.....	13	533	14	
Marinduque.....	413	31,108	1,528	228
Masbate.....	678	39,590	89	17
Mindanao.....	3,816	240,119	5,283	839
Mindoro.....	1,295	40,400	648	107
Negros.....	4,602	326,397	7,096	868
Panaón.....	3	100	18	6
Panay.....	18,761	1,213,324	19,024	3,382
Panglao.....				
Paragua.....	554	14,615	2	89
Pasijan.....	63	4,300	158	40
Poró.....				
Romblón.....	30	2,235	6	
Samar.....	1,083	77,255	1,419	330
Sargao.....	15	690	164	56
Sibuyán.....	219	8,380	14	10
Siquijor.....	348	10,366	105	35
Tablas.....	268	9,853	8	35
Ticao.....	71	6,050	1	
Other islands.....	2,672	108,963	630	174

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands...	24,357	2,087,062	23,570	4,291	60,029	6,076,641	30,570	4,444
Bantayán.....	41	2,410	75	.....	16	890	7	.....
Batán.....	.....	.....	.....	.....	1	130	5	1
Billiran.....	27	2,070	30	.....	4	143	1	.....
Bohol.....	422	24,044	924	44	16	1,730	33	26
Camiguín.....	463	37,393	892	181	.....	.....	.....	.....
Catanduanes.....	83	13,170	1	.....	63	11,843	.....	.....
Cebu.....	2,395	184,719	2,931	1,235	212	15,613	462	360
Cuyo.....	.....	.....	.....	.....	.....	.....	.....	.....
Dinagat.....	.....	.....	.....	.....	.....	.....	.....	.....
Guimaráz.....	51	3,070	56	2	83	7,695	123	16
Laguán.....	.....	.....	.....	.....	.....	.....	.....	.....
Leyte.....	1,723	191,777	3,544	495	326	35,645	566	70
Lubang.....	24	970	.....	.....	30	1,690	.....	.....
Luzón.....	14,820	1,307,644	9,103	1,386	51,670	5,340,266	22,780	2,829
Mactán.....	5	248	7	.....	.....	.....	.....	.....
Marinduque.....	30	3,210	115	3	98	11,395	270	12
Masbate.....	83	7,145	18	6	50	5,600	2	.....
Mindanao.....	1,401	112,876	1,882	293	209	15,337	101	10
Mindoro.....	80	3,296	64	9	56	3,975	57	20
Negros.....	775	66,522	1,479	176	1,183	114,425	1,245	114
Panaón.....	.....	.....	6	3	.....	.....	.....	.....
Panay.....	1,300	88,284	1,849	275	5,628	483,429	4,838	947
Panglao.....	.....	.....	.....	.....	.....	.....	.....	.....
Paragua.....	12	670	2	1	23	930	.....	1
Pasijan.....	25	2,500	99	31	.....	.....	.....	.....
Poró.....	.....	.....	.....	.....	.....	.....	.....	.....
Romblón.....	2	150	.....	.....	18	1,565	.....	.....
Sámar.....	147	13,100	203	61	24	1,130	12	.....
Sargao.....	7	450	109	51	.....	.....	1	.....
Sibuyán.....	34	950	2	.....	25	1,910	4	2
Siquijor.....	119	4,180	38	6	48	1,725	5	4
Tablas.....	30	1,280	2	1	45	2,930	.....	7
Ticao.....	14	1,380	.....	.....	6	600	.....	.....
Other islands.....	241	13,554	139	32	195	16,040	58	25

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	64,028	4,824,038	37,860	4,860
Bantayán	41	2,034	24	.....
Batán .....	.....	.....	.....	1
Biliran	20	1,200	41	23
Bohol	401	16,510	1,671	27
Camiguín	238	12,844	302	.....
Catanduanes	171	22,092	5	2
Cebú	1,003	47,820	744	120
Cuyo .....	.....	.....	.....	.....
Dinágat .....	.....	.....	.....	.....
Guimarás	210	15,171	159	13
Laguán	38	2,606	.....	1
Leyte	1,492	121,544	5,875	580
Lubang	34	1,290	2	5
Luzón	47,656	3,758,454	19,392	2,328
Mactán .....	.....	.....	7	.....
Marinduque	106	8,742	329	12
Masbate	244	16,350	27	9
Mindanao	1,002	76,044	1,483	143
Mindoro	265	11,037	91	15
Negros	1,507	103,405	1,511	204
Panaón .....	.....	.....	8	.....
Panay	7,977	503,634	4,931	1,096
Panglao .....	.....	.....	.....	.....
Paragua	31	1,190	.....	.....
Pasijan	27	1,350	31	1
Poró .....	.....	.....	.....	.....
Romblón .....	.....	.....	.....	.....
Samar	696	54,492	971	203
Siangao	5	200	54	5
Sibuyán	58	3,280	2	3
Siquijor	107	2,904	30	13
Tablas	112	4,225	2	5
Ticao	32	3,120	1	.....
Other islands	555	32,500	172	51

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands ..	24,577	788,770	15,589	1,682	23,636	1,480,063	25,918	6,161
Bantayán	6	95	4	.....	419	15,863	285	45
Batán	9	145	14	2	.....	.....	.....	.....
Biliran	142	3,120	658	24	304	12,412	3,153	166
Bohol	110	2,578	76	8	106	7,600	163	23
Camiguín	84	5,384	.....	.....	64	5,240	.....	.....
Catanduanes	296	7,568	145	11	448	19,662	838	592
Cebú .....	.....	.....	.....	.....	9	168	.....	.....
Cuyo	80	1,870	81	3	127	5,728	421	38
Dinagat .....	.....	.....	.....	.....	.....	.....	.....	.....
Guimará's	6	180	.....	.....	.....	.....	.....	.....
Laguán	656	27,302	2,244	361	229	18,221	1,095	169
Leyte	17	160	.....	6	47	1,235	.....	4
Lubang	18,630	638,021	7,939	790	16,160	1,161,262	10,441	3,235
Luzón .....	.....	.....	.....	.....	8	285	.....	.....
Mactán	33	1,166	88	2	146	6,595	726	199
Marinduque	126	2,305	31	.....	175	8,190	11	2
Masbate	720	13,313	1,231	164	484	22,549	586	229
Mindanao	181	1,847	66	1	763	20,245	370	62
Mindoro	595	13,583	570	73	542	28,462	2,291	301
Negros .....	.....	.....	.....	.....	3	100	9	3
Panaón	2,346	51,256	2,121	154	1,510	86,721	5,285	910
Panay .....	.....	.....	.....	.....	.....	.....	.....	.....
Panglao	14	200	.....	.....	474	11,625	.....	87
Paragua	10	400	12	.....	1	50	16	8
Pasijan .....	.....	.....	.....	.....	.....	.....	.....	.....
Poro .....	.....	.....	.....	.....	.....	.....	.....	.....
Romblón	145	4,890	154	37	10	520	6	.....
Sámar	2	30	.....	.....	71	3,643	79	29
Siargao	24	710	3	3	1	10	.....	.....
Sibuyán	19	237	15	2	78	1,530	3	2
Siquijor	54	788	3	22	55	1,320	17	10
Tablas	1	50	.....	.....	27	630	1	.....
Ticao	321	6,572	139	19	18	900	.....	.....
Other islands .....	.....	.....	.....	.....	1,357	39,297	122	47

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	48, 142	3, 373, 853	30, 292	4, 274
Bantayán	263	6, 333	41	2
Batán	4	180	3	..
Billiran	233	8, 195	37	5
Bohol	503	19, 820	136	17
Camiguín .....	..	..	..	..
Catanduanes	372	19, 523	25	6
Cebú	1, 788	111, 494	331	17
Cuyo	7	190	..	..
Dinágat .....	..	..	..	..
Guimará s	64	1, 507	36	7
Laguán	10	395	..	..
Leyte	1, 137	101, 937	1, 300	62
Lubang	51	905	..	4
Luzón	38, 063	2, 856, 496	25, 162	3, 563
Mactán	6	290	1	..
Marinduque	527	14, 253	103	175
Masbate	145	5, 000	9	4
Mindanao	2, 104	61, 595	912	137
Mindoro	138	3, 933	12	39
Negros	894	44, 015	756	108
Panaón	8	180	..	..
Panay	998	66, 593	1, 342	110
Panglao .....	..	..	..	..
Paragua	7	930	..	..
Pasijan	22	1, 300	6	..
Poró .....	..	..	..	..
Romblón	2	60	..	..
Sámar	95	3, 140	45	..
Siargao	3	110	..	..
Sibuyán	58	1, 130	..	..
Siquijor	131	2, 724	10	9
Tablas	82	4, 895	..	..
Ticao	46	1, 540	..	..
Other islands	381	35, 190	25	9

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	47,115	2,972,526	30,126	4,270
Bantayán	263	6,333	41	2
Batán	4	180	8	5
Biliran	233	8,195	37	17
Bohol	500	18,320	136	6
Camiguín	372	19,523	25	17
Catanduanes	1,787	111,144	331	7
Cebu	7	190		7
Cuyo	64	1,507	35	
Dinagat				
Guimaráz	8	235		62
Laguán	1,057	59,727	1,282	4
Leyte	51	905		3,561
Lubang	37,260	2,532,621	25,017	
Luzón	6	290	1	
Mactán				
Marinduque	527	14,253	103	173
Masbate	146	5,000	9	4
Mindanao	2,088	58,125	912	137
Mindoro	138	3,933	12	39
Negros	893	43,615	756	108
Panaón	8	180		
Panay	994	64,943	1,341	110
Panglao	4	180		
Paragua	22	1,300	6	
Pasijan				
Poro	2	60		
Romblón	95	3,140	45	
Samar	3	110		
Sargao	58	1,130		
Sibuyán				
Stiquilor	131	2,724	10	9
Tablas	82	4,895		
Ticao	46	1,540		
Other islands	267	8,228	24	9

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES—continued.				MULES.			
	Other horses.				Number.	Value (pesos).	Died.	Slaughtered.
	Number.	Value (pesos).	Died.	Slaughtered.				
Philippine Islands...	114	26,962	1	.....	184	29,842	31	65
Bantayán
Batán
Biliran
Bohol
Camiguín
Catanduanes
Cebu
Cuyo
Dinagat
Guimarás
Laguán
Leyte
Lubang
Luzón	114	26,962	1	.....	179	28,392	26	65
Mactán
Marinduque
Masbate
Mindanao
Mindoro	1	.....
Negros
Panaón
Panay
Panglao
Paragua	3	1,350	.....	.....
Pasijan
Poró
Romblón
Sámar
Siargao
Sibuyán
Siquijor
Tablas
Ticao
Other islands	2	100	4	.....

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	SHEEP.				GOATS.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands...	9,493	41,249	2,679	2,458	38,177	107,856	10,869	10,702
Bantayán	9	12	14	.....	75	255	7	8
Batán	1	8	37	1	2	10	22	3
Biliran	5	11	10	9	45	73	10	11
Bohol	78	355	69	52	252	760	54	78
Catanduanes .....	.....	.....	.....	.....	38	195	3	4
Cebu	640	2,781	185	204	2,885	7,003	682	1,093
Cuyo .....	.....	.....	.....	.....	7	10	.....	.....
Dinagat .....	.....	.....	.....	.....	.....	.....	.....	.....
Gulmarás	38	92	25	4	28	75	3	14
Laguán .....	.....	.....	.....	.....	.....	.....	.....	.....
Leyte	298	1,241	138	105	502	1,759	251	199
Lubang .....	.....	.....	.....	.....	.....	.....	.....	.....
Luzón	6,904	30,985	1,649	1,541	28,653	83,129	7,694	7,554
Mactán .....	.....	.....	.....	.....	69	146	4	6
Marinduque	5	50	.....	.....	33	217	6	10
Masbate	10	5	.....	.....	32	140	.....	3
Mindanao	323	897	102	91	1,035	2,645	150	209
Mindoro .....	.....	.....	.....	.....	42	114	30	.....
Negros	533	2,075	261	340	1,702	5,154	567	740
Panaón	13	65	8	9	6	12	5	5
Panay	486	2,302	110	70	2,223	4,428	1,186	686
Panglao .....	.....	.....	.....	.....	.....	.....	.....	.....
Paragua .....	.....	.....	.....	.....	22	43	.....	.....
Pasijan	7	35	5	9	28	106	14	33
Poro .....	.....	.....	.....	.....	.....	.....	.....	.....
Romblón .....	.....	.....	.....	.....	.....	.....	.....	.....
Samar	23	95	23	2	157	832	119	6
Siargao	65	111	4	5	29	76	.....	2
Sibuyan .....	.....	.....	.....	.....	13	260	2	5
Siquijor	47	94	38	16	43	43	33	23
Tablas .....	.....	.....	.....	.....	45	71	.....	6
Ticao .....	.....	.....	.....	.....	.....	.....	.....	.....
Other islands	8	35	1	.....	161	300	27	4

TABLE 21.—Number and value of animals not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.
Philippine Islands...	5,372	16,725	1,701	1,529	40,359	85,739	9,964	7,443	2,623	5,501	657	485
Bantayan	2	4	12	.....	92	44	7	.....	.....	.....	.....	.....
Batán .....	.....	.....	.....	.....	11	16	5	1	.....	.....	.....	.....
Biliran .....	.....	.....	.....	.....	57	29	7	1	.....	.....	.....	.....
Bohol .....	.....	.....	2	.....	188	207	14	54	.....	.....	.....	.....
Camiguín .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catanduanes...	9	34	.....	.....	14	26	.....	.....	16	16	.....	.....
Cebu	305	836	113	36	382	454	99	25	40	114	10	2
Cuyo .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dinagat .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Guimaráns	9	42	.....	.....	11	10	2	1	5	11	.....	.....
Laguán	4	16	.....	.....	6	8	.....	.....	5	34	.....	.....
Leyte	9	18	43	20	587	843	648	578	7	19	2	2
Lubang .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Luzón	4,324	13,681	1,349	1,253	35,259	81,101	7,424	5,247	2,090	4,154	534	357
Mactán .....	.....	.....	.....	.....	4	8	.....	.....	.....	.....	.....	.....
Marinduque ..	18	14	.....	1	8	12	.....	.....	.....	.....	.....	.....
Masbate	15	15	.....	.....	2	2	.....	.....	5	3	.....	.....
Mindanao	27	83	16	2	429	379	364	121	18	32	1	.....
Mindoro .....	.....	.....	.....	.....	12	10	.....	.....	.....	.....	.....	.....
Negros	196	522	47	101	994	585	745	963	186	493	48	34
Panaón .....	.....	.....	.....	.....	8	4	5	2	.....	.....	.....	.....
Panay	440	1,424	119	116	1,903	1,523	580	346	244	616	62	90
Panglao .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paragua .....	.....	.....	.....	.....	2	5	.....	.....	.....	.....	.....	.....
Pasijan .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Poró .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Romblón	2	4	.....	.....	187	178	.....	100	.....	.....	.....	.....
Sámar	2	4	.....	.....	135	204	50	1	3	5	.....	.....
Siargao	7	18	.....	.....	17	20	2	1	.....	.....	.....	.....
Sibuyán .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Siquijor .....	.....	.....	.....	.....	3	2	.....	.....	.....	.....	.....	.....
Tablas .....	.....	.....	.....	.....	24	20	.....	.....	4	4	.....	.....
Ticao .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other islands...	3	10	.....	.....	24	49	12	2	.....	.....	.....	.....

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	571,803	40,260,996	495,669	58,382
Abra	3,208	248,398	294	57
Albay	6,180	790,178	5,509	620
Ambos Camarines	7,248	995,629	9,860	638
Antique	12,364	719,443	17,149	2,164
Basilan ¹	314	15,985	25	2
Bataán	4,200	339,560	2,586	84
Batangas	17,496	1,268,359	9,016	2,110
Benguet	118	5,947	265	48
Bohol	17,219	780,188	60,525	4,343
Bulacán	7,444	639,059	1,746	146
Cagayán	45,020	2,722,007	9,938	3,289
Cápiz	10,536	667,802	14,129	1,080
Cavite	5,399	411,665	3,221	562
Cebu	38,201	2,375,230	49,408	8,582
Cotabato ¹	159	5,901	798	6
Dapitan ¹	3,740	126,788	327	144
Dávao ¹	8,095	188,199	605	337
Ilocos Norte	22,110	1,433,615	1,114	183
Ilocos Sur	24,978	1,818,144	1,979	1,016
Iloilo	28,133	1,908,618	40,929	5,320
Isabela	14,473	1,879,841	6,235	740
Joló ¹	44	1,350	4	6
La Laguna	3,936	377,597	3,978	787
La Unión	25,975	1,954,580	8,065	982
Lepanto-Bontoc	906	49,065	20	8
Leyte	22,832	1,858,128	37,286	4,910
Manila city	149	17,665	29	3
Masbate	5,597	369,217	1,010	75
Mindoro	17,130	582,284	6,864	1,434
Misamis	7,889	541,219	21,095	2,108
Negros Occidental	43,677	3,330,263	39,654	2,058
Negros Oriental	19,017	1,138,640	32,817	2,990
Nueva Ecija	5,678	456,543	2,969	272
Nueva Vizcaya	2,801	273,960	802	188
Pampanga	12,125	1,141,486	6,435	401
Pangasinán	39,426	3,169,998	18,942	1,894
Paragua	7,150	183,203	313	471
Paragua Sur ¹	332	9,706	4	19
Rizal	6,813	644,314	2,860	348
Romblón	14,171	525,693	671	1,527
Sámar	12,984	779,095	18,861	3,508
Siassi ¹	6	231	.....	.....
Sorsogón	4,857	430,835	3,116	269
Surigao	6,121	231,079	17,986	2,633
Tárlac	9,619	862,347	4,506	580
Tayabas ²	18,369	1,514,064	29,345	3,852
Zambales	6,368	429,985	1,948	128
Zamboanga ¹	1,196	52,398	586	15

¹ Comandancia² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Number.	Value (pesos).	Died.	Slaughtered.	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands...	98,622	8,298,063	114,764	12,727	129,789	13,304,664	78,913	8,147
Abra	574	51,540	45	9	695	65,006	45	8
Albay	1,093	150,958	1,802	103	1,911	296,032	1,226	88
Ambos Camarines	1,626	242,679	2,002	145	1,377	259,797	1,645	106
Antique	863	51,306	1,551	111	4,205	322,221	4,737	719
Basilan ¹	24	1,750	1	.....	64	5,585	8	1
Bataan	104	7,044	119	3	1,820	173,454	908	58
Batangas	1,371	119,989	875	139	2,221	211,607	967	189
Benguet	19	1,730	21	7	6	610	14	1
Bohol	8,541	508,210	17,282	1,632	79	3,308	177	7
Bulacán	415	37,024	144	66	3,148	326,570	793	17
Cagayán	4,899	528,762	2,431	372	5,827	689,012	1,567	292
Cápiiz	1,356	91,761	2,107	190	3,184	260,864	3,593	309
Cavite	574	45,492	379	197	2,234	206,683	1,471	138
Cebu	19,239	1,515,292	28,685	1,697	1,822	138,196	1,721	43
Cotabato ¹	96	3,695	211	6	3	110	.....	.....
Dapitan ¹	708	37,287	36	37	70	4,490	.....	.....
Dávao ¹	644	20,216	88	172	38	1,674	.....	.....
Ilocos Norte	3,057	241,306	282	41	4,421	401,885	188	45
Ilocos Sur	2,027	152,841	184	116	7,651	722,055	559	248
Iloilo	1,601	114,909	2,434	266	8,907	814,499	10,204	1,463
Isabela	2,859	435,620	1,715	195	6,039	969,441	2,314	257
Joló ¹	1	50	.....	.....	.....	.....	.....	.....
La Laguna	700	70,929	666	120	1,649	180,348	1,947	310
La Unión	3,235	299,515	1,473	172	7,295	755,940	2,205	284
Lepanto-Bontoc	73	5,810	2	.....	64	6,020	.....	.....
Leyte	8,792	851,885	14,351	2,032	1,472	155,076	2,089	297
Manila city	48	5,898	2	2	46	6,998	11	.....
Masbate	937	85,726	140	13	562	63,652	99	9
Mindoro	905	48,411	471	63	1,366	93,461	582	60
Misamis	3,079	269,822	5,235	870	624	56,639	542	47
Negros Occidental	5,179	356,419	4,330	257	17,866	1,738,103	14,881	677
Negros Oriental	6,279	465,266	8,158	535	3,032	257,732	3,186	219
Nueva Ecija	458	40,903	464	47	2,120	215,366	1,066	97
Nueva Vizcaya	501	62,690	234	52	480	69,110	106	34
Pampanga	567	55,498	359	51	6,235	702,531	3,096	237
Pangasinán	4,623	398,326	2,872	295	14,818	1,482,270	6,261	760
Paragua	386	16,414	20	17	544	31,609	19	70
Paragua Sur ¹	29	1,285	1	3	.....	.....	.....	.....
Rizal	532	48,238	262	37	2,797	324,864	1,420	196
Romblón	1,252	56,881	76	235	1,832	125,184	56	161
Samar	1,496	124,749	2,591	625	880	54,291	590	89
Siassi ¹	2	80	.....	.....	.....	.....	.....	.....
Sorsogón	931	102,459	746	38	772	100,972	413	17
Surigao	2,080	106,199	4,876	974	92	3,953	306	42
Tárlac	594	51,383	163	11	4,364	472,090	2,181	198
Tayabas ²	3,250	336,486	4,536	754	3,244	379,552	5,060	340
Zambales	842	70,062	272	18	1,304	121,852	359	12
Zamboanga ¹	161	7,318	70	2	609	34,052	301	2

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	170, 735	11, 932, 318	138, 452	12, 588
Abra	1, 058	83, 360	69	19
Albay	2, 167	269, 313	1, 308	97
Ambos Camarines	2, 881	595, 986	3, 454	185
Antique	4, 390	244, 489	4, 571	497
Basilan ¹	26	1, 350	1	.....
Bataan	1, 688	137, 413	937	14
Batangas	2, 292	186, 296	1, 006	154
Benguet	21	1, 220	91	2
Bohol	4, 900	183, 239	17, 836	555
Bulacán	2, 775	236, 148	661	44
Cagayán	8, 302	745, 631	2, 675	392
Cápiz	4, 301	267, 600	4, 918	298
Cavite	1, 468	98, 852	906	61
Cebu	10, 160	495, 172	11, 004	610
Cottabato ¹	22	690	44	.....
Dapitan ¹	1, 511	59, 379	87	27
Dávao ¹	1, 036	30, 617	49	163
Ilocos Norte	8, 587	562, 782	438	73
Ilocos Sur	5, 965	382, 560	274	78
Iloilo	11, 001	726, 651	9, 862	1, 480
Isabela	3, 132	333, 130	1, 049	104
Joló ¹	3	150	.....	.....
La Laguna	1, 026	92, 218	763	281
La Unión	8, 912	5, 372	2, 361	245
Lepanto-Bontoc	130	9, 070	2	.....
.....	6, 711	553, 794	11, 946	1, 192
Leyte	40	4, 435	6	1
Manila city	1, 656	133, 749	455	13
Masbate	2, 433	113, 973	951	268
Mindoro	2, 323	148, 841	6, 215	369
Misamis	12, 360	891, 319	9, 079	478
Negros Occidental	5, 795	289, 035	6, 579	657
Negros Oriental	1, 989	154, 874	1, 054	91
Nueva Ecija	994	103, 290	274	29
Nueva Vizc. ya	4, 255	339, 940	2, 003	84
Pampanga	12, 975	936, 867	5, 512	462
Pangasinán	823	28, 279	20	32
Paragua	38	1, 450	1	1
Paragua Sur ¹	2, 564	230, 519	901	91
Rizal	4, 326	178, 204	146	384
Romblón	7, 452	487, 756	11, 474	1, 651
Samar	3	136	.....	.....
Siasi ¹	1, 708	141, 096	1, 015	46
Sorsogón	2, 521	98, 075	8, 090	678
Surigao	3, 521	287, 309	1, 407	110
Tarlac	6, 113	511, 571	6, 706	536
Tayabas ²	2, 136	156, 790	662	34
Zambales .....	.....	7, 994	115	2
Zamboanga ¹	250	.....	.....	.....

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	68,734	2,013,199	52,278	6,200	103,923	4,712,752	111,262	18,720
Abra	544	16,840	29	10	337	26,652	106	11
Albay	732	44,073	389	39	277	29,797	789	293
Ambos Camarines	980	56,182	1,418	25	384	43,005	1,341	177
Antique	1,411	31,814	1,763	100	1,495	69,613	4,527	737
Basilan ¹	14	300	12	.....	186	7,000	3	1
Bataan	573	20,284	584	3	20	1,365	38	6
Batangas	558	17,418	256	731	11,054	733,149	5,912	897
Benguet	16	497	37	10	56	1,890	102	28
Bohol	1,808	36,381	6,274	519	1,891	49,050	19,456	1,630
Bulacán	1,017	34,062	126	19	89	5,255	22	.....
Cagayan	4,545	157,360	1,403	188	21,447	601,242	1,857	2,045
Cápiiz	1,327	31,593	2,060	83	368	15,984	1,451	200
Cavite	394	12,185	215	22	729	48,453	250	144
Cebu	2,904	78,945	2,913	135	4,076	147,625	5,085	1,097
Cotabato ¹	14	212	20	.....	24	1,194	523	.....
Dapitan ¹	1,341	22,032	201	75	110	3,600	3	5
Dávao ¹	554	7,454	42	35	5,823	128,238	426	467
Ilocos Norte	4,033	101,091	155	17	2,012	126,551	51	7
Ilocos Sur	3,428	92,803	167	78	5,907	467,885	795	496
Iloilo	3,288	72,365	3,112	176	3,336	180,194	15,317	1,935
Isabela	1,709	91,440	507	79	734	50,210	650	105
Joló ¹	1	10	.....	1	39	1,140	4	5
La Laguna	264	10,546	137	11	297	23,556	465	65
La Unión	4,715	134,309	1,410	109	1,818	166,090	616	122
Lepanto-Bontoc	44	1,255	.....	1	595	26,910	16	7
Leyte	2,566	100,766	4,204	721	3,291	196,607	4,646	668
Manila city	13	310	10	.....	2	24	.....	.....
Masbate	803	20,880	229	13	1,639	65,210	87	27
Mindoro	1,191	18,543	531	140	11,235	307,896	4,349	903
Misamis	1,343	35,014	3,041	373	520	30,903	6,062	449
Negros Occidental	4,330	97,847	4,296	101	3,942	246,575	7,068	545
Negros Oriental	1,942	42,391	2,830	145	1,969	86,216	12,064	1,434
Nueva Ecija	841	32,095	342	21	270	13,305	43	16
Nueva Vizcaya	575	25,990	165	11	251	12,880	23	57
Pampanga	876	29,039	662	4	192	14,478	315	25
Pangasinán	5,192	172,686	2,417	171	1,818	179,849	1,880	206
Paragua	793	12,200	39	35	4,604	94,701	215	317
Paragua Sur ¹	36	444	.....	.....	229	6,577	2	15
Rizal	811	29,743	265	21	109	11,450	12	3
Romblón	2,302	39,427	260	208	4,459	125,997	133	539
Sámar	2,067	58,646	2,178	798	1,089	53,653	2,028	345
Siasi ¹	1	15	.....	.....	.....	.....	.....	.....
Sorsogón	804	37,098	324	19	642	49,210	618	149
Surigao	1,114	19,438	4,014	731	314	8,414	650	208
Tárlac	903	34,170	358	62	237	17,395	397	199
Tayabas ²	2,627	97,814	2,468	151	3,135	188,641	10,575	2,071
Zambales	1,250	35,492	369	9	836	45,789	286	55
Zamboanga ¹	140	1,700	46	.....	36	1,334	4	9

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	96,029	3,763,305	57,469	8,745
Abra	3,838	83,868	201	119
Albay	2,592	154,058	2,275	162
Ambos Camarines	758	77,534	1,656	185
Antique	827	27,059	561	153
Basilan ¹	45	920	6	2
Bataán	65	4,118	415	4
Batangas	9,747	437,516	6,102	1,241
Benguet	132	7,151	22	10
Bohol	1,912	45,435	725	945
Bulacán	354	28,552	191	14
Cağayán	5,393	124,268	5,065	240
Cápiç	449	13,211	1,451	192
Cavite	2,280	101,486	1,433	444
Cebu	6,346	247,651	844	78
Cottabato ¹	24	401	2	.....
Dapitan ¹	118	2,775	5	.....
Dávao ¹	368	12,181	17	37
Ilocos Norte	6,856	155,767	336	68
Ilocos Sur	2,296	91,914	476	280
Iloilo	1,054	43,069	1,255	203
Isabela	2,414	100,150	3,671	165
Joló ¹	3	120	.....	.....
La Laguna	4,116	207,264	5,062	634
La Unión	1,685	107,300	905	180
Lepanto-Bontoc	193	7,245	2	.....
Leyte	3,162	128,311	1,187	240
Manila city	82	10,446	38	.....
Masbate	4,513	108,997	346	174
Mindoro	2,305	51,471	142	318
Misamis	4,768	114,310	1,221	124
Negros Occidental	1,697	98,911	2,311	95
Negros Oriental	3,590	144,196	784	407
Nueva Ecija	223	12,557	548	67
Nueva Vizcaya	244	10,794	1,455	14
Pampanga	511	45,559	662	58
Pangasinán	1,028	54,778	2,015	319
Paragua	162	5,532	6	.....
Paragua Sur ¹	10	250	.....	.....
Rizal	786	85,884	393	177
Romblón	1,316	27,481	107	135
Sámar	604	32,062	923	40
Siassi ¹	4	78	.....	.....
Sorsogón	3,724	229,699	1,207	113
Surigao	770	25,362	116	97
Tárlac	183	11,886	551	19
Tayabas ²	11,315	445,034	9,927	944
Zambales	1,246	35,818	837	20
Zamboanga ¹	421	7,876	25	28

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	HORSES—continued.							
	American.				Australian.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	100	21,044	114	21	52	3,122	44	2
Abra								
Albay	6	1,470	8		1	350		
Ambos Camarines	27	6,795	10					
Antique	3	70	1	2	5	350	1	
Basilan ¹								
Bataán	1	200						
Batangas	5	574			5	170		
Benguet								
Bohol			62	10	3	375		
Bulacán	1	200			16	635	4	
Cagayán	3	100		3	1	40		
Cápiz	1	30						
Cavite	2	280		2				
Cebu	2	650	7		4	100		
Cottabato ¹								
Dapitan ¹								
Dávao ¹								
Ilocos Norte					1	300		
Ilocos Sur	4	340						
Iloilo	3	715	7		1	25		
Isabela	1	350	1	1				
Joló ¹								
La Laguna	3	620			7	460	13	2
La Unión								
Lepanto-Bontoc								
Leyte					1	80	2	
Manila city	4	1,000						
Masbate	1	250						
Mindoro								
Misamis	6	1,400		1	2	62		
Negros Occidental	1	400	7					
Negros Oriental								
Nueva Ecija								
Nueva Vizcaya								
Pampanga	1	400						
Pangasinán					2	100	1	
Paragua								
Paragua Sur ¹								
Rizal	20	3,500						
Romblón					1	20		
Samar								
Siassi ¹								
Sorsogón	1	600						
Surigao								
Tárlac							23	
Tayabas ²	2	300	16	2	2	55		
Zambales								
Zamboanga ¹	2	800						

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands	95,877	3,739,139	57,311	8,722
Abra	3,338	83,868	201	119
Albay	2,585	152,238	2,272	162
Ambos Camarines	731	70,739	1,646	185
Antique	819	26,639	549	151
Basilan ¹	45	920	6	2
Bataan	64	3,918	415	4
Batangas	9,737	436,772	6,102	1,241
Benguet	132	7,151	22	10
Bohol	1,909	45,060	663	935
Bulacán	337	22,717	187	14
Cagayán	5,389	124,128	5,065	237
Cápiz	448	13,181	1,451	192
Cavite	2,278	101,206	1,433	442
Cebú	6,340	246,901	837	78
Cotabato ¹	24	401	2	.....
Dapitan ¹	118	2,775	5	.....
Dávao ¹	368	12,181	17	37
Ilocos Norte	6,855	155,467	336	68
Ilocos Sur	2,292	91,574	476	280
Iloilo	1,050	42,329	1,248	203
Isabela	2,413	99,800	3,670	164
Joló ¹	3	120	.....	.....
La Laguna	4,106	206,184	5,049	632
La Unión	1,685	107,300	905	180
Lepanto-Bontoc	193	7,245	2	.....
Leyte	3,161	128,231	1,185	240
Manila city	78	9,446	38	.....
Masbate	4,512	108,747	346	174
Mindoro	2,305	51,471	142	318
Misamis	4,760	112,848	1,221	123
Negros Occidental	1,696	98,511	2,304	95
Negros Oriental	3,590	144,196	784	407
Nueva Ecija	223	12,557	548	67
Nueva Vizcaya	244	10,794	1,455	14
Pampanga	510	45,159	662	58
Pangasinán	1,026	54,678	2,014	319
Paragua	162	5,532	6	.....
Paragua Sur ¹	10	250	.....	.....
Rizal	766	82,384	393	177
Romblón	1,315	27,461	107	135
Sámar	604	32,062	923	40
Siassi ¹	4	78	.....	.....
Sorsogón	3,723	229,099	1,207	113
Surigao	770	25,362	116	97
Tárlac	183	11,886	528	19
Tayabas ²	11,311	444,679	9,911	942
Zambales	1,246	85,818	837	20
Zamboanga ¹	419	7,076	25	28

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	MULES.				SHEEP.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	106	2,538	149	66	20,935	89,912	6,904	6,521
Abra					76	230	3	6
Albay	1	40	1		117	622	60	33
Ambos Camarines					252	2,468	29	67
Antique					205	689	45	90
Basilan ¹								
Bataán	2	120			102	600	13	9
Batangas	1	60	1	3	103	686	54	38
Benguet					56	285	2	3
Bohol	9	58	1	1	180	488	101	63
Bulacáñ					119	499	17	18
Cagayán					567	1,891	104	128
Cápiz	7	420	8	3	207	959	84	54
Cavite					33	74		6
Cebú	13	30	23	15	1,381	4,433	619	490
Cottabato ¹					33	89		5
Dapitan ¹					9	18	3	2
Dávao ¹					24	61	1	
Ilocos Norte					467	1,422	63	28
Ilocos Sur	1	100			1,748	6,664	337	249
Iloilo	13	143	5	6	741	2,881	398	423
Isabela					225	1,545	68	58
Joló ¹								
La Laguna	4	33	3	2	50	153	25	18
La Unión	2	400			1,708	8,997	358	396
Lepanto-Bontoc					40	236		3
Leyte	3	10	9	2	316	1,525	262	179
Manila city								
Maabate					41	257		5
Mindoro					2	10		
Misamis	10	75	10	16	472	1,564	156	124
Negros Occidental					6,679	27,235	1,895	2,176
Negros Oriental	9	165	63	10	1,392	4,258	687	411
Nueva Ecija					135	934	38	7
Nueva Vizcaya							5	2
Pampanga	1	10	2	1	2,217	10,623	875	802
Pangasinán	1	50			330	3,022	304	377
Paragua					34	182		
Paragua Sur ¹								
Rizal	10	750	10	7	22	168	5	4
Romblón					40	89	4	5
Sámar	12	30	12		146	822	108	16
Slassi ¹								
Sorsogón					57	464	14	87
Surigao	1	1	1		27	80	7	11
Tárlac					367	1,859	81	110
Tayabas ²	6	43			34	267	3	7
Zambales					22	108	29	
Zamboanga ¹					159	455	47	11

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	GOATS.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	86,157	260,030	23,376	21,702
Abra	275	689	38	37
Albay	1,311	8,394	302	258
Ambos Camarines	2,736	19,634	211	606
Antique	523	1,152	192	115
Basilan ¹	18	20	1	5
Bataan	264	690	28	34
Batangas	1,473	3,787	533	248
Benguet	107	586	6	12
Bohol	381	985	275	130
Bulacán	213	591	25	84
Cagayán	1,792	3,650	489	398
Cápiz	1,966	4,803	3,212	1,176
Cavite	109	349	14	10
Cebú	20,127	43,718	3,723	4,334
Cottabato ¹	6	12		
Dapítan ¹	94	157	23	5
Dávao ¹	85	220	7	4
Ilocos Norte	2,608	5,555	99	302
Ilocos Sur	4,475	13,580	719	598
Iloilo	1,587	4,564	559	462
Isabela	252	1,448	123	97
Joló ¹				
La Laguna	185	905	18	12
La Unión	10,887	43,660	2,534	3,400
Lepanto-Bontoc	66	272	4	5
Leyte	973	3,096	803	620
Manila city	38	153	7	3
Masbate	115	494	21	4
Mindoro	179	286	66	87
Misamis	1,177	3,564	519	439
Negros Occidental	5,639	16,924	1,498	2,082
Negros Oriental	5,012	12,364	1,375	1,309
Nueva Ecija	257	733	116	100
Nueva Vizcaya	39	152	16	13
Pampanga	3,393	9,157	929	746
Pangasinán	11,063	33,716	2,271	2,494
Paragua	225	542	5	2
Paragua Sur ¹	11	27		
Rizal	878	2,754	275	181
Romblón	1,050	1,867	165	239
Sámar	520	1,350	1,051	225
Siassi ¹				
Sorsogón	721	3,967	150	91
Surigao	179	502	69	63
Tárlac	1,755	5,123	385	493
Tayabas ²	373	1,812	220	91
Zambales	45	163	19	2
Zamboanga ¹	975	1,763	281	151

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMAN- DANCIA.	SWINE.				FOWLS.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Chickens.			
					Number.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	751,130	4,241,950	458,626	260,394	3,530,896	1,680,054	2,505,135	3,127,433
Abra	2,761	12,779	3,612	1,033	13,895	5,244	6,078	15,982
Albay	13,254	198,371	5,060	2,621	78,119	70,003	46,883	43,453
Ambos Camarines	13,789	164,083	6,191	5,041	124,258	99,220	40,350	58,449
Antique	7,262	24,411	4,428	1,874	46,183	14,436	20,615	48,542
Basilan ¹	156	884	38	43	952	284	1,138	1,984
Bataán	3,975	25,991	1,183	1,096	16,210	7,698	6,161	9,077
Batangas	29,539	119,968	21,487	8,997	107,805	43,894	168,674	52,923
Benguet	71	997	172	248	80,877	630	1,072	1,865
Bohol	42,302	114,927	35,532	17,129	163,260	41,697	110,326	136,875
Bulacán	12,689	56,575	3,192	2,829	68,534	29,132	26,175	26,971
Cagayán	35,843	257,990	11,112	9,343	104,572	62,373	72,874	98,400
Cápiz	7,206	39,611	8,538	2,988	82,555	32,893	137,069	129,903
Cavite	15,692	78,976	8,258	6,211	67,554	30,987	43,773	45,626
Cebu	135,024	475,114	101,166	36,506	551,532	165,450	390,950	545,809
Cottabato ¹	22	605	18	.....	1,375	518	.....	.....
Dapitan ¹	1,329	6,327	451	106	5,239	1,563	987	1,581
Dávao ¹	2,109	10,178	390	360	8,350	3,570	2,851	1,812
Ilocos Norte	23,711	97,836	2,452	4,216	97,689	25,182	51,839	102,732
Ilocos Sur	14,708	70,021	7,573	3,347	80,143	33,551	35,230	83,693
Iloilo	22,379	110,383	8,256	8,878	125,659	50,315	84,488	207,204
Isabela	24,200	207,286	9,990	7,405	70,123	49,627	54,309	66,947
Joló ¹	35	760	.....	12	13	32	2	25
La Laguna	16,467	108,947	10,606	9,522	57,407	39,033	45,780	26,618
La Unión	23,925	137,240	7,855	8,114	86,655	41,290	29,568	55,454
Lepanto-Bontoc	180	1,910	205	95	1,286	805	89	35
Leyte	28,425	267,504	24,720	12,607	228,952	171,555	150,116	198,443
Manila city	312	3,817	64	48	2,865	1,997	867	2,537
Masbate	5,351	52,157	1,417	1,421	25,760	15,307	16,095	16,413
Mindoro	2,057	10,651	347	313	10,628	4,815	7,305	2,515
Misamis	14,638	66,273	16,957	9,152	70,567	35,368	57,310	92,201
Negros Occidental	33,195	164,448	12,215	13,624	144,374	53,749	83,100	193,975
Negros Oriental	46,767	179,586	33,884	25,138	127,568	44,519	90,057	123,679
Nueva Ecija	12,141	53,915	5,731	4,561	64,283	21,712	43,455	50,199
Nueva Vizcaya	4,771	24,086	1,014	1,263	15,420	6,703	3,809	16,054
Pampanga	10,313	59,918	4,846	2,542	46,750	21,626	30,962	29,034
Pangasinán	41,155	254,004	38,411	14,982	307,218	137,970	260,365	351,268
Paragua	1,664	7,111	251	271	22,904	5,378	10,199	5,116
Paragua Sur ¹	120	689	1	15	1,117	553	84	183
Rizal	15,191	89,500	5,654	7,375	80,774	51,021	45,940	45,888
Romblón	7,394	49,521	890	1,483	36,979	15,881	14,005	34,368
Samar	18,767	161,400	18,374	5,833	85,955	52,352	104,479	41,781
Siasi ¹ .....	.....	.....	.....	.....	62	9	5	.....
Sorsogón	9,403	157,057	4,156	2,430	64,552	62,608	25,347	24,066
Surigao	11,465	65,105	19,428	7,162	40,198	19,473	47,231	59,204
Tarlac	10,055	68,386	3,553	2,202	71,928	27,302	53,365	53,112
Tayabas ²	22,777	168,879	6,827	8,528	105,376	74,301	74,146	64,715
Zambales	2,144	8,232	284	359	9,256	3,436	5,131	7,684
Zamboanga ¹	4,414	13,091	1,837	1,071	7,165	2,992	4,481	3,238

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 22.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.
Philippine Islands...	3,829	11,153	2,160	927	37,856	30,736	14,226	8,180	3,579	6,912	1,643	1,281
Abra.....	3	4	1	.....	107	72	26	15	1	2	.....	.....
Albay.....	60	203	55	35	296	459	192	64	130	257	60	57
Ambos Camarines.....	47	206	39	22	615	937	169	235	121	411	16	17
Antique.....	17	58	2	.....	107	77	11	20	29	76	7	.....
Basilan ¹	5	20	.....	.....	20	15	2	.....	10	29	2	.....
Bataan.....	5	4	.....	.....	184	163	130	7	1	1	.....	.....
Batangas.....	3	9	4	.....	55	39	4	55	18	15	7	7
Benguet.....	.....	.....	.....	.....	6	8	.....	.....	2	10	.....	.....
Bohol.....	9	14	.....	.....	143	104	102	35	45	25	38	57
Bulacán.....	205	460	91	11	3,670	2,427	395	720	98	130	28	33
Cagayán.....	37	123	3	4	569	682	252	124	73	158	72	47
Cápiz.....	19	49	5	6	987	677	1,218	323	33	61	10	15
Cavite.....	15	63	.....	2	234	198	44	13	26	43	52	80
Cebu.....	345	987	250	59	449	546	346	42	184	165	117	216
Cottabato ¹	4	8	.....	.....	5	4	.....	.....	7	6	.....	.....
Dapitan ¹.....	.....	.....	.....	.....	111	36	3	.....	.....	.....	.....	.....
Dávao ¹.....	.....	.....	.....	.....	46	46	.....	.....	14	21	.....	.....
Ilocos Norte.....	.....	.....	.....	.....	678	530	86	42	6	8	2	1
Ilocos Sur.....	16	64	.....	.....	338	334	183	12	28	53	6	3
Iloilo.....	353	1,081	214	111	1,281	982	952	226	259	297	274	267
Isabela.....	24	96	26	3	214	289	161	44	81	294	24	5
Joló ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	2	6	.....	.....
La Laguna.....	36	36	22	6	266	340	78	49	47	65	7	26
La Unión.....	8	21	30	5	146	156	5	9	81	275	5	4
Lepanto-Bontoc.....	.....	.....	.....	.....	13	13	.....	.....	.....	.....	.....	.....
Leyte.....	60	122	13	10	466	587	267	102	78	105	51	73
Manila city.....	97	474	5	40	64	110	7	12	21	94	2	17
Masbate.....	22	21	7	8	67	58	21	3	16	8	.....	12
Mindoro.....	.....	.....	.....	.....	38	45	52	4	21	42	27	5
Misamis.....	13	23	.....	.....	298	412	88	35	25	22	15	14
Negros Occidental.....	841	2,685	477	351	3,479	2,707	2,126	839	757	2,005	247	97
Negros Oriental.....	53	107	39	.....	55	62	132	34	21	41	40	2
Nueva Ecija.....	4	7	2	.....	806	625	561	109	145	170	40	39
Nueva Vizcaya.....	7	40	.....	.....	64	71	28	7	164	316	14	4
Pampanga.....	322	1,064	162	60	2,153	1,221	495	209	65	138	36	9
Pangasinán.....	140	164	88	102	2,620	2,029	710	298	506	713	174	91
Paragua.....	4	12	.....	.....	24	14	.....	.....	24	26	.....	.....
Paragua Sur ¹.....	.....	.....	.....	.....	2	1	.....	.....	17	8	.....	3
Rizal.....	863	2,494	449	76	15,442	11,334	4,053	4,273	81	235	36	13
Romblón.....	5	24	1	1	43	40	5	3	17	9	17	16
Samar.....	18	37	15	1	178	216	158	58	2	6	40	.....
Siassi ¹.....	.....	.....	.....	.....	7	10	.....	.....	.....	.....	.....	.....
Sorsogón.....	38	106	14	1	344	897	92	32	59	75	19	13
Surigao.....	.....	.....	.....	.....	246	229	316	6	9	18	.....	3
Tárlac.....	95	223	146	12	524	364	469	89	183	314	68	23
Tayabas ²	28	44	.....	.....	194	357	188	17	25	59	62	12
Zambales.....	2	6	.....	.....	34	38	54	4	.....	.....	.....	.....
Zamboanga ¹	1	4	.....	.....	168	175	45	17	50	109	10	.....

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands.

ISLAND.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	571, 803	40, 260, 996	495, 669	58, 382
Bantayán.....	1, 040	43, 360	620	31
Batán.....	4, 568	72, 435	453	754
Biliran.....	897	69, 490	1, 857	195
Bohol.....	15, 591	729, 148	58, 642	4, 125
Camiguín.....	1, 391	95, 723	2, 159	412
Catanduanes.....	1, 220	134, 690	22	6
Cebu.....	34, 745	2, 180, 587	41, 660	2, 976
Cuyo.....	1, 237	20, 623	40	85
Dinagat.....	110	4, 002	207	56
Guimará's.....	2, 102	123, 880	3, 909	223
Laguán.....	168	11, 011	227	18
Leyte.....	21, 744	1, 778, 140	35, 017	4, 622
Lubang.....	5, 796	193, 555	168	599
Luzón.....	264, 326	22, 529, 949	117, 754	14, 718
Mactán.....	400	19, 317	912	10
Marinduque.....	3, 530	270, 465	13, 300	1, 365
Masbate.....	4, 521	289, 194	996	53
Mindanao.....	25, 185	1, 027, 380	37, 594	5, 086
Mindoro.....	10, 286	350, 421	6, 628	817
Negros.....	55, 136	4, 123, 118	71, 662	4, 808
Panaón.....	168	9, 077	329	93
Panay.....	49, 358	3, 137, 141	67, 947	8, 209
Panglao.....	1, 094	31, 808	771	75
Paragua.....	765	19, 778	27	73
Pasijan.....	655	45, 344	1, 366	302
Poro.....	927	67, 235	4, 055	196
Romblón.....	1, 414	64, 140	98	343
Sámar.....	11, 571	670, 136	17, 691	3, 251
Siargao.....	349	14, 299	1, 253	140
Sibuyán.....	2, 879	116, 152	149	175
Siquijor.....	7, 444	340, 424	615	236
Tablas.....	8, 957	320, 750	355	868
Ticao.....	732	53, 135	13	21
Other islands.....	31, 497	1, 305, 089	7, 173	3, 491

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands...	98,622	8,298,063	114,764	12,727	129,789	13,304,664	78,913	8,147
Bantayán.....	131	7,501	155	1	45	2,872	11	1
Batán.....					1	30		
Biliran.....	809	28,325	365	58	77	7,470	99	7
Bohol.....	8,007	478,495	16,754	1,578	68	2,985	139	5
Camiguín.....	762	63,287	1,093	287	3	310	11	3
Catanduanes.....	310	38,514	6	4	156	24,855	1	
Cebú.....	17,992	1,412,609	24,880	1,394	1,781	131,019	1,540	42
Cuyo.....	13	288			36	795		
Dinágat.....	34	1,680	66	17				
Guimarás.....	127	8,597	128	4	483	42,381	736	65
Laguán.....	5	370	5		4	280		3
Leyte.....	8,394	817,275	13,764	1,945	1,387	147,046	1,985	290
Lubang.....	337	15,095	2	1	621	36,195	22	
Luzón.....	33,581	3,411,978	20,859	2,681	81,010	8,955,771	33,411	3,762
Mactán.....	218	13,089	467	4	7	280	34	
Marinduque.....	267	29,555	615	13	818	95,189	2,103	105
Masbate.....	647	57,808	139	7	452	52,457	98	9
Mindanao.....	5,793	370,865	8,843	1,678	1,423	100,013	1,080	82
Mindoro.....	462	28,426	465	60	626	48,081	553	60
Negros.....	8,563	662,075	12,211	687	19,741	1,924,003	18,003	851
Panaón.....	76	5,275	196	34	8	560	4	
Panay.....	3,621	244,677	5,922	538	16,725	1,846,603	17,746	2,422
Panglao.....	300	15,982	230	4	1	60	2	
Paragua.....	60	2,430	7	10	6	600		
Pasijan.....	291	29,075	890	206	3	320		
Poro.....	455	43,446	1,769	70	27	3,150	134	
Romblón.....	134	6,716	8	5	98	6,858	4	10
Sámar.....	1,303	108,944	2,454	570	734	40,441	580	75
Siargao.....	146	7,280	466	53	6	330	55	5
Sibuyán.....	176	10,867	6	13	299	22,084	11	6
Siquijor.....	2,862	157,509	224	105	1,154	71,672	55	45
Tablas.....	862	36,575	56	204	1,310	91,371	39	134
Ticao.....	210	20,620	1	6	66	6,515	1	
Other islands.....	2,174	162,835	1,718	545	663	142,118	453	168

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	170,735	11,932,318	138,452	12,588
Bantayán	141	7,316	91	.....
Batán .....	.....	.....	.....	.....
Biliran	298	23,686	675	59
Bohol	4,633	175,804	17,027	551
Camiguín	862	21,797	429	48
Catanduanes	413	45,556	12	2
Cebu	9,262	452,249	8,858	482
Cuyo	21	460	.....	.....
Dinágat	46	1,710	96	18
Guimarás	647	42,398	574	40
Laguán	139	9,872	214	18
Leyte	6,366	528,724	11,173	1,090
Lubang	798	34,011	33	150
Luzón	83,677	6,746,310	32,233	2,885
Mactán	78	2,865	155	1
Marinduque	914	76,305	2,514	38
Masbate	1,296	105,389	448	8
Mindanao	7,091	310,619	13,507	1,104
Mindoro	1,225	68,606	872	114
Negros	15,792	1,089,418	15,451	1,087
Panaón	44	1,238	93	43
Panay	18,817	1,180,836	18,685	2,204
Panglao	187	5,255	103	1
Paragua	49	2,000	1	2
Pastjan	259	12,569	272	67
Poro	269	14,083	1,300	38
Romblón	441	22,690	13	24
Sámar	6,895	431,114	10,959	1,550
Siargao	146	5,720	550	56
Sibuyán	594	30,700	10	29
Siquijor	2,331	87,536	167	48
Tablas	3,066	118,006	109	264
Ticao	216	16,655	6	4
Other islands	4,222	265,821	1,822	563

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands . . .	68,734	2,013,199	52,278	6,200	103,923	4,712,752	111,262	18,720
Bantayán	13	815	16	2	710	25,356	347	27
Batán					4,567	72,405	453	754
Biliran	145	6,133	341	38	68	3,876	377	38
Bohol	1,705	34,857	6,194	505	1,178	37,007	18,528	1,486
Camiguín	191	5,489	260	31	73	4,840	366	43
Catanduanes	237	15,635	3		104	10,130		
Cebu	2,617	70,409	2,013	31	3,143	114,301	4,369	1,027
Cuyo	11	139			1,156	18,941	40	35
Dinagat	25	442	42	12	5	170	3	9
Guimarás	255	5,227	133	5	590	25,277	2,338	109
Laguán	20	489	5					
Leyte	2,404	94,419	3,859	683	3,193	190,676	4,236	614
Lubang	344	2,759		36	3,696	105,495	111	412
Luzón	36,131	1,236,951	13,012	1,750	29,927	2,178,939	18,239	3,960
Mactán	29	527	39		68	2,556	37	5
Marinduque	234	8,368	850	11	1,297	61,098	7,218	1,198
Masbate	654	15,710	226	13	1,472	57,830	85	16
Mindanao	4,241	78,805	6,871	1,142	6,637	167,078	7,298	1,080
Mindoro	673	14,112	522	95	7,300	196,196	4,216	488
Negros	5,495	125,614	6,984	236	5,545	322,008	19,013	1,947
Panaón	15	179	3		25	1,825	33	16
Panay	5,687	129,106	6,745	343	4,508	235,919	18,849	2,702
Panglao	61	934	11	11	545	9,577	425	59
Paragua	45	534			605	14,214	19	61
Pasijan	90	2,910	184	21	12	470	20	8
Poro	118	4,219	551	67	58	2,337	301	21
Romblón	147	2,608	40	1	594	25,265	33	303
Samar	1,839	50,252	2,102	733	800	39,385	1,596	273
Siargao	51	969	182	26				
Sibuyán	384	10,146	63	30	1,426	42,355	59	97
Siquijor	768	14,504	130	10	329	9,203	39	28
Tablas	1,695	25,443	148	174	2,024	49,355	3	92
Ticao	113	4,365	3		127	4,980	2	11
Other islands	2,297	50,630	746	144	22,141	683,688	2,614	1,801

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	96,029	3,763,305	57,469	8,745
Bantayán.....	511	11,547	23	.....
Batán.....	11	300	.....	.....
Biliran.....	85	4,675	29	1
Bohol.....	1,880	44,567	719	944
Camiguín.....	968	28,652	157	42
Catanduanes.....	1,662	80,603	43	14
Cebú.....	5,346	221,291	747	78
Cuyo.....	105	1,558	3	.....
Dinágat.....	10	201	.....	.....
Guimarán.....	321	8,094	106	37
Laguán.....	4	75	.....	.....
Leyte.....	3,042	122,422	1,153	238
Lubang.....	1,453	26,660	38	182
Luzón.....	55,516	2,405,910	44,236	5,167
Mactán.....	187	4,789	15	.....
Marinduque.....	3,367	107,894	1,044	276
Masbate.....	2,651	66,024	114	117
Mindanao.....	5,467	133,671	1,227	243
Mindoro.....	758	23,151	103	134
Negros.....	4,358	213,961	3,064	477
Panaón.....	22	851	5	.....
Panay.....	1,974	74,085	3,140	508
Panglao.....	10	242	.....	.....
Paragua.....	10	250	.....	.....
Pasijan.....	85	3,547	24	.....
Poró.....	134	4,733	32	.....
Romblón.....	19	433	.....	1
Samar.....	465	25,807	906	24
Siargao.....	16	243	1	.....
Sibuyán.....	428	6,560	21	27
Siquijor.....	922	28,796	28	25
Tablas.....	688	19,225	76	39
Ticao.....	1,295	29,455	226	57
Other islands.....	2,259	63,043	189	114

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	95, 877	3, 739, 139	57, 311	8, 722
Bantayán	507	11, 447	23	.....
Batán	10	260	.....	.....
Biliran	85	4, 675	29	1
Bohol	1, 877	44, 192	657	984
Camiguín	966	28, 590	157	42
Catanduanes	1, 662	80, 603	43	14
Cebu	5, 344	220, 641	740	78
Cuyo	105	1, 558	3	.....
Dinagat	10	201	.....	.....
Guimaráz	319	8, 054	106	37
Laguán	4	75	.....	.....
Leyte	3, 041	122, 342	1, 151	288
Lubang	1, 453	26, 650	38	182
Luzón	55, 401	2, 387, 111	44, 169	5, 157
Mactán	187	4, 789	15	.....
Marinduque	3, 367	107, 894	1, 040	276
Masbate	2, 650	65, 774	114	117
Mindanao	5, 459	131, 471	1, 227	242
Mindoro	758	23, 151	103	134
Negros	4, 357	213, 561	3, 057	477
Panaón	22	851	5	.....
Panay	1, 963	72, 935	3, 131	506
Panglao	10	242	.....	.....
Paragua	10	250	.....	.....
Pasíjan	85	3, 547	24	.....
Poro	134	4, 733	32	.....
Romblón	18	413	.....	1
Sámar	465	25, 807	906	24
Sírgao	16	243	1	.....
Sibuyán	428	6, 560	21	27
Siquiljor	922	28, 796	28	25
Tablas	688	19, 225	76	39
Ticao	1, 295	29, 455	226	57
Other islands	2, 259	63, 043	189	114

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	MULES.				SHEEP.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands ..	106	2,538	149	66	20,935	89,912	6,904	6,521
Bantayán.....				10	1	3		4
Batán.....					95	138	37	22
Biliran.....					77	482	62	57
Bohol.....	9	58	1	1	168	455	91	61
Camiguín.....	1	3	1	3	135	451	52	61
Catanduanes.....					28	128	20	9
Cebu.....	13	30	8	3	1,274	4,130	609	426
Cuyo.....								
Dinágat.....					4	3		
Gulmarás.....					7	54	2	1
Leguán.....								
Leyte.....	3	10	9	2	167	697	177	84
Lubang.....					2	10		
Luzón.....	25	1,581	17	13	8,456	42,730	2,383	2,375
Mactán.....					61	255		5
Marinduque.....					18	210	1	2
Masbate.....					39	247		5
Mindanao.....	10	73	10	13	585	1,813	162	92
Mindoro.....								
Negros.....	9	165	63	10	8,029	31,388	2,579	2,576
Panaón.....					72	346	23	38
Panay.....	20	563	13	9	1,106	4,332	525	566
Panglao.....					9	27	10	2
Paragua.....								
Pasijan.....					23	13		
Poró.....			15	2	20	31	8	5
Romblón.....					8	33		3
Sámar.....	12	30	12		86	302	60	3
Siargao.....								
Sibuyán.....					13	49	2	
Siquijor.....					42	105	3	11
Tablas.....								
Ticao.....								
Other islands.....	4	25			410	1,480	98	113

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	GOATS.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	86,157	260,030	23,376	21,702
Bantayán.....	8	20	2	17
Batán.....	615	906	121	108
Biliran.....	73	307	202	155
Bohol.....	317	890	255	112
Camiguín.....	436	1,487	166	220
Catanduanes.....	33	217	2	6
Cebú.....	18,828	40,803	3,350	3,874
Cuyo.....	1	1	3	.....
Dinágat.....	89	271	13	6
Guimarás.....	.....	.....	.....	.....
Laguán.....	.....	.....	.....	.....
Leyte.....	766	2,283	578	409
Lubang.....	23	25	.....	.....
Luzón.....	43,803	159,040	9,134	9,958
Mactán.....	753	1,360	33	38
Marinduque.....	38	173	1	2
Masbate.....	87	363	9	4
Mindanao.....	2,071	4,714	723	440
Mindoro.....	140	237	66	87
Negros.....	10,213	28,627	2,834	3,350
Panaón.....	127	486	23	56
Panay.....	3,877	10,029	3,920	1,724
Panglao.....	37	68	3	12
Paragua.....	26	66	4	.....
Pasijan.....	191	646	160	210
Poró.....	184	483	60	77
Romblón.....	154	485	11	22
Sámar.....	376	1,142	764	93
Siargao.....	.....	.....	.....	.....
Sibuyán.....	180	293	61	75
Siquijor.....	434	659	39	41
Tablas.....	245	393	5	32
Ticao.....	15	85	12	.....
Other islands.....	2,017	3,471	822	574

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	SWINE.				FOWLS.			
	Number.	Value (pesos).	Died.	Slaughtered.	Chickens.			
					Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands ..	751,130	4,241,950	458,626	260,394	3,530,896	1,680,054	2,505,135	3,127,438
Bantayán	947	4,660	174	182	6,952	1,919	879	5,712
Batán	2,082	10,188	275	404	2,572	811	2,245	1,849
Biliran	2,096	13,506	2,410	1,267	5,521	4,163	10,831	7,860
Bohol	39,419	105,963	33,591	10,296	148,686	38,011	105,836	131,951
Camiguín	1,934	14,704	5,476	2,832	14,535	9,850	18,107	36,294
Catanduanes	2,555	40,030	341	260	12,776	11,035	6,133	8,433
Cebu	125,678	435,258	89,210	32,287	489,593	144,853	332,482	472,743
Cuyo	260	1,139	3	26	7,194	1,610	1,454	1,965
Dinágat	552	1,893	791	414	1,607	804	1,224	1,555
Guimará.s	1,236	6,226	94	206	8,073	3,831	2,064	5,471
Laguán	187	987	107	36	1,516	1,038	1,182	378
Leyte	25,388	246,810	21,081	10,802	219,315	165,201	137,528	186,247
Lubang	674	3,420	61	137	3,016	1,349	822	900
Luzón	341,553	2,306,199	166,030	110,959	1,686,472	912,071	1,135,193	1,244,568
Mactán	2,437	11,152	363	223	10,743	3,835	1,865	2,104
Marinduque	4,715	23,204	1,661	1,202	22,212	10,491	14,365	13,667
Masbate	2,748	24,737	555	694	13,142	7,066	6,871	11,329
Mindanao	30,373	140,629	31,309	14,112	113,077	51,022	89,055	115,743
Mindoro	1,011	5,820	221	166	5,776	2,985	3,697	1,514
Negros	66,012	295,605	42,708	35,961	241,513	89,248	157,834	291,542
Panaón	840	6,096	1,179	538	3,483	1,816	1,742	4,336
Panay	35,378	167,192	21,086	13,419	243,898	92,955	237,854	377,086
Panglao	2,000	6,395	1,344	6,620	10,700	2,565	2,136	2,671
Paragua	293	1,306	40	24	3,086	969	1,161	396
Pasijan	2,140	11,058	4,022	1,958	20,902	6,337	28,312	39,070
Poró	1,923	6,854	5,000	1,114	14,296	5,234	20,438	19,418
Romblón	2,283	16,513	389	367	13,285	6,635	6,340	12,704
Sámar	14,460	125,666	15,979	4,102	69,928	42,167	92,083	32,486
Siargao	932	3,773	1,141	280	3,158	1,505	3,106	2,291
Sibuyán	822	5,467	90	237	5,464	2,512	4,055	6,077
Siquijor	13,440	45,696	2,964	2,651	28,484	8,241	13,677	23,796
Tablas	2,601	20,165	107	491	11,546	5,206	1,883	14,019
Ticao	2,341	25,485	839	687	10,173	7,008	8,905	8,902
Other islands	19,815	108,154	7,985	5,440	78,212	35,711	53,766	47,366

TABLE 23.—Number and value of animals on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.
Philip-pine Is-lands ..	3, 829	11, 153	2, 160	927	37, 856	30, 736	14, 226	8, 180	3, 579	6, 912	1, 643	1, 281
Bantayán					35	44	14					
Batán	25	54	3	4	4	4						
Biliran					93	123	69	15	2	6	3	5
Bohol	9	14		1	143	104	102	35	45	25	38	57
Camiguín	5	15			199	251	68	32	12	16		
Catanduanes ..	8	25	20	7	38	81	5		33	52	2	3
Cebu	345	987	250	59	381	445	325	41	104	129	75	130
Cuyo					3	1						
Dinagat					75	76	6	13	11	11	100	117
Guimaráz	27	83	18									
Laguán					2	3						
Leyte	60	122	13	10	370	461	198	87	76	99	48	68
Lubang												
Luzón	2, 005	5, 804	1, 114	368	29, 559	23, 525	8, 448	6, 435	1, 929	3, 784	728	437
Mactán					28	53	7	1	5	10		
Marinduque ..	22	18			30	75	9	4				12
Masbate	6	13			56	48	11	3	16	8		
Mindanao	13	20			670	649	384	20	90	151	43	17
Mindoro					37	44	18	4	21	42	27	5
Negros	894	2, 792	516	351	3, 528	2, 759	2, 258	873	778	2, 046	287	99
Panaón												
Panay	356	1, 083	203	114	2, 209	1, 609	2, 148	556	310	423	191	165
Panglao												
Paragua					2	1			17	8		3
Pasijan					2	2						
Poro					3	2			75	26	42	86
Romblón					18	12			5	3	12	1
Sámar	18	37	15	1	144	173	141	58	1	1	40	
Siargao					2	1						
Sibuyan	5	24	1	1	9	7	2		12	6	5	15
Siquijor					6	10						
Tablas					14	13	3	3				
Ticao	16	8	7	8	4	5	10					
Other islands ..	15	54		3	192	155			37	66	2	1

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	768,430	55,512,570	629,176	79,820
Abra	7,860	550,804	551	215
Albay	6,866	879,962	5,630	641
Ambos Camarines	7,921	1,084,113	10,382	702
Antique	14,891	860,222	19,719	2,518
Basilan ¹	318	16,185	25	2
Bataán	4,686	376,563	2,804	91
Batangas	24,189	1,716,858	13,148	3,370
Benguet	151	8,157	279	50
Bohol	18,646	840,594	66,988	4,615
Bulacán	23,251	2,029,789	6,420	662
Cagayán	50,325	3,147,168	12,743	3,661
Cápiiz	14,364	915,708	17,839	1,566
Cavite	8,889	688,600	5,609	822
Cebú	48,164	2,677,072	55,095	5,985
Cottabato ¹	166	6,231	798	6
Dapitan ¹	3,785	128,712	827	144
Davao ¹	8,277	192,748	607	874
Ilocos Norte	35,962	2,320,987	2,714	701
Ilocos Sur	37,502	2,770,956	2,786	1,586
Iloilo	41,516	2,786,021	54,716	7,993
Isabela	15,758	2,016,700	6,750	829
Joló ¹	44	1,350	4	6
La Laguna	8,820	748,157	7,849	1,698
La Unión	27,094	2,042,279	8,720	1,053
Lepanto-Bontoc	1,027	55,177	21	8
Leyte	27,318	2,256,262	50,668	6,595
Manila city	2,017	249,001	452	22
Masbate	6,383	417,522	1,100	92
Mindoro	18,787	634,450	7,528	1,589
Misamis	11,436	784,206	25,648	2,932
Negros Occidental	46,939	3,572,379	42,403	2,481
Negros Oriental	20,705	1,233,287	37,269	3,470
Nueva Ecija	14,779	1,165,562	5,921	498
Nueva Vizcaya	2,870	280,450	822	184
Pampanga	28,982	2,798,736	14,482	1,234
Pangasinán	56,972	4,587,233	30,772	4,137
Paragua	8,227	215,030	320	476
Paragua Sur ¹	871	23,711	4	108
Rizal	8,382	813,422	3,469	474
Romblón	14,707	546,586	699	1,574
Sámar	14,147	861,021	20,310	3,843
Siassi ¹	6	231	.....	.....
Sorsogón	4,893	435,015	3,126	269
Surigao	6,916	272,974	20,293	2,935
Tárlac	22,400	1,979,200	8,580	1,515
Tayabas ²	22,238	1,824,831	36,045	4,974
Zambales	22,099	1,642,181	16,188	602
Zamboanga ¹	1,384	63,667	553	18

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMAN- DANCIA.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	122,979	10,385,125	138,334	17,018	189,818	19,381,305	109,483	12,591
Abra	1,176	107,280	96	39	1,625	141,686	77	32
Albay	1,212	171,808	1,851	110	2,029	317,800	1,261	91
Ambos Camarines	1,798	269,429	2,141	169	1,455	275,432	1,717	113
Antique	1,016	60,024	1,829	125	4,960	379,159	5,403	81
Basilan ¹	26	1,850	1	.....	64	5,585	8	2
Bataan	122	7,784	129	3	2,011	191,519	980	62
Batangas	1,909	165,509	1,491	252	2,919	279,199	1,426	280
Benguet	23	2,000	21	7	11	1,290	14	1
Bohol	8,986	538,186	18,225	1,681	83	3,451	178	7
Bulacán	1,241	110,504	613	110	9,735	1,037,709	2,813	222
Cagayan	5,964	628,639	3,281	435	7,039	820,062	2,028	332
Cápiz	1,837	125,452	2,771	309	4,294	358,311	4,577	392
Cavite	824	66,417	506	214	3,695	348,736	2,595	222
Cebu	21,705	1,705,169	31,797	2,963	2,050	154,699	2,190	403
Cottabato ¹	99	3,875	211	6	3	110	.....	.....
Dapitan ¹	713	37,687	36	37	70	4,490	.....	.....
Dávao ¹	664	20,860	89	187	38	1,674	.....	.....
Ilocos Norte	4,993	389,219	554	109	7,538	665,794	526	200
Ilocos Sur	2,901	212,721	263	164	11,381	1,075,995	691	382
Iloilo	2,353	165,969	3,412	413	12,796	1,155,283	13,525	2,244
Isabela	3,081	458,750	1,775	216	6,598	1,041,090	2,494	270
Joló ¹	1	50	.....	.....	.....	.....	.....	.....
La Laguna	1,333	122,100	1,178	301	3,771	374,291	3,874	596
La Unión	3,371	311,905	1,515	184	7,589	784,250	2,232	335
Lepanto-Bontoc	95	7,480	2	.....	70	6,460	.....	.....
Leyte	10,542	1,045,732	17,931	2,530	1,799	190,851	2,660	368
Manila city	571	74,503	38	7	916	122,534	54	5
Masbate	1,035	94,291	158	19	624	70,632	101	9
Mindoro	1,028	53,492	538	76	1,465	99,881	639	89
Misamis	4,597	396,490	7,428	1,227	793	70,651	676	82
Negros Occidental	5,561	389,582	4,740	308	18,887	1,838,118	15,849	773
Negros Oriental	6,791	502,805	9,265	666	3,242	273,867	3,468	241
Nueva Ecija	1,075	94,761	670	59	5,928	572,104	2,523	188
Nueva Vizcaya	512	64,030	238	52	485	69,810	109	34
Pampanga	1,431	142,997	877	125	14,343	1,635,768	6,685	679
Pangasinán	6,759	569,759	4,728	694	21,178	2,121,180	10,370	1,393
Paragua	472	20,624	22	17	628	36,739	19	70
Paragua Sur ¹	36	1,505	1	4	23	930	.....	1
Rizal	661	61,977	353	52	3,471	415,428	1,666	259
Romblón	1,320	59,311	80	237	1,921	131,639	60	170
Sámar	1,666	138,949	2,814	689	907	55,721	602	89
Siassi ¹	2	80	.....	.....	.....	.....	.....	.....
Sorsogón	939	108,809	750	38	782	102,472	415	17
Surigao	2,345	125,959	5,559	1,128	98	4,433	307	42
Tárlac	1,333	115,034	449	143	9,983	1,054,624	3,981	510
Tayabas ²	3,890	388,514	5,237	850	4,048	479,130	6,270	472
Zambales	2,799	244,874	2,587	59	5,814	574,091	4,119	91
Zamboanga ¹	221	10,385	84	4	659	36,627	301	3

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	234,763	16,756,356	176,312	17,448
Abra.....	2,408	187,920	168	56
Albay.....	2,452	304,880	1,328	107
Ambos Camarines.....	3,083	421,591	3,699	213
Antique.....	5,449	303,395	5,419	585
Basilan ¹	28	1,450	1	.....
Bataán.....	1,900	153,704	1,028	17
Batangas.....	3,188	255,455	1,480	255
Benguet.....	23	1,390	94	2
Bohol.....	5,304	199,817	19,016	578
Bulacán.....	8,826	753,690	2,366	199
Cagayán.....	9,867	884,250	3,442	451
Cápiz.....	5,919	367,617	6,004	428
Cavite.....	2,493	169,649	1,605	96
Cebú.....	11,233	546,466	11,810	731
Cottabato ¹	22	690	44	.....
Dapitan ¹	1,524	60,099	87	27
Dávao ¹	1,049	30,942	50	166
Ilocos Norte.....	13,205	849,604	831	213
Ilocos Sur.....	8,940	590,070	431	167
Iloilo.....	16,625	1,093,348	13,084	2,394
Isabela.....	3,323	353,630	1,158	108
Joló ¹	3	150	.....	.....
La Laguna.....	2,485	184,927	1,573	521
La Unión.....	9,220	618,725	2,491	270
Lepanto-Bontoc.....	147	10,110	2	.....
Leyte.....	8,223	676,588	17,865	1,778
Manila city.....	153	16,589	48	4
Masbate.....	1,946	154,619	483	22
Mindoro.....	2,786	128,392	1,026	295
Misamis.....	3,304	224,819	7,179	465
Negros Occidental.....	13,448	969,711	9,803	565
Negros Oriental.....	6,321	314,952	7,396	787
Nueva Ecija.....	5,248	402,048	2,067	173
Nueva Vizcaya.....	1,083	107,040	281	30
Pampanga.....	10,630	917,545	4,742	356
Pangasinán.....	18,518	1,326,539	8,687	940
Paragua.....	979	34,424	22	32
Paragua Sur ¹	68	2,570	1	1
Rizal.....	3,104	285,238	1,112	139
Romblón.....	4,503	185,799	150	392
Sámar.....	8,195	545,304	12,455	1,856
Siasi ¹	3	136	.....	.....
Sorsogón.....	1,719	142,216	1,019	46
Surigao.....	2,747	104,610	8,967	756
Tárlac.....	5,420	691,716	2,780	500
Tayabas ²	7,004	587,742	7,700	611
Zambales.....	7,433	585,766	5,201	119
Zamboanga ¹	262	8,524	117	2

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands ..	93,311	2,796,969	67,867	7,882	127,559	6,192,815	137,180	24,881
Abra	1,122	37,680	70	45	1,029	75,738	140	43
Albay	830	50,062	400	40	343	35,417	790	298
Ambos Camarines.....	1,092	64,731	1,484	30	493	52,930	1,341	177
Antique	1,722	37,496	2,086	124	1,744	80,148	4,982	863
Basilan ¹	14	300	12	.....	186	7,000	3	.....
Bataan	633	22,191	629	3	20	1,365	38	6
Batanga	842	27,643	346	742	15,331	989,052	8,405	1,841
Benguet	16	497	37	10	78	2,980	113	30
Bohol	1,952	39,561	6,930	543	2,321	64,579	22,639	1,806
Bulacán	3,135	109,682	579	119	314	18,204	49	12
Cagayán	5,266	182,122	1,865	314	22,189	632,095	2,127	2,129
Cápiz	1,734	39,589	2,442	100	580	24,739	2,045	337
Cavite	789	27,220	482	42	1,088	71,578	421	248
Cebu	3,216	87,008	3,074	146	4,960	183,730	6,224	1,742
Cottabato ¹	14	212	20	.....	28	1,344	523	.....
Dapitan ¹	1,352	22,167	201	75	126	4,269	3	5
Dávao ¹	561	7,539	42	35	5,965	131,733	426	486
Ilocos Norte	6,393	176,834	324	70	3,833	240,036	479	109
Ilocos Sur	5,227	142,095	306	130	9,063	750,075	1,096	743
Iloilo	5,049	112,811	4,649	298	4,693	258,610	20,046	2,644
Isabela	1,826	97,340	583	81	980	65,890	740	154
Joló ¹	1	10	.....	1	39	1,140	4	5
La Laguna	648	21,707	411	52	583	45,132	813	228
La Unión	4,861	139,329	1,467	110	2,053	188,070	1,015	154
Lepanto-Bontoc	47	1,825	.....	1	668	29,802	17	7
Leyte	3,231	128,213	6,462	1,084	3,523	214,928	5,750	840
Manila city	67	2,302	12	6	310	83,123	300	.....
Masbate	941	23,520	260	13	1,837	74,460	98	98
Mindoro	1,361	20,718	599	151	12,147	331,967	4,726	279
Misamis	1,944	47,068	3,579	496	798	45,178	6,786	662
Negros Occidental	4,811	109,481	4,569	132	4,232	265,487	7,442	703
Negros Oriental	2,075	44,577	3,142	189	2,276	97,086	13,998	1,587
Nueva Ecija	2,110	76,770	566	57	418	19,879	95	21
Nueva Vizcaya	586	26,540	169	11	254	13,030	25	57
Pampanga	2,302	82,513	1,789	36	276	19,913	389	38
Pangasinán	7,381	244,773	3,690	345	3,136	324,982	3,297	765
Paragua	908	13,556	39	36	5,240	109,687	218	321
Paragua Sur ¹	50	644	.....	.....	694	18,062	2	102
Rizal	1,032	38,979	326	21	114	11,800	12	3
Romblón	2,381	40,955	266	234	4,582	128,882	143	541
Samar	2,218	63,716	2,332	835	1,161	57,331	2,107	374
Siasi ¹	1	15	.....	.....	.....	.....	.....	.....
Sorsogón	811	37,308	324	19	642	49,210	618	149
Surigao	1,317	22,988	4,785	781	409	14,984	675	228
Tárlac	2,100	78,368	711	117	564	39,458	659	245
Tayabas ²	2,993	109,165	2,897	177	4,303	260,280	13,941	2,864
Zambales	4,199	136,352	2,864	31	1,854	101,098	1,417	302
Zamboanga ¹	150	1,797	47	.....	92	6,334	4	9

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	144,171	7,137,158	87,761	13,019
Abra	7,049	188,074	521	494
Albay	2,997	181,341	2,327	168
Ambos Camarines	821	86,029	1,792	200
Antique	923	30,200	646	168
Basilan ¹	45	920	6	2
Bataan	94	7,840	492	4
Batangas	15,598	673,173	9,211	2,247
Benguet	167	10,456	27	10
Bohol	2,158	54,100	762	950
Bulacán	1,781	165,513	802	142
Cagayán	6,904	173,544	7,586	323
Cápiz	682	23,333	1,977	216
Cavite	3,316	163,651	2,215	593
Cebu	8,427	367,143	1,223	97
Cottabato ¹	26	481	2	.....
Dapitan ¹	123	2,874	5	.....
Dávao ¹	383	12,749	18	43
Ilocos Norte	11,142	289,095	1,029	130
Ilocos Sur	3,594	170,214	842	501
Iloilo	1,798	98,349	2,022	282
Isabela	2,783	118,080	3,903	172
Joló ¹	3	120	.....	.....
La Laguna	5,841	319,700	7,894	928
La Unión	2,019	121,640	1,155	216
Lepanto-Bontoc	269	10,057	2	.....
Leyte	4,311	230,608	2,490	302
Manila city	8,977	1,457,778	965	60
Masbate	4,797	117,727	355	178
Mindoro	2,505	56,554	155	866
Misamis	7,110	186,807	2,250	244
Negros Occidental	2,017	121,415	2,744	128
Negros Oriental	4,295	168,431	1,117	491
Nueva Ecija	599	41,644	849	110
Nueva Vizcaya	318	15,401	1,455	14
Pampanga	1,741	161,938	1,570	153
Pangasinán	1,733	105,484	2,210	614
Paragua	174	5,972	6	.....
Paragua Sur ¹	17	1,180	.....	.....
Rizal	1,226	151,496	454	209
Romblón	1,458	33,566	107	135
Sámar	713	35,727	969	40
Siassi ¹	4	78	.....	.....
Sorsogón	3,777	232,739	1,228	113
Surigao	883	30,237	127	123
Tárlac	662	47,842	1,312	107
Tayabas ²	14,301	557,621	15,921	1,582
Zambales	3,116	96,955	4,986	84
Zamboanga ¹	554	11,282	32	80

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMAN- DANCIA.	HORSES—continued.							
	American.				Australian.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Num- ber.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	860	331, 224	195	22	205	67, 307	128	5
Abra	1	150						
Albay	14	4, 370	6		7	3, 090		
Ambos Camarines	33	8, 620	10					
Antique	3	70	1	2	5	350	1	
Basilan ¹								
Bataán	3	1, 250						
Batangas	9	1, 184		1	7	1, 230		
Benguet								
Bohol			62	10	3	375		
Bulacán	52	13, 170	25		27	3, 260	54	
Cagayán	18	3, 750	4	3	1	40		
Cápiz	2	130						
Cavite	4	880		2				
Cebú	3	1, 000	7		4	100		
Cottabato ¹								
Dapitan ¹								
Dávao ¹								
Ilocos Norte	8	1, 540			2	320		
Ilocos Sur	24	3, 305	1					
Iloilo	5	1, 865	9		2	425		
Isabela	1	350	1	1				
Joló ¹								
La Laguna	13	2, 978			8	550	13	3
La Unión								
Lepanto-Bontoc								
Leyte	13	9, 500				32, 790	20	
Manila city	556	251, 200	25		53	19, 395	2	
Masbate	1	250						
Mindoro								
Misamis	24	6, 310		1	2	62		
Negros Occidental	1	400	7					
Negros Oriental	1	400						
Nueva Ecija	1	17						
Nueva Vizcaya								
Pampanga	7	1, 910	1					
Pangasinán	12	1, 725	2		3	145	2	
Paragua								
Paragua Sur ¹	3	750						
Rizal	29	10, 500			8	4, 950		
Romblón					1	20		
Sámar	2	160						
Siassi ¹								
Sorsogón	1	600						
Surigao								
Tárlac	1	90			2	150	23	
Tayabas ²	10	1, 860	16	2	2	55	13	2
Zambales	2	90						
Zamboanga ¹	3	860						

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	142,992	6,711,665	87,487	12,992
Abra.....	7,048	187,924	521	494
Albay.....	2,975	173,381	2,321	168
Ambos Camarines.....	788	77,409	1,782	200
Antique.....	915	29,780	644	166
Basilan ¹	45	920	6	2
Bataan.....	91	6,590	492	4
Batangas.....	15,582	670,759	9,211	2,246
Benguet.....	167	10,456	27	10
Bohol.....	2,155	53,725	700	940
Bulacán.....	1,702	149,083	723	142
Cagayán.....	6,885	169,754	7,582	320
Cápiz.....	680	23,203	1,977	216
Cavite.....	3,812	162,771	2,215	591
Cebú.....	8,420	366,043	1,216	97
Cottabato ¹	26	481	2	.....
Dapitan ¹	123	2,874	5	.....
Dávao ¹	383	12,749	18	43
Ilocos Norte.....	11,132	287,235	1,029	180
Ilocos Sur.....	3,570	166,909	841	501
Iloilo.....	1,791	96,059	2,013	282
Isabela.....	2,782	117,730	3,902	171
Joló ¹	3	120	.....	.....
La Laguna.....	5,820	316,172	7,881	925
La Unión.....	2,019	121,640	1,155	216
Lepanto-Bontoc.....	269	10,057	2	.....
Leyte.....	4,230	188,318	2,470	302
Manila city.....	8,262	1,162,628	938	60
Masbate.....	4,796	117,477	355	178
Mindoro.....	2,505	56,554	155	366
Misamis.....	7,084	180,435	2,250	243
Negros Occidental.....	2,016	121,015	2,737	128
Negros Oriental.....	4,294	168,031	1,117	491
Nueva Ecija.....	537	41,427	849	110
Nueva Vizcaya.....	314	14,444	1,455	14
Pampanga.....	1,734	160,028	1,569	153
Pangasinán.....	1,717	103,114	2,205	614
Paragua.....	174	5,972	6	.....
Paragua Sur ¹	14	430	.....	.....
Rizal.....	1,189	136,046	454	209
Romblón.....	1,457	33,546	107	135
Sámar.....	711	35,567	969	40
Siassi ¹	4	78	.....	.....
Sorsogón.....	3,776	232,139	1,228	113
Surigao.....	883	30,237	127	123
Tárlac.....	659	47,602	1,289	107
Tayabas ²	14,288	555,466	15,892	1,578
Zambales.....	3,114	96,865	4,968	84
Zamboanga ¹	551	10,422	32	30

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMAN- DANCIA.	HORSES—continued.				MULES.			
	Other horses.				Num- ber.	Value (pesos).	Died.	Slaugh- tered.
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.				
Philippine Islands...	114	26,962	1	.....	290	32,380	180	131
Abra					1	30		
Albay	1	500			1	40	1	
Amboi Camarines								
Antique								
Basilan ¹					2	100	1	
Bataán					2	120		
Batangas					1	60	1	3
Benguet								
Bohol					9	58	4	1
Bulacán					18	1,688		
Cagayán					1	400		
Cápiz					7	420	8	3
Cavite								
Cebú					13	30	23	15
Cottabato ¹								
Dapitan ¹								
Dávao ¹								
Ilocos Norte								
Ilocos Sur					1	100		
Iloilo					13	143	5	6
Isabela								
Joló ¹								
La Laguna					4	33	3	2
La Unión					2	400		
Lepanto-Bontoc								
Leyte					3	10	9	2
Manila city	106	24,555			39	20,178	12	
Masbate								
Mindoro								
Misamis					10	75	10	16
Negros Occidental								
Negros Oriental					9	165	1	10
Nueva Ecija	1	200						
Nueva Vizcaya	4	957			5	1,196		
Pampanga					115	4,810	16	66
Pangasinán	1	500	1		1	50		
Paragua					3	1,350		
Paragua Sur ¹								
Rizal					11	850	10	7
Romblón								
Sámar					12	30	12	
Siassi ¹								
Sorsogón								
Surigao					1	1	1	
Tárlac								
Tayabas ²	1	250			6	43		
Zambales								
Zamboanga ¹								

¹ Comandancia.

² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMAN- DANCIA.	SHEEP.				GOATS.			
	Num- ber.	Value (pesos).	Died.	Slaugh- tered.	Number.	Value (pesos).	Died.	Slaugh- tered.
Philippine Islands...	30,428	131,161	9,583	8,979	124,334	367,886	34,245	32,404
Abra	202	502	21	37	833	2,059	110	145
Albay	117	622	60	33	1,874	8,741	305	262
Ambos Camarines	261	2,588	29	67	2,935	21,097	252	639
Antique	216	709	45	90	560	1,213	198	121
Basilan ¹					18	20	1	5
Bataán	132	868	13	12	844	829	35	57
Batangas	188	874	69	49	3,108	7,980	973	641
Benguet	56	285	2	3	156	686	6	12
Bohol	185	499	111	72	435	1,076	285	141
Bulacán	312	1,892	49	49	1,295	4,159	119	281
Cagayán	973	3,575	153	227	2,602	6,534	665	629
Cápiz	327	1,665	159	84	2,797	6,991	3,964	1,559
Cavite	72	321	5	6	302	992	81	28
Cebu	2,037	7,261	823	703	23,188	51,244	4,430	5,474
Cottabato ¹	83	89		5	6	12		
Dapitan ¹	9	18	3	2	125	197	23	5
Dávao ¹	27	79	1		101	270	7	21
Ilocos Norte	1,979	6,250	356	438	5,458	13,005	2,284	1,266
Ilocos Sur	2,888	10,864	473	459	7,260	20,282	1,169	907
Iloilo	1,142	4,584	459	467	3,025	6,947	992	764
Isabela	333	2,143	138	87	422	2,395	252	118
Joló ¹	85	353	34	18	556	2,099	88	115
La Laguna	2,078	10,739	495	504	11,811	46,936	2,828	3,843
La Unión	58	324		3	116	430	9	5
Lepanto-Bontoc								
Leyte	628	2,839	445	294	1,483	4,877	1,081	827
Manila city	65	472	36	17	449	1,959	36	64
Masbate	51	262		5	156	652	21	7
Mindoro	2	10			225	408	96	87
Misamis	813	2,537	315	248	1,961	5,663	692	661
Negros Occidental	6,911	28,195	2,023	2,372	6,442	19,723	1,673	2,411
Negros Oriental	1,740	5,467	858	571	5,954	14,762	1,800	1,743
Nueva Ecija	329	2,130	55	57	1,290	2,823	341	340
Nueva Vizcaya			5	2	39	152	16	13
Pampanga	3,408	16,778	1,273	1,053	9,390	26,176	1,925	1,930
Pangasinán	616	4,450	402	451	16,376	48,605	3,710	4,690
Paragua	34	182			232	552	5	2
Paragua Sur ¹					33	70		
Rizal	50	409	7	5	1,102	3,688	305	223
Romblón	40	89	4	5	1,108	2,198	167	250
Sámar	169	917	131	18	679	2,184	1,170	231
Siassi ¹								
Sorsogón	57	464	14	87	784	4,002	153	96
Surigao	143	440	23	35	374	1,188	96	112
Tárlac	914	4,629	240	240	4,529	18,396	901	1,205
Tayabas ²	60	521	20	9	1,022	4,152	538	153
Zambales	573	2,799	187	84	656	2,084	188	161
Zamboanga ¹	165	467	47	11	1,274	2,378	305	160

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	SWINE.				FOWLS.			
	Number.	Value (pesos).	Died.	Slaughtered.	Chickens.			
					Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands ..	1,179,371	6,374,304	661,512	433,160	5,470,981	2,561,764	3,804,570	4,914,089
Abra	7,933	31,225	8,912	3,265	85,352	14,309	16,481	35,744
Albay	14,869	222,103	5,498	2,832	85,368	76,894	51,269	46,673
Ambos Camarines ..	14,337	171,164	6,500	5,313	130,650	104,656	41,656	64,841
Antique	9,426	31,708	5,624	2,394	59,990	18,600	25,067	60,088
Basilan ¹	157	837	38	43	955	285	1,138	1,984
Bataan	6,623	40,017	1,968	1,610	27,807	14,058	11,448	15,836
Batangas	58,943	233,525	37,645	20,510	195,942	79,009	256,364	106,316
Benguet	79	1,078	176	250	1,382	1,042	1,121	2,075
Bohol	46,007	124,195	38,098	18,119	176,798	44,948	118,113	147,053
Bulacán	64,296	233,698	17,393	12,992	275,928	134,924	140,102	123,878
Cagayán	46,253	342,623	15,318	14,165	142,161	69,019	97,384	132,792
Cápiz	12,284	62,398	12,234	5,359	123,624	48,857	206,327	203,251
Cavite	30,428	133,501	16,208	13,070	121,656	56,985	74,539	77,794
Cebu	150,905	545,702	116,384	46,038	618,287	201,499	436,848	655,217
Cottabato ¹	22	605	18	.....	1,425	530	.....	.....
Dapitan ¹	1,336	6,390	451	106	5,279	1,582	987	1,581
Dávao ¹	2,401	10,762	402	414	9,002	3,896	2,874	1,890
Ilocos Norte	48,981	193,246	8,199	13,404	162,617	42,641	116,310	266,311
Ilocos Sur	24,343	118,446	13,463	5,815	130,869	54,619	58,331	53,063
Iloilo	41,212	201,206	13,547	17,501	211,829	83,928	135,239	333,178
Isabela	27,109	233,879	11,179	19,126	77,757	56,549	60,665	81,679
Joló ¹	35	760	.....	12	13	32	2	25
La Laguna	32,047	194,523	23,127	19,169	125,354	81,231	96,693	71,560
La Unión	25,201	143,971	8,621	8,766	91,510	43,871	31,926	61,547
Lepanto-Bontoc	286	2,478	232	99	2,258	1,131	122	121
Leyte	36,030	349,154	31,891	18,678	275,680	206,428	184,375	251,457
Manila city	5,996	46,096	610	1,236	51,581	41,103	12,126	47,952
Masbate	5,516	53,952	1,435	1,446	26,331	15,600	16,258	16,659
Mindoro	2,444	12,317	408	404	12,387	5,544	7,502	3,608
Misamis	23,784	104,195	23,301	13,804	97,645	48,784	76,158	123,558
Negros Occidental ..	40,285	198,870	15,095	18,092	180,929	67,067	100,084	246,783
Negros Oriental	51,904	203,319	40,203	28,186	140,372	49,527	106,140	141,911
Nueva Ecija	37,855	164,280	12,631	9,131	117,387	61,615	117,796	121,889
Nueva Vizcaya	5,006	25,089	1,025	1,285	16,193	7,117	3,865	16,271
Pampanga	65,631	344,546	24,681	15,056	280,300	121,843	164,466	146,053
Pangasinán	61,176	368,908	58,369	32,271	498,794	211,463	406,769	604,698
Paragua	1,704	7,212	258	273	23,202	5,453	10,383	5,120
Paragua Sur ¹	175	981	1	15	1,743	864	84	183
Rizal	20,570	123,113	6,884	9,273	120,474	78,747	59,971	60,773
Romblón	7,761	52,839	925	1,778	40,735	17,795	14,458	40,882
Sámar	21,583	133,817	19,758	6,918	96,021	59,867	114,277	49,772
Siassi ¹ .....	.....	.....	.....	.....	62	9	5	.....
Sorsogón	9,547	159,055	4,192	2,446	65,558	63,491	25,654	24,418
Surigao	13,148	82,593	22,418	8,212	44,814	21,939	51,739	63,860
Tárlac	36,317	229,651	12,179	9,278	261,483	103,226	164,455	192,818
Tayabas ²	34,272	244,964	14,793	15,833	142,225	100,514	115,165	94,968
Zambales	26,990	121,934	6,842	7,859	93,435	34,243	65,257	111,933
Zamboanga ¹	6,164	17,389	2,377	1,316	10,018	4,430	7,577	4,026

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 24.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by provinces and comandancias—Con.

PROVINCE OR COMANDANCIA.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Num- ber.	Value (pe- sos).	Died.	Slaugh- tered.	Num- ber.	Value (pe- sos).	Died.	Slaugh- tered.	Num- ber.	Value (pe- sos).	Died.	Slaugh- tered.
Philippine Islands...	9,201	27,878	3,861	2,456	78,215	66,475	24,190	15,623	6,202	12,413	2,300	1,766
Abra.....	3	4	1	.....	179	129	60	27	1	2	.....	.....
Albay.....	69	237	55	35	310	485	192	64	146	273	60	57
Ambos Cama- rines.....	62	318	39	29	681	1,030	170	255	234	628	53	50
Antique.....	17	58	2	.....	119	92	11	22	37	103	9	6
Basilan ¹	5	20	.....	.....	20	15	2	.....	10	29	2	.....
Bataan.....	8	7	.....	.....	229	187	130	7	1	1	.....	.....
Batangas.....	10	41	11	4	154	170	87	125	32	24	7	7
Benguet.....	.....	.....	.....	.....	6	8	.....	.....	2	10	.....	.....
Bohol.....	9	14	.....	1	200	133	109	36	45	25	38	57
Bulacán.....	1,349	3,719	410	190	13,667	12,177	1,974	2,251	203	354	53	44
Cagayán.....	65	217	5	4	789	981	312	183	127	372	92	51
Cápiz.....	64	134	19	15	1,867	1,205	1,436	404	70	113	16	68
Cavite.....	27	111	15	19	528	546	91	72	39	77	56	80
Cebu.....	652	1,827	375	95	927	1,052	452	67	224	279	127	218
Cottabato ¹	4	8	.....	.....	5	4	.....	.....	7	6	.....	.....
Dapitan ¹.....	.....	.....	.....	.....	111	36	3	.....	.....	.....	.....	.....
Davao ¹.....	.....	.....	.....	.....	49	48	.....	.....	14	21	.....	.....
Ilocos Norte.....	6	22	2	3	1,381	1,042	259	137	85	79	73	15
Ilocos Sur.....	21	100	1	.....	578	584	213	21	42	107	6	3
Iloilo.....	757	2,562	319	218	2,312	1,981	1,316	490	463	845	328	298
Isabela.....	36	208	68	16	281	411	203	45	112	430	44	16
Joló ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	2	6	.....	.....
La Laguna.....	580	1,208	23	6	853	942	202	119	105	211	17	29
La Unión.....	13	55	34	6	203	233	14	14	101	325	10	4
Lepanto - Bon- toc.....	.....	.....	.....	.....	20	23	.....	.....	.....	.....	.....	.....
Leyte.....	69	140	56	30	1,072	1,450	925	683	85	124	53	75
Manila city.....	994	4,735	92	312	2,148	3,079	285	496	580	1,100	19	79
Masbate.....	37	36	7	8	69	60	21	3	21	11	.....	12
Mindoro.....	.....	.....	.....	.....	56	61	52	4	21	42	27	5
Misamis.....	34	78	13	2	583	714	217	171	34	38	16	14
Negros Occi- dental.....	1,030	3,186	524	452	4,554	3,281	2,866	1,792	931	2,483	295	131
Negros Ori- ental.....	60	128	39	.....	77	75	137	44	33	56	40	2
Nueva Ecija.....	28	99	19	.....	2,304	1,765	1,618	344	243	322	61	42
Nueva Vizcaya.....	7	40	.....	.....	64	71	28	7	168	326	14	4
Pampanga.....	1,011	3,380	380	257	10,780	6,556	1,484	968	238	410	57	40
Pangasinán.....	173	175	110	109	5,087	4,354	1,392	744	901	1,546	282	192
Paragua.....	7	15	.....	.....	27	17	.....	.....	14	26	.....	.....
Paragua Sur ¹.....	.....	.....	.....	.....	4	6	.....	.....	27	8	.....	3
Rizal.....	1,603	4,076	985	554	22,290	17,177	5,613	5,400	129	359	46	16
Romblón.....	7	28	1	1	254	238	.....	103	21	13	17	16
Samar.....	24	57	15	1	320	429	208	59	10	45	40	.....
Siassi ¹.....	.....	.....	.....	.....	7	10	.....	.....	.....	.....	.....	.....
Sorsogón.....	40	116	14	1	344	897	92	32	61	77	19	13
Surigao.....	11	38	5	.....	395	353	377	38	6	9	18	3
Tárlac.....	230	487	206	57	1,398	1,031	978	281	454	819	231	104
Tayabas ²	56	128	3	25	469	799	286	76	39	129	64	12
Zambales.....	20	54	13	6	180	185	135	30	25	25	.....	.....
Zamboanga ¹	3	12	.....	.....	364	353	235	19	59	125	10	.....

¹ Comandancia.² Including the subprovince, Marinduque.

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands.

ISLAND.	NEAT CATTLE.			
	All neat cattle.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	768, 430	55, 512, 570	629, 176	79, 820
Bantayán	1, 563	64, 652	1, 015	76
Batán	4, 568	72, 435	453	754
Biliran	954	75, 035	1, 947	199
Bohol	16, 864	785, 377	65, 044	4, 382
Camiguín	2, 324	156, 868	3, 625	677
Catanduanes.....	1, 685	192, 424	28	8
Cebu	39, 099	2, 455, 969	46, 780	5, 294
Cuyo	1, 246	20, 791	40	35
Dinagat	110	4, 002	207	56
Guimarás	2, 653	157, 414	4, 749	295
Laguán	212	13, 797	227	19
Leyte	26, 170	2, 172, 629	48, 341	6, 297
Lubang	5, 948	198, 900	170	614
Luzón	413, 262	34, 735, 596	187, 409	25, 286
Mactán	413	19, 850	926	10
Marinduque	3, 943	301, 573	14, 828	1, 593
Masbate	5, 199	328, 784	1, 085	70
Mindanao	29, 001	1, 267, 499	42, 877	5, 925
Mindoro	11, 581	390, 821	7, 276	924
Negros	59, 738	4, 449, 515	78, 758	5, 676
Panaón	171	9, 177	347	99
Panay	68, 119	4, 350, 465	86, 971	11, 591
Panglao	1, 094	31, 808	771	75
Paragua	1, 319	34, 393	29	162
Pasijan	718	49, 644	1, 524	342
Poro	927	67, 235	4, 055	196
Romblón	1, 444	66, 375	104	343
Samar	12, 654	747, 391	19, 110	3, 581
Siargao	364	14, 989	1, 417	196
Sibuyán	3, 098	124, 532	163	185
Siquijor.....	7, 792	350, 790	720	271
Tablas	9, 225	330, 603	363	903
Ticao	803	59, 185	14	21
Other islands	34, 169	1, 414, 052	7, 803	3, 665

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao bulls.				Carabao steers.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands...	122, 979	10, 385, 125	138, 334	17, 018	189, 818	19, 381, 305	109, 483	12, 591
Bantayán.....	172	9, 911	230	1	61	3, 762	18	1
Batán.....					1	30		
Biliran.....	336	30, 395	395	53	78	7, 600	104	8
Bohol.....	8, 429	502, 539	17, 678	1, 622	72	3, 128	140	5
Camiguín.....	1, 225	100, 680	1, 985	468	19	2, 040	44	29
Catanduanes.....	393	51, 684	7	4	219	36, 703	1	
Cebu.....	20, 387	1, 597, 328	27, 811	2, 629	1, 943	146, 632	2, 002	402
Cuyo.....	13	288			36	795		
Dinágat.....	34	1, 680	66	17				
Guimarás.....	178	11, 667	184	6	566	50, 076	859	81
Laguán.....	5	370	5		4	280	3	
Leyte.....	10, 117	1, 009, 052	17, 308	2, 440	1, 713	182, 691	2, 551	360
Lubang.....	361	16, 065	2	1	651	37, 885	22	
Luzón.....	48, 401	4, 719, 622	29, 962	4, 017	132, 680	14, 296, 037	56, 991	6, 591
Mactán.....	223	13, 337	474	4	7	280	34	
Marinduque.....	297	32, 765	730	16	916	106, 534	2, 373	117
Masbate.....	730	64, 953	157	13	502	58, 057	100	9
Mindanao.....	7, 194	483, 741	10, 725	1, 971	1, 632	115, 350	1, 181	92
Mindoro.....	542	31, 722	529	69	682	52, 056	610	80
Negros.....	9, 338	728, 597	13, 690	863	20, 924	2, 038, 428	19, 248	965
Panaón.....	76	5, 275	202	37	8	560	4	
Panay.....	4, 921	332, 961	7, 771	813	22, 353	1, 830, 032	22, 584	3, 369
Panglao.....	300	15, 982	230	4	1	60	2	
Paragua.....	72	3, 100	9	11	29	1, 530		1
Pasijan.....	316	31, 575	989	237	3	320		
Poro.....	455	43, 446	1, 769	70	27	3, 150	134	
Romblón.....	136	6, 866	8	5	116	8, 423	4	10
Sámar.....	1, 450	122, 044	2, 657	631	758	41, 571	592	75
Siargao.....	153	7, 730	575	104	6	330	56	6
Sibuyán.....	210	11, 817	8	13	324	23, 994	15	8
Siquijor.....	2, 981	161, 689	262	111	1, 202	73, 397	60	49
Tablas.....	892	37, 855	58	205	1, 355	94, 301	39	141
Ticao.....	224	22, 000	1	6	72	7, 115	1	
Other islands.....	2, 418	176, 389	1, 857	577	858	158, 158	511	193

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.			
	Carabao cows.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands.....	234,763	16,756,356	176,312	17,448
Bantayán.....	182	9,350	115	.....
Batán.....	318	24,886	716	60
Biliran.....	5,034	192,314	18,698	574
Bohol.....	600	34,641	731	75
Camiguín.....	584	67,648	17	4
Catanduanes.....	10,265	500,069	9,602	602
Cebu.....	21	460	.....	.....
Cuyo.....	46	1,710	96	18
Dinagat.....	857	57,569	733	53
Guimarás.....	177	12,478	214	19
Laguán.....	7,858	650,268	17,048	1,670
Leyte.....	832	35,301	35	155
Lubang.....	131,333	10,504,764	51,625	5,213
Luzón.....	78	2,865	162	1
Mactán.....	1,020	85,047	2,843	50
Marinduque.....	1,540	121,739	475	17
Masbate.....	8,093	386,663	14,990	1,247
Mindanao.....	1,490	74,643	963	129
Mindoro.....	17,299	1,192,823	16,962	1,291
Negros.....	44	1,238	96	43
Panaón.....	26,794	1,684,470	23,616	3,300
Panay.....	187	5,255	103	1
Panglao.....	80	3,190	1	2
Paragua.....	286	13,919	303	68
Pasijan.....	269	14,083	1,300	38
Poró.....	441	22,690	13	24
Romblón.....	7,591	485,606	11,930	1,753
Samar.....	151	5,920	604	61
Siargao.....	652	33,980	12	32
Sibuyán.....	2,438	90,440	197	61
Siquijor.....	3,178	122,231	111	269
Tablas.....	248	19,775	7	4
Ticao.....	4,777	298,321	1,994	614
Other islands.....				

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	NEAT CATTLE—continued.							
	Carabao calves.				Other neat cattle.			
	Num-ber.	Value (pesos).	Died.	Slaugh-tered.	Num-ber.	Value (pesos).	Died.	Slaugh-tered.
Philippine Islands...	93,311	2,796,969	67,867	7,882	127,559	6,192,815	137,180	24,881
Bantayán.....	19	410	20	2	1,129	41,219	632	72
Batán.....					4,667	72,405	453	754
Biliran.....	154	6,278	355	40	68	3,876	377	38
Bohol.....	1,847	37,977	6,847	529	1,482	49,419	21,681	1,652
Camiguín.....	301	8,067	336	39	179	12,440	529	66
Catanduanes.....	321	21,019	3		168	15,370		
Cebú.....	2,913	77,977	2,158	42	3,591	133,963	5,207	1,619
Cuyo.....	11	139			1,165	19,109	40	35
Dinágat.....	25	442	42	12	5	170	3	9
Guimarás.....	335	7,097	214	8	717	31,005	2,759	147
Laguán.....	26	669	5					
Leyte.....	3,060	121,721	6,108	1,044	3,422	208,897	5,331	783
Lubang.....	361	2,919		42	3,743	106,730	111	416
Luzón.....	54,761	1,874,972	20,951	2,540	46,087	3,340,201	28,680	7,195
Mactán.....	29	527	39		76	2,841	37	5
Marinduque.....	267	9,534	938	13	1,443	67,693	7,944	1,397
Masbate.....	780	18,015	257	13	1,647	66,020	96	18
Mindanao.....	4,961	92,118	8,102	1,306	7,121	189,627	7,879	1,309
Mindoro.....	804	15,959	588	96	8,063	216,441	4,586	550
Negros.....	6,090	139,197	7,554	309	6,087	350,470	21,304	2,248
Panaón.....	15	179	3		28	1,925	42	19
Panay.....	8,033	180,362	8,866	497	6,018	322,640	24,134	3,612
Panglao.....	61	934	11	11	545	9,577	425	59
Paragua.....	59	734			1,079	25,839	19	148
Pasijan.....	100	3,310	196	21	13	520	36	16
Poro.....	118	4,219	551	67	58	2,337	301	21
Romblón.....	147	2,608	40	1	604	25,785	39	303
Sámar.....	1,984	55,142	2,256	820	871	43,028	1,675	302
Siargao.....	53	999	182	26	1	10		
Sibuyan.....	408	10,856	66	33	1,504	43,885	62	99
Siquijor.....	787	14,741	145	12	384	10,523	56	38
Tablas.....	1,749	26,231	151	196	2,051	49,985	4	92
Ticao.....	114	4,415	3		145	5,880	2	11
Other islands.....	2,618	57,202	885	163	23,498	722,985	2,736	1,848

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES.			
	All horses.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	144,171	7,137,158	87,761	13,019
Bantayán	774	17,880	64	2
Batán	11	300	.....	.....
Biliran	89	4,855	32	1
Bohol	2,113	52,762	756	949
Camiguín	1,471	48,472	293	59
Catanduanes	2,034	100,126	68	20
Cebú	7,134	332,785	1,078	95
Dinágat	112	1,748	3	.....
Guimarás	10	201	.....	.....
.....	385	9,601	142	44
Laguán	14	470	.....	.....
Leyte	4,179	224,359	2,453	300
Lubang	1,504	27,555	38	186
Luzón	93,579	5,262,406	69,398	8,730
Mactán	193	5,079	16	.....
Marinduque	3,894	122,147	1,147	451
Masbate	2,796	71,024	123	121
Mindanao	7,571	195,266	2,139	380
Mindoro	896	27,084	115	173
Negros	5,252	257,976	3,820	585
Panaón	30	1,031	5	.....
Panay	2,972	140,678	4,482	618
Panglao	10	242	.....	.....
Paragua	17	1,180	.....	.....
Pasijan	107	4,847	30	.....
Poro	134	4,733	32	.....
Romblón	21	493	.....	1
Sámar	560	28,947	951	24
Siargao	19	353	1	.....
Sibuyán	486	7,690	21	27
Siquijor	1,053	31,520	38	34
Tablas	770	24,120	76	39
Ticao	1,341	30,995	226	57
Other islands	2,640	98,233	214	123

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES—continued.			
	Native.			
	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands	142,992	6,711,665	87,437	12,992
Bantayán	770	17,780	64	2
Batán	10	260	.....	.....
Biliran	89	4,856	32	1
Bohol	2,110	52,387	694	939
Camiguín	1,466	46,910	293	59
Catanduanes	2,034	100,126	68	20
Cebú	7,131	331,785	1,071	96
Cuyo	112	1,748	3	.....
Dinagat	10	201	.....	.....
Guimarás	383	9,561	141	44
Laguán	12	310	.....	.....
Leyte	4,098	182,069	2,433	300
Lubang	1,504	27,555	38	186
Luzón	92,661	4,919,732	69,186	8,718
Mactán	193	5,079	16	.....
Marinduque	3,894	122,147	1,143	449
Masbate	2,795	70,774	123	121
Mindanao	7,547	189,696	2,139	379
Mindoro	896	27,084	115	173
Negros	5,260	257,176	3,813	585
Panaón	30	1,031	5	.....
Panay	2,957	137,878	4,472	616
Panglao	10	242	.....	.....
Paragua	14	430	.....	.....
Pasijan	107	4,847	30	.....
Poró	134	4,733	32	.....
Romblón	20	473	.....	1
Sámar	560	28,947	951	24
Siargao	19	353	1	.....
Sibuyán	486	7,690	21	27
Siquijor	1,053	31,520	38	34
Tablas	770	24,120	76	39
Ticao	1,341	30,995	226	57
Other islands	2,526	71,271	213	123

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	HORSES—continued.				MULES.			
	Other horses.				Number.	Value (pesos).	Died.	Slaughtered.
	Number.	Value (pesos).	Died.	Slaughtered.				
Philippine Islands ..	114	26,962	1	.....	290	32,380	180	131
Batayán								10
Batán								
Biliran								
Bohol					9	58	1	1
Camiguín					1	3	1	3
Catanduanes								
Cebú					13	30	8	3
Cuyo								
Dinágat								
Guimarás								
Laguán								
Leyte					3	10	9	2
Lubang								
Luzón	114	26,962	1	.....	204	29,973	43	78
Mactán								
Marinduque								
Masbate								
Mindanao					10	73	10	13
Mindoro								
Negros					9	165	64	10
Panaón								
Panay					20	563	13	9
Panglao								
Paragua					3	1,350		
Pasijan								
Poró							15	2
Romblón								
Sámar					12	30	12	
Siargao								
Sibuyán								
Siquijor								
Tablas								
Ticao								
Other islands					6	125	4	

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	SHEEP.				GOATS.			
	Number.	Value (pesos).	Died.	Slaughtered.	Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands..	30,428	131,161	9,583	8,979	124,334	367,886	34,245	32,404
Bantayán	10	15	14	4	83	275	9	25
Batán	95	138	37	22	615	906	121	108
Biliran	78	490	99	58	75	317	224	158
Bohol	173	466	101	70	362	963	265	123
Camiguín	213	806	121	113	688	2,247	220	298
Catanduanes	28	128	20	9	71	412	5	10
Cebu	1,914	6,911	794	630	21,713	47,806	4,032	4,967
Cuyo					7	10		
Dinagat	4	3			1	1	3	
Guimarás.....	46	146	27	5	117	346	16	20
Laguán.....								
Leyte.....	465	1,938	315	189	1,268	4,042	829	608
Lubang.....	2	10			23	25		
Luzón.....	15,360	73,715	4,032	3,916	72,456	242,169	16,828	17,512
Mactán.....	61	255		5	822	1,506	37	44
Marinduque.....	23	260	1	2	121	390	7	12
Masbate.....	49	252		5	119	503	9	7
Mindanao.....	908	2,710	264	183	3,106	7,359	873	649
Mindoro.....					182	351	96	87
Negros.....	8,562	33,463	2,840	2,916	11,915	33,781	3,401	4,090
Panaón.....	85	411	31	47	133	498	28	61
Panay.....	1,592	6,634	635	636	6,100	14,457	5,106	2,410
Panglao.....	9	27	10	2	37	68	3	12
Paragua.....					48	109	4	
Pasijan.....	30	48	5	9	219	762	174	243
Poró.....	20	31	8	5	184	483	60	77
Romblón.....	8	33		3	154	485	11	22
Samar.....	109	397	83	5	533	1,974	883	99
Siargao.....	65	111	4	5	29	76		2
Sibuyán.....	13	49	2		193	553	63	80
Siquijor.....	89	199	41	27	477	702	72	64
Tablas.....					290	464	5	38
Ticao.....					15	85	12	
Other islands.....	418	1,615	99	113	2,178	3,771	849	578

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	SWINE.				FOWLS.			
	Number.	Value (pesos).	Died.	Slaughtered.	Chickens.			
					Number.	Value (pesos).	Died.	Slaughtered.
Philippine Islands ..	1,179,371	6,374,304	661,512	433,160	5,470,981	2,561,764	3,804,570	4,914,089
Bantayán	1,651	8,114	396	587	9,841	2,686	1,054	11,901
Batán	2,082	10,188	275	404	2,572	811	2,245	1,849
Biliran	2,178	14,291	2,550	1,339	5,755	4,389	11,357	7,987
Bohol	42,688	114,066	35,969	11,226	160,952	40,941	113,394	141,894
Camiguín	3,548	26,056	7,166	4,413	22,175	14,912	23,111	47,582
Catanduanes	3,282	51,857	413	348	15,426	13,775	8,064	10,472
Cebú	140,593	500,890	104,057	41,285	551,823	179,598	376,734	573,840
Cuyo	260	1,139	3	26	7,205	1,612	1,454	1,955
Dinágat	552	1,893	791	414	1,607	804	1,224	1,555
Guimarás	2,428	12,252	242	507	12,765	5,945	4,235	8,090
Laguán	233	1,399	139	66	1,683	1,170	1,296	583
Leyte	32,884	827,467	28,065	16,776	265,727	199,812	171,257	239,008
Lubang	711	3,608	61	137	3,190	1,414	895	938
Luzón	684,108	3,988,719	312,057	239,573	3,245,518	1,612,068	2,145,544	2,515,294
Mactán	2,626	12,212	380	237	11,840	4,207	2,026	2,248
Marinduque	5,941	28,849	2,606	1,691	26,566	12,381	17,565	17,903
Masbate	2,831	25,806	5,604	714	13,437	7,222	6,889	11,483
Mindanao	41,234	188,259	38,808	18,307	139,522	62,869	109,893	140,733
Mindoro	1,323	7,189	282	357	7,218	3,585	3,818	2,504
Negros	77,086	349,871	51,726	43,303	289,204	107,105	190,545	361,459
Panaón	872	6,304	1,226	563	3,565	1,852	1,756	4,462
Panay	60,150	281,606	31,109	24,615	379,341	144,396	359,923	584,856
Panglao	2,000	6,395	1,344	6,620	10,700	2,565	2,136	2,671
Paragua	352	1,610	43	24	3,761	1,290	1,189	396
Pasijan	2,165	11,310	4,158	2,067	21,342	6,483	29,622	41,210
Poro	1,928	6,854	5,000	1,114	14,296	5,234	20,438	19,418
Romblón	2,334	16,907	413	437	14,638	7,451	6,676	16,184
Sámar	16,974	145,976	17,278	5,120	79,337	49,276	101,502	40,051
Siargao	1,312	5,136	1,813	496	4,118	2,244	3,672	2,840
Sibuyán	864	5,623	93	317	5,931	2,752	4,117	6,552
Siquijor	14,417	48,336	3,131	2,771	29,709	8,533	14,017	24,329
Tablas	2,816	22,526	113	623	13,328	5,991	1,938	16,568
Ticao	2,343	25,505	846	689	10,133	7,013	9,025	3,917
Other islands	22,620	121,092	8,405	6,094	86,706	39,378	55,959	51,357

TABLE 25.—Number and value of animals on farms and not on farms, and the number which died and were slaughtered during 1902, by principal islands—Continued.

ISLAND.	FOWLS—continued.											
	Turkeys.				Ducks.				Geese.			
	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.	Num-ber.	Value (pe-sos).	Died.	Slaugh-tered.
Philippine Islands...	9,201	27,878	3,861	2,466	78,215	66,475	24,190	15,623	6,202	12,413	2,300	1,766
Bantayán	2	4	12	.....	127	88	21	.....	.....	.....	.....	.....
Batán	25	54	3	4	4	4	.....	.....	.....	.....	.....	.....
Biliran .....	.....	.....	.....	.....	104	139	74	16	2	6	3	5
Bohol	9	14	.....	1	200	133	109	36	45	25	38	67
Camiguín	5	15	2	.....	387	458	82	86	12	16	.....	.....
Catanduanes...	17	59	20	7	52	107	5	.....	49	68	2	3
Cebu	650	1,823	363	95	763	899	424	66	144	243	85	132
Cuyo .....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	.....	.....
Dinagat .....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	.....	.....
Guimaráz	36	125	18	.....	86	86	8	14	16	22	100	117
Laguán	4	16	.....	.....	8	11	.....	.....	5	34	.....	.....
Leyte	69	140	56	30	957	1,304	846	665	83	118	50	70
Lubang .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Luzon	6,329	19,485	2,463	1,621	64,818	54,626	15,872	11,682	4,019	7,938	1,262	854
Mactán .....	.....	.....	.....	.....	32	61	7	1	5	10	.....	.....
Marinduque ...	40	32	.....	1	38	87	9	4	.....	.....	.....	.....
Masbate	21	28	.....	.....	58	50	11	3	21	11	.....	12
Mindanao	40	103	16	2	1,099	1,028	748	141	108	183	44	17
Mindoro .....	.....	.....	.....	.....	49	54	18	4	21	42	27	5
Negros	1,090	3,814	563	452	4,522	3,344	3,003	1,836	964	2,539	335	133
Panaón .....	.....	.....	.....	.....	8	4	5	2	.....	.....	.....	.....
Panay	796	2,507	322	230	4,112	3,132	2,728	902	554	1,039	253	256
Panglao .....	.....	.....	.....	.....	4	6	.....	.....	17	8	.....	3
Paragua .....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....
Pasijan .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Poro .....	.....	.....	.....	.....	3	2	.....	.....	75	26	42	86
Romblón	2	4	.....	.....	205	190	.....	100	5	3	12	1
Samar	20	41	15	1	279	377	191	59	4	6	40	.....
Siargao	7	18	.....	.....	19	21	2	1	.....	.....	.....	.....
Sibuyan	5	24	1	1	9	7	2	.....	12	6	5	15
Siquijor .....	.....	.....	.....	.....	9	12	.....	.....	.....	.....	.....	.....
Tablas .....	.....	.....	.....	.....	38	33	3	3	4	4	.....	.....
Ticao	16	8	7	8	4	5	10	.....	.....	.....	.....	.....
Other islands ..	18	64	.....	3	216	204	12	2	37	66	2	1

SOCIAL STATISTICS.

I. THE SCHEDULE.

Under the title Social Statistics census returns for the following subjects were secured:

NEWSPAPERS AND PERIODICALS.

PROPERTY VALUES AND TAXES.

FUNDS OF PUBLIC SCHOOLS.

PUBLIC LIBRARIES.

CROPS.

HOSPITALS.

CHURCHES.

PAUPERISM.

CRIMINALS AND PRISONS.

LABOR AND WAGES.

SYSTEMS OF MEASUREMENT.

Information concerning these subjects was obtained by means of schedules filled out by the presidentes of municipalities acting as special agents, by interrogatories made through special enumerators of the Census, and from the reports of the Census supervisors.

Reference to Schedule No. 5, which follows, will show the subjects intrusted to the presidentes. The information collected upon this schedule appears in the reports which follow, with the exception of that relating to school funds and crops, which will be found in the chapters upon Education and Agriculture, respectively.

Census of the Philippine Islands taken under the direction of the United States Philippine Commission: 1903.

SCHEDULE NO. 5.—SOCIAL STATISTICS.

Supervisor's district No. _____
Municipality of _____.

Province of _____
Judicial district _____

Enumerated by me this _____ day of _____, 1903.

_____, Enumerator.

VALUE OF PERSONAL AND REAL PROPERTY, 1902.		PUBLICATIONS, INCLUDING DAILIES, PRINTED IN THIS MUNICIPALITY.				
	Pesos.	Name of publication.	Number of times published.			Circulation.
			Dailies.	Week-lies.	Month-lies.	
1. Personal property.....						
2. Real property.....						
Total.....						
3. How valued.....						
4. Real value.....						
AMOUNT OF TAXES IMPOSED IN 1902.						
	Pesos.					
5. Insular.....						
6. Provincial.....						
7. Municipal.....						
8. City or town.....						
Total.....						
9. Road tax in pesos.....						
10. How paid.....						
FUNDS OF PUBLIC SCHOOLS.		HOSPITALS.				
	Pesos.	22. Number of public hospitals.....				
11. Amount received as municipal school tax in 1902.....		23. Number of patients registered in 1902.....				
12. Amount received from provincial funds, 1902.....		24. Commonest diseases.....				
13. Amount received from insular funds.....						
14. Amount received from other sources.....						
Total.....						
PUBLIC LIBRARIES.		CHURCHES.				
15. Number of libraries.....		25. Number of Catholic places of worship.....				
16. Number of volumes.....		Value in dollars.....				
17. Number of volumes in native language.....		26. Capacity of place of worship.....				
18. Number of volumes in English.....		27. Number of Protestant places of worship.....				
19. Number of volumes in French.....		Value in dollars.....				
20. Number of volumes in German.....		28. Number of seats.....				
21. Number of volumes in Spanish.....						

SCHEDULE No. 5.—SOCIAL STATISTICS—Continued.

CROPS.	CRIMINALS.
29. Have the crops been larger or smaller than usual	41. Number of persons sentenced for civil offenses in 1902.....
30. What crops have been smaller	42. Number of persons under arrest on Dec. 31, 1902.
31. To what extent	43. Natives
32. What has been the annual average of the crops which have been smaller	44. Americans
.....	45. Europeans
.....	46. Chinese
.....	47. Japanese
.....	48. Other nationalities
PAUPERS.	COST OF LABOR.
33. Total number of paupers cared for during 1902.....	49. Average wages of laborers
34. Number cared for on Dec. 31, 1902.....	50. Average wages of workmen
35. Natives	51. Average wages of carpenters
36. Americans	52. Average wages of masons
37. Europeans	53. Average wages of painters
38. Chinese	54. Average wages of blacksmiths
39. Japanese .....	.....
40. Other nationalities .....	.....

II. NEWSPAPERS AND PERIODICALS.

Early Censorship of the Press—Newspapers in 1902—Tables.

The publication of newspapers in the Philippines under the Spanish régime was surrounded by such rigid governmental rules, and subjected to such close censorship, that, though many were established from time to time, they were usually unprofitable and short lived, although there was a sufficient number of literate persons to maintain them had there been fewer restrictions on their publication. As matters stood, however, efforts to supply the Filipinos with regularly issued newspapers almost invariably resulted in quick failure, and the people were at all times practically debarred from the enlightening influence of even a partially free press.

The date of the first publication of a newspaper in the archipelago can not be stated positively, but it is said to have been in the year 1811. It is known that one, the *Diario de Manila*, was established as far back as 1848, and it is believed that several were established prior to that year, though no record of their number, names, or the years in which their publication either commenced or ceased could be obtained.

Señor M. de Yriarte, Chief of the Bureau of Archives at Manila, in 1903, made a careful and exhaustive research, at the request of the Philippine Census, and though he was able to determine the number of newspapers and periodicals published prior to American occupation, he was unable to ascertain the years in which several of them were founded.

Señor Yriarte's investigation showed that up to the end of Spanish dominion there had been 33 daily newspapers and 81 weekly, semi-monthly, and monthly periodicals. How long they existed can not be told except in a very few cases; only three of them, all daily papers, continued after American occupation, one of these having been established in 1870 and the other two in 1892 and 1896, respectively. As will be noted in the table following, a large number has been added to this list since that date.

The legal provisions governing the publication of newspapers in the Philippines, prior to the termination of Spanish sovereignty, will be found in the royal order of October 27, 1837, which was published in volume 7 of the *Diccionario de la Administración de Filipinas*, as follows:

TITLE II.—*Newspapers.*

ART. 13. According to the spirit of the provisions of the royal order of October 27, 1837, permission shall, as heretofore, be requested of this superior government, for the purpose of establishing any newspaper in these islands.

ART. 14. The Official Bulletin,¹ the only newspaper at present in existence, and all other newspapers which may be established hereafter, shall be subject to prior censure with regard to their entire contents, excepting such section as relates to official matters and matters pertaining to the movement in the port.

ART. 15. For the purpose of carrying out the provisions contained in the preceding article, the fiscal in civil matters, president of the permanent board of censure, shall appoint one or two censors from the board, for each newspaper.

ART. 16. The editor liable shall be under the obligation of submitting to the respective censors, a sufficient period in advance, drafts of all matter which he wishes to publish and which is subject to censorship. The censors shall make therein such modifications as they may deem proper, shall approve them at the end, and, after rubricating each sheet, shall return them to the editor or author, as prescribed by art. 14 of the regulations transmitted to Habana by royal order on June 1, 1834. These sheets must be used as the text for the newspaper, and the editors are under the obligation of retaining them in their possession and presenting them whenever called upon to do so, for verification, in accordance with art. 15 of the same. (Regulations.)

ART. 18. In order to avoid doubt, it is declared that articles published in other newspapers, whether national or foreign, shall be subject to a new censorship before they are reprinted in towns other than those in which permission for their publication was granted, in accordance with art. 19 of the same.

ART. 19. Articles sent to the newspaper offices, whether anonymous or otherwise, shall be considered, in so far as the liability established in these regulations is concerned, as the product of the editor of the newspaper in which they may be published, according to art. 20 of the same.

ART. 20. Any editor or printer who shall print an article which does not conform in all respects with the manuscript approved by the censor, in accordance with the provisions of articles 16 and 17 of these regulations, shall pay a fine of 50 pesos on the first offense, one hundred on the second, and two hundred on the third. All these penalties shall be doubled in the case of the issue of an article not approved by the censor, according to articles 19 and 20 of the aforementioned regulations of Habana, without prejudice to an order issuing for the suppression of a newspaper in the event of another offense.

ART. 21. The printer or bookseller who shall sell copies of a prohibited number shall pay for each copy so sold, a fine amounting to five hundred times the sale price thereof, according to art. 25 of the said regulations.

ART. 22. Prospectus shall be subjected to censorship, and newspapers can not be published with any part of their columns in blank. Editors of newspapers who shall by this means, by means of lines of periods, or in any other similar manner, indicate the suppression of articles submitted to censorship, shall pay a fine of one hundred pesos on the first offense, two hundred on the second, and on the third offense the newspaper shall be suppressed, according to art. 16 of the aforesaid regulations.

ART. 23. The fines established in the preceding articles shall be understood as without prejudice to the right of private individuals or corporations in cases of libel and calumny to bring an action for damages and the punishment of the proper person,

¹The Official Bulletin was established in 1852.—*Director.*

in accordance to law, before the court of competent jurisdiction, according to art. 21 of the said regulations.

ART. 24. The amount of the fines must be paid in the respective (stamps) paper established for the purpose by a proclamation of this superior government, dated April 20, 1853.

ART. 25. Censors must censure the newspapers upon the same day they are submitted to them by the editors, or as soon as possible, and shall report to the fiscal in civil matters on the date of the publication of the newspapers, subject to their revision, when articles not approved by them or altered have been inserted, in order that the fiscal may place the matter before the superior government of these islands.

ART. 26. The censors shall not permit the insertion in newspapers of—

First. Articles expounding maxims or doctrines tending to destroy or change the Catholic religion in its worship or in its dogmas, the respect to the rights and prerogatives of the throne, the fundamental laws of the monarchy.

Second. Articles tending to disturb public tranquillity.

Third. Those which directly or indirectly incite to the violation of some law or to disobedience of some legitimate authority by means of satire or fictitious statements, even though the authority against whom they are directed, and the town of his residence are disguised by allusions or allegories; whenever the censors are of opinion that specific persons or constituted authorities and corporations are designated in this manner.

Fourth. Licentious articles and articles contrary to good morals.

Fifth. Calumnious articles or infamous libels which attack the reputation and private conduct of individuals, whether private or public employees, even though they should not be designated by name, but by anagrams, allegories, or in any other form, provided that the censors are convinced that they allude to specific persons.

Sixth. Articles containing insults to foreign sovereigns and governments or which incite their subjects to rebellion, and, in general, any article, the publication of which could be in the opinion of the censor prejudicial or injurious to the country.

ART. 27. Each editor shall send to his respective censors a copy of the newspaper on the very day of its publication, in accordance with art. 18 of the aforesaid regulations.

ART. 28. With regard to newspapers coming by mail, either from the peninsula or any foreign point, this superior government reserves the adoption of the proper measures in order that their said circular be not prejudicial to the country.

No appeal appears to have been permitted from the decisions of the censors, who could at any time prevent the publication of any article, no matter what its character, upon the pretext that it came within one or the other of the inhibitions of article 26, as given above, and were thus able at all times to prevent effectually the publication of anything which failed to meet with their personal approval. Under such circumstances the newspaper business could not be prosperous, and failed to gain much of a foothold in the islands outside of Manila.

According to the reports of the special agents of the census, 41 newspapers and periodicals were published in the archipelago in the year 1902. Of these, 12 were in the English language, 24 were in Spanish, 4 were in Tagálog and Visayan, and 1 in Chinese. Ten of the English papers and 16 of the Spanish were published in Manila, and of the number 18 were dailies. Of weeklies, semiweeklies, and triweeklies, there were 16, and of fortnightlies and monthlies, 5.

The total circulation of all publications was 68,236; that of the English papers, 18,360, an average circulation per paper of 1,530 copies. The largest circulation was 3,100. Of the Spanish papers, the total circulation, including 1 Chinese paper of limited circulation, was 46,454, an average of 1,858 copies, with a maximum of 8,000. The native papers have but a small circulation, amounting in the total to only 3,422.

It may be assumed that the circulation of the English papers is confined mainly to American and English residents, and that of the Spanish and native papers to the natives and few Spaniards still remaining in the islands. This circulation is at the average rate of about one paper to 150 people, or assuming that about 10 per cent of the people know the Spanish language, about one paper to 15 such persons. As compared with the circulation of newspapers and periodicals in the United States, which is nearly one for every man, woman, and child in the country, even these last figures are very small, but in comparing them the condition of repression under which the Filipino people have existed, the state of education, and the slowness and uncertainty of the mail service even now, go far to explain the contrast. As far as the mails are concerned, millions of the Filipino people are farther removed from Manila than the residents of the state of Maine.

The higher classes of the people everywhere subscribe to newspapers and evince great interest in current events.

In Spanish days news of the world was shut out from all but the higher classes, and, indeed, among them there was by no means the interest manifested to-day. According to the representations of the supervisors of the census, the interest is spreading from the highest to the middle and even to the lowest classes, and the Manila papers have a wide although not a large circulation in the province.

The following tables give the newspapers and periodicals and their circulation, classified by place of publication, period of issue, circulation, and language:

Number of newspapers and periodicals by place of publication and by language.

PLACE OF PUBLICATION.	Total number.	LANGUAGE PUBLISHED IN—			
		English.	Spanish.	Native.	Chinese.
Total.....	41	12	24	4	1
Manila.....	28	10	16	1	1
Cebú, Cebú.....	4	.....	2	2	.....
Iloilo, Iloilo.....	4	1	3	.....	.....
Jaro, Iloilo.....	2	.....	1	1	.....
Bacolod, Negros Occidental.....	1	.....	1	.....	.....
Dumaguete, Negros Oriental.....	1	1	.....	.....	.....
Nueva Cáceres, Ambos Camarines.....	1	.....	1	.....	.....

Number of newspapers and periodicals by place of publication and period of issue.

PLACE OF PUBLICATION.	PERIOD OF ISSUE.					
	Daily.	Tri-weekly.	Semi-weekly.	Weekly.	Fort-nightly.	Monthly.
Total.....	20	5	3	8	3	2
Manila.....	18			7	2	1
Cebu, Cebu.....		2	1	1		
Iloilo, Iloilo.....	2	2				
Jaro, Iloilo.....			1			1
Bacolod, Negros Occidental.....		1				
Dumaguete, Negros Oriental.....					1	
Nueva Cáceres, Ambos Camarines.....			1			

Circulation of newspapers and periodicals by language.

LANGUAGE.	Manila.	Provinces.
Total.....	58,600	9,636
English.....	17,400	960
Spanish and Chinese.....	41,200	5,254
Native.....	(¹)	3,422

¹Not reported.

Circulation of newspapers and periodicals by period of issue.

PERIOD OF ISSUE.	Manila.	Provinces.
Total.....	58,600	9,636
Daily.....	41,900	1,254
Triweekly.....		3,782
Semiweekly.....		2,600
Weekly, fortnightly, and monthly.....	16,700	2,000

Circulation of newspapers and periodicals by language and period of issue.

PERIOD OF ISSUE.	LANGUAGE.		
	English.	Spanish and Chinese.	Native.
Total.....	18,360	46,454	3,422
Daily.....	11,400	31,754	(¹)
Triweekly.....	560	1,700	1,522
Semiweekly.....		700	1,900
Weekly.....	4,200	11,000	
Other.....	2,200	1,300	

¹Not reported.

III. PROPERTY VALUES AND TAXES.

General Statement—Relative Values and Taxes, by Provinces and Comandancias.

The estimated value of personal and real property in 1902 and the amount of all taxes, except customs duties, collected during that year were ascertained by means of inquiries forming a part of Schedule No. 5. The amount of taxes paid for insular, provincial, municipal, city or town, and road purposes were reported separately, and the data secured, both as to values and taxes, are presented by provinces and comandancias in the tables which follow. The following brief summary of the totals shown in the tables for the archipelago, expressed in pesos, is given for the convenience of the reader:

Value of personal property.....	152,718,661
Value of real estate.....	469,527,058
Total	622,245,719
Taxes collected:	
Insular.....	2,376,213
Provincial.....	2,174,545
Municipal.....	5,158,524
City or town.....	133,262
Road.....	94,917
Total	9,937,461

The relative wealth and amount of taxes paid in the different provinces in 1902 are shown in the following table, in which they are arranged with reference to the magnitude of the reported property values in each. Such values were estimated in the various sections by tax assessors, appraisers, the presidentes who collected the social statistics in their respective municipalities, or by the owners of property, and in common with all property valuations can only be accepted as approximately representing actual values.

Relative wealth and amount of taxes paid, by provinces and comandancias arranged in order of magnitude of value of property.

Number in order of magnitude.	PROVINCE OR COMANDANCIA.	Total reported value of personal property and real estate (pesos).	Total amount of taxes collected (pesos).
	Philippine Islands	622,245,719	9,937,461
1	Manila city.....	96,226,354	2,513,231
2	Tarlac	51,764,605	105,650
3	Leyte	36,751,003	248,750
4	Iloilo	36,165,306	1,889,352
5	Pangasinán.....	28,802,738	300,380
6	Cebu.....	28,006,833	1,062,346
7	Negros Occidental.....	24,866,738	269,961
8	Bulacán	23,092,072	133,512
9	La Laguna	21,147,665	162,024
10	Pampanga.....	20,684,237	178,213
11	Albay	20,093,494	209,519
12	Ambos Camarines	19,145,796	185,404
13	Tayabas ¹	18,827,450	203,001
14	Batangas	16,746,641	94,016
15	Cápiiz	14,749,631	116,962
16	Rizal	14,528,570	143,866
17	Sámar	13,439,701	87,057
18	Sorsogón.....	10,735,815	154,075
19	Bohol.....	10,339,489	108,313
20	Nueva Ecija	10,061,985	79,612
21	Ilocos Norte	9,838,973	127,156
22	Ilocos Sur	9,673,426	243,799
23	Cavite	9,516,387	109,927
24	Negros Oriental	9,507,844	132,740
25	Caagayán.....	8,463,750	137,155
26	Zambales.....	7,912,530	79,228
27	La Unión.....	7,148,716	136,276
28	Misamis	5,392,478	107,261
29	Marinduque ²	5,384,084	37,411
30	Antique	4,729,448	73,203
31	Bataan	4,192,727	64,882
32	Isabela	3,897,809	95,662
33	Mindoro	3,874,877	13,914
34	Surigao	3,499,377	66,263
35	Abra	2,519,141	24,437
36	Benguet	2,318,160	12,960
37	Zamboanga ³	1,766,419	36,866
38	Romblón	1,673,029	52,187
39	Masbate	1,498,159	63,546
40	Nueva Vizcaya	1,013,865	12,005
41	Joló ³	593,113	(⁴)
42	Lepanto-Bontoc	585,234	2,099
43	Dávao ³	417,830	8,048
44	Paragua	407,589	16,306
45	Cottabato ³	109,250	21,434
46	Basilan ³	106,220	2,400
47	Paragua Sur ³	18,465	2,313
48	Dapitan ³	10,696	8,157
49	Siassi ³	(⁴)	4,582
50	Tawi Tawi ³	(⁴)	(⁴)

¹ Exclusive of subprovince, Marinduque.
² Subprovince of Tayabas.

³ Comandancia.
⁴ None reported.

Value of property and amount of taxes collected in 1902, by provinces and comandancias.

PROVINCE OR COMANDANCIA.	REPORTED VALUE OF PROPERTY IN PESOS.				AMOUNT OF TAXES COLLECTED IN PESOS.				
	Total.	Personal property.	Real estate.	Total.	Insular.	Provincial.	Municipal.	City or town.	Road.
Philippine Islands.....	622,245,719	152,718,661	469,527,058	9,937,461	2,376,213	2,174,545	5,158,524	133,262	94,917
Abra.....	2,519,141	971,907	1,547,234	24,437		8,087	16,350		
Albay.....	20,093,684	3,836,538	16,756,956	209,519	2,490	120,807	86,140		82
Ambos Camarines.....	19,145,796	2,387,016	16,758,780	185,404	7,034	62,800	72,841	42,729	
Antique.....	4,729,448	1,782,097	2,947,351	78,203	2,977	26,392	40,479		3,855
Basilan.....	106,220	35,000	71,220	2,400				2,400	
Batangas.....	4,192,727	1,069,258	3,123,469	64,882		23,825	41,057		
Batavia.....	16,746,641	5,680,802	11,065,839	94,016	5	43,244	50,767		
Benguet.....	2,318,160	1,279,738	1,038,422	12,960			953		
Bohol.....	10,339,489	2,552,895	7,786,594	108,313	2,555	68,196	37,622		2,036
Bulacan.....	23,092,072	3,557,352	19,534,720	133,512	3	58,493	77,960		
Cagayan.....	8,463,750	959,297	7,504,453	137,155			136,604		
Capiz.....	14,749,681	5,403,557	9,346,074	116,962	4,367	43,907	58,693		713
Cavite.....	9,516,387	1,844,679	7,671,708	109,927		56,376	52,898		
Cebu.....	28,006,883	8,105,961	19,900,872	1,062,346	672,132	186,172	204,042	20,721	
Cottabato ¹	103,250	4,240	105,010	21,434				2,020	
Davao ¹	10,696	9,855	10,696	8,137	2,998		3,139		788
Davao ²	417,880	80,000	337,880	8,048		1,836	3,212		
Ilocos Norte.....	9,888,973	3,115,401	6,723,572	127,156		70,329	43,324	7,560	
Ilocos Sur.....	9,673,426	2,148,963	7,524,463	243,799	6,763	89,578	123,497		23,961
Iloilo.....	36,165,306	17,624,346	18,540,960	1,889,352	1,595,639	84,080	203,733		
Isabela.....	3,897,809	472,868	3,425,441	95,662	2,392	43,288	46,605	48	3,329
Jolo ¹	355,230	355,230	355,230	593,113					
La Laguna.....	21,147,665	2,601,498	18,546,167	162,024	724	80,620	75,440	2,532	2,708
La Union.....	7,148,716	752,642	6,396,074	136,276		46,634	74,427		15,215
Lepanto-Bontoc.....	585,234	218,402	366,832	2,099			3,009		
Levite.....	36,751,003	9,208,064	27,542,939	248,750	3,732	133,962	90,786	250	
Manila city.....	96,226,354	36,826,534	59,399,820	2,513,231			2,513,231		
Marinduque ²	614,691	4,769,893	4,769,893	37,411	14	17,068	20,329		
Masbate.....	5,384,084	1,225,335	4,158,749	63,546	11,044	27,401	25,011	90	3
Mindoro.....	1,496,159	272,824	1,223,335	13,914	1,266	4,067	8,578		
Misamis.....	3,874,877	2,378,266	1,496,611	107,261	3,877	44,470	62,424		
Negros Occidental.....	5,392,478	4,418,991	943,487	269,961	10,352	113,978	127,351		18,100
Negros Oriental.....	24,866,738	8,439,214	16,427,524	269,961	500	48,940	18,759	2,941	
Nueva Ecija.....	9,507,844	2,852,430	6,675,414	132,740			31,015		118
Nueva Vizcaya.....	10,051,965	2,228,012	7,823,953	73,612			10,660		838
.....	1,013,865	2,406,697	607,168	12,005					

¹Subprovince of Tayabas.

¹Comandancia.

Value of property and amount of taxes collected in 1902, by provinces and comandancias—Continued.

PROVINCE OR COMANDANCIA.	REPORTED VALUE OF PROPERTY IN PESOS.			AMOUNT OF TAXES COLLECTED IN PESOS.					
	Total.	Personal property.	Real estate.	Total.	Insular.	Provincial.	Municipal.	City or town.	Road.
Pampanga.....	20,684,287	2,510,021	18,174,216	178,213	1,533	80,606	96,074		
Pangasinán.....	28,802,738	2,670,174	26,132,564	300,380	812	108,078	189,476		2,014
Paraguá.....	407,589	212,411	195,178	16,306		494	15,812		
Pasigayán.....	18,465	1,172	17,293	2,313			2,313		
Pasigayán Sur ¹	14,528,570	3,128,108	11,400,462	143,866		37,364	96,848	8,486	1,168
Rizal.....	1,678,029	252,027	1,426,002	52,187	2,421	23,227	25,879	660	
Romblón.....	13,489,701	1,476,660	11,993,041	87,057		51,901	28,953	6,203	
Samar.....	(²)	(²)	(²)	4,582			4,582		
Sorsogón.....	10,785,815	4,092,433	6,693,382	154,075	1,590	78,565	73,681		239
Surigao.....	3,499,377	1,040,501	2,458,876	66,283		29,395	30,247	6,621	
Tarlac.....	51,764,605	1,704,056	50,060,549	105,650	108	51,414	50,084		4,044
Tawi Tawi.....	18,827,450	(²)	17,982,034	(²)	(²)	(²)	(²)	(²)	(²)
Tayabas ³	7,912,530	1,545,416	6,367,114	203,001	18,606	81,712	69,168	17,410	16,105
Zambales.....	3,716,691	3,196,839	4,196,839	79,238	2,673	27,540	48,914		101
Zamboanga ¹	1,766,419	502,135	1,264,284	36,866	19,372		17,494		

¹ None reported.

² Exclusive of subprovince, Marinduque.

³ Comandancia.

IV. PUBLIC LIBRARIES.

Advisability of Establishing Public Libraries—Number of Libraries.

There were only twelve public libraries in the Philippine Islands when the census was taken, in all of which only 4,019 books were contained. In the city of Manila there were two or three establishments from which books could be procured by the payment of fees, which were not of the class known as "public" but rather as "circulating" libraries, principally patronized by American residents, concerning which data were not obtained.

An inquiry concerning the advisability of the establishment of public libraries throughout the archipelago was made of numerous educated gentlemen, and their replies showed a diversity of opinion. Although a majority favor the establishment of such libraries, a large minority seem to regard it as premature, the inhabitants not having sufficient education to make such a provision worth while. Several of those who favored the establishment of libraries made suggestions regarding the character of books to be provided. All these suggestions were in favor of works upon economic, social, agricultural, and industrial matters; in other words, in the direction of applied science. Such suggestions strike one acquainted with the conditions of the people as eminently practical and sensible.

The following table shows, by provinces and municipalities, the number of libraries and the number of books in each, with a classification of the latter by language in which printed:

Public libraries and number of books therein, classified by language, by provinces and municipalities.

PROVINCE AND MUNICIPALITY.	Number of libraries.	NUMBER OF BOOKS.					
		Total.	In native language.	In English.	In Spanish.	In French.	In German.
Philippine Islands.....	12	4,019	513	1,067	2,421	13	5
Ambos Camarines:							
Nueva Cáceres.....	1	2,000	500	50	1,440	10	.....
Cápiz:							
Pontevedra.....	1	175	5	2	168	.....	.....
Cavite:							
Cavite.....	1	125	.....	100	20	.....	5
Cebú:							
Cebú.....	2	600	.....	.....	600	.....	.....
Ilocos Sur:							
Santa María.....	1	235	3	220	10	2	.....
La Laguna:							
Pagsanján.....	1	163	2	79	82	.....	.....
Leyte:							
Matalóm.....	1	266	.....	266	.....	.....	.....
Paragua:							
Cagayancillo.....	1	163	.....	124	39	.....	.....
Rizal.....	3	292	3	226	62	1	.....
Pateros.....	1	51	1	50	.....	.....	.....
San Juan del Monte.....	1	67	2	3	61	1	.....
Taguig.....	1	174	.....	173	1	.....	.....

V. HOSPITALS.

Reasons for Inadequate Facilities—Four Principal Hospitals—Number of Hospitals and Patients.

When the census was taken there were 70 public hospitals in the Philippines, in which 11,558 patients were reported as having been treated during the year 1902. The inadequacy of hospital facilities is apparent: The increase and extension of this class of institutions is not generally favored by the people, partly on account of the expense of construction and maintenance, to which they do not feel able to contribute, but more especially because the Filipinos are averse to turning their sick over to the care of strangers, preferring to nurse them themselves—a feeling which is very generally entertained by the masses in other countries as well as in the Philippines. This feeling is so strong among them that they usually seek to prevent, by all means in their power, the transfer of those suffering with cholera or smallpox, although they may fully realize the danger of contagion.

The following account of four leading hospitals which were established prior to American occupation of the islands is furnished by Hon. M. de Yriarte, Chief of the Insular Bureau of Archives:

The San Juan de Dios Hospital in Manila, which was founded in 1596 by the Santa Misericordia Fraternity, is composed of five departments, with 60 beds for the use of men, under the direction of Nuestra Señora de los Dolores; the San José, formerly Nuestra Señora de Consolación, containing 8 beds, for the use of persons affected with the cigarette habit; the San Joaquín, established by the Very Rev. Fray Joaquín Álvarez, especially designed for the use of sick foreigners, with 7 beds; the Nuestro Padre Jesús, for persons of distinction, for Brothers of the Venerable Third Order of San Francisco, for priests and Spaniards, with 8 beds; and the Nuestro Padre San Juan de Dios, for women, with 30 beds—which makes a total of 113 beds. The latter hospital was established for the purpose of curing and assisting the widows of poor Spaniards and the widows of Spanish soldiers, even if they should be colored.

The continued series of calamities sustained by this capital since 1646, on account of loss of vessels, loss of crops, and repeated earthquakes, caused the fraternity, in 1656—on account of lack of funds with which to attend to the necessities of the sick—to request permission from the superior government to cede the hospital to the religious order of San Juan de Dios, which had been in the islands since 1641, and had founded, this same year, a hospital in Cavite, and a convalescents' hospital in Bagumbayan, in 1643. Agreeing to this proposition, the governor, D. Sabiniano Manrique de Lara, by decree dated March 22, granted the permission requested, which decision was approved by His Majesty, by royal order of December 5, 1659.

The Hospital of San Lazaro, or of the Lepers—also in Manila—founded in 1784, has 106 beds. By royal order of June 24 of the year mentioned, His Majesty

granted the house and hacienda of Mayhaligue in order to establish such a useful and indispensable institution. Under the indefatigable zeal and direction of R. P. Fray Juan de Mata, of the religious order of Franciscos Descalzos, it was erected in 1784. For its maintenance it receives an annual sum of 3,500 pesos; 3,000 pesos of contributions come from the royal treasuries, incomes from consulates, incomes from public property, and from various houses and lots; and the other 500 come from charitable contributions made by the neighbors. Its spiritual department is conducted by a member of one of the regular religious orders.

The hospital of the Convent of San Andrés, or Island of Convalescents, has in its department of San Carlos 12 beds for convalescents, which it is the intention to increase as the demands require this to be done, and 8 small rooms for persons of distinction. It has one superior, or rector, one head nurse, and a chaplain.

The Convent of San José, of Cavite, intended as a military hospital, is divided into the departments of Nuestra Señora de los Dolores, with 46 beds; Nuestra Señora del Rosario, with 41; San Rafael, with 28; the Santísima Trinidad, with 46; San Pio V, with 20; Santo Cristo, with 14; San José, with 60—making a total of 255, the number of beds in the mentioned hospitals being increased as necessity requires.

The following table shows, by provinces and municipalities, the public civil hospitals in the archipelago, with the number of patients treated in 1902, and, in a majority of instances, the diseases with which the inmates were mostly afflicted. Some of the hospitals in which cholera patients were received are indicated in the column showing the kinds of disease most common in the respective institutions. Several of the hospitals shown in the table were temporary institutions for the isolation of cholera patients.

Public civil hospitals in the Philippine Islands, the number of patients treated, and the diseases most common in each, by provinces and municipalities: 1902.

PROVINCE AND MUNICIPALITY.	Number of public hospitals.	Number of patients treated in 1902.	Diseases most common.
Philippine Islands.	170	11,568	
Albay	24	156	
Legaspi	1	(3)	Pulmonary consumption, tuberculosis, convulsions (infantile), intestinal gastritis, typhoid fever, malarial fever, bronchitis (capillary and chronic), and dysentery.
Libón	1	(3)	Fever (intermittent and malarial), dysentery, epilepsy, consumption, pernicious cough, and cholera (mild form of cholera).
Malinao	1	80	Fever, asthma, pulmonary tuberculosis.
Rapurapu	1	76	Fever, beri-beri, epilepsy, and dysentery.
Ambos Camarines	1	29	
Pili	1	29	Intermittent fever.
Antique	42	11	
San Pedro	1	(3)	Malaria, itch, rheumatism, dysentery, consumption, smallpox, and measles.
San Remigio	1	11	Fever, malaria, dysentery, and diarrhea.

¹ In 16 hospitals the number of patients was not reported.

² In 2 hospitals the number of patients was not reported.

³ Not reported.

⁴ In 1 hospital the number of patients was not reported.

Public civil hospitals in the Philippine Islands, the number of patients treated, and the diseases most common in each, by provinces and municipalities: 1902—Continued.

PROVINCE AND MUNICIPALITY.	Number of public hospitals.	Number of patients treated in 1902.	Diseases most common.
Batangas	1	150	
Calacá	1	150	Intermittent fever.
Benguet	1	(¹)	
Baguío	1	(¹)	Intermittent fever, erysipelas, and diarrhea.
Bohol	1	21	
Tagbilaran	1	21	Cholera and beri-beri.
Bulacán	5	469	
Angat	1	15	Fever, scrofula, and cholera.
Bulacán	3	395	Cholera and dengue.
Calumpit	1	59	
Cagayán	1	41	
Aparri	1	41	Cholera and malignant diseases.
Cápiz	2	436	
Cápiz	1	323	A cholera hospital; only patients with Asiatic cholera received.
Malinao	1	113	Intermittent fever, beri-beri, and dysentery.
Cavite	1	19	
La Caridad	1	19	Dysentery.
Cebú	5	405	
Argao	1	5	Whooping cough, spasms, spotted fever, epilepsy, and inflammation.
Cebú	3	350	Fever, smallpox, and cholera.
Mabolo	1	50	Fever, smallpox, and epilepsy.
Ilocos Norte	2	8	
Laoag	2	8	Leprosy.
Iloilo	25	428	
Ájuy	1	(¹)	Malarial and intermittent fevers.
Iloilo	4	428	Spasms, bronchitis (capillary), pulmonary consumption, malarial fever, catarrh, gastric disorders, dysentery, and intestinal catarrh.
Isabela	1	35	
Tamauni	1	35	Fever, headache, and tertian fever.
La Unión	2	400	
San Fernando	2	400	In the months of January, February, March, April, and May smallpox and fever prevail; in June and July, diarrhea, dysentery, and sometimes fever prevail.
Leyte	1	35	
Abúyog	1	35	Fever (intermittent), erysipelas, rheumatism, smallpox, asthma, consumption, and beri-beri.
Manila city	8	7,255	Infantile convulsions, tuberculosis, convulsions, puerperal fever, beri-beri, simple meningitis, bronchitis, malaria, diarrhea, and enteritis.
Masbate	1	1,000	
Masbate	1	1,000	Fever, malaria, convulsions (in children), diarrhea, consumption of the lungs, rheumatism (articulate and acute), and hemorrhage (in adults).

¹ Not reported.

² In one hospital the number of patients was not reported.

Public civil hospitals in the Philippine Islands, the number of patients treated, and the diseases most common in each, by provinces and municipalities: 1902—Continued.

PROVINCE AND MUNICIPALITY.	Number of public hospitals.	Number of patients treated in 1902.	Diseases most common.
Mindoro.....	1	(¹)	
Lubang.....	1	(¹)	
Misamis.....	1	48	
Iligan.....	1	48	Various fevers, beri-beri, and cholera morbus.
Negros Occidental.....	2	5 40	
Binalbagan.....	1	4	Cholera.
Calatrava.....	1	(¹)	
Guiljungan.....	1	36	Fever, malaria, cholera, apoplexy, and convulsions (infantile).
Manapla.....	1	(¹)	
Saravia.....	1	(¹)	
Negros Oriental.....	1	(¹)	
Larena.....	1	(¹)	Fever and malaria.
Paragua.....	2	(¹)	
Taytay.....	2	(¹)	Fever and dysentery.
Rizal.....	2	427	
Mariquina.....	1	(¹)	Malarial fever.
Taguig.....	1	427	Malarial fever.
Samar.....	1	47	
Páric.....	1	47	Fever, itch, tetter (herpes), colic, spasms, constipation, and asthma.
Sorsogón.....	2	11 61	
Bacón.....	1	(¹)	Fever, spasms, catarrh, epilepsy, headache, and rheumatism.
Bulan.....	1	(¹)	Convulsions (infantile), pulmonary tuberculosis, fevers, beri-beri, and cholera.
Donsol.....	2	7	Fever (intermittent), consumption, tetter (herpes), ulcers, and dropsy occur in the whole town, and cholera in the hospitals.
Irocoñ.....	1	(¹)	Convulsions, pulmonary tuberculosis, fevers, and beri-beri occur in the town.
Sorsogón.....	6	54	Convulsions.
Tárlac.....	2	37	
Concepción.....	1	(¹)	
Moncada.....	1	37	Cholera.

¹ Not reported.

² In 3 hospitals the number of patients was not reported.

³ In 1 hospital the number of patients was not reported.

VI. CHURCHES.

Relative Importance of Catholic and Protestant Churches—Number, Value, and Capacity of Churches.

The Roman Catholic religion is universal throughout the archipelago, so far as civilized natives are concerned. The Caucasian population is divided in faith between the Catholic and different Protestant denominations, except the Spanish element, which is practically all Catholic. These conditions are reflected in the two general tables which follow, in which the number, value, and capacity of Catholic and of Protestant churches are shown by provinces and municipalities, respectively.

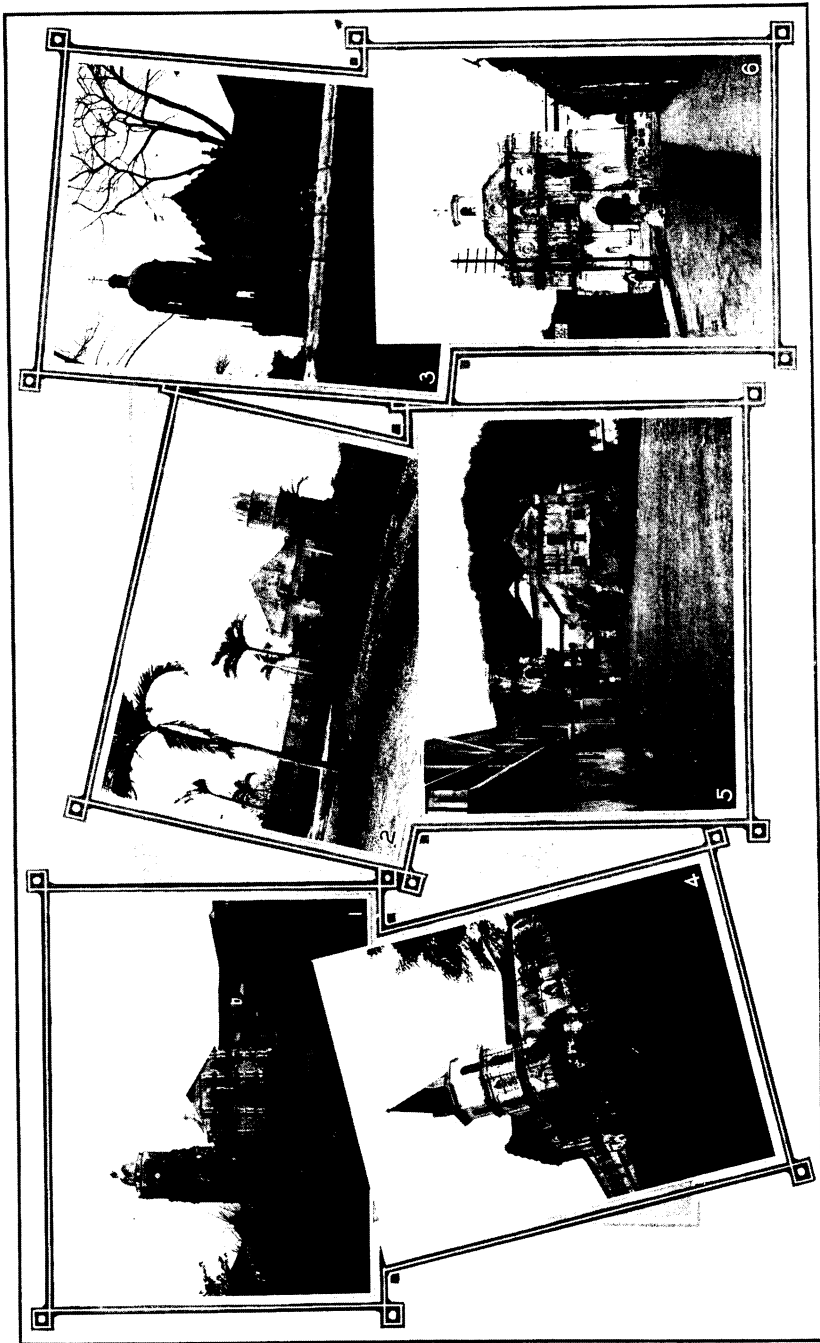
It appears from the tables that in all the islands there were 1,608 churches, including every variety of religious edifice, from the simplest chapel, ermita, or visita, to the stately and elaborate cathedral, the total reported value of which was 41,698,710 pesos when the census was taken. Of these only 35 were Protestant churches, valued at 53,413 pesos, and as far as is known all of them were erected subsequent to the overthrow of Spanish sovereignty.

The following brief summary gives the total figures relating to churches in the archipelago, as presented in the tables:

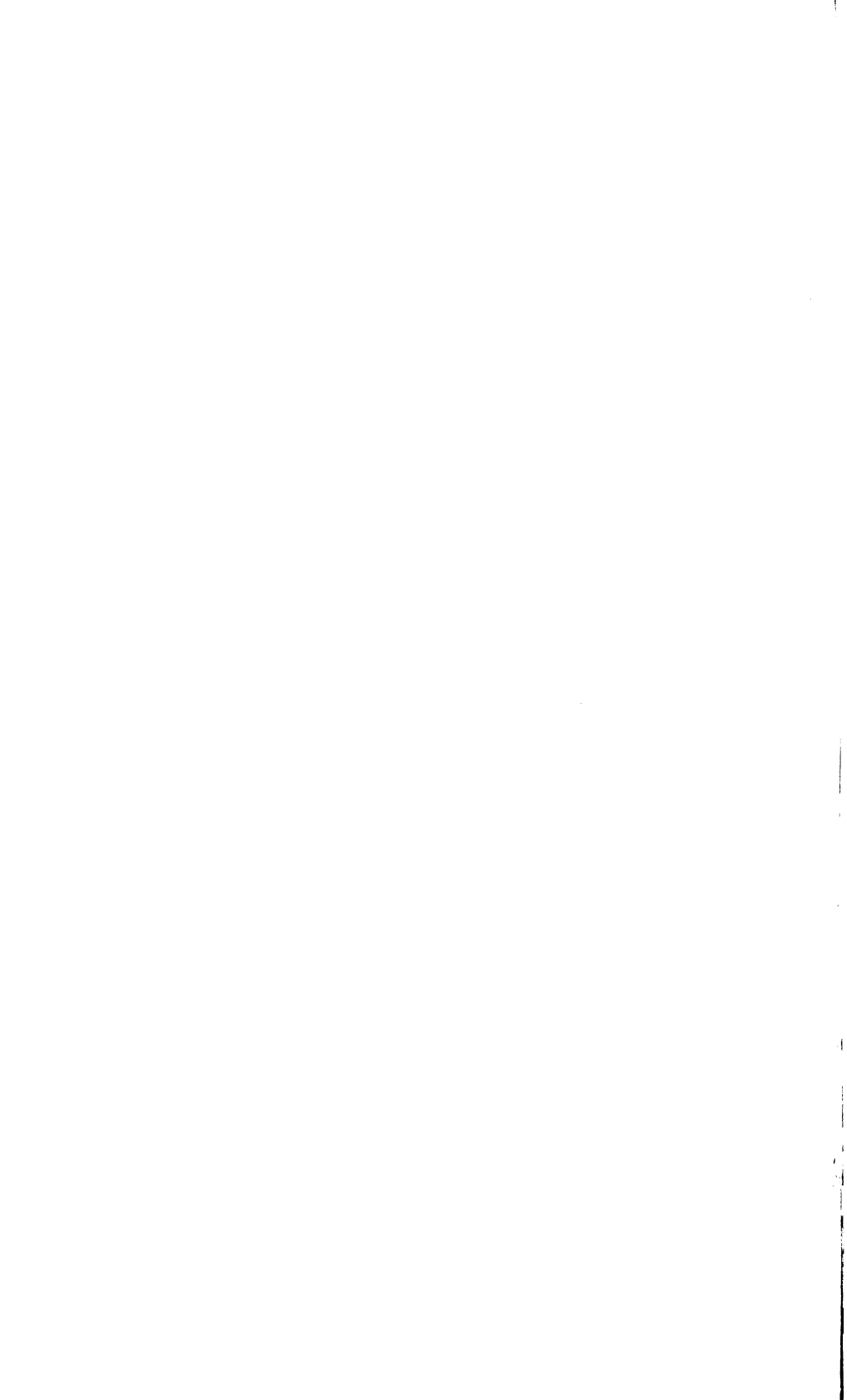
Total number of churches of all denominations.....	1,608
Total value of churches of all denominations (pesos).....	41,698,710
Number of Catholic churches	1,573
Value of Catholic churches (pesos).....	41,645,297
Capacity of Catholic churches (number of worshipers).....	1,698,276
Number of Protestant churches.....	35
Value of Protestant churches (pesos).....	53,413
Seating capacity of Protestant churches	5,755

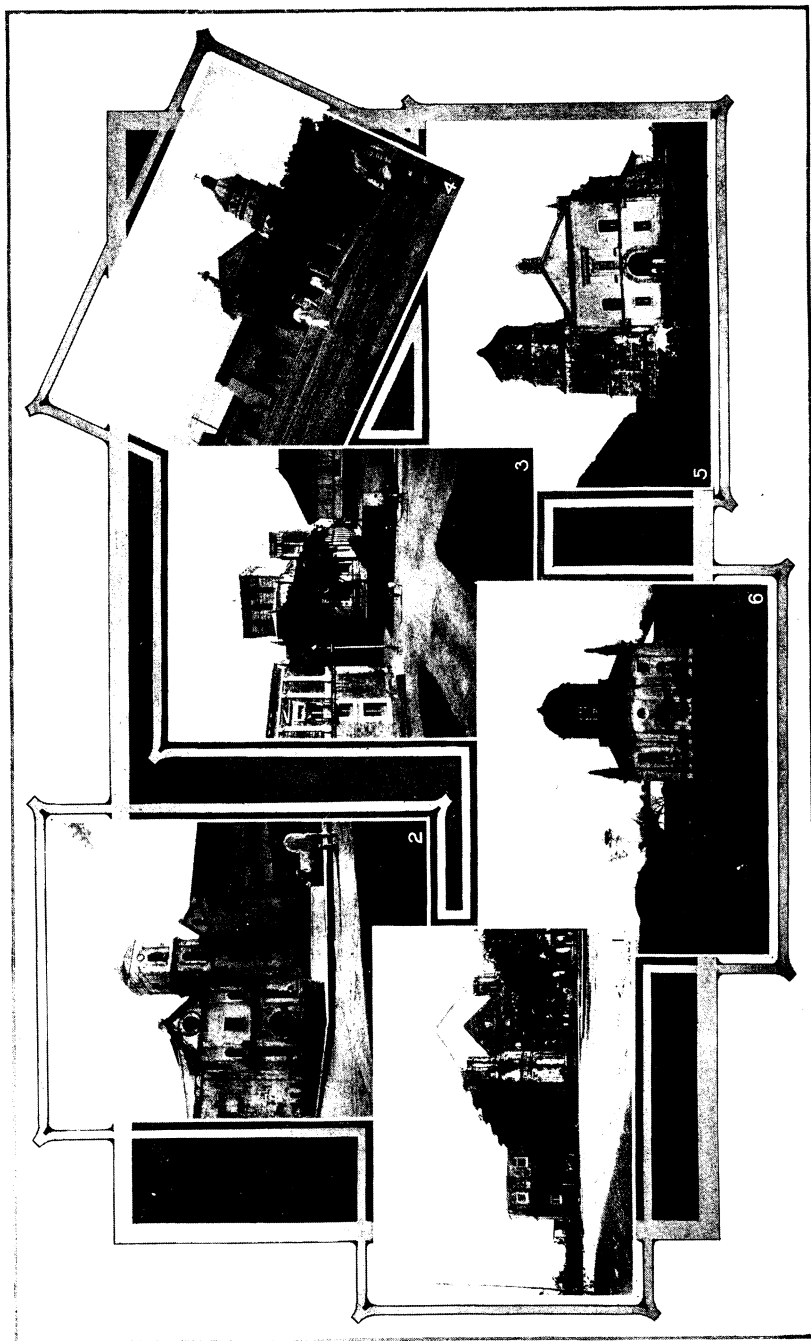
The value of 12 and the capacity of 3 Catholic churches, and the value of 2 and seating capacity of 4 Protestant churches, were not reported.

The Protestant churches in the Philippines, as in the United States and elsewhere, are provided with seats for the accommodation of those who attend services in them; but the Catholic churches contain very few seats—many of them none at all—and their capacity for worshipers is measured by the number who can find standing or kneeling room in them. Many of the Catholic churches, in different sections of the islands, are impressive structures of massive masonry, of large proportions, and built in accordance with artistic architectural plans. They strongly attest the zeal and faithfulness not only of the religious leaders under whose guidance they were built, but also of the natives by whose voluntary labor or contributions they were wholly erected. Many of them have been more or less damaged during recent years, and in some localities, where the insurrection had strong foothold, or



1. CHURCH AT SANTA CRUZ, LA LAGUNA. 2. CHURCH AT TAGBILARAN, BOHOL. 3. BINONDO CHURCH, MANILA. 4. SANTA ANA CHURCH, MANILA. 5. CHURCH IN ROMBLÓN. 6. FRANCISCAN CHURCH, WALLED CITY, MANILA.





1. CHURCH AT MALATE, MANILA. 2. AUGUSTINIAN CHURCH, WALLED CITY, MANILA. 3. CHURCH OF THE RECOLETOS, WALLED CITY, MANILA. 4. CHURCH AT ALBAY, ALBAY. 5. FORTIFIED CHURCH AT BOCA, MARINDUQUE. 6. DE LOMA CHURCH, MANILA.

where earthquakes have been severe, ruined portions of walls of what were once stately church edifices are all that now remain.

The following table shows the number of churches, and their value, in the various provinces arranged in the order of their importance, as measured by the number in each:

TABLE 1.—Number and value of churches, by provinces and comandancias, arranged according to the magnitude of the number in each.

Number in order of magnitude.	PROVINCE OR COMANDANCIA.	CHURCHES.	
		Number.	Value in pesos.
	Philippine Islands.....	1,608	41,698,710
1	Pampanga.....	208	1,320,853
2	Cebu.....	105	2,886,042
3	Bulacán.....	78	767,133
4	Bohol.....	71	3,248,383
5	Iloilo.....	58	1,792,978
6	Leyte.....	58	1,213,430
7	Misamis.....	54	627,073
8	Rizal.....	52	1,495,557
9	Manila city.....	51	9,290,924
10	Samar.....	51	1,259,500
11	Cápiz.....	51	699,725
12	Ambos Camarines.....	46	1,083,550
13	Dávao ¹	46	27,825
14	Surigao.....	42	335,700
15	Negros Occidental.....	40	328,216
16	Tárlac.....	38	146,100
17	Nueva Ecija.....	35	218,180
18	Pangasinán.....	34	1,602,900
19	Cavite.....	32	832,620
20	Cagayán.....	32	451,587
21	Albay.....	29	2,724,800
22	Tayabas ²	29	2,266,479
23	La Laguna.....	29	1,247,440
24	Negros Oriental.....	29	377,360
25	Antique.....	29	159,470
26	Ilocos Sur.....	28	618,827
27	Zambales.....	25	504,400
28	Isabela.....	22	397,434
29	Batangas.....	21	1,146,850
30	Romblón.....	21	90,380
31	Mindoro.....	20	49,780
32	Masbate.....	18	65,825
33	Ilocos Norte.....	17	680,950
34	Sorsogón.....	16	468,920
35	Bataán.....	16	292,300
36	La Unión.....	14	370,400
37	Paragua.....	14	85,110
38	Abra.....	12	22,909
39	Nueva Vizcaya.....	9	28,000
40	Marinduque ³	6	323,500
41	Zamboanga ¹	6	72,300
42	Dapitan ¹	4	60,400
43	Cottabato ¹	4	25,800
44	Lepanto-Bontoc.....	3	2,100
45	Benguet.....	2	700
46	Paragua Sur ¹	1	25,000
47	Joló ¹	1	10,000
48	Basilan ¹	1	2,000
49	Siassi ¹	(*)	(*)
50	Tawi Tawi ¹	(*)	(*)

¹ Comandancia.

² Exclusive of subprovince, Marinduque.

³ Subprovince of Tayabas.

⁴ None reported.

There is, in the Philippines, 1 church for each 4,345 of the Christian population; all the churches are capable of accommodating something over 1,700,000 persons at each service, or about 25 per cent of the civilized people inhabiting the islands. These figures, it is believed, will compare favorably with those of any other country, if the conditions which have prevailed throughout the archipelago during the past few years are taken into consideration.

TABLE 2.—Number, value, and capacity of churches in the Philippine Islands, by provinces and comandancias.

PROVINCE OR COMAN- DANCIA.	Number of churches.	Value of churches in pesos.	CATHOLIC CHURCHES.			PROTESTANT CHURCHES.		
			Number.	Value in pesos.	Capacity (number of worshippers).	Number.	Value in pesos.	Seating capacity.
Philippine Islands..	1, 608	41, 698, 710	2, 1, 573	41, 645, 297	1, 698, 276	35	53, 413	5, 755
Abra	12	22, 909	12	22, 909	6, 560			
Albay	29	2, 724, 800	29	2, 724, 800	38, 085			
Ambos Camarines	46	1, 083, 550	46	1, 083, 550	48, 400			
Antique	29	159, 470	29	159, 470	23, 382			
Basilan ⁴	1	2, 000	1	2, 000	400			
Bataan	16	292, 300	15	292, 200	12, 050	1	100	38
Batangas	21	1, 146, 850	21	1, 146, 850	40, 778			
Benguet	5 ²	700	5 ²	700	500			
Bohol	6 ⁷ 71	3, 248, 383	6 ⁷ 71	3, 248, 383	111, 021			
Bulacán	6 ⁷ 78	767, 133	6 ⁷ 73	766, 323	44, 599	7 ⁵	810	145
Cagayán	6 ³ 32	451, 587	6 ³ 32	451, 587	34, 600			
Capiz	51	699, 725	51	699, 725	70, 050			
Cavite	6 ³ 32	832, 620	6 ³ 29	832, 420	21, 470	10 ³	200	70
Cebu	105	2, 886, 042	105	2, 886, 042	118, 312			
Cottabato ⁴	4	25, 800	4	25, 800	1, 100			
Dapitan ⁴	4	60, 400	4	60, 400	7, 200			
Dávao ⁴	46	27, 825	46	27, 825	14, 350			
Ilocos Norte	17	680, 950	17	680, 950	35, 255			
Ilocos Sur	28	618, 827	28	618, 827	67, 802			
Iloilo	11 58	1, 732, 978	11 58	1, 777, 598	127, 656	5	15, 380	1, 986
Isabela	12 22	397, 434	12 22	397, 434	22, 460			
Joló ⁴	1	10, 000	1	10, 000	(13)			
La Laguna	5 ²⁹	1, 247, 440	5 ²⁹	1, 247, 440	36, 800			
La Unión	14	370, 400	14	370, 400	42, 000			
Lepanto-Bontoc	3	2, 100	3	2, 100	2, 000			
Leyte	58	1, 213, 430	58	1, 213, 430	87, 305			
Manila city	51	9, 290, 924	39	9, 259, 631	77, 402	12	31, 293	2, 125
Marinduque ⁴	6	323, 500	6	323, 500	5, 718			
Masbate	18	65, 825	18	65, 825	11, 270			
Mindoro	20	49, 780	20	49, 780	12, 200			
Misamis	54	627, 073	54	627, 073	57, 130			
Negros Occidental	40	328, 216	40	328, 216	44, 324			
Negros Oriental	16 29	377, 360	16 29	377, 360	34, 869			
Nueva Ecija	16 35	218, 180	16 34	217, 980	18, 850	1	200	(12)
Nueva Vizcaya	9	28, 000	9	28, 000	7, 709			
Pampanga	208	1, 320, 853	206	1, 317, 553	91, 245	2	3, 300	700
Pangasinán	6 34	1, 602, 900	6 34	1, 602, 900	76, 500			
Paragua	14	35, 110	14	35, 110	8, 200			
Paragua Sur ⁴	1	26, 000	1	26, 000	500			
Rizal	11 52	1, 495, 557	11 52	1, 493, 927	32, 505	5	1, 630	679
Romblón	21	90, 380	21	90, 380	13, 598			
Samar	6 51	1, 259, 500	17 51	1, 259, 500	37, 337			
Siassi ⁴	(18)	(18)	(18)	(18)	(18)	(18)	(18)	(18)
Sorsogón	16	468, 920	16	468, 920	18, 500			
Surigao	42	335, 700	42	325, 700	45, 020			
Tarlac	38	146, 100	37	145, 600	21, 750	1	500	12
Tawi Tawi ⁴	(18)	(18)	(18)	(18)	(18)	(18)	(18)	(18)
Tayabas ¹⁰	16 29	2, 266, 479	16 29	2, 266, 479	34, 800			
Zambales	25	504, 400	25	504, 400	31, 054			
Zamboanga ⁴	6	72, 300	6	72, 300	3, 650			

¹ Includes 18 ermitas, 17 visitas, 12 Catholic churches, and 2 Protestant churches, values of which were not reported.

² Includes 18 ermitas, 17 visitas, 12 churches, value not reported, and 3 churches, number of worshippers not reported.

³ Includes 2 churches, value not reported, and 4 churches, seating capacity not reported.

⁴ Comandancia.

⁵ Includes 1 church, value not reported.

⁶ Includes 16 ermitas and 14 visitas.

⁷ Includes 2 churches, seating capacity not reported.

⁸ Includes 1 visita and 2 Protestant churches, value not reported.

⁹ Includes 1 visita.

¹⁰ Includes 2 churches, value not reported, and 1 church, seating capacity not reported.

¹¹ Includes 1 Catholic church, value not reported.

¹² Includes 2 ermitas.

¹³ Not reported.

¹⁴ Subprovince of Tayabas.

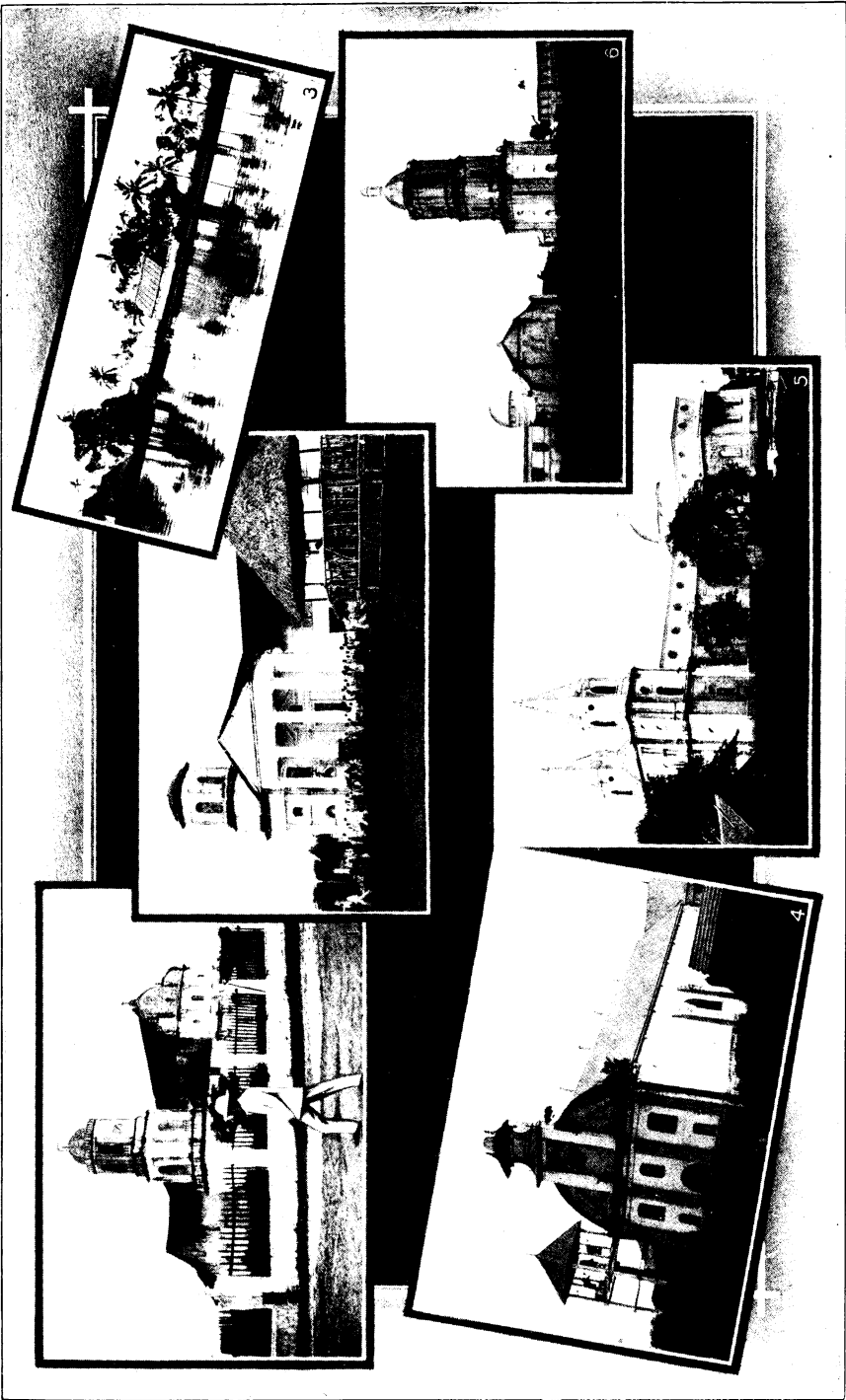
¹⁵ Includes 2 churches, value not reported.

¹⁶ Includes 2 visitas.

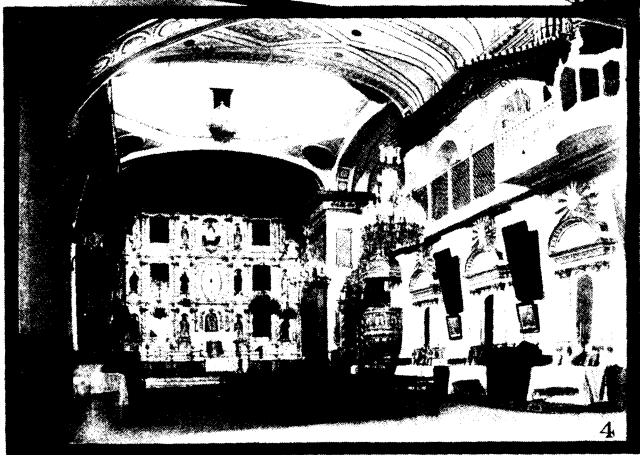
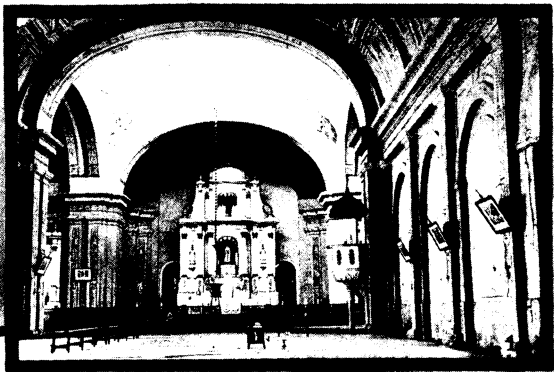
¹⁷ Includes 1 church, value not reported, and 2 churches, number of worshippers not reported.

¹⁸ None reported.

¹⁹ Exclusive of subprovince, Marinduque.



1. AUGUSTINIAN CHURCH OF SANTO NIÑO (SACRED CHILD), CEBÚ. 2. CHURCH IN CEBÚ ON THE BARRACKS PLAZA. 3. MORO MOSQUE, MINDANAO. 4. CHURCH, CALAMBA, LA LAGUNA. 5. CHURCH, MOJA, ILOILO. 6. CHURCH, JARO, ILOILO.



1. INTERIOR OF CHURCH AT SAN SIMÓN, PROVINCE OF PAMPANGA. 2. FORTIFIED CHURCH, ISLAND OF CUYO. 3. MANILA CATHEDRAL, MANILA. 4. INTERIOR OF RECOLETOS CHURCH, MANILA.

VII. PAUPERISM.

Pauperism is almost unknown among the people of the islands, their wants being few and easily supplied. Little clothing is required, and the simple food upon which the masses of the people subsist, consisting mainly of rice, fruit, and fish, can, as a rule, be had with little exertion. The few who, from old age or accident, are unable to provide these necessaries for themselves, are usually taken care of by relatives or friends. There are no almshouses, and there is very little public provision for relief of any kind, as the necessity for such provision does not exist except in a limited degree.

When there is any appreciable amount of extreme poverty it is said to have been caused, either directly or indirectly, by the insurrection or by subsequent calamities of rinderpest and locusts, and to be disappearing.

The following table presents, by provinces, the number of persons maintained at public charge at any time during the year 1902, and the number so maintained at the close of the year, as shown by the returns of the census:

Paupers.

PROVINCE OR COMANDANCIA.	Maintained during 1902.	Maintained on December 31, 1902.
Philippine Islands.....	1,668	853
Antique.....	5	.....
Batangas.....	12	.....
Cápiz.....	200	200
Cebu.....	5	4
Cotabato ¹	18	16
Dapitan ¹	44	36
Ilocos Norte.....	8	4
Iloilo.....	627	18
Leyte.....	104	55
Manila city.....	375	2375
Masbate.....	66	50
Negros Occidental.....	14	9
Pangasinán.....	62	.....
Sámar.....	35	9
Sorsogón.....	41	36
Tárlac.....	3	.....
Tayabas.....	39	35
Zambales.....	10	6

¹ Comandancia.

² Natives, 296; Americans, 6; Europeans, 67; Chinese, 6. Outside of Manila all paupers were natives.

From this table it appears that the total number of paupers in the archipelago, exclusive of Manila, on December 31, 1902, was but 478, or less than 1 in each 10,000 of the inhabitants. This may be contrasted with the corresponding proportion in the United States, viz, 12 per 10,000.

VIII. CRIMINALS AND PRISONS.

Number and Nativity of Convicts—Most Common Crimes—Prisons—Penitentiaries—Bilibid Prison.

Statistics of criminals and prisons were collected by the special agents of the census in every organized municipality of the archipelago, covering the number of criminal convictions during the calendar year 1902, and the number and general nativity of the convicts in confinement at the end of the year. The results of these inquiries are presented in the following table:

Convicts and prisoners.

PROVINCE OR COMANDANCIA.	Convict- ed during 1902.	Convicts in con- finement on De- cember 31, 1902.	GENERAL NATIVITY OF CONVICTS.			
			Native.	Ameri- can.	Euro- pean.	Chinese.
Philippine Islands	12,312	5,395	5,150	120	12	113
Abra	35	26	26			
Albay	248	40	37	1		2
Ambos Camarines	636	35	35			
Antique	5	2	2			
Bataán	30	7	7			
Batangas	248	122	112	10		
Benguet	95					
Bohol	83	3	3			
Bulacán	274	236	236			
Cagayán	87	61	56	3		2
Cápiz	350	146	146			
Cavite	245	108	104	4		
Cebu	129	245	237	7		1
Cottabato ¹	41	10	10			
Dapitan ¹	6					
Dávao ¹	10	14	14			
Ilocos Norte	184	36	36			
Ilocos Sur	454	46	46			
Iloilo	607	180	180			
Isabela	92	21	21			
Joló ¹	1	1	1			
La Laguna	327	144	141	3		
La Unión	263	37	37			
Lepanto-Bontoc	6	8	8			
Leyte	304	242	228	1		13
Manila city	2,442	1,782	1,652	82	10	38
Marinduque	222	55	55			
Masbate	98	17	16	1		
Mindoro	10	9	9			
Misamis	74	78	77		1	
Negros Occidental	868	188	188			
Negros Oriental	375	111	111			
Nueva Ecija	297	20	20			
Nueva Vizcaya	26	47	47			
Pampanga	123	66	64	2		

¹ Comandancia.

Convicts and prisoners—Continued.

PROVINCE OR COMANDANCIA.	Convicted during 1902.	Convicts in confinement on December 31, 1902.	GENERAL NATIVITY OF CONVICTS.			
			Native.	American.	European.	Chinese.
Pangasinán	924	76	74	2		
Paragua	17	5	5			
Paragua Sur ¹	1	4	4			
Rizal	792	684	633		1	50
Romblón	28	25	25			
Sámar	10	78	76	1		1
Sorsogón	381	25	25			
Surigao	55	47	47			
Tárlac	262	27	27			
Tayabas	398	222	215	2		5
Zambales	113	23	23			
Zamboanga ¹	36	36	34	1		1

¹ Comandancia.

From the foregoing table it appears that the proportional number of criminals in confinement December 31, 1902, in the Philippines was less than 8 in each 10,000 of population. In the United States in 1890 there were about 13 in each 10,000 of the inhabitants. Considering the unsettled condition of affairs in the island during the six years prior to the census, the showing is not only favorable but remarkable, and indicates that the Filipinos as a race are not especially disposed toward crime.

Summarizing the statements of the supervisors of the census on this subject it appears that the most common crimes are ladronism, theft, assault, and murder. The causes are traceable to the ravages of the war, to the poverty and unrest which followed, accentuated by the subsequent failure of crops and loss of farm animals. In the majority of the provinces crime is said to be decreasing; in a few the reverse is said to be the case.

In most of the provinces reporting, the convicts are employed on public works, such as the building and repairing of roads and bridges. In a few of the provinces it has not been found expedient to do this, and they are employed in the prison in petty manufactures, such as making chairs, baskets, hats, rope, etc., or are kept in idleness.

All convicts sentenced for two years or more are transferred to Bilibid prison, Manila, to serve out their sentences.

The following account of prisons and penitentiaries in the Philippines prior to American occupation was written for this census by Hon. Florentino Torres, associate justice of the Philippine supreme court. The account deals not only with the places of confinement, but gives information regarding the various kinds of penalties imposed upon prisoners, their care and treatment, their occupations and em-

ployments, and the general conditions governing their lives while in prison.

PRISONS.

In Manila, the capital of the archipelago, and in each of the provinces and districts under the jurisdiction of civil governors, political military governors, or commanders during the Spanish administration prior to the occupation of the islands by the United States Army, there were prisons in which were confined not only persons awaiting trial for some criminal offense, but also those under sentence for the commission of any crime with the correctional penalty—one month and a day to six years' imprisonment—who could be sent to the penitentiary at Manila by the provincial governors, who had general control of the management of prisons in their respective territories.

The penalties which could be imposed upon violators of the law, in accordance with the penal code in force, were *aflictivas* (corporal), correctional, and *leves* (light). (Article 25 of the Penal Code.) The first two were imposed for the commission of crimes and the light penalties for misdemeanors. The duration of light penalties was from one to thirty days, correctional penalties from one month and one day to six years, and corporal penalties from six years and one day to twenty years; in addition to these, perpetual or life penalties and the penalty of death were imposed for certain offenses. (Article 96 of the same Code.)

Before the present code went into effect, which was on the 14th of July, 1887, the penalties imposed by courts were death, *presidio simple* (simple penitentiary) for as long as ten years, *presidio con retención*, which is equivalent to penitentiary for life, ordinary imprisonment, and imprisonment at hard labor. In addition to these was the punishment of whipping, which was carried out in the principal streets and public squares. These penalties were imposed in the discretion of the only audiencia real of the archipelago, according to the gravity and character of each crime and the aggravating circumstances showing more or less perversity and recidivism on the part of the accused criminals. These penalties had their origin in the ancient laws of Castile, which had been more or less observed in the practice of the tribunals since the remotest periods of the possession of the islands by the Spaniards.

On the recommendation of the distinguished liberal, Don Carlos María La Torre, the first governor and captain-general sent to these islands by the government of the revolution of 1868, the punishment of whipping was suspended and was, in effect, abolished, as it has not been imposed by judges or courts since that date.

With regard to the correctional penalties established by the penal code and which were served or satisfied in the provincial prisons, one-

half of the time of the provisional imprisonment which the accused may have undergone while awaiting trial was computed as part of the sentence, provided the conditions required by the code had been complied with.

Persons accused of more or less grave crimes punishable with *prisión* or *presidio mayor*, *reclusión*, and *cadena temporal* or *perpetua*,¹ or death; accused of robbery, theft, and fraud, punishable with the penalty of *presidio correccional* (correctional imprisonment), or charged with criminal attempts against the authorities, were not released on bail before trial. Consequently a large number of prisoners would be gathered in the prisons, where many of them would remain for some years on account of a certain slow procedure, due to the complications and obstacles which would arise in the cause and the inquisitorial system which then prevailed, which were inspired by the laws which governed the hearing of causes. Delays in the trials of criminally accused persons were also caused by the difference in dialects of the inhabitants of the islands, the difficult and slow communication between towns, provinces, and islands, and other causes.

Prisoners awaiting trial could not, according to the legal provisions in force, be put upon public works or to cleaning streets. If a prison became so overcrowded and unsanitary as to render the temporary removal of the prisoners and its disinfection necessary, they could not be employed on outside work while the disinfection was being carried on, unless the provincial governor recommended their employment by the central insular government and stated the service in which they were to be engaged.

Before the code went into effect, when there were penalties of imprisonment at hard labor on public works, criminals sentenced thereto would leave the jail chained in pairs and be put on the public work. This system was abolished by the present penal code.

Those sentenced to simple imprisonment remained within the jail and were engaged in the interior cleaning and other work which the warden might consider proper.

There were no workshops in the prisons, although some of the more industrious and able inmates would make some useful and curious articles, from the sale of which they would derive a little profit.

By order of the Spanish Government in 1883 there was established in these islands a superior prison board, of the kind existing in Spain, Cuba, and Porto Rico, consisting of the governor-general as president, of the archbishop, of the civil governor of Manila, and of six

¹ The terms *prisión* or *presidio mayor*, *reclusión*, *cadena temporal* or *perpetua* are all penalties of various degrees prescribed in the penal code—thus: *Presidio* and *prisión mayor*, from 6 years and 1 day to 12 years; *presidio* and *prisión correccional*, from 6 months and 1 day to 6 years; *reclusión temporal*, from 12 years and 1 day to 20 years; *cadena temporal*, from 12 years and 1 day to 20 years; *cadena perpetua*, life imprisonment.—*Director*.

other members, among whom there was a physician, a pharmacist, and an architect appointed by the governor-general. A provincial prison board was also established in Manila, composed of the mayor of the municipal council as president, the deputy mayor of the municipality, the *sindico procurador* (municipal attorney), the parish priest of the suburb in which the prison was located, the deputy public prosecutor of the audiencia, a physician, the chaplain of the prison, an architect, a pharmacist, and three residents appointed on the recommendation of the board. In each of the provinces and districts these boards were composed of the civil governor of the province as president, the parochial priest of the capital as vice-president, the administrator of finance, or in his absence a civil official, the deputy public prosecutor, the court physician, and three persons of high moral character and education appointed on the recommendation of the board by the provincial governor.

It was the duty of these provincial boards to supervise the preservation and expenses of the buildings used as public jails and the observance of the interior prison regulations approved by the governor-general. Said boards also had charge of the clothing, cleaning, food, and good treatment of the inmates, and were required to inspect the amount and quality of the food supplied by the contractor of the service. It was also incumbent upon these boards to encourage and provide for the moral and professional education of the prisoners, furnishing them with tools and useful occupations. The chaplain of the institution had charge of the religious education of the inmates.

The provincial prison boards were intrusted with the drafting of interior prison regulations, specifying the organization and duties of the officers of the institution, which were submitted to the superior prison board of the islands for approval.

In addition to frequent visits of inspection which the boards were obliged to make, it was the duty of each member thereof to go, in turn, to the jail daily and see to the preservation of internal order, to the clothing and cleanliness of the prisoners, and the daily food furnished them. He also heard any complaints made by prisoners and reported them to the board at its first meeting.

Apart from the inspection and solicitous care intrusted to the provincial prison boards, the judges of first instance of each province or district and a committee of justices of each of the three audiencias, together with the public prosecutor and deputy public prosecutors, were authorized and required to visit the prisons of the province in which they respectively discharged their duties at any day and hour they might see fit, and note any deficiencies or anomalies they might observe; they also heard such complaints as the prisoners might make; they adopted such remedial measures as were authorized by

law, or reported defects not coming within their jurisdiction to the civil authorities.

It is a well-known fact that political prisoners were outrageously treated in the prisons, much worse than were thieves, murderers, and ordinary criminals, this being especially the case with persons having no education or means with which to mitigate the rigor employed by prison subordinates and agents of the authorities. Prisoners of this class tried by court-martial who were acquitted remember with horror the sufferings they were made to endure and to witness in others while awaiting trial in the prisons. These persecutions fanned the flame of the revolution and induced large numbers of peaceable persons to go to the front.

Mortality.—With an average prison population of 1,811 for the year there were 2,006 cases of sickness of sufficiently serious nature to require hospital treatment. The principal diseases were beri-beri, malarial fever, dysentery, and mumps.

The number of deaths was 305, showing the enormous death rate of 168 per 1,000. Of the whole number of deaths, 226, or three-fourths of the whole number, were due to beri-beri. Prison conditions in a tropical climate seem to be especially favorable for the development of this peculiar oriental disease.

PENITENTIARIES.

There were four principal penitentiaries under the Spanish administration, which were established at Manila, Cavite, Zamboanga, and the Ladrone Islands, in addition to the government farms established at San Ramón, a short distance from Zamboanga, in Cottabato, and on the island of Balábac, in which criminals sentenced to the most severe penalties were confined.

The penal code in force since July 14, 1887, provided that a person sentenced to *cadena temporal* or *perpetua* should work outside of the prison, for the benefit of the state, with a chain fastened at the ankle and hanging from the waist, at hard and painful labor without any assistance whatever, unless the superior court or *audiencia*, taking into consideration the age, health, condition, and other personal circumstances of the criminal, should be of the opinion that the delinquent ought to serve his sentence on labor inside the institution, in which event this would be stated in the final sentence. Such criminals could not be employed on private works or on public works which were being executed by companies or under contract with the government.

Persons sentenced to temporary or perpetual confinement were subject to forced labor for the benefit of the state within the confines of the penal institution, as were also those sentenced to *presidio mayor* and correctional. But those sentenced to correctional imprisonment

could not leave the institution, and were engaged upon work for their own benefit, of their own selection, compatible with the penitentiary regulations.

The proceeds from the work of inmates of penitentiaries were used primarily to cover any civil liability they might have incurred by the commission of crime; secondly, to indemnify the penal institution for the expense of their keeping; and in the third place, for the establishment of a reserve fund to be delivered to them when they should leave the penitentiary, or to their heirs if they should die in the same. The penitentiary regulations were required to be in harmony with these legal prescriptions. It should be noted that, notwithstanding the military régime which prevailed in the penal institutions, the commander and inspector-general of penitentiaries having been officers of the army, these penal institutions were under the governor-general, formerly called *juéz de rematados* (judge of condemned persons).

Members of the army and navy and of other bodies of a military character served their sentences in the penitentiaries of the islands for crimes committed in violation of the army and navy regulations or of the common laws. These criminals and others sentenced for crimes punished by the common laws were formed into battalions of *disciplinarios* (soldiers), governed by provisions and ordinances of a military character, and commanded by officers of the army.

Separate companies of these soldiers rendered very good service in expeditions against the Moros of the southern islands, especially in Joló and Mindanao. In most cases they figured as the vanguard of the army in attacks and assaults upon fortified places where the Moros had intrenched themselves, showing valor, interest in the success of the undertaking, and strict discipline in their movements under the command of their chiefs. Many of them, having conducted themselves properly and with heroism to the satisfaction of their chiefs, either secured a commutation of their sentences or full pardon, and returned to their homes and families. The powers of governor-generals to grant full pardons or commutations of the penalties imposed upon criminals were regulated by law.

Before the penal code went into effect, the highest penalty was imprisonment in a penitentiary for ten years with *retención*,¹ which *retención*, the governor-general had power to remit in the name of the sovereign; such retention gave the penalty a life character, and

¹The "retención" appears to have been an addition to the penalty of ten years in the penitentiary. According to a royal order of December 14, 1834, it was construed as not "condemning the convict to remaining in the penitentiary for two years or more after the service of ten years, but means only an indefinite extension of the time of the sentence, so that the criminal, after having served his sentence of ten years, will continue one, two, or more years, according to what His Majesty may deem proper, in view of the circumstances of the crime and his conduct." See *Alcubilla, Diccionario de la Administración Española, vol. 8, page 878.—Director.*

in order to have this additional punishment remitted it was necessary that the convict should have observed good conduct, shown repentance for his crime, should have rendered extraordinary services, or spontaneously executed some heroic or humanitarian act, should have served twelve years of his penalty, and that the record of his trial should show that the justice and advisability of the pardon or commutation of the sentence had previously been indicated. It was well understood that the sovereign reserved the right to grant or withhold the grace requested or recommended by the governor-general, and if remission were refused, no new recommendation in favor of the prisoner could be submitted until after the expiration of one year, unless he should have rendered extraordinary special services before that time.

With regard to the pardon or commutation of life sentences, in addition to the requisites of good conduct in the institution, signs of repentance, and extraordinary service having been rendered, it was indispensable that the convict should have served at least half the penalty of *cadena temporal* in its highest degree; with regard to the remission of temporary corporal penalties, that he should have served one-half the sentence; one-fourth in penalties of correctional imprisonment; one-fifth in correctional confinement; one-sixth of the period of the sentence of banishment. A full pardon for *arresto mayor* and *menor*¹ could be requested at once.

Persons sentenced for crimes of a political character were, as a rule, sent to the penal institution of Agaña, the capital of the Mariana (Ladrones) Islands, where they were sometimes confined with ordinary criminals; others enjoyed relative liberty within the town, having been permitted to live in private houses or given liberty to remain in the town during the day and go to the penal institution, or to some building designated by the governor, at night. The situation of political prisoners and the degree of freedom enjoyed by them, depended upon the instructions given the governor of the island by the governor-general of the archipelago, as well as on the more or less tolerant and humanitarian character of the chief of the island.

In Joló, Zamboanga, Cottabato, and Dávao, such political prisoners as in the opinion of the government were unimportant served their sentences, and persons deported for political motives resided there.

BILIBID PRISON.

This prison is located in Manila; it is the general penitentiary of the Philippine Islands, and to it criminals from all parts of the archipelago convicted of serious crimes are transferred to serve their sentences.

¹The terms *arresto mayor* and *menor* are penalties of different degrees prescribed in the penal code, thus: *Arresto mayor*, from 1 month and 1 day to 6 months; *arresto menor*, from 1 to 30 days.—*Director*.

The following table summarizes the movements of prisoners during the year 1902:

Prisoners, January 1, 1902	2,003
Received during the year	3,653
Total	5,656
Released or transferred during the year.....	3,869
Prisoners, December 31, 1902.....	1,787

Of the 1,787 prisoners confined in Bilibid prison on December 31, 1902, 144 were "detention prisoners," held in confinement awaiting trial; the remaining 1,643 were convicts.

From this it appears that while there was a large number of commitments and releases during the year, the number of persons in confinement was 216 less at the end of the year than at the beginning.

The following table shows the sources of commitment during the year:

Prisoners committed during 1902.

From Manila.....	2,826
From judicial districts.....	559
Escapes recaptured.....	37
Miscellaneous.....	231
Total	3,653

It should be said in explanation of the large number (three-fourths) of commitments from Manila, that those arrested for petty crimes and infractions of municipal restrictions in Manila are sent to Bilibid, while those arrested for similar causes in the provinces are not, as a rule, brought to Manila, but serve their short terms in the local prisons.

The following table classifies prisoners who left the prison during the year 1902:

Released by—

Expiration of sentence.....	2,083
Amnesty proclamation.....	236
Payment of fine.....	193
Remission of sentence.....	155
Satisfaction of fine and sentence.....	90
Remission of fine.....	56
Order of governor.....	24
Order of supreme court.....	10
Request of British consul.....	15

Transferred to—

Courts of first instance.....	204
Philippine constabulary.....	138
Chief of police, Manila.....	76
Military prisons.....	67
Municipal court, Manila.....	39
Cholera camp.....	29

Transferred to—Continued.

Insane asylum	7
Russian consul	4
United States	2
Died	305
Pardoned	134
Escaped	2
Total	<u>3,869</u>

From the above table it appears that about three-fourths were released from prison and that 1 per cent died; the others were remanded to the custody of the courts, to other prisons, or to the hospitals.

The following table classifies the 1,787 persons in confinement at the close of the year in accordance with the character of the crime of which they were convicted:

Class of crimes.

Offenses against—	
Person	781
Property	605
Society	401

The following table shows the principal crimes of which prisoners were guilty.

Principal crimes.

Murder	234	Larceny	83
Theft	199	Estafa (trickery)	58
Homicide	144	Manslaughter	56
Robbery	143	Assault and battery	41
Assassination	100	Kidnapping	35
Highway robbery	89	Assault	30
Sedition	88	Violation of laws of war	26
Violation of city ordinances	86	Parricide	22

This table confirms the report of the supervisors of the census that murder, homicide, assassination, and manslaughter are the most common crimes, and after them, various forms of theft.

It is a singular fact that among this large number of persons there were but 25 old offenders, the remainder being under imprisonment on their first conviction.

The following table classifies the prisoners according to the length of their sentences:

Under one month	33	Twenty to thirty years	136
One to six months	142	Thirty to seventy years	94
Six months to one year	151	Life	111
One to five years	394	Detention prisoners	144
Five to ten years	178		
Ten to twenty years	404	Total	<u>1,787</u>

Of 1,695, but 47 were of intemperate habits.

The following table shows the educational condition of the prisoners:

Illiterate	1,038
Can read only.....	177
Having common school education	502
Having college education	70

The following table classifies the prisoners as to sex, age, race, and conjugal condition:

Sex:		Race:	
Males, adults.....	1,704	Americans, white	69
Males, children	44	Americans, colored	14
Females, adults	39	Chinese	38
Age:		Filipinos.....	1,656
Under 18 years.....	47	Other	9
18 to 30 years	1,025	Conjugal condition:	
30 to 40 years	510	Single	822
40 to 50 years	140	Married	914
50 years and over.....	65	Widowed	51

The principal occupations of the prisoners before confinement are set forth in the following table:

Laborers.....	896	Clerks	38
Farmers	282	Cooks	30
Coachmen	76	Fishermen	29
Vendors	53	Merchants	22
Seamen	43	Seamstresses	21
Servants	41	Tailors	21

From the above it appears that more than half the prisoners were laborers only, and had no other occupation, and that if to them the farmers be added, two-thirds of all the prisoners are accounted for.

In the prison the convicts are employed at various occupations, the principal of which are set forth in the following table:

Furniture shop workers.....	414	Carpenters	86
Laborers	365	Cooks	36
Laundrymen	188	Painters	31
Charmen	90	Blacksmiths and carriagemakers....	29

IX. LABOR AND WAGES.

Causes of Scarcity of Laborers—The Filipino as a Laborer—Wage Tables.

The difficulty of securing adequate and efficient labor for systematic industrial enterprises on a large scale has been frequently commented on by writers and others in discussing conditions in the Philippines. The scarcity of labor has always been assumed as a fact, admitting of no serious contradiction, and has generally been charged to the natural aversion of the average Filipino to all kinds of regular or sustained effort as a laborer, predisposed and accentuated by the climate and the richness and productiveness of the soil, by which his simple wants are easily supplied.

These causes have no doubt existed to some extent, and still exist; but other causes have also operated to prevent the development of industrious habits among the natives. The repression to which they were subjected by the Spaniards for more than three centuries; the commercial restrictions which prevented any extended development of industry beyond that specially fostered by the government; the enforced labor with little or no compensation, amounting in many cases practically to slavery, which the natives were required to perform and which doubtless gave rise to or greatly strengthened the belief that manual labor was degrading; and the apparent impossibility of bettering economic conditions were no doubt baneful influences, calculated to create indifference, if not distaste, on the part of the Filipino for manual labor of any kind. But they have shown that they can overcome this indifference and have demonstrated, under intelligent supervision, in Manila at least, that they have natural aptitude and efficiency as workmen, not only in governmental employments, both civil and military, but in various branches of commercial and manufacturing industries carried on in that city. A large number of natives have been and are employed by the army and navy, and as a rule they do their work competently, regularly, and with little or no friction. And what has been accomplished there in the way of utilizing native labor can undoubtedly be accomplished throughout the islands generally if the same methods are applied.

A report made to Governor Taft, November 4, 1902, by J. B. Aleshire, major and quartermaster, United States Army, in charge of army transport service at Manila, clearly demonstrates the availability of native labor and strongly refutes the frequently expressed idea that such labor can not be profitably employed. His report shows that upward of 1,800 Filipino laborers, skilled and unskilled, were on the pay rolls of the Quartermaster's Department, a large proportion

of whom were given regular and almost continuous employment. About 450 of the employees were engaged as launch and lighter officers and crews and were rated as unskilled, having been principally engaged in the handling of coal, freight, baggage, forage, etc.

The wages paid were as follows: Skilled laborers were classified and their rates of pay fixed according to the size of the launch to which they were assigned; the monthly wages in United States currency of *patrones* (masters) were from \$20 to \$50; engineers, \$32.50 to \$50; assistant engineers, \$20 to \$40; oilers, \$15 to \$20; foremen, \$15 to \$20; sailors, \$10.

Unskilled laborers were classified as deck, river, and bay stevedores and bosses; laborers were paid 50 cents per day and the bosses \$30 per month. During the year ending June 30, 1902, the number employed daily averaged 57 bosses and 906 stevedores.

Their hours of labor were from 7 a. m. to 12 m., and from 1.30 p. m. to 5.30 p. m., and, under emergencies, whenever required, with no extra pay for Sunday or night work; under these conditions there was no difficulty in securing efficient labor. All Filipino employees were paid at the end of each month for the number of days' work performed during the month.

In concluding his report Major Aleshire says:

Chinese labor was formerly employed for the handling of coal, but has been abandoned and replaced by Filipino labor, which, by practical tests during several months, averaged more tons per day per man and at a much lower rate per ton.

The attendance of the Filipino laborer has been and is excellent. They do not absent themselves after Sundays, holidays, or fiestas, nor during such days should they be notified in advance they will be required to work. Their physical strength is much improved, and they are capable of doing as much and as hard work as any laborer we have in the Orient.

Testimony similar to the above is given in a report dated October 24, 1902, to the civil governor of the islands, by A. W. Butt, captain and quartermaster, United States Army, in charge of land transportation at Manila. The report states that during the month of September, 1902, an average month in the matter of labor, 941 Filipinos were employed in the land transportation department, classified and paid, in United States currency, as follows:

	Per month.
Farriers	\$30. 00
Teamsters	20. 00
Packers	18. 00
Saddlers	17. 00
Trimmers	14. 00
Painters	14. 00
Carpenters	14. 00
	Per day.
Stevedores	0. 50
Ordinary laborers	0. 40

The employees received their wages monthly for the days actually worked. They were faithful, efficient workmen, careful and trustworthy, and, in occupations requiring the exercise of judgment and skill, rapidly developed superior ability. After proper training they performed as much and as good work as any other class of employees.

The Filipino labor employed in the ordnance department has not apparently proved as satisfactory as in the other two branches of service above referred to, concerning which reports have been made. J. H. Rice, Lieutenant, Ordnance Department, U. S. Army, in charge of the Manila ordnance depot, in a report submitted to the civil governor on November 12, 1902, states that 191 workmen were employed at the department, classified and paid according to ability, in United States currency, as follows:

	Per day.
11 saddlers.....	\$0. 48 to \$0. 80
28 carpenters.....	. 48 to 1. 25
2 painters.....	. 64 to . 80
2 engineers.....	. 50 to . 80
27 armorers.....	. 50 to 1. 00
7 machinists.....	. 50 to 1. 00
4 blacksmiths.....	. 50 to 1. 00
4 tinnern.....	. 64 to . 88
2 molders.....	. 50 to 1. 00
1 storehouse assistant.....	. 80
6 storehouse assistants.....	. 50
1 foreman of laborers.....	. 80
95 laborers.....	. 40
1 janitor.....	. 48

The wages were paid monthly, eight hours constituted a day's work, and no difficulty was experienced in securing unskilled labor, but the report states:

We have had much difficulty in securing skilled labor that we can use to advantage. In so far as is possible, we endeavor to make skilled mechanics by teaching the unskilled, but the number with whom the effort is a success is small, as many seem either unable to advance beyond a low grade of work or do not care to make sufficient effort to obtain the increased pay.

The efficiency of their labor is a matter of the standard chosen. As compared with the labor employed at arsenals in the United States it is not efficient. The cost of production is approximately the same, if anything a little higher here, and the greater part of our material is included at the cost price in the United States. The quality of the work is not so good, and there are considerable losses due to work that must be rejected. The men are not systematic, rapid, or trustworthy as laborers, and it seems nearly impossible to teach them these qualities. * * *

There are not more than half a dozen natives employed who can be trusted to do alone and properly a piece of work with which they are familiar, and not one to whom it is safe to intrust anything having features new to him, however carefully he may be instructed. This does not mean that his work is always wrong, only that it is impossible to be sure that it will be right. Doubtless, as a result of long training, the necessity for really good work does not seem to be comprehensible to the majority

of Filipinos at this depot, and if they make a mistake they seem to think it fully rectified by a patch, although several men have been discharged on this account. The time required to get anything done is a distinct disadvantage and can not be fully covered by an increased number of workmen, since the number that can be employed on any one job is limited.

It should be observed that labor of a much higher degree of skill and efficiency is required in the work of the ordnance department, Manila, than in either of the other branches of the service above referred to.

On this subject Maj. Gen. Arthur MacArthur, military governor of the Philippines, said in his annual report of 1900:

Reiterated assertions to the effect that a native laborer in the Philippines is unreliable must be accepted as coming almost exclusively from Europeans who primarily are exploiters pure and simple, and as such have absolutely no interest in the islands beyond the immediate realization of enormous profits. Under the old system the wages of labor were too small to establish anything like a sense of self-interest on the part of employees, and as a consequence solicitude for the interests of employers did not exist, and workmen as a rule were indifferent as to their own constant employment and had little concern about the future, as their own wishes or interests were never consulted. American experience, so far as public employees are concerned, has not confirmed the declaration of the Europeans. On the contrary, it has been found that, when properly paid, the Filipino is precisely like any other man and holds on to a good place by reason of fidelity and faithful service.

Mr. H. L. Higgins, general manager and constructor of the Manila and Dagupan Railway, who had resided in Manila since 1887, stated to the Schurman committee, 1899, in regard to the labor used in building the railway:

We tried the Chinese on one section, and they did not do good work. They would not work in water. The Indian will work in water better than a Chinaman. On a day wage the Indian will do as much work as a Chinaman in the same time. On piece work the Chinaman works like a slave, but put him on day work and he won't do anything. I like the native. I think he is a very good man in that position (referring to porters), but if you give them any administrative power they won't do. You can't put native inspectors on, and you can't have big gangs of natives under natives. You must have all your station men under an English inspector. You must have all of your drivers under an English foreman, and your shop must be under an English foreman. If you put them under a native foreman they go to pieces. They take advantage of it, and it generally ends up by swindling if they have any power. That is the great fault in the character of the native—they abuse their power.

Mr. Harold Ashton of the firm of Holiday, Wise & Co., who had resided in the Philippines at that date for twenty-one years, stated, in speaking of their qualifications as laborers and mechanics, that they preferred light work, except lighterage. "That is very heavy work; so heavy that even the Chinese do not like it. * * * We have a gang of Filipinos which works in our godowns, and if it is a big job we have two gangs, when it is very stiff work, and we find that the Filipino gang does better than the Chinese coolies." In regard to their abilities as mechanics, he said, "They made the only railroad

that is here. The head of the railroad recently said to me, 'It is very surprising how they take to bridgemaking and the rest of it.'

In an address delivered before the Union Reading College, at Manila, December 17, 1903, Governor Taft, in referring to the labor question, spoke as follows:

With respect to the possibility of obtaining satisfactory labor from the Filipinos, I have only to say this, that experiments have shown that those who have gone about the matter systematically and have attempted to find out what the native needs to keep him constant in his attendance upon work, have been successful, so that, wages considered, his work has been fairly satisfactory. But it is very certain that before satisfactory labor can be obtained from him he must be under the control of a master who understands him. I know the disposition of most Americans here is to open the doors and let in the Chinese, so that we may have Chinese cheap labor in the islands, but I am emphatically opposed to the general policy of admitting the Chinese; first, because the Filipinos have the strongest opinion that it will be for their detriment; and, second, because I believe the history of the Straits Settlements shows that it will not be for their prosperity as distinguished from the material prosperity of the islands. I am opposed to admitting any Chinese labor until it shall be made to appear that the great works of construction which are essential in the islands can not be carried on satisfactorily with Filipino labor. This has not yet been shown, the young lions of the Manila press to the contrary notwithstanding. Of course we are all much affected by that which comes nearest to us, and when a newspaper proprietor or editor suffers from negligence, indifference, or ungrateful treatment by his compositors and pressmen, upon whom he is depending for getting out the paper, it is natural that he should feel indignant on the general labor problem. But if he will consult those of his fellows who have visited China and engaged in the newspaper business in that country, he will find that the life of an editor over there is not a happy one. It is to me very remarkable that the American papers have succeeded in obtaining among the Filipinos, knowing only Spanish or Tagalog, so many printers who can set up English; but whatever their failings and abilities, the whole labor problem does not turn on them. Strikes and unreasonable demands by printers are not unknown in the United States, and the soul of many an editor in the states has been seared with blasphemy, caused by what he regards as the shiftlessness and unreliability of printers. We have been successful in securing, and now have, more than 2,500 Filipino laborers at work on the Benguet road. The Atlantic, Gulf and Pacific Company has from 600 to 700 native laborers in their quarries, and Mr. Krusi of that company told me they were doing most satisfactory work. The Quartermaster's Department of the United States Army in Manila employs about 1,500 Filipinos; the city engineer's department of the city, and the street cleaning department of the city, employ together probably an equal number, and they all report that the Filipino labor is good. Mr. Higgins, the manager of the Manila and Dagupan Railway Company, who built the original road with Filipino labor, and is now building the branches authorized by the Commission, finds no difficulty with Filipino labor. Mr. Belden, of the Street Railway Company, has had no difficulty in securing the laborers necessary, and they are now at work laying the ties. Captain Coudon, of the Cavite navy-yard, submits a favorable report upon his use of Filipino labor, skilled and unskilled.

I venture to say that these citations, until others are shown indicating a different condition of affairs, are sufficient to sustain the fact that Filipino labor, when properly managed, can be made to do the work that this country requires, not so well as American or Chinese labor, but fairly well.

This is a conservative opinion by one who, as governor of the archipelago, visited all parts of it, and to whom all sources of information were open. There is no doubt but that the Filipino laborer has much to contend with, more especially in the provinces, but as the field of his usefulness widens, and he realizes that he is something more than a mere drudge, and with examples of American industry to weaken his prejudice against manual labor as undignified and unmanly, and to excite his pride and steady his application, and with just treatment and fair wages, it is not unreasonable to assume that the Filipino of the provinces can and will become as good a workman as he has proved to be in Manila, or as the Tropics can produce, and by his labor add greatly to the material prosperity of his country.

The rates of wages which have prevailed since American occupation, while low, as compared with wages in the United States, have been substantially double those paid under Spanish dominion. In Manila the wages of workmen employed by military authorities were usually fixed in United States currency, but in practically all other cases they were in the currency of the country—the Mexican dollar, or peso.

The census supervisors in the organized provinces reported the average wages paid certain occupations prior to 1898 and in 1902, in local (Mexican) currency, which are presented in the two following tables.

These meager tables of wages show very clearly the limited number of wage-earning occupations in which Filipinos were engaged throughout the provinces, both prior to and at the date of the census. In Manila there was a much larger number of occupations, but the Chinaman, with his gainful instincts, his indifference to his surroundings, his persistence and greater skill, has always been largely in evidence in Manila, and ready to compete successfully with the Filipinos in nearly all the trades, and thus drive them to occupations of a much lower and much less profitable kind.

Daily and monthly wages paid in certain occupations in the Phil-
 [When two rates are shown for the same occupation, the figures indicate the

OCCUPATION.	ILOCOS NORTE, CAGAYÁN, ILO- COS SUR, ABRA, LA UNIÓN.				LEPANTO-BONTOC, ISABELA, BENGUET, NUEVA VIZCAYA.			
	Daily.		Monthly.		Daily.		Monthly.	
	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
1 Accountants.....			{ \$16.00 30.00	{ \$40.00 100.00			{ \$20.00 40.00	{ \$40.00 100.00
2 Bakers.....	{ \$.15 1.60	{ \$.40 3.00	{ 2.50 4.00	{ 10.00 16.00	{ \$.30 \$0.50	{ \$.50 1.00		
3 Barbers.....	{ .20 .50	{ .40 2.00						
4 Boat builders.....	.50	1.00	30.00	60.00				
5 Boatmen.....	{ .20 1.00	{ .50 5.00	{ 4.00 12.00					
6 Brickmakers.....	.15	.40	15.00	30.00				
7 Carpenters.....	{ .25 .75	{ .50 2.00	{ 9.00 20.00		{ .20 .40	{ .25 1.00		
8 Cigarmakers.....	{ .12 .30	{ .50 1.00						
9 Clerks.....	.30	.50	{ 4.00 10.00	{ 12.00 75.00			{ 5.00 45.00	{ 25.00 110.00
10 Coachmen.....	.20	.40	{ 2.00 5.00	{ 6.00 12.00				
11 Cooks.....	.30	.50	{ 2.00 4.00	{ 6.00 25.00			{ 5.00 25.00	{ 2.00 25.00
12 Copyists.....			{ 4.00 10.00	{ 12.00 25.00				
13 Draftsmen.....								
14 Dressmakers.....	.50	.75		15.00				
15 Fishermen.....	{ .15 .50	{ .30 4.00						
16 Hatmakers.....	{ .30 .50	{ .50 1.00						
17 Horseshoers.....	.50	1.50						
18 Household servants.....	.20	.30	{ 1.00 2.00	{ 2.00 8.00		{ ² 2.00	{ 2.00 6.00	{ 2.00 18.00
19 Laborers, day.....	{ .124 .15	{ .40 1.00			{ .25 .75	{ 1.00 2.00		
20 Laborers, farm.....								
21 Launderers.....	{ .20 .50	{ .50 1.00	{ 3.00 12.00		{ .20 .30	{ .30 .50		{ 3.00 8.00
22 Lumbermen.....	{ .25 .624	{ .75 1.50						
23 Machinists.....								
24 Masons.....	{ .25 .50	{ .50 2.00	{ 9.00 30.00		{ .20 .40	{ .40 .60		
25 Painters.....	{ .15 .50	{ .50 1.50	{ 15.00 30.00		{ .20 .40	{ .40 .60		
26 Pottery-makers.....	{ .20 .25	{ .50 1.00	{ 10.00 25.00		{ .20 .40	{ .40 .60		
27 Printers.....			8.00	10.00				
28 Saddlers.....	.20	{ .50 .75	30.00	60.00				
29 Sailors.....	{ .75 1.00	{ 1.50 5.00	{ 3.00 12.00					

¹United States currency.

ippine Islands prior to 1898 and in 1902, in Mexican currency.

lowest and highest rate reported in the provinces to which they relate.]

ZAMBALES, PANGASINÁN, NUEVA ÉCJA, TÁRLAC.				PAMPANGA, BULACÁN, RIZAL, CAVITE, LA LAGUNA, BATAÁN.				BATANGAS, TAYABAS, MINDORO, ROMBLÓN.			
Daily.		Monthly.		Daily.		Monthly.		Daily.		Monthly.	
Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
		\$15.00	\$20.00			\$30.00	\$50.00	\$1.00	\$2.00	\$4.00	\$12.00
		30.00	100.00			70.00	80.00			125.00	1100.00
\$0.50	\$1.00	8.00	12.00	\$0.50	\$1.00	10.00	13.00			8.00	12.00
.30	.50	15.00	30.00	1.00	2.00	20.00	30.00			20.00	30.00
.50	1.00			.50	1.00	6.00				2.00	
				1.00	2.00	8.00			.50	2.00	
				.50	1.00				.25	.50	
.25	.50			1.00	5.00	8.00			1.00	2.00	
				.50	1.00	4.00	8.00		.50	1.00	6.00
				1.00	2.00	19.00	30.00		1.00	1.00	6.00
											15.00
	.40	8.00		.50	1.50						
.25	.50	15.00		1.00	2.00						
1.00	2.00			.50	1.00	8.00			.25	.50	
.12	.40			1.00	3.00	12.00	18.00		1.00	2.00	15.00
1.00	1.50					3.00	8.00				30.00
						20.00	18.00		1.00		
		5.00	15.00			8.00	16.00				4.00
		30.00	45.00			30.00	60.00				50.00
		2.00	6.00	.50	1.00	4.00	8.00				4.00
		6.00	15.00	1.00	2.00	15.00	25.00				8.00
											25.00
		2.00	8.00	.50	1.00	4.00	10.00				3.00
		8.00	20.00	1.00	2.00	15.00	30.00				8.00
		3.00	10.00			8.00	16.00				4.00
		8.00	25.00			20.00	60.00				20.00
1.00	1.50					15.00	30.00				10.00
1.50	2.00					50.00	80.00				30.00
		4.00	8.00	.20	.50	5.00	15.00	.25	.50		10.00
.20	.40	6.00	12.00	1.00	1.00	15.00	30.00	.40	.80		30.00
1.00	2.00			.50	1.00	6.00					7.50
				1.00	2.00	15.00	30.00	.25	.50		15.00
.20	.40			.50	1.00	8.00	20.00				10.00
.50	1.00			1.00	2.00	15.00	30.00	1.00	2.00		20.00
		8.00	10.00			6.00	30.00				2.00
		2.00	6.00	.50	1.00	1.00	6.00				2.00
		4.00	8.00	1.00	2.00	8.00	20.00				10.00
	.50			.25	.50			.20	.50		15.00
				1.00	1.00						10.00
.20	.40	4.00	10.00	.25	1.00	5.00	12.00	.50	1.00	2.00	4.00
.20	.50			1.00	2.00	8.00	15.00	1.00	1.50		5.00
.80	1.20			.50	1.00	12.00	18.00	.25	.50		7.50
		30.00	50.00	1.00	2.00	15.00	30.00	.40	1.00		15.00
		80.00		.50	1.00	15.00	30.00				20.00
.25	.50			1.00	2.00	50.00	100.00				30.00
1.00	1.50			.50	1.00	8.00	18.00	.25	.75		30.00
.32	1.00			1.00	2.50			.50	2.00		60.00
.50	2.00			.50	.75			.25	1.00		
				1.00	2.00	12.00		1.50	2.00		
.40	.20			.50	.50						
.60	.80			1.00	2.00	10.00		.20	.40		
								.50	.75		
						10.00		.50			
.45	.50			.40	.60			1.00			
.75	1.00			1.00	2.50	6.00		.50	.75		
		8.00				4.00	18.00	.75	1.00		
		15.00				18.00	25.00	.50		6.00	15.00

²Day laborers in the province of Lepanto-Bontoc receive 5 to 10 cents local currency per day. The figures here given relate to the province of Isabela, the wages of day laborers in the provinces of Benguet and Nueva Vizcaya not being reported.

Daily and monthly wages paid in certain occupations in the Philippine

OCCUPATION.	ILOCOS NORTE, CAGAYÁN, ILOCOS SUR, ABRA, LA UNIÓN.				LEPANTO-BONTOC, ISABELA, BENGUET, NUEVA VIZCAYA.			
	Daily.		Monthly.		Daily.		Monthly.	
	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
30 Salesmen.....	{ \$0.20	\$0.40	.....	.....	.....	.....	.....	\$10.00
	.25	1.00	.....	.....	.....	.....	.....	25.00
31 Seamstresses.....	{ .12	.25	.....	.....	{ \$0.30	{ \$0.50	.....	.....
	.50	1.00	.....	.....	.....	.60	.....	.....
32 Shoemakers.....	{ .15	.40	{ \$4.00	\$16.00	.....	.....	.....	.....
	1.00	2.50	.....	.....	.....	.....	.....	.....
33 Silversmiths.....	{ .20	.75	{ 30.00	65.00	.....	.....	.....	.....
	.75	1.25	.....	.....	.....	.....	.....	.....
34 Stonecutters.....	.....	.....	.....	.....	.....	.....	.....	.....
35 Tailors.....	{ .25	.50	{ 6.00	20.00	.30	{ .50	.....	.....
	1.00	3.00	.....	.....	.....	.60	.....	.....
36 Teachers.....	.....	.....	{ 12.00	10.00	.....	.....	\$5.00	8.00
	.....	.....	40.00	60.00	.....	.....	10.00	20.00
37 Wood sawyers.....	{ .25	.75	.....	.....	.20	.40	.....	.....
	.75	2.50	.....	.....	.30	.60	.....	.....

Islands prior to 1898 and in 1902, in Mexican currency—Continued.

ZAMBALES, PANGASINÁN, NUEVA ÉCIJA, TÁRLAC.				PAMPANGA, BULACÁN, RIZAL, CAVITE, LA LAGUNA, BATAÁN.				BATANGAS, TAYABAS, MINDORO, ROMBLÓN.				
Daily.		Monthly.		Daily.		Monthly.		Daily.		Monthly.		
Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	
\$0.40	\$0.50	\$6.00	\$12.00	\$0.50	\$1.00	\$4.00	\$10.00	\$0.50	\$1.00	\$20.00	\$40.00	30
.60	1.00			1.00	2.00	8.00	20.00					
.25	.50	3.00	6.00	.20	1.00	4.00	12.00	.20	.50	7.50	15.00	31
				1.00		10.00	20.00	.25					.75
.30	.50	.....	.....	.50	1.00	6.00	18.00	.....	1.00	.....	.....	32
1.00	1.50	.....	.....	1.00	2.00	15.00	30.00	.....		.....	.....
.50	1.00	.....	.....	.50	1.00	10.00	.....	.50	1.00	.....	.....	33
1.00	1.50	1.00	2.00				75		1.50	.....	.....
.....	.75	.....	.....	.....	.....	.....	.....	.50	.75	15.00	30.00	34
.40	.75	.....	.....	.40	1.50	8.00	18.00	1.00	2.00			
.75	1.50	.....	.....	1.00	2.00	15.00	30.00	.50	.75	7.50	15.00	35
.....	.....	12.00	15.00	.....	.....	10.00	20.00	2.00	4.00			
.....	.....	35.00	150.00	.....	.....	30.00	70.00	.....	.....	20.00	40.00	36
.40	1.0050	1.00	6.00	26.0025				1.00
1.00	2.00	.....	.....	.60	1.50	15.00	30.00	1.00	1.50	15.00	30.00	37

Daily and monthly wages paid in certain occupations in the Philippine

[When two rates are shown for the same occupation, the figures indicate the

OCCUPATION.		AMBOS CAMARINES, ALBAY, SORSOGÓN, MASBATE.			
		Daily.		Monthly.	
		Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
1	Accountants			\$40.00	\$90.00
2	Bakers			120.00	200.00
3	Barbers	\$1.00	\$2.00	10.00	30.00
4	Boat builders .....	.50	{ 1.00 2.00	25.00	60.00
5	Boatmen	{ .50 .75	{ 1.00 2.00	8.00	16.00
6	Brickmakers .....	.40	1.50		
7	Carpenters	{ .50 1.00	{ 1.00 3.00	18.00	37.50
8	Cigarmakers			12.00	22.00
9	Clerks			25.00	40.00
10	Coachmen			10.00	25.00
11	Cooks			30.00	60.00
12	Copyists			4.00	10.00
13	Draftsmen			8.00	40.00
14	Dressmakers .....	.25	2.00	30.00	60.00
15	Fishermen .....	.25	1.00	60.00	100.00
16	Hatmakers .....	.25	1.00	12.00	15.00
17	Horseshoers .....	.50	{ 1.00 4.00	15.00	70.00
18	Household servants			1.00	6.00
19	Laborers, day		{ .50 1.00	4.00	12.00
20	Laborers, farm		{ .50 1.50		
21	Launderers .....	.25	1.00		
22	Lumbermen	{ .50 1.00	{ 1.00 3.00	6.00	15.00
23	Machinists			7.50	30.00
24	Masons	{ .50 1.00	{ 1.00 2.00	30.00	45.00
25	Painters	{ .25 1.50	{ 1.00 3.00	15.00	25.00
26	Pottery-makers .....	.50	1.00	60.00	150.00
27	Printers			18.00	37.50
28	Saddlers .....	.25	1.00	18.00	37.50
29	Sailors			9.00	24.00
				15.00	30.00
				20.00	45.00
				22.50	45.00
				6.00	12.00
				30.00	80.00

Islands prior to 1898 and in 1902, in Mexican currency—Continued.

lowest and highest rate reported in the provinces to which they relate.]

LEYTE, CEBÚ, NEGROS OCCIDENTAL, NEGROS ORIENTAL, ILOILO.				SÁMAR, CÁPIZ, ANTIQUE, SURIGAO, MISAMIS, ZAMBOANGA.				BOHOL, PARAGUA, DAPITAN, COTTABATO, DÁVAO, BASILAN, JOLO, SIASSI, TAWI TAWI.			
Daily.		Monthly.		Daily.		Monthly.		Daily.		Monthly.	
Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
		\$12.00	\$25.00			\$20.00	\$60.00			\$20.00	\$30.00
		100.00	175.00			60.00	100.00				1100.00
		6.00	8.00	\$0.25	\$0.50	10.00	20.00			8.00	30.00
\$0.124	\$0.60	25.00	50.00	.60	1.00		30.00	\$0.15	\$0.25	15.00	85.00
		25.00	50.00	.12	.50	30.00	45.00	.50	.80	15.00	85.00
		12.50	18.50	.75	1.50			.184	.50		
1.25	.50	18.50	30.00	.50	1.00			1.00	2.00		
	2.00	3.00	8.00	.20	.50	10.00	20.00	.05	.10	4.00	8.00
		40.00	60.00	.25	1.00			.75	2.00	10.00	18.00
		15.00	25.00	.50	1.00			.25	.50		
.25	.60	12.50	18.50	.25	.50			.184	.40		
.75	1.50	18.50	30.00	1.00	3.00			.50	1.00		
		6.00	8.00		.50			.15	.40		
		4.00	10.00			6.00	20.00			2.00	18.00
		40.00	80.00			12.00	30.00	.25	.40	20.00	30.00
		3.00	8.00			3.00	8.00				
		15.00	20.00			5.00	10.00	.05	.15	2.00	
		2.00	8.00			5.00	10.00	.20	.40	2.50	5.00
		15.00	25.00			10.00	25.00	.50	1.00	15.00	40.00
		2.00	20.00	.40	1.00	6.00	25.00			4.00	
		10.00	30.00			20.00	30.00	.20	.30	20.00	
		15.00	30.00	.50	2.00	25.00	40.00				
		6.00	10.00	1.00		40.00	100.00	.50	1.00		
		6.00	15.00			6.00	6.00	.15	.25		
		30.00	40.00	.25	.50		10.00	.05	.10	5.00	
				.50	2.00			1.00	1.50	8.00	
.50	2.00	10.00	15.00		.40			.15	.25		
1.00	3.00				.50						
		.50	3.00			15.00		.40	.70		
		6.00	15.00			3.00	4.00	.50	1.00		
.25	.20					5.00	15.00	.10	.20	1.00	10.00
.37	1.50			.20	.30			.25	.50	8.00	18.00
	.24				.30			.20	.40		
	.40				.50			.25	1.00		
									.40		
									1.00		
.25	.50	7.00	12.00		.50	5.00	15.00	.15	.25	1.50	5.00
1.00	1.50	15.00	35.00			6.00	20.00	.50	1.00	6.00	15.00
		15.00	22.50	.25	.50	10.00	30.00	.20	.40	4.00	
		10.00	15.00		1.50	1.00	30.00	.75	1.50	6.00	
		5.00	8.00		2.00	80.00	150.00				
		18.50	30.00	.25	.50			.40			
.25	1.50	30.00	45.00	1.00	3.00			.25	.50		
.25	.75	18.50	30.00	.25	.50			.25	1.00		
.75	2.00	30.00	45.00	.50	1.50				.75		
.16	.13			.12	.20			.25	.374		
.30	.50	7.50	10.50	.25	1.00				.50		
								.25			
	1.50		70.00								
		22.50	37.50	.50	1.00			.25	.50		
	1.00				1.50						
		3.00	8.00			3.00	10.00	.10	.25	2.00	7.00
		40.00	60.00			6.00	15.00	.25	.50	11.00	39.00

¹ United States currency.

Daily and monthly wages paid in certain occupations in the Philippine

OCCUPATION.		AMBOS CAMARINES, ALBAY, SORSOGÓN, MABATE.			
		Daily.		Monthly.	
		Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
30	Salesmen			{ \$6.00 15.00	{ \$15.00 40.00
31	Seamstresses	\$0.25	\$1.00	{ 4.00 16.00	{ 8.00 16.00
32	Shoemakers.....	.50	2.00		
33	Silversmiths	{ 1.00 3.00	{ 2.00 5.00	{ 45.00	{ 90.00
34	Stonecutters		{ 1.50 2.00		
35	Tailors	{ .50 1.50	{ 1.50 3.00	{ 15.00 20.00	{ 30.00 50.00
36	Teachers.....			{ 8.00 30.00	{ 15.00 183.75
37	Wood sawyers.....	{ .50 1.00	{ 1.00 3.00	{ 22.00	{ 22.00

Islands prior to 1898 and in 1902, in Mexican currency—Continued.

LEYTE, CEBÚ, NEGROS OCCIDENTAL, NEGROS ORIENTAL, ILOÍLO.				SÁMAR, CÁPIZ, ANTIQUE, SURIGAO, MISAMIS, ZAMBOANGA.				BOHOL, PARAGUA, DAPITAN, COTTABATO, DÁVAO, BASILAN, JOLÓ, SIASSI, TAWI TAWI.			
Daily.		Monthly.		Daily.		Monthly.		Daily.		Monthly.	
Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.	Prior to 1898.	In 1902.
.....	\$1.00	\$4.00	\$0.40	\$0.75	\$6.00	\$24.00				
.....	50.00	125.00	.50	1.00	20.00	50.00	} \$0.50	\$1.00	{ \$8.00	{ \$12.00
.....	2.00	4.00	.10	.40	8.00	6.00		.15	{ 15.00	{ 30.00
.....	6.00	10.00	.25	1.00	6.00	10.00		.50	{ 4.00	{ }
.....	15.00	22.00	.25	.40	8.00	25.00		.70	{ 6.00	{ }
.....	18.00	30.00	.75	1.50					{ }	{ }
.....	22.50	40.00	.50	.50					{ }	{ }
.....	30.00	55.00	1.00	1.75					{ }	{ }
.....									{ }	{ }
.....25	.75				.75	{ }	{ }
.....									{ }	{ }
.....40	.50	24.00	38.00	{ .50	.50	{ 9.00	{ }
.....			1.00	2.00			{ 1.00	1.50	{ 12.00	{ 30.00
.....									{ 6.00	{ 10.00
.....									{ 25.00	{ 100.00
.....									{ }	{ }
.....20	.50	15.00	30.00	{ .75	1.50	{ 5.00	{ }
.....75	2.00			{ .12	.40	{ 8.00	{ }
.....							{ .75	2.00	{ }	{ }

¹ United States currency.

Average wages paid Filipino workmen in Manila prior to 1898 and in 1902, in local (Mexican) currency, by the day and by the month, in the occupations specified.

OCCUPATION.	AVERAGE WAGES PAID PRIOR TO 1898 (PESOS).		AVERAGE WAGES PAID IN 1902 (PESOS).	
	Per day.	Per month.	Per day.	Per month.
Accountants.....		30.00		80.00
Bakers.....		15.00		25.00
Bakery foremen.....		20.00		35.00
Bamboo and rattan furniture makers.....	0.75		2.00	
Band musicians.....	2.50		5.00	
Barbers.....		20.00		30.00
Barbershop foremen.....		20.00		30.00
Blacksmiths.....	1.50		3.00	
Blacksmiths, foremen.....	2.00		4.00	
Boat builders.....	1.00		2.00	
Boat builders, foremen.....	2.00		4.00	
Boatmen.....	.50		1.50	
Bookbinders.....	.25		1.00	
Bookbinding foremen.....	1.00		2.00	
Brickmakers.....	.37		1.00	
Brickmakers, foremen.....	1.00		2.00	
Brick masons.....	.62		1.00	
Brick masons, foremen.....	1.00		2.00	
Butchers.....	1.00		3.00	
Cabinetmakers.....	2.00		4.00	
Cabinetmakers, foremen.....	2.00		5.00	
Candlemakers.....	.75		1.50	
Candlemakers, foremen.....	1.50		4.00	
Carpenters.....	.62		1.50	
Carpenters, foremen.....	1.00		2.50	
Carriage blacksmiths.....	2.00		4.00	
Carriage carpenters.....	1.25		2.50	
Carriage factory foremen.....	2.00		3.50	
Carriage leather workers.....	.75		2.00	
Carriage painters.....	1.00		2.50	
Carriage wheelwrights.....	1.00		1.75	
Cart builders.....	.75		1.50	
Cart builders, foremen.....	2.00		3.50	
Cart wheelwrights.....	.75		1.50	
Chocolatemakers.....		15.00		35.00
Chocolatemakers, foremen.....		25.00		45.00
Cigar box factory foremen.....	.75		2.00	
Cigar box fillers.....	.80		2.00	
Cigar box makers.....	.50		1.50	
Cigar factory foremen.....		35.00		80.00
Cigar sorters.....	.80		2.00	
Cigarette packers.....	.50		1.00	
Cigarettemakers.....	.40		1.37	
Cigarmakers.....	.80		2.00	
Clerks.....		25.00		45.00
Coachmen.....		15.00		30.00
Compositors in printing establishments.....		15.00		40.00
Confectionery makers.....		15.00		25.00
Confectionery makers, foremen.....		30.00		50.00
Cooks.....		15.00		30.00
Day laborers.....	.37		.80	
Distillery foremen.....	.75		2.00	
Distillery workmen.....	.75		1.50	
Draftsmen.....	2.00		4.00	
Dressmakers.....		200.00		200.00
Fishermen.....	2.00		3.00	
Hand sawyers.....	.75		1.50	
Harnessmakers.....	.62		2.00	
Harnessmakers, foremen.....	1.50		3.00	
Hatmakers.....	.40		.80	

Average wages paid Filipino workmen in Manila prior to 1898 and in 1902, in local (Mexican) currency, by the day and by the month, in the occupations specified—Cont'd.

OCCUPATION.	AVERAGE WAGES PAID PRIOR TO 1898 (PESOS).		AVERAGE WAGES PAID IN 1902 (PESOS).	
	Per day.	Per month.	Per day.	Per month.
Hatmakers, foremen.....	0.75	.....	1.50	.....
Horseshoers.....	.50	.....	1.00	.....
Horseshoers, foremen.....	.....	30.00	.....	45.00
House and sign painters.....	.80	.....	1.50	.....
House and sign painters, foremen.....	1.00	.....	3.00	.....
House servants.....	.....	10.00	.....	15.00
Iron foundry foremen.....	.....	125.00	.....	250.00
Iron ladders.....	.75	.....	2.00	.....
Iron molders.....	1.50	.....	3.50	.....
Iron polishers.....	2.50	.....	3.50	.....
Laundry foremen.....	.40	.....	.80	.....
Laundrymen.....	.20	.....	.50	.....
Lithographers.....	.40	.....	1.00	.....
Lithographers, foremen.....	1.25	.....	2.50	.....
Machinists.....	.40	.....	1.00	.....
Machinists, foremen.....	1.00	.....	2.50	.....
Pottery makers.....	.37	.....	1.00	.....
Pottery makers, foremen.....	.37	.....	1.00	.....
Printing office foremen.....	.....	45.00	.....	120.00
Ropemakers.....	.75	.....	2.00	.....
Saddlers.....	.75	.....	2.00	.....
Saddlers, foremen.....	.75	.....	2.00	.....
Sailors.....	.....	12.00	.....	24.00
Salesmen.....	.60	.....	2.00	.....
Seamstresses.....	.20	.....	.40	.....
Shirtmakers.....	.50	.....	1.00	.....
Shirtmakers, foremen.....	1.00	.....	2.00	.....
Shoemakers.....	.75	.....	2.00	.....
Shoemakers, foremen.....	.75	.....	2.00	.....
Silversmiths.....	.75	.....	1.25	.....
Silversmiths, foremen.....	1.25	.....	2.25	.....
Soapmakers.....	.75	.....	1.50	.....
Soapmakers, foremen.....	.75	.....	1.50	.....
Spinners.....	.50	.....	1.50	.....
Stationary engineers.....	.....	60.00	.....	125.00
Stationary firemen.....	.....	12.00	.....	28.00
Steam sawmill foremen.....	.....	25.00	.....	40.00
Steam sawyers.....	1.00	.....	2.00	.....
Steamboat engineers.....	.....	80.00	.....	150.00
Steamboat firemen.....	.....	12.00	.....	28.00
Stonemasons.....	.62	.....	1.00	.....
Stonemasons, foremen.....	1.00	.....	2.00	.....
Stone masons.....	.62	.....	1.00	.....
Stone masons, foremen.....	1.00	.....	2.00	.....
Tailors.....	.75	.....	2.00	.....
Tailors, foremen.....	.....	30.00	.....	80.00
Teachers.....	.....	25.00	.....	120.00
Tinsmiths.....	.60	.....	1.00	.....
Tinsmiths, foremen.....	1.00	.....	3.00	.....
Trunkmakers.....	.50	.....	1.00	.....
Trunkmakers, foremen.....	2.00	.....	3.00	.....
Umbrellamakers.....	.50	.....	1.50	.....
Umbrellamakers, foremen.....	1.00	.....	2.00	.....
Watch repairers.....	.75	.....	2.00	.....
Weavers.....	.50	.....	1.50	.....
Wood sawyers.....	.75	.....	1.50	.....

The wage rates, in Mexican currency, in 1902, and the hours and days of labor of railroad employees in the Philippines are shown in the following table, which gives the data by occupations—the average number of employees of the Manila and Dagupan Railroad Company during the year 1902 being stated. The wages here reported are substantially the same as were paid prior to American occupation, and were not changed appreciably during the census year—1903.

Average number, hours and days of labor, and wages of railroad employees in the Philippines during the year 1902.

OCCUPATION.	Average number of employees.	Days of labor per week.	Hours of labor per day.	Average wages paid per day or month (pesos).
<i>Traffic department.</i>				
Assistant freight and telegraph clerks.....	11	(1)	(1)	\$20.00
Brakemen.....	20	(1)	(1)	\$20.00
Car cleaners.....	10	(1)	(1)	\$10.00
Conductors.....	17	(1)	(1)	\$30.00
Freight clerks.....	28	(1)	(1)	\$24.00
Inspectors.....	3	(1)	(1)	\$100.00
Lampmen.....	5	(1)	(1)	\$12.00
Porters.....	64	(1)	(1)	\$10.00
Shunters and couplers.....	9	(1)	(1)	\$15.00
Station masters.....	35	(1)	(1)	\$50.00
Subinspectors.....	3	(1)	(1)	\$60.00
Switchmen.....	51	(1)	(1)	\$14.00
Telegraph clerks.....	15	(1)	(1)	\$26.00
Ticket clerks.....	6	(1)	(1)	\$26.00
Ticket revisors.....	9	(1)	(1)	\$27.00
Watchmen.....	7	(1)	(1)	\$18.00
Other stationmen.....	18	(1)	(1)	\$16.00
<i>Locomotive department.</i>				
Apprentices.....	4	6	9½	\$0.50
Blacksmiths.....	5	6	9½	\$1.50
Bollermakers.....	5	6	9½	\$2.00
Boys (faginantes).....	3	6	9½	\$0.50
Carpenters.....	41	6	9½	\$1.50
Chinese smiths.....	14	6	9½	\$2.00
Cleaners.....	18			\$15.00
Coalmen.....	19			\$14.00
Drivers, freight.....	12			\$45.00
Drivers, passenger.....	13			\$65.00
Drivers, switch.....	2			\$35.00
Filers.....	2	6	9½	\$1.10
Firemen, freight.....	17			\$20.00
Firemen, passenger.....	13			\$25.00
Firemen, switch.....	4			\$20.00
Fitters.....	60	6	9½	\$1.75
Laborers.....	14	6	9½	\$0.50
Lathemen.....	5	6	9½	\$2.00
Oilers.....	16			\$20.00
Painters.....	14	6	9½	\$1.10
Planers.....	2	6	9½	\$1.60
Shed foremen.....	4	(1)	(1)	\$100.00
Shunters.....	3	6	9½	\$25.00
Strikers.....	4	6	9½	\$0.75
Timekeepers.....	3	6	9½	\$30.00
Tinsmiths.....	2	6	9½	\$1.50
Watchmen.....	5			\$40.00
Workshop foremen.....	4			\$100.00

¹ According to the requirements of the service.

² Per month.

³ Per day.

Average number, hours and days of labor, and wages of railroad employees in the Philippines during the year 1902—Continued.

OCCUPATION.	Average number of employees.	Days of labor per week.	Hours of labor per day.	Average wages paid per day or month (pesos).
<i>Way and works department.</i>				
Blacksmiths	1	6	10	1 1.12½
Bridge watchmen	9	(2)	(2)	3 10.00
Carpenters	10	6	10	1 1.50
Drivers, pile	1	(2)	(2)	3 32.00
Gaugers	56	6	10	1 0.52
Inspectors	3	6	10	3 250.00
Level crossing keepers	33	(2)	(2)	3 2.00
Painters	9	6	10	1 0.75
Plate layers	263	6	10	1 0.42
Strikers	1	6	10	1 0.80
Subinspectors	10	6	10	3 25.00
Switchmen	2	6	10	3 10.00
Timekeepers	1	6	10	1 0.75
Track walkers	30	6	10	3 12.00
Trolley boys	8	(2)	(2)	3 12.00
Watchmen	1	(2)	(2)	3 10.00
Works foremen	1	6	10	3 100.00
<i>Telegraph.</i>				
Inspectors	2	(2)	(2)	3 50.00
Linemen	6	(2)	(2)	3 15.00
<i>Store department.</i>				
Helpers	6	6	9½	3 15.00
Foremen	2	6	9½	3 30.00
Laborers	11	6	9½	1 0.50
Watchmen	2	6	9½	3 40.00
<i>General.</i>				
Caretakers	1	(2)	(2)	3 30.00
Clerks, auditor's department	10	6	7½	3 36.00
Clerks, general office	6	6	7½	3 40.00
Clerks, locomotive department	9	6	7½	3 30.00
Clerks, stores department	9	6	7½	3 40.00
Clerks, traffic department	7	6	7½	3 30.00
Clerks, way and works	5	6	7½	3 36.00
Draftsmen	3	6	7½	3 70.00
Messengers	10	6	7½	3 12.00
Pay clerks	4	(2)	(2)	3 45.00
Salaried officials	18	(2)	(2)	(4)
Ticket printers	2	6	7½	3 60.00

¹ Per day.

² According to the requirements of the service.

³ Per month.

⁴ Not reported.

Inquiry was made, through Schedule No. 5, relating to "social statistics," as to the wages paid in a few occupations, to wit: Farm laborers, ordinary laborers, carpenters, masons, painters, and blacksmiths. The information secured upon this subject is presented in the following table, which shows the average wages paid employees in the occupations specified, at the time of taking the census in 1903, in the different provinces. It should be stated, as to farm laborers, that while the table shows the average money compensation paid them per day, the usual custom throughout the islands is to pay them with a share of the products of their labor; the payment of wages in money to this class of employees is exceptional.

Average daily wages paid in specified occupations, by provinces and comandancias: 1903.

PROVINCE OR COMANDANCIA.	AVERAGE WAGES PER DAY, IN PESOS, OF—					
	Farm laborers.	Ordinary laborers.	Carpenters.	Masons.	Painters.	Blacksmiths.
Philippine Islands	0.55	0.51	0.90	0.89	1.06	1.11
Abra .....	.30	.24	.44	.52	.40	.50
Albay	1.01	.89	1.41	1.49	1.88	2.19
Ambos Camarines .....	.82	.57	1.11	1.10	1.38	1.45
Antique .....	.52	.30	.51	.42	.71	.....
Basilan ¹ .....	.63	.50	.69	.....	.....	.50
Bataán .....	.71	.54	1.04	.99	1.01	2.00
Batangas .....	.42	.42	.70	.79	.94	.92
Benguet .....	.20	.70	.54	.....	.....	.50
Bohol .....	.59	.49	.83	.54	.99	.94
Bulacáñ .....	.73	.62	1.01	.99	1.23	1.12
Cagayán .....	.71	.60	.86	.49	.99	1.04
Cápiiz .....	.33	.26	.49	.52	.67	.83
Cavite .....	.67	.79	1.23	1.20	1.45	1.35
Cebu .....	.42	.32	.60	.56	.79	.95
Cottabato ¹ .....	.51	.50	.95	.98	1.00	.83
Dapitan ¹ .....	.50	.48	.94	.75	.....	.....
Dávao ¹ .....	.26	.25	.68	1.00	.....	.75
Ilocos Norte .....	.43	.33	.51	.63	.74	.71
Ilocos Sur .....	.46	.35	.67	.59	.84	.79
Iloilo .....	.44	.31	.53	.70	.82	.92
Isabela .....	.96	.72	.91	1.25	1.21	1.10
Joló ¹ .....	.40	.40	1.50	1.50	1.50	1.50
La Laguna	1.02	.93	1.36	1.31	1.47	1.45
La Unión .....	.72	.50	.80	.91	.97	.90
Lepanto-Bontoc .....	.23	.21	.43	.50	.....	.75
Leyte .....	.70	.86	1.45	1.33	1.64	1.72
Manila city	1.00	.80	2.00	1.50	2.00	2.50
Marinduque ² .....	.60	.49	.93	1.75	1.05	1.75
Masbate .....	.54	.65	1.06	1.25	2.00	1.10
Mindoro .....	.37	.35	.55	.58	.63	.75
Misamis .....	.58	.66	.97	.74	.81	1.15
Negros Occidental .....	.33	.37	.54	.67	.91	1.05
Negros Oriental .....	.33	.34	.65	.63	.63	1.09
Nueva Ecija .....	.43	.40	.70	.63	.83	.90
Nueva Vizcaya .....	.33	.38	.58	.75	.58	.78
Pampanga .....	.78	.43	.65	.78	1.01	.78
Pangasinán .....	.53	.45	.76	.71	.79	.76
Paragua .....	.25	.26	.33	.28	.25	.38
Paragua Sur ¹ .....	.31	.50	1.00	.75	1.00	1.00
Rizal	1.09	.79	1.33	1.35	1.28	1.41
Romblón .....	.43	.55	.73	.68	.83	1.17
Sámar .....	.67	.87	1.21	1.04	1.38	1.69
Siassi ¹ .....	.25	.25	2.00	.....	.....	.....
Sorsogón .....	.88	.99	1.40	1.36	1.50	1.73
Surigao .....	.45	.35	.97	1.00	1.10	1.01
Tárlac .....	.55	.52	.82	.81	.94	1.00
Tayabas ³ .....	.71	.66	1.17	1.21	1.71	1.62
Zambales .....	.36	.37	.59	.62	.75	.86
Zamboanga ¹ .....	.52	.52	.78	.80	.81	.94

¹ Comandancia.

² Subprovince of Tayabas.

³ Exclusive of subprovince, Marinduque.

X. SYSTEMS OF MEASUREMENT.

Metric System—List of Weights and Measures.

The metric system of weights and measures, which was used to some extent in the Philippines at the time of American occupation, was legalized, and its continued use authorized by section 9 of act No. 230 of the Philippine Commission, enacted September 17, 1901, as follows:

SEC. 9. The metrical system of weights and measures as authorized by sections 3569 and 3570 of the Revised Statutes of the United States, and at present in use in the Philippine Islands, shall be continued.

The meter is equal to 39.37 inches.

The liter is equal to 1.0567 quarts, wine measure.

The kilogram is equal to 2.2046 pounds avoirdupois.

While the system referred to is in partial use in many sections of the archipelago, it has failed to displace the local systems in vogue, of which there is great variety. Its use, though legal, is not compulsory, and its general adoption is as slow in the islands as in the United States, where it has been sanctioned by law for many years.

The systems in use, aside from the metric, are of Spanish, Oriental, and native origin. Many of the units have no definite equivalents in any system, their values being variable; others constitute parts of regular systems capable of expression in tables, and are reducible to metric equivalents.

It sometimes occurs that the same unit, or rather the same name of a unit, in different provinces, is used to express different quantities, as, for example, the "pico" or "picul" varies from 39 kilograms in Sorsogón to 69.012 in Leyte, between which extremes there are several intermediate metric equivalents, in other provinces, for the unit having this designation.

Lists of the various weights and measures used in the islands, as reported by provincial governors and census supervisors, and the enumerators, are given below, with their metric equivalents when reducible thereto, and the provinces in which they are used. The units are arranged alphabetically on the following plan: First, dry measures and weights of definite quantities are stated, and under the smallest unit of any system a full table embracing all the units of the system is presented, reference being made from other units, as they appear in the list, to the smallest unit of the system of which they constitute a part; second, dry measures of indefinite quantities; third,

liquid measures of definite quantities, arranged in manner similar to that of dry weights and measures of definite quantities; fourth, liquid measures of indefinite quantities; fifth, linear measures, with tables; sixth, superficial measures, with tables; seventh, cubic measures, with tables.

Many of these weights and measures have been dealt with in the compilation of the tables of agriculture.

DRY MEASURES AND WEIGHTS OF DEFINITE QUANTITIES.

ANEGA=3 liters. (See table for *apatan*.)

APATAN=0.09375 liter.

Ambos Camarines uses as both dry and liquid measures the following:

4 apatans=1 chupa =0.375 liter.
8 chupas=1 anega = 3 liters.
25 anegas =1 cavan de *Rey*= 75 liters.

In Abra, Albay, Antique, Basilan, Bataán, Batangas, Benguet, Bohol, Bulacán, Cagayán, Cavite, Cebú, Cottabato, Dapitan, Dávao, Ilocos Norte, Ilocos Sur, Iloilo, Isabela, Joló, La Unión, Lepanto-Bontoc, Leyte, Manila, Marinduque, Mindoro, Misamis, Negros Occidental, Negros Oriental, Nueva Ecija, Nueva Vizcaya, Pampanga, Pangasinán, Paragua, Paragua Sur, Rizal, Romblón, Sámar, Sorsogón, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga, the following table is used:

4 apatans=1 chupa=0.375 liter.
8 chupas =1 ganta = 3 liters.
25 gantas =1 cavan= 75 liters.

In La Laguna, 1 cavan=27 gantas=81 liters.

In Masbate the following is used:

1 chupa=0.37 liter.
1 ganta = 3 liters.
1 cavan = 79 liters.

In Zambales, 4 cavans=3 hectoliters.

ARROBA=11.502 kilograms. (See table for *onza*.)

ATADO=a bundle. In Abra, Albay, Ambos Camarines, Antique, Bataán, Batangas, Benguet, Bohol, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Ilocos Norte, Ilocos Sur (*oyone*), Iloilo, Isabela, La Laguna, La Unión, Leyte, Manila, Marinduque, Masbate, Mindoro, Negros Occidental, Negros Oriental, Nueva Ecija, Pampanga, Pangasinán, Paragua, Rizal, Sámar, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga, the following table is used:

6 atados =1 manojo.
10 manojos=1 baar.
10 baares =1 uyon.

BAAR=60 atados. (See table for *atado*.)

BALUT=250 betels or leaves. (See table for *betel*.)

BETEL=a leaf. In Bataán, Batangas, Bulacán, Cavite (*tanco*), Pampanga (*tangca*), Pangasinán (*balot*), and Zambales (*tangca*), the following table is used:

25 leaves or betels =1 tanca.
4 tancas =1 buhat.
2½ buhats =1 balut.
50, 60, 70, or 100 baluts=1 gilo.

BUHAT=100 betels. (See table for *betel*.)

CATY=16 taels. (See table for *tael*.)

CAVAN=75 liters. (See table for *apatan*.)

CHINANTA=6.3262 kilograms. (See table for *tael*.)

CHUPA=0.375 liter. In Ambos Camarines the following is used:

2 chupas=1 gain =0.75 liter.
6 gains =1 ganta =4.502 liters.
25 gantas =1 cavan de *Provincia*=112.5 liters.

FANEGA=55.5 liters; used in Batangas and Negros Occidental.

FARDO=14.9688 kilograms. (See table for *hoja*.)

GAIN=0.75 liter. (See table for *apatan*.)

GANTA=3 liters. (See table for *apatan*.)

GILO=1,250 to 2,500 betels. (See table for *betel*.)

HOJA = a leaf of tobacco. In Albay, Ambos Camarines, Antique, Bataán, Batangas, Bohol, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Ilocos Norte, Ilocos Sur, Iloílo, Isabela, La Laguna, La Unión, Leyte, Marinduque, Masbate, Mindoro, Misamis, Negros Occidental, Negros Oriental, Nueva Écija, Pampanga, Pangasinán, Paragua, Romblón (also hojastierma), Sámar, Sorsogón, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga, the following table is used:

10 hojas = 1 manojita = 0.03742 kilogram.

10 manojitas = 1 mano = 0.3742 kilogram.

40 manos = 1 fardo = 14.9688 kilograms.

KILOGRAM = 1,000 grams in Antique and Zambales (*kilo*).

LACSA = 10,000 buyo leaves. (See table for *salonson*.)

LIBRA = 0.46 kilogram. (See table for *onza*.)

MANO = 0.3742 kilogram. (See table for *hoja*.)

MANOJITA = 0.03742 kilogram. (See table for *hoja*.)

MANOJO = 6 atados. (See table for *atado*.)

ONZA = 29 grams. Abra, Albay, Ambos Camarines, Antique, Bataán, Batangas, Benguet, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Dávao, Ilocos Sur, Iloílo, Isabela, La Laguna, La Unión, Lepanto-Bontoc, Leyte, Maníla, Marinduque, Mindoro, Misamis, Negros Occidental, Negros Oriental, Nueva Écija, Nueva Vizcaya, Pampanga, Pangasinán, Paragua Sur, Rizal, Romblón, Sorsogón, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga use the following:

1 onza = 29 grams.

16 onzas = 1 libra = 0.46 kilogram.

25 libras = 1 arroba = 11.502 kilograms.

4 arrobas = 1 quintal = 46.009 kilograms.

In Bohol, 1 libra = 0.48 kilogram; 1 arroba = 12 kilograms.

In Masbate, 1 quintal = 47.008 kilograms.

In Paragua, 1 quintal = 51.1588 kilograms.

In Sámar, 1 arroba = 15 kilograms.

PICO (picul) = 63.262 kilograms; used in Albay, Antique, Basilan, Bataán, Batangas, Bulacán, Cagayán, Cavite, Cebú, Cottabato, Dapitan, Ilocos Norte, Joló, La Laguna, La Unión, Maníla, Mindoro, Negros Occidental, Negros Oriental, Pangasinán, Paragua, Rizal, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga.

In Bohol, 1 picul = 66 kilograms.

In Ilocos Sur, 1 picul = 63 kilograms.

In Iloílo, 1 picul = 60.262787 kilograms.

In Leyte, 1 pico = 69.012 kilograms.

In Sorsogón, 1 picul = 39 kilograms.

PILONES = loaf of sugar, 57.510 to 92.016 kilograms in weight; used in Bataán, Bulacán, Cavite, Ilocos Sur, La Laguna, Nueva Écija, Pampanga, Pangasinán, Rizal, Tárlac, Zambales, and Zamboanga.

QUINTAL = 46.009 kilograms. (See table for *onza*.)

SACOB = 100 buyo leaves. (See table for *salonson*.)

SALONSON = 25 buyo leaves.

In Negros Occidental and Pangasinán the following table is used:

25 buyo leaves = 1 salonson.

4 salonsons = 1 sacob.

100 sacobs = 1 lacsa.

TÆL = 0.03954 kilogram.

In Albay, Batangas, Bohol, Cavite, Cebú, Iloílo, Joló, La Unión, Leyte, Negros Occidental, Sámar, Surigao, Tárlac, and Tayabas, the following table is used:

16 tæls = 1 catty = 0.63262 kilogram.

10 catties = 1 chinanta = 6.3262 kilograms.

10 chinantas = 1 picul = 63.262 kilograms.

TANCA = 25 leaves of buyo or betel. (See table for *betel*.)

TROJE = 60 manojos in Albay, Cebú, Iloílo, Negros Occidental, and Tárlac.

UYON = 600 atados. (See table for *atado*.)

DRY MEASURES OF INDEFINITE QUANTITIES.

ARCA = a chest; used in Albay and Tárlac (*arceas*).

BAGONG (bacong) = threads of hemp; used in Antique (*bagacay*), Leyte (*bugang, bugnay*), and Sámar.

BANASTA (banasto) = a basket; used in Cebú and Ilocos Sur.

BARILLA = a barrel; used in Bohol (*varilla*) and Leyte.

- BAYONES** (*bayan*)=a grass sack for transporting sugar in Bulacán (also *cayance*), Cebú, Iloilo, La Laguna, Leyte, Negros Occidental, Negros Oriental, Nueva Ecija, Pampanga (also *cayones*), Pangasinán, Romblón, Tárlac, Tayabas (*cayones*), and Zambales.
- BETEL**=a basket; used in Pangasinán.
- BOCOTA** (*bacote*)=a bundle of rice straw; used in Ambos Camarines.
- BOLLO**=a cake; used in Albay, Ambos Camarines (*bolo*), and Antique (*bollo*).
- BONBONES**=a cake of sweets; used in Antique and Cebú (also *monhones*).
- BULTITOS**=a small bundle; used in Cebú.
- BULTO**=a bundle; used in Albay, Batangas, Cebú (also *volto*), Iloilo, Leyte (also *volta*), Negros Oriental, Pangasinán, Romblón, Sámar, Surigao, Tayabas, and Zambales (*volto*).
- CANASTILLO**=a small basket; used in Albay, Ambos Camarines, Bataán, Batangas, Bulacán, Cavite, Cebú, Ilocos Norte, Ilocos Sur, Iloilo, Nueva Ecija, Pangasinán, and Sámar.
- CANASTRA** (*canastro*)=a large basket; used in Albay, Ambos Camarines, Antique, Bataán, Batangas, Bohol, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Dávao, Ilocos Norte, Ilocos Sur, Iloilo, Isabela, La Laguna, La Unión, Leyte, Manila, Masbate, Negros Occidental, Negros Oriental, Nueva Ecija, Pampanga, Paragua, Rizal, Romblón, Sámar, Surigao, Tárlac, Tayabas, and Zambales.
- CANASTRITAS**=a little basket; used in Cagayán.
- CARGA**=a load; used in Ambos Camarines (*carja*), Batangas, Bulacán, Cavite, La Laguna, Rizal, and Tayabas.
- CARRETA**=a cart; used in Bataán, Cagayán, Isabela, and Tárlac.
- CARRETADO**=a cartload; used in Cagayán.
- CARRETONES**=a small cart; used in Bataán, Batangas, Ilocos Sur, Isabela, Nueva Ecija, Pampanga, and Pangasinán.
- CARRO**=a cart; used in Antique, Negros Occidental, and Pangasinán.
- CESTILLO**=a small basket; used in Abra, Batangas, Ilocos Norte, and Negros Occidental.
- CESTO**=a basket; used in Abra, Albay, Ambos Camarines, Antique, Batangas, Benguet, Bulacán, Cagayán, Cebú, Dapitan, Ilocos Norte, Ilocos Sur, Iloilo, Isabela, La Laguna, La Unión, Manila, Masbate, Negros Occidental, Negros Oriental, Nueva Ecija, Pampanga, Pangasinán, Rizal, Romblón, Sámar, Surigao, Tárlac, Tayabas, and Zambales.
- COSTALE**=a sack or bag; used in Bataán, Batangas, Bulacán, Cavite, Cebú, Iloilo (*castales*), Marinduque, Pampanga, and Tárlac.
- CRIBA**=a crib; used in La Laguna.
- DAMA CARGA**=a large load; used in Nueva Vizcaya.
- ENVOLTORIO**=a bundle; used in La Laguna.
- MADAJOS**=a skein; used in Batangas, Bohol, Iloilo (*madijos*), Marinduque, Mindoro, Surigao (*medejos*), and Tayabas.
- MANATO**=a basket; used in Cavite (*maneas*), Cebú (*manesto*), Leyte, and Sámar.
- MANAZITA**=a small basket; used in Pangasinán.
- MATAS**=a bundle; used in Bulacán, Cavite, Cebú, Ilocos Norte, Joló, Pangasinán, and Tárlac.
- MAZO**=a bundle; used in Cavite.
- MOLDE**=a mold; used in Leyte and Sámar.
- PADOE**=a double handful; used in Sámar.
- PANOCHA**=a cake of brown sugar; used in Albay, Ambos Camarines, Antique, Bohol, Cavite, Cebú, La Laguna, Leyte, Marinduque, Masbate, Nueva Vizcaya, Pangasinán, Paragua, Romblón (*pinocha*), Sámar, Sorsogón, Surigao, Tárlac, Tayabas, and Zamboanga.
- PAQUETA**=a bundle; used in Ambos Camarines, Batangas (*paquete*), and La Laguna.
- PASTELLO**=a cake of sweets; used in Albay (*pasta*), Ilocos Sur, Pangasinán (*pestello*), and Tayabas (*bastillo*).
- PEDAZAS DE PANOCHA**=pieces of sugar; used in Leyte.
- PEDAZOS**=pieces; used in Ambos Camarines, Antique, Batangas, Bohol, Cebú, Leyte, Sámar (*pedasos*), Tayabas (*pedasca*), and Zambales (*pedasos*).
- PELAZA**=a stalk of barley; used in Albay.
- PEPITAS**=seeds; used in Batangas, Ilocos Norte, and La Laguna (*pepeta*).
- PETATE**=a mat; used in Albay, Ambos Camarines, Antique, Bohol, Cebú, Ilocos Sur, Iloilo, La Laguna, Negros Oriental, Sorsogón, and Tayabas.
- PETATES BAYONES**=a sack; used in Leyte.
- PEZO**=a stalk; used in Sámar.

- PINANAS—a stick; used to fasten nipa leaves for thatching in Antique.
- POMPONES—a large stack; used in Cebú (*pumpollos*), Isabela, Nueva Écija, and Tárlac.
- RACIMO—a bunch; used in Abra, Albay, Ambos Camarines, Antique, Basilan, Bataán, Batangas, Benguet, Bohol, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Dávao, Ilocos Norte, Ilocos Sur, Iloilo, Isabela, Joló, La Laguna, La Unión, Lepanto-Bontoc, Leyte, Manila, Marinduque, Masbate, Mindoro, Misamis, Negros Occidental, Negros Oriental, Nueva Écija, Nueva Vizcaya, Pampanga, Pangasinán, Paragua, Paragua Sur, Rizal, Romblón, Sámar, Sorsogón, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga.
- RAIZES=roots; used in Bulacán.
- RAMA—a branch; used in Antique, Bulacán, Cagayán, Cebú, Iloilo, La Laguna, Nueva Écija, Sámar, Surigao (*ramos*), Tárlac, Tayabas, and Zambales.
- REPOLLOS=heads; used in Benguet, La Laguna, Pampanga, and Pangasinán.
- RETONE—a bunch of leaves; used in Bulacán and Pampanga (*retona*).
- RISTRA—a bunch; used in Ilocos Sur.
- ROLLO—a roll; used in Antique, Batangas, Bulacán, Cavite, Cebú, Ilocos Sur, Iloilo, La Laguna, Leyte, Marinduque, Negros Occidental, Negros Oriental, Pangasinán, Romblón, Surigao, Tárlac, and Tayabas.
- SACO—a sack; used in Albay, Ambos Camarines, Bataán, Batangas, Bohol, Bulacán, Cagayán, Cavite, Cebú, Dapitan, Ilocos Sur, Iloilo, Isabela, La Laguna, Leyte, Manila, Masbate, Mindoro, Misamis, Negros Occidental, Negros Oriental, Nueva Écija, Pampanga, Pangasinán, Sámar, Sorsogón, Surigao, Tárlac, Tayabas, Zambales, and Zamboanga.
- SERETA (*serita*)—a small basket; used in Albay.
- TALLAS=pieces of cane; used in Batangas, Pangasinán (*tallo*), Sámar (*tallon*), Tárlac (*tallo*), and Tayabas.
- TEJIDOS—a stick for measuring nipa leaves in Albay, Ambos Camarines, Antique, Bohol, Cebú, Iloilo, Leyte, Marinduque, Negros Occidental, Negros Oriental, Romblón, Sámar, and Surigao.
- TRONCO=trunk of a tree; used in Albay, Antique (*tronca*), Bataán, Cavite, Cebú, Dávao, Nueva Écija, Rizal, Tárlac, and Tayabas (*ponotos*).
- TUBERCULA—a tuber; used in Batangas, Bulacán, Cagayán, Cavite, Cebú, Iloilo, La Laguna, Leyte, Masbate, Mindoro, Negros Occidental, Pangasinán, Sámar, Sorsogón, Tárlac, Tayabas, and Zambales.

LIQUID MEASURES OF DEFINITE QUANTITIES.

APATAN=0.09375 liter.

In Albay, Ambos Camarines, Antique, Bataán, Batangas, Benguet, Bohol, Bulacán, Cagayán, Cavite, Cebú, Ilocos Norte, Ilocos Sur, Iloilo, Isabela, La Laguna, Leyte, Negros Occidental, Nueva Écija, Nueva Vizcaya, Pangasinán, Sámar, Surigao, Tayabas, and Zambales, the following table is used:

1 apatan	=0.09375 liter.
4 apatans	=1 chupa = 0.375 liter.
8 chupas	=1 ganta = 3 liters.
25 gantas	=1 cavan = 75 liters.

ARROBA=16 liters; used in Ilocos Norte, Iloilo, Negros Oriental, Pangasinán, Sámar, Surigao, and Tayabas.

In Ambos Camarines, 1 arroba=12.56 liters.

In Cagayán, 1 arroba=25 pounds in large amounts.

CAVAN=75 liters. (See table for *apatan*.)

CHUPA=0.375 liter. (See table for *apatan*.)

DANAJUANA=16 liters; used in Albay, Ambos Camarines, and Sámar.

GALONE=4.2268 liters; used in Negros Occidental and Tárlac.

GANTA=3 liters. (See table for *apatan*.)

LITER (*litro*)=1 cube whose edge is $\frac{1}{10}$ meter in length; used in Antique, Batangas, Iloilo, Negros Oriental, Pampanga, and Pangasinán.

TINAJA=16 gantas=48 liters; used in Albay, Ambos Camarines, Bataán, Batangas, Bulacán, Cavite, Cebú, Ilocos Sur, Iloilo, Isabela, La Laguna, Leyte, Masbate, Mindoro, Negros Occidental, Nueva Écija, Pampanga (also *teneteja*), Pangasinán, Sámar, Surigao, Tárlac, Tayabas, and Zambales.

LIQUID MEASURES OF INDEFINITE QUANTITIES.

- BOMBONES** (*bambones*)=a bamboo tube; used in collecting liquids in Negros Occidental and Tayabas.
- BOTELLA**=a bottle; used in Albay (*buttos*), Cebú (also *botijas*), Romblón (*boutales*), and Surigao.
- CANTONES**=a bottle or jug; used in Bohol (*canejas*), Rizal (*cavig, canis*), and Tayabas.
- FRASCO**=a flask; used in Ambos Camarines, Batangas, Cebú, Negros Oriental, Surigao, and Zambales.
- LATA DE TINTE**=a can of dye; used in Pangasinán.
- LATAS**=cans of oil, sirup, etc.; used in Ambos Camarines, Nueva Écija, Pampanga, and Tárlac.
- TARRO**=an earthen pan; used in Cebú.
- VASO** (*vasa*)=a tumbler; used in Cebú and Iloflo.

LINEAR MEASURES.

- ANET**=10 brazas. (See table for *palma*.)
- BRAZA**=1.671812 meters. (See tables for *dedo, line, palma, and vara*.)
- In Cavite the following table is used:
- | | |
|--------------------------------------|---------------------------|
| 1 braza legal or burgos | =2 varas=1.671812 meters. |
| 1 braza de rivera | =2.4777 meters. |
| 1 braza realonga | =1.8420 or 2.403 meters. |
| 1 braza de sementera (<i>dipa</i>) | =2.2288 meters. |
- In northern part of Zambales, 1 braza=2 varas.
- In southern part of Zambales, 1 braza de rivera=3 varas.
- CABLE**=111 brazas=200 meters (approximately); used in Cavite.
- CENTIMETER**=0.01 meter. (See table for *meter*.)
- CODO**=0.418 meter in Cavite and Pangasinán.
- CUARTA**=a palma. (See table for *palma*.)
- In Misamis a cuarta=0.209 meter.
- DANGAO**=0.836 meter. (See table for *dedo*.)
- DECIMETER**=0.1 meter. (See table for *meter*.)
- DEDO**=0.01742 meter.
- In Ambos Camarines and Cavite the following table is used:
- | | | |
|-----------------------------|--------------------------|----------------|
| 12 moros (<i>dedos</i>) | =1 dangao | =0.209 meter. |
| 4 dangaos (<i>palmos</i>) | =1 vara | =0.836 meter. |
| 2 varas | =1 dupa (<i>braza</i>) | =1.679 meters. |
- DEKAMETER**=10 meters. (See table for *meter*.)
- DIPA**=2.2288 meters. (See table for *braza*.)
- DOWANG** (Visayan)=2 brazas=3.34 meters (approximately) in Leyte.
- DUPA**=1.679 meters. (See table for *dedo*.)
- FOOT**=0.278 meter. (See table for *line*.)
- KILOMETER**=1,000 meters. (See table for *meter*.)
- LEAGUE** (*lagua, legua, loague*)=5,573 meters (approximately). (See table for *line*.)
- In Cavite, *legua* (land)=6,666 $\frac{2}{3}$ varas=20,000 pies de burgos=5,572.7 meters, and *lagua* (marine)=5,555 $\frac{1}{3}$ meters.
- In Isabela, *loague*=5,572.705 meters.
- In Nueva Écija, *league*=6,666 $\frac{2}{3}$ varas=2,786.35 meters.
- In Sámara, *league*=6,666 $\frac{2}{3}$ varas=5,500 meters=20,000 feet.
- LINE**=0.001935 meter.
- In Ambos Camarines, Batangas, Bohol, Cagayán, Cápiz, Cavite, Iloflo, Ilocos Norte, Ilocos Sur, Isabela, Leyte, Masbate, Misamis, Negros Occidental, Negros Oriental, Nueva Écija, Nueva Vizcaya, Pampanga, Pangasinán, Paragua, Sámara, Surigao, Tárlac, and Zambales, the following table is used:
- | | |
|-----------|--|
| 1 line | =0.001935 meter. |
| 12 lines | =1 inch (<i>pulgada</i>) =0.023220 meter. |
| 12 inches | =1 foot (<i>pie</i>) =0.278635 meter. |
| 3 feet | =1 vara (4 <i>palmas</i>) =0.835906 meter. |
| 2 varas | =1 braza =1.671812 meters. |
| 1 league | =3,333 $\frac{1}{3}$ brazas =5,572.705 meters (approximately). |
- In Cavite, 1 line=12 puntos=0.002 meter (approximately).
- In Nueva Écija, 1 league=3,333 $\frac{1}{3}$ brazas=2,786.35 meters.

METER=a metric standard in Albay, Bataán, Lepanto-Bontoc, Nueva Écija, Pangasinán, Paragua, and Sámar.

1 myriameter=10,000 meters.

1 kilometer =1,000 meters.

1 hectometer =100 meters.

1 dekameter =10 meters.

1 meter =1 meter.

1 decimeter =0.1 meter.

1 centimeter =0.01 meter.

1 millimeter =0.001 meter.

MILLA=1,850 meters (approximately).

In Cavite, 1 milla=1,110 brazas=1,850 meters (approximately).

In Pampanga, 1 milla=1,858 meters.

MILLIMETER=0.001 meter. (See table for *meter*.)

MORO=0.209 meter. (See table for *dedo*.)

PALMA=0.2 meter (approximately). (See tables for *dedo* and *line*.)

In Bulacán, 1 palm=0.29 meter.

In Lepanto-Bontoc, the following table is used:

1 palma =distance between ends of thumb and little finger, hand extended.

4 palmas=1 vara.

2 varas =1 braza.

1 braza =distance between extended arms and hands.

10 brazas =1 anet.

In Masbate, 1 palm=0.209 meter (approximately).

PIE=0.278635 meter. (See table for *line*.)

PULGADA=0.023220 meter. (See table for *line*.)

PUNTO=0.02786 meter; used for measuring lumber.

In Cavite, Masbate, and Zambales the following table is used:

1 punto =0.02786 meter.

30 puntos=1 vara or yarda.

1 vara =3 feet=0.836 meter.

TIGDAY=7.31416 meters.

In Nueva Écija the following table is used:

1 tigday =7.31416 meters.

4 tigdays=1 unatbating=29.25664 meters.

UNATBATING=29.25664 meters. (See table for *tigday*.)

VARA=0.836 meter. (See tables for *dedo*, *line*, *palma*, and *punto*.)

In Batangas, 1 vara=0.86 meter (approximately).

In Bulacán, 1 vara=0.56 meter.

In Sámar, 1 vara=4 palmas=0.80 meter.

In Sorsogón, 1 vara=0.915 meter; 2 varas=1 braza=1.830 meters.

In Tayabas, 1 vara=0.833 meter.

YARDA=vara. (See tables for *punto* and *vara*.)

SUPERFICIAL MEASURES.

ARE=100 square meters. (See table for *centiare*.)

In Iloilo the following table is used:

1 are=0.035778 balita.

1 balita=2,790 square meters.

BALITA=27.9 ares. (See table for *loán*.)

BINTINGNON=3,493.75 square meters. (See table for *real*.)

BITIC=4.183 ares=418.3 square meters.

In Nueva Écija the following table is used:

6 bitics or quimis=1 pompón=25.10 ares=2,510 square meters.

20 pompones=1 oyón=5.02 hectares=50,200 square meters.

BRAZA=2 to 5 square meters (approximately). (See table for *quinen*.)

In Bulacán the following table is used:

1 modern or burgos braza=2 centiares and 7.9 meters.

100 brazas=1 modern or burgos loán =2.79 ares and 4.9 meters.

10 loanes=1 modern or burgos balita =27.94 ares and 9.4 meters.

10 halitas=1 modern or burgos quinon=2 hectares and 79.49 ares=27,949 square meters.

also

- 1 braza =5 centiares and 7.7 meters.
 100 brazas=1 loán realengo =5.77 ares and 5.5 meters.
 10 loanes=1 balita realengo =57.75 ares and 5 meters.
 10 balitas=1 quinon realengo=5 hectares and 77.55 ares.
 BRAZA, square=2.79 square meters in Surigao.
 CAJATION=3,493.625 square meters; used in Ambos Camarines.
 1 cajation =3,493.625 square meters.
 2 cajations=1 salapion=6,987.25 square meters.
 2 salapions=1 pisonon (200 varas by 100 varas)= $\frac{1}{2}$ quinon=13,974.5 square meters.
 CAVÁN=an area of land upon which a caván of seed can be sown with profit. (See table for *ganta*.)
 CAVÁN DE SEMBRADURA OR REY=a square of 60 brazas each side, and contains 1.00618 hectares=10,061.8 square meters.
 CENTIARE=1 square meter.
 In Abra, Albay, Antique, Bataán, Benguet, Iloilo, La Unión, Lepanto-Bontoc, Manila, Mindoro, Nueva Ecija, Negros Oriental, Pangasinán, and Paragua the following table is used:
 1 centiare =1 square meter.
 100 centiares=1 are=100 square meters.
 100 ares =1 hectare=10,000 square meters.
 FANEGA DE ESPAÑA=in Cavite 9,612 square varas=0.644 hectare=6,440 square meters.
 GANTA= $\frac{1}{25}$ caván.
 In Marinduque the following table is used:
 1 ganta =0.0223 hectare=223 square meters.
 25 gantas=1 caván=0.5575 hectare=5,575 square meters.
 In Negros Occidental 25 gantas=1 caván=10,061 square meters.
 In Negros Oriental the following table is used:
 1 ganta=20 ares (approximately)=2,000 square meters.
 1 caván= 1 hectare (approximately)=10,000 square meters.
 In Nueva Ecija 25 gantas (of grain)=1 caván=1 hectare and 25.50 ares=12,550 square meters.
 In Paragua a caván of land is a piece of land upon which can be sown with profit a caván of seed.
 In Surigao the following table is used:
 1 ganta=4 ares = 400 square meters.
 1 caván=1 hectare=10,000 square meters.
 HECTARE=10,000 square meters. (See table for *centiare*, *loán*, and *real*.)
 LEGUA, square=31.055 kilometers=3,105.50 hectares in Cavite.
 LIMANG-SICAPATON=8,734.375 square meters. (See table for *real*.)
 LOÁN=2.79 ares=279 square meters.
 In Ambos Camarines, Bataán, Cápiz, Cavite, Ilocos Norte, Isabela, La Laguna, Lepanto-Bontoc, Nueva Ecija, Pampanga, Pangasinán, Rizal, and Zambales the following table is used:
 1 loán =2.79 ares =279 square meters.
 10 loanes=1 balita = 27.94 ares=2,794 square meters.
 10 balitas=1 quinon= 2 hectares and 79.49 ares=27,949 square meters.
 OYÓN=50,200 square meters. (See table for *bitic*.)
 PIE, square=0.0776 square meter. (See table for *square pulgada*.)
 PISONON=13,975 square meters. (See tables for *cajation* and *real*.)
 PITONG-SICAPATON=10,481.25 square meters. (See table for *real*.)
 POMPÓN=25.10 ares=2,510 square meters. (See table for *bitic*.)
 PULGADA, square=5.39 square centimeters.
 In Cavite the following table is used:
 1 square pulgada =144 lines =5.39 square centimeters.
 144 square pulgadas= 1 square pie =0.0776 square meter.
 9 square pies = 1 square vara=0.69874 square meter.
 QUIMIS=4.183 ares=418.3 square meters. (See table for *bitic*.)
 QUINON (*quinon*)=2 hectares and 79.49 ares=27,949 square meters. (See tables for *cajation* and *loán*.)
 In northern part of Zambales, 1 quinon=2.80 hectares=28,000 square meters.
 In southern part of Zambales, 1 quinon=6 hectares and 0.25 are=60,025 square meters.

REAL=1,746.875 square meters.

In Sorsogón the following table is used:

1 real	=1 sicapaton	= 1,746.875 square meters.
2 reales	=1 bintingnon	= 3,493.75 square meters.
3 reales	=1 telobintingnon	= 5,240.625 square meters.
4 reales	= $\frac{1}{2}$ pisoson=1 salapion	= 6,987.5 square meters.
5 reales	=1 limang-sicapaton	= 8,734.375 square meters.
6 reales	=1 pitong-sicapaton	=10,481.25 square meters.
8 reales	=1 pisoson=1 hectare and 39.75 ares	=5,000 square brazas=13,975 square meters.

SALAPION=6,987.5 square meters. (See tables for *cajation* and *real*.)

SICAPATON=1 real=1,746.875 square meters. (See table for *real*.)

SOCOL=2,500 square brazas=69.872 ares=6,987.2 square meters in Ambos Camarines.

TAGPOLO=20 brazas=33.40 meters; 1 tagpolo (Visayan), 400 brazas square=1,115.56 meters square in Leyte.

TELOBINTINGNON=5,240.625 square meters. (See table for *real*.)

TOPON=44 centiares (approximately)=44 square meters.

In Ambos Camarines 1 topon=16 square brazas=44.719 centiares=44.719 square meters.

In Albay 100 topones=43 ares=4,300 square meters.

VARA, square=0.6987 square meter.

In Misamis and Surigao the following table is used:

1 square vara	=0.6987 square meter.
1 square braza	=2.79 square meters.
1 quinen	=2.765 hectares=276.50 square centimeters.

CUBIC MEASURES.

CODE DE RIVERA=0.189796 cubic meter.

In Cavite a unit for measuring tonnage of boats was formerly a cube called *tenelada de arqueo* of 8 codes de rivera=1.518367 cubic meters, or 70.189 cubic pies. The present unit is the cubic meter. (See table for *cubic meter*.)

CUBIC CENTIMETER=0.000001 cubic meter.

CUBIC DECIMETER=0.001 cubic meter. (See table for *cubic meter*.)

CUBIC FOOT=0.021633 cubic meter. (See table for *cubic inch*.)

In Ilocos Norte and Nueva Ecija, 1 cubic foot=0.028 cubic meter.

CUBIC INCH=0.000013 cubic meter; used in Cavite, Ilocos Norte, Isabela, and Surigao.

The following is the table used:

1 cubic inch (pulgada)	=0.000013 cubic meter.
1,728 cubic inches (pulgadas)	=1 cubic foot=0.021633 cubic meter.
27 cubic feet (pies)	=1 cubic vara=0.584079 cubic meter.

CUBIC METER=a cube 1 meter long, 1 meter wide, and 1 meter high; used in Cavite, Ilocos Norte, Isabela, Nueva Ecija, Surigao, and Zambales.

1 cubic hectometer =1,000,000 cubic meters.

1 cubic dekameter =1,000 cubic meters.

1 cubic meter

1 cubic decimeter =0.001 cubic meter.

1 cubic centimeter =0.000001 cubic meter.

CUBIC PIE=0.021633 cubic meter. (See table for *cubic inch*.)

CUBIC PULGADA=0.000013 cubic meter. (See table for *cubic inch*.)

CUBIC PUNTO=22 cubic centimeters (lumber measure) in Cavite.

In Ilocos Norte and Nueva Ecija, 1 cubic punto=28 cubic centimeters.

CUBIC VARA=0.584079 cubic meter. (See table for *cubic inch*.)

TALACSAN=a cubic measure for firewood, about 1.7528 cubic meters; used in Cavite, Pampanga, and Zambales.

TENELADA DE ARQUEO=1.518 cubic meters. (See *code de rivera*.)

In addition to the units of measurement named in the foregoing lists, there were several others found in the enumerators' returns for which no meaning could be ascertained. They were all of rare use, and of nothing more than limited local significance. Some of them were used as dry measures, others for measuring liquids. In the subjoined list they are stated alphabetically, with the provinces in which they are respectively used.

DRY MEASURES AND WEIGHTS OF UNKNOWN EQUIVALENTS.

- Abainco*, Cebú.
Acharo, Antique.
Almahadas, Bulacán, Negros Occidental (*almohades*), and Negros Oriental (*almahodus*).
Ambos, La Unión.
Annal, Bulacán and La Laguna.
Ara, Bohol.
Aregnes (*arignes*), Iloílo.
Bacoles, Nueva Ecija.
Bajos, Cagayán and Pangasinán (*bojas*).
Balolo (*bolola*), Ilocos Norte and Ilocos Sur.
Balotanes, Nueva Ecija, Surigao (*valuntanes*), Tárlac (*bolatanes*), and Zambales (*balutanes* and *calutanes*).
Banig, Nueva Ecija.
Bequida (*baquid*), La Laguna.
Betias, Pangasinán.
Betis, Nueva Ecija and Zambales (*beles*).
Bingcot, Ambos Camarines.
Boysi, Bulacán.
Brazo, Cebú and Negros Occidental (*brazoo*).
Bulig, Cebú and Leyte (*balig*).
Bustel, Pangasinán.
Butu, Pangasinán.
Cagolla, Bohol.
Caguas, Pangasinán.
Calabos, Ilocos Sur.
Casida, Leyte and Tayabas (*casita*).
Cateza, Pangasinán.
Cheretas, Sorsogón.
Cojo, Iloílo.
Coraz, La Laguna.
Cordel, Cebú.
Cubuze, Leyte.
Dacitan, Cebú.
Escoba, Batangas.
Fedoza, Leyte.
Gajos (*goyos*), Cebú.
Gobello, Albay.
Hangue, Bohol.
Hebras, Antique.
Hoos, Cebú.
Hyadors, Tayabas.
Ingakamas, Batangas.
Kobugay, Leyte.
Kratos, Cebú.
Labaga, Batangas.
Lantops, Cebú.
Latañis, Tárlac.
Leamos, Iloílo.
Maimos, Cebú.
Mangallís, Bohol (*manillas*) and Cebú.
Manutas, Negros Oriental and Surigao (*manutos*).
Marajos, Antique and Tárlac (*mariojo*).
Marsas, Antique.
Meltos, Leyte.
Mentones, Cebú.
Milismias, Bohol.
Ordentos, Cebú.
Pailang, Iloílo.
Paingas, Negros Occidental.
Pamaura, Bataán.
Panod, Iloílo, Negros Oriental, Sámar (*parod*), and Tayabas (*panid*).
Panyos, Negros Occidental.
Pascascas, Tayabas.

Payas, Iloilo.
Pederosby, Iloilo.
Pedona, Leyte.
Pinard, Zambales.
Pirsy, Albay.
Pliegas, Cebú and Iloilo.
Polos (poles), Bohol, Cebú, and Negros Oriental (*polas*).
Pozo, Cebú.
Preentas, Tayabas.
Puntal, Ambos Camarines and Tayabas (*puntas*).
Puquinanes, Nueva Ecija.
Purone, Surigao.
Racio, Cavite, La Laguna, and Leyte (*raices*).
Rainos, Bulacán.
Rajas, Iloilo and Pampanga.
Rancones, Ilocos Sur.
Robias, Cebú.
Ruis, Cebú.
Salasas, Negros Oriental.
Sapod, Ilocos Sur.
Saracon, Tárlac.
Sartas, La Unión.
Stas, Negros Occidental.
Tacol, Antique.
Tampipes, La Laguna.
Taneales, Isabela.
Tareas, Cebú.
Tech, Tayabas.
Tjarde, Zambales.
Tonay, Pangasinán.
Troso medera, Tárlac.
Veras, Bataán.
Veretelos, Ambos Camarines.

LIQUID MEASURES OF UNKNOWN EQUIVALENTS.

Alligan (allijar), Negros Occidental.
Bolones, Negros Occidental.
Canit, Cebú.
Cellos, Cebú.
Digants, Cebú.
Libeibes, Romblón.
Tosettas, Batangas.
Traumas, Sámar.

MANUFACTURES.

I. DEVELOPMENT AND PROGRESS.

Aptitude of People—Reasons for Lack of Enterprise—Conditions in 1810—
Principal Articles Manufactured.

The inhabitants of the Philippines, though possessed of considerable aptitude, power of imitation, and, under proper training and influence, giving evidence of much natural ability in mechanical work, are not and never have been engaged largely in manufactures. Their industries, beyond a comparatively limited production and the conversion into commercial forms of certain agricultural commodities, have been confined mostly to the making of such articles as have been necessary to supply their few and primitive wants; and, speaking generally, productive enterprise, aside from such agriculture and its allied mechanical processes as are carried on, has made little headway in the islands.

The actual needs and desires of the people are few and easily met; the surrounding seas afford them inexhaustible supplies of fish, and a large proportion of the people are occupied, more or less regularly, in the fishing industry; fruits and vegetables grow in abundance with slight or no cultivation; while the deficiency in the local supply of their favorite food, rice, is easily made good by other vegetables or by purchase with their earnings derived from such agricultural products as are exported. Thus their simple food requirements have always been certainly and bountifully provided for, while their demands in other directions have not been sufficiently extensive to lead to the establishment of factories, and the employment of modern methods and appliances for the manufacture of such cloths, tools, utensils, and other articles as are commonly in native use.

These conditions in connection with the fixity of habits of the great mass of the people, as well as the restrictive, oppressive policy pursued by their Spanish rulers, have all contributed to limit their requirements and to prevent any marked extension of manufacturing enterprise beyond such natural increase in production as the growth in population and its partial civilization from century to century have demanded.

Outside of the city of Manila—the native residents of which have been in continuous contact with a considerable European population for several centuries—and a few other centers of population, the wants of the people for manufactured articles are supplied almost wholly through what may be termed “cottage” or “household industry.” The cloth fabrics of the country are produced under this system, and household utensils, implements, tools, and other articles of personal use, such as shoes (of which comparatively few are worn), hats, clothing, etc., are made almost exclusively in the homes of the users or of their neighbors.

When the islands were discovered, in the sixteenth century, practically the same system of production was in operation as is now found throughout nearly the whole of the archipelago. The houses of the masses were then, as far as we can learn, built in about the same way and of the same materials as at present; their canoes, boats, prahus, lorchas, cascoes, and other means of marine transportation, are the same to-day as then; their methods of making and using fishing nets and other fishing apparatus have not changed; the making of textiles is carried on now as then, by means of rude hand looms of the most primitive contrivance; their household utensils are few in number and of the crudest sort, while the tools and implements of agriculture, the most extensive industry of the islands, are of ancient patterns and slight effectiveness.

That the natives possessed a degree of mechanical skill beyond that usually found in uncivilized races, is evidenced by the historian De Morga, whose description of the inhabitants, their manners and customs, was published early in the seventeenth century. He states that “a great deal of cotton grows in all the islands, and they (the natives) spin it and sell it in skeins to the Chinese and other nations who come for it, and with it they also weave wrappers of various sorts which they sell, and others of plantain leaves, which they call *medriñagues*.” He also mentions that “there are many natives skilled in building any sort of ships,” and that many were skilled in carpentry.

Practically nothing was done by the Spaniards, except indirectly through contact and example, to encourage or develop manufacturing industries. Consequently, beyond the conversion of a few leading agricultural products into commercial forms, statistics concerning which are given elsewhere in this report, there has been very little industrial development. Nevertheless, the gradual, partial civilization of the people, as well as their increase in numbers has somewhat enlarged their wants and, to the extent of such enlargement, increased the quantities and varieties of their products.

As a result a few industries of comparatively recent origin have been established, as shown by the census statistics in the tables relating to

manufactures which follow, but in the main the bulk of the manufactured products of the islands are of the kinds the natives have always made, and, being mostly produced intermittently, in the homes of the workers, with no reliable records by the makers of their quantities or values, it is impossible to acquire information of any statistical value concerning the extent of their production.

Much light is thrown on the subject of insular manufactures by the writer Tomás de Comyn, whose work "State of the Philippines," believed to have been written about the year 1810, was published in Madrid in 1820. The following quotation from the book mentioned gives as accurate a description of conditions existing at the present time as prevailed when it was written:

Manufactures.—If in my description of the chief natural productions of these islands I have purposely omitted many of the second order, to the cultivation of which the Indians willingly devote themselves, with a view not to confound them with those having a more direct connection with the export trade, the circle must be still more confined when I come to treat of their manufacturing industry under the same point of view. It would be impossible for anyone to contradict the truth of the remarks of D. Juan Francisco Urrez, belonging to the Philippine Company, in his long and correct report addressed to the managing committee in 1802, when he observes that "The Philippine Islands from time immemorial were acquainted with and still retain that species of industry peculiar to the country, adapted to the customs and wants of the natives, and which constitutes the chief branch of their clothing. This, although confined to coarse articles, may in its class be called perfect, as far as it answers the end for which it is intended; and if an attempt were made to enumerate the quantity of mats, handkerchiefs, sheeting, and a variety of other cloths manufactured for this purpose only in the provinces of Tondo, Laguna, Batangas, Ilocos, Cagayán, Camarines, Albay, Visayas, etc., immense supplies of each kind would appear, which give occupation to an incalculable number of looms, indiscriminately worked by Indians, Chinese, and Sangleyan Mestizos, indeed all the classes, in their own humble dwellings built of canes and thatched with palm leaves, without any apparatus or even the appearance of regular manufacture."

With equal truth am I enabled to add that the natural abilities of these Indians in the manufacture of all kinds of cloths, fine as well as coarse, are really admirable. They succeed in reducing the harsh filaments of the palm tree, known by the name of abacá, to such a degree of fineness that they afterwards convert them into textures equal to the best muslins of Bengal. The beauty and evenness of their embroideries and openwork excite surprise; in short, the damask tablecloths, ornamental weaving, textures of cotton, and palm fibers, intermixed with silk, and manufactured in the above-mentioned provinces, clearly prove how much the inhabitants of the Philippine Islands, in natural ability and dexterity, resemble the other people of the Asiatic regions. It must nevertheless be allowed that a want is noticed of that finish and polish which the perfection of art gives to each commodity; but this circumstance ought not to appear strange if we consider that, entirely devoid of all methodical instruction and ignorant also of the importance of the subdivision of labor, which contributes so greatly to simplify, shorten, and improve the respective excellence of all kinds of works, the same Indians gin and clean the cotton, and then spin and weave it without any other instruments than their hands and feet, aided only by the coarse and unsightly looms they themselves construct in a corner of their huts with scarcely anything else than a few canes and sticks.

From the preceding observations it may easily be deduced that although the natives succeed in preparing with admirable dexterity the productions of their soil, and therewith satisfy the greatest part of their domestic wants, facts which certainly manifest their talents and aptitude to be employed in works of more taste and delicacy, manufacturing industry is nevertheless far from being generalized, nor can it be said to be placed with any degree of solidity on its true and proper basis. Hence arise those great supplies of goods annually imported into the country for the purpose of making up the deficiencies of the local manufactures.

That regular distribution or classification of the assemblage of operations which follow each other in gradation, from the rough preparation of the first materials till the same have arrived at their perfect state of manufacture instead of being practiced is entirely unknown. The want of good machinery to free the cotton from the multitude of seeds with which it is encumbered so as to perform the operation with ease and quickness is the first and greatest obstacle that occurs, and its tediousness to the Indians is so repugnant that many sell their crops to others without separating the seeds or decline growing the article altogether, not to be plagued with the trouble of cleaning it. As the want of method is also equal to the superabundance or waste of time employed the expenses of the goods manufactured increase in the same proportion under such evident and great disadvantages, for which reason far from being able to compete with those brought from China and Hindostan they only acquire estimation in the interior when wanted to supply the place of the latter or in cases of accidental scarcity.

In a word, the only manufactured articles annually exported from the Philippine Islands are 8,000 to 12,000 pieces of light sailcloth; 200,000 pounds of abacá cordage, assorted; 600 buffalo hides and deer skins, which can scarcely be considered in a tanned state, for although the Royal Company from the time of their establishment long continued to export considerable quantities of dimities, calicoes, stripes, checks, and coverlids, as well as other cotton and silk goods, it was more with a view to stimulate the districts of Ilocos to continue in the habits of manufacturing, and thus introduce among the inhabitants of that province a taste for industry than the expectation of gain by the sale of this kind of merchandise, either in Spain or any of the sections of America. At length, wearied with the losses experienced by carrying on this species of mercantile operations without answering the principal object in view, they resolved for the time being to suspend adventures attended with such discouraging circumstances.

Notwithstanding so many impediments, it would not, however, be prudent in the government entirely to abandon the enterprise and lose sight of the advantages the country offers, or indeed to neglect turning the habitual facilities of the natives to some account. Far from there existing any positive grounds for despairing of the progress of manufacturing industry, it may justly be presumed that, whenever the sovereign, by adopting a different line of policy, shall allow the unlimited and indistinct settlement of all kinds of foreign colonists and grant them the same facilities and protection enjoyed by national ones, they will be induced to flock to the Philippine Islands in considerable numbers, lured by the hope of accumulating fortunes in a country that presents a thousand attractions of every kind. Many no doubt will preferably devote themselves to commerce, others to agricultural undertakings and also to the pursuits of mining, but necessarily some will turn their attention and employ their funds in the formation of extensive manufactures, aided by intelligent instructors and suitable machinery. The newly introduced information and arts being thus diffused, it is natural to expect they will be progressively adopted by a people already possessing a taste and genius for this species of labor, by which means manufacturing industry will soon be raised from the state of neglect and

unprofitableness in which it is now left. For my own part, I do not conceive any other measure by which so desirable and beneficial a public object can be realized. As an illustration to the present subject, and in order also that a more accurate idea may be formed of the class and variety of articles manufactured in the Philippine Islands, I have prepared a general list, exhibiting also the respective provinces in which they are manufactured, and this statement will be found in the Appendix, in Table No. III.

The list of manufactured articles above referred to is reproduced verbatim, as follows:

General list of the principal manufactures of the Philippine Islands, distinguishing the provinces in which made:

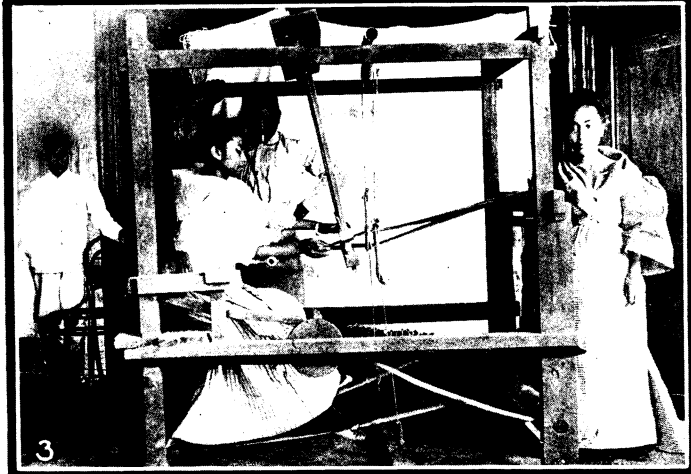
Ploughs and other agricultural implements.....	In all the provinces.
Spun cotton in hanks.....	Cagayán.
Common earthenware.....	Tondo.
Cotton counterpanes, large and embroidered with silk on one side.....	Ylocos.
Idem, smaller size, embroidered on both sides.....	Idem.
Idem, plain cotton.....	Idem.
Idem, flushed, plain and striped.....	Idem.
Shirting, plain, or with silk stripes.....	Albay, Camarines, Yloilo.
Idem, of country hemp, dyed or undyed.....	Tayabas, id. id.
Cotton stockings, coarse.....	Laguna.
Nankeens, coloured and blue, of 6, 7, and 8 yards.....	Ylocos, Tondo, Batangas.
Gold chains and ornaments of 17 or 18 carats.....	Tondo.
Tortoise shell boxes.....	Tayabas.
Cotton gauze, fine and worked, from 7 to 8 yards, each piece.....	Cagayán, Ylocos.
Dimities of various qualities of 7, 8, and 12 yards, each piece.....	Idem.
Blue ginghams of 7 and 8 yards.....	Idem.
Baftas, fine, of 4 and 5 yards.....	Tayabas, Albay, Camarines.
Flowered calicoes of 8 yards.....	Tondo, Ylocos, etc.
Superfine cotton stockings.....	Laguna.
Furniture of narra and other fine woods.....	Tondo, idem.
Tablecloths, coarse, fine, worked, and 1, 2, and 3 yards wide and 8 long.....	Ylocos.
Calicoes of 8 yards.....	Albay, Camarines.
Cotton sail cloth.....	Ylocos.
Idem, lighter and finer quality.....	Batangas.
Romals, white, checked and in coloured silk.....	Albay, Camarines.
Idem, idem, with cotton borders.....	Idem idem.
Articles of silver plate, well polished.....	Tondo.
Gold idem idem.....	Idem.
Superfine white cotton handkerchiefs with borders.....	Yloilo.
Idem of silk and cotton worked.....	Tondo.
Idem of cotton dyed in colours and blue.....	Ylocos, Batangas, idem.
Mats, large, superfine, and worked.....	Tayabas, La Laguna.
Idem, idem, idem, in colours.....	Idem idem.
Idem, idem, country hemp, dyed.....	Idem idem.
Stripes of silk and cotton and of all cotton of 12 yards.....	Tondo, Ylocos.
Rosaries of coco berries.....	Laguna.
Superfine hats of wove palm fibers.....	Albay, Camarines.
Idem of coloured straw.....	Pangasinán.
Cotton towels, fine, plain, and diapered.....	Ylocos.
Mats and carpets of silk, silk and cotton, and all cotton.....	Tondo, Ylocos, Yloilo, etc.
Lace and veils, also worked and embroidered muslins.....	Tondo.
Rigging, cordage, etc., of all sizes.....	Albay, Camarines.

N. B.—It ought to be observed that, besides the above-enumerated articles, the natives, in almost all the provinces, manufacture various kinds of cloth, etc., for their own wearing, as well as utensils for their domestic uses.

The only native manufactured products concerning which commercial statistics of any value are obtainable are such as have figured in the foreign commerce of the islands, as shown by custom-house reports, and, aside from semiagricultural products, such as sugar, manufactured tobacco, etc., regarding which export statistics are presented under the head of agriculture, hats and textiles are the only manufactures of which the quantities and values exported can be ascertained from available documents with any degree of certainty. Many of the Spanish insular customs records are incomplete or entirely wanting and this fact, together with the imperfect classification of exported merchandise, render it impossible to present figures showing the total values or quantities of such exports prior to American occupation. That they have always been relatively small is indicated by the table given on page 13, which shows that exports other than those classed as agricultural were of comparative unimportance.

Clothmaking, the principal household industry of the Philippines, antedates history, the natives having been engaged in the production of textiles, as already stated, when the islands were discovered by Magellan. Reference has already been made to the early manufacture and sale to foreign traders of cotton yarns, cloths, and garments, and it is undoubtedly true that the making of cloth from the fibers of abacá, maguey, pineapple, and other native plants is of equal antiquity. Silk yarns, brought to the islands by Chinese traders, have been used in connection with native fibers in clothmaking from time immemorial. Considering the slow, laborious, antiquated methods and machines used in the industry, the distinctive Philippine textiles, though usually of a filmy and not very durable character, are of fairly good quality and generally of much beauty in design and coloring as well as highly attractive on account of their luster, which rivals that of silk.

An indication of the extent of the household industry of clothmaking is afforded by partial enumerations made in the provinces of Abra, on Luzón Island, and Iloílo on the island of Panay. In Abra returns were secured from 2,293 and in Iloílo from 3,042 domestic establishments, each of which produced less than 1,000 pesos worth of manufactured goods during the year 1902. The product of nearly all these establishments consisted of textiles of various kinds, the total reported value of which, in 5,277 homes, was 1,278,600 pesos, an average value of 242 pesos for each household textile industry enumerated. While these figures can not be relied upon as representing either the total number of small textile producing establishments or anything more than an approximation, more or less close, of the value of their product in either of the provinces to which they relate—the enumerators not having been instructed to secure returns from establishments



1. FILIPINOS MAKING ROPE. 2. ILOCANOS SPINNING COTTON, LUZÓN. 3. PRIMITIVE LOOM OF THE ILOCANOS, LUZÓN.

the value of whose product amounted to less than 1,000 pesos during the year—they nevertheless give an idea of the extent and distribution of the industry which, in every portion of the archipelago, is carried on in the homes of the people. The two provinces named, located in widely separated sections, are typical of the other provinces. The hand looms upon which the native cloths are woven are operated by females mainly.

The provinces in which woven fabrics are most largely produced are Ilocos Norte and Ilocos Sur, in which cotton blankets and cloths are mostly made, and the provinces of Albay, Ambos Camarines, Antique, Iloílo, La Unión, Rizal, Sorsogón, and Tayabas. Among the Moros of Mindanao, and some of the other uncivilized tribes of that and other islands, the art of weaving is understood and practiced. In the city of Manila, cotton textiles are produced in a mill equipped with modern spinning and weaving machinery operated by steampower. This single establishment is the only one in the archipelago in which other than primitive hand methods were employed in clothmaking.

The three principal varieties of cloth are *sinamay*, *jusi*, and *piña*. The first named, which is utilized for wearing apparel by both males and females, is woven from selected hemp (abacá) fibers, in bright, contrasting colors, and is produced most largely in the provinces of Ambos Camarines, Albay, Sorsogón, and Iloílo. Gauzy cloths, called *lupis* and *tinampipi*, are also made in small quantities from specially selected hemp fibers, while coarser fibers of the plant are used in making cordage, nets, and hammocks.

Jusi is the name of a variety of cloth woven from fibers of hemp and of the pineapple plant, to which filaments of imported silk are sometimes added. A small quantity of cotton is also frequently used in making the cloth. Jusi is produced more largely in Iloílo than in any other province, though considerable quantities of it are made in some of the provinces of western Luzón, and, to a smaller extent, in a few Visayan provinces other than Iloílo. The fabric is used for women's dresses, and, to some extent, for men's shirts.

Piña is woven from fibers extracted from the leaf of the pineapple plant; true piña contains no other fiber, though piña cloth, so called, sometimes contains an admixture of fine hemp fiber. It is a very soft, delicate, diaphanous fabric, made in various colors, of glossy, silken appearance, and of great beauty. It is used for women's garments, also for handkerchiefs, collars, scarfs, etc., which are often elaborately and handsomely decorated with embroidery, an art in which marked skill and taste are displayed by the Filipino women who have been instructed in it.

Another cloth called *nipis*, suitable for women's wearing apparel, is woven, on a limited scale, from the fiber of the agave or maguey plant.

There is very small production of woolen or part woolen cloth, of poor quality, in a few localities. The low grade of wool taken from the few wild or semiwild sheep of the country, and the absence of real necessity for woolen garments in the tropical climate of the Philippines have naturally restricted the weaving of this class of textiles to small proportions.

The natives are unable, in making cloth of any kind on their crude, hand operated looms, to weave any pattern other than designs in stripes or plaids. If other designs are desired they must be put into the cloth by hand after it has been woven. Some of the women have developed considerable skill in this special pattern weaving, which is really a kind of embroidery, and produce designs and figures of decided artistic merit.

The fiber of which the husk of the coconut is composed, commercially known as coir, is utilized to some extent by many of the natives, particularly those living on the coasts, in making rope, twine, and fishing nets. The coarse fibrous threads of the husk are pulled out and combed ready for use, and very little skill is required to convert them into nets and other useful products which are quickly and roughly made.

Coarse stuffs, such as mats, rugs, carpets, saddles, and covers for packages are woven from split bamboo, which is used quite extensively for these purposes as well as in the making of hats, cigar cases, etc. The filaments are not sufficiently pliable to use with a shuttle, consequently the material is woven wholly by hand. It is sometimes used as a warp in connection with coconut fiber, which is used as weft, and when closely woven furnishes a strong, durable product. Mats, sleeping mats, rugs, bags, package coverings, etc., are also woven from banana leaves and from the leaves of various kinds of palms.

Very limited quantities of fabrics, other than as above mentioned, of too insufficient importance to specify, are produced in different sections from various materials of natural growth. The needs of the Filipinos for cloths of cotton, silk, wool, or linen, or of any kind other than those of home production, are supplied by importation from foreign countries.

Available statistics of Philippine commerce, prior to American occupation of the islands, show that various kinds of cloth were exported, year by year, in small quantities; all of them were, however, imported in larger quantities than exported, except piña, jusi, and sinamay—cloths of exclusive Philippine production—of which the records show the following quantities and values to have been shipped:



1. FILIPINO WOODCARVERS. 2. FILIPINO WOMAN WEAVING CLOTH. 3. PRIMITIVE VINO DISTILLERY. 4. INTERIOR OF MODERN COTTON MILL IN MANILA.

Quantities and values of piña, jusi, and sinamay exported from the Philippine Islands during the calendar years specified.

YEAR.	Quantity.	VALUE.		YEAR.	Quantity.	VALUE.	
		Pesos.	Dollars.			Pesos.	Dollars.
1854..	163 pieces ¹	3, 678	3, 896	1875.	52 kilograms ²	805	786
1855..	3 pieces ¹	3, 349	3, 519	1876.	{112 kilograms	3, 175	2, 904
1856..	316 pieces ²	1, 378	1, 448	1877.	{20,108 pieces		
1857..	180 pieces ²	709	754	1877.	{117 kilograms	3, 350	3, 164
1858..	357 pieces ²	4, 979	5, 232	1877.	{15,000 pieces		
1860..	370 pieces ²	6, 533	6, 942	1878.	374 kilograms ²	845	766
1861..	434 pieces ²	6, 214	6, 522	1879.	850 kilograms	483	427
1862..	1,277 pieces ⁴	4, 598	4, 863	1880.	1,172 kilograms	1, 655	1, 488
1863..	3,514 pieces ⁴	3, 713	3, 924	1881.	162 kilograms	720	641
1864..	267 pieces ²	2, 949	3, 117	1882.	2,478 kilograms	3, 021	2, 696
1865..	188 pieces ²	4, 889	5, 140	1883.	33 kilograms ⁴	551	481
1866..	(⁵)	19, 418	20, 430	1888.	520 kilograms ²	638	471
1867..	3,900 pieces ⁴	7, 348	7, 668	1890.	37 kilograms ³	202	166
1873..	1,345 kilograms	1, 142	1, 164				
1874..	{272 kilograms	2, 669	2, 682				
	{35 pieces ²						

¹ Quantity of sinamay only.

² Quantity of piña and jusi only.

³ Quantity of jusi only.

⁴ Quantity of jusi and sinamay only.

⁵ Quantity not reported.

The inappreciable extent to which one of the principal manufacturing industries of the islands has participated in foreign commerce is indicated by the above table.

The making of hats, like that of cloth, is an ancient insular industry carried on throughout the entire archipelago. The native hats are usually of unique, fanciful designs, similar in many cases to those of the Chinese, Japanese, and other eastern nations, and are ordinarily so constructed as to give full protection from the rays of the sun and, at the same time, afford ventilation to the head. Many of the styles approach the size of a small umbrella, and all are well adapted to the climate in which they are worn. They are made in an endless variety of shapes and sizes, and many of them are highly decorated and colored, giving proof of the artistic taste and skill possessed by their makers. The materials used in the industry are the leaves of the coco and other palms or those of abacá or banana plants or bejuco, pandan, split bamboo, burí, and other fibers and grasses. Cigar cases and other light flexible receptacles of various kinds are also made from split bamboo, and other weavable materials, in a manner similar to that employed in making head coverings, and much skill is displayed in the weaving of baskets adapted to the many purposes for which the natives use them.

Very light, handsome hats are woven from fine fibers or grasses of different kinds, in conventional American or European shapes, in the provinces of Bulacán, Pangasinán, Tayabas, and some other sections of Luzón Island as well as in the Visayan Islands, which are largely worn by the better class of natives and by foreign residents, and which, together with the ordinary salacots, have been exported to foreign countries in limited though appreciable quantities for many years.

The following table shows the number and value of hats exported annually from the islands for such calendar years as statistics are available:

Number and value of hats exported by the Philippine Islands during each calendar year specified.

YEAR.	Number.	VALUE.		Per cent of total value of exports.
		Pesos.	Dollars.	
1854.....	36,396	10,158	10,759	0.16
1855.....	83,785	10,120	10,634	0.17
1856.....	5,427	713	749	0.01
1857.....	4,033	591	628	(¹)
1858.....	7,985	3,222	3,386	0.03
1860.....	26,487	36,381	38,658	0.38
1861.....	14,037	3,532	3,707	0.04
1862.....	13,359	4,344	4,594	0.05
1863.....	11,237	3,657	3,865	0.04
1864.....	4,124	7,385	7,804	0.07
1865.....	5,739	7,440	7,822	0.04
1866.....	19,951	16,188	17,031	0.07
1867.....	25,826	27,649	28,852	0.13
1873.....	102,216	16,648	16,976	0.07
1874.....	66,897	55,715	55,982	0.32
1875.....	62,482	64,423	62,890	0.34
1876.....	61,836	39,867	36,466	0.27
1877.....	82,405	43,830	41,393	0.27
1878.....	44,627	21,547	19,530	0.12
1879.....	160,162	86,485	76,370	0.46
1880.....	233,742	115,987	104,365	0.49
1881.....	351,809	134,791	119,924	0.55
1882.....	367,745	101,486	90,556	0.49
1883.....	138,176	52,230	45,555	0.20
1884.....	146,938	50,051	43,770	0.22
1885.....	53,551	12,890	10,761	0.05
1886.....	173,830	44,232	34,572	0.17
1887.....	197,448	32,338	24,887	0.13
1888.....	253,323	56,993	42,084	0.22
1889.....	142,931	29,869	21,948	0.09
1890.....	21,054	16,013	13,166	0.05
1892.....	13,169	19,361	13,258	0.07
1893.....	12,150	18,780	11,514	0.05
1894.....	9,095	28,246	14,089	0.09
1900 ²	(³)	.....	440,617	0.18
1901.....	(³)	.....	4146,917	0.60
1902.....	(³)	.....	4160,890	0.66

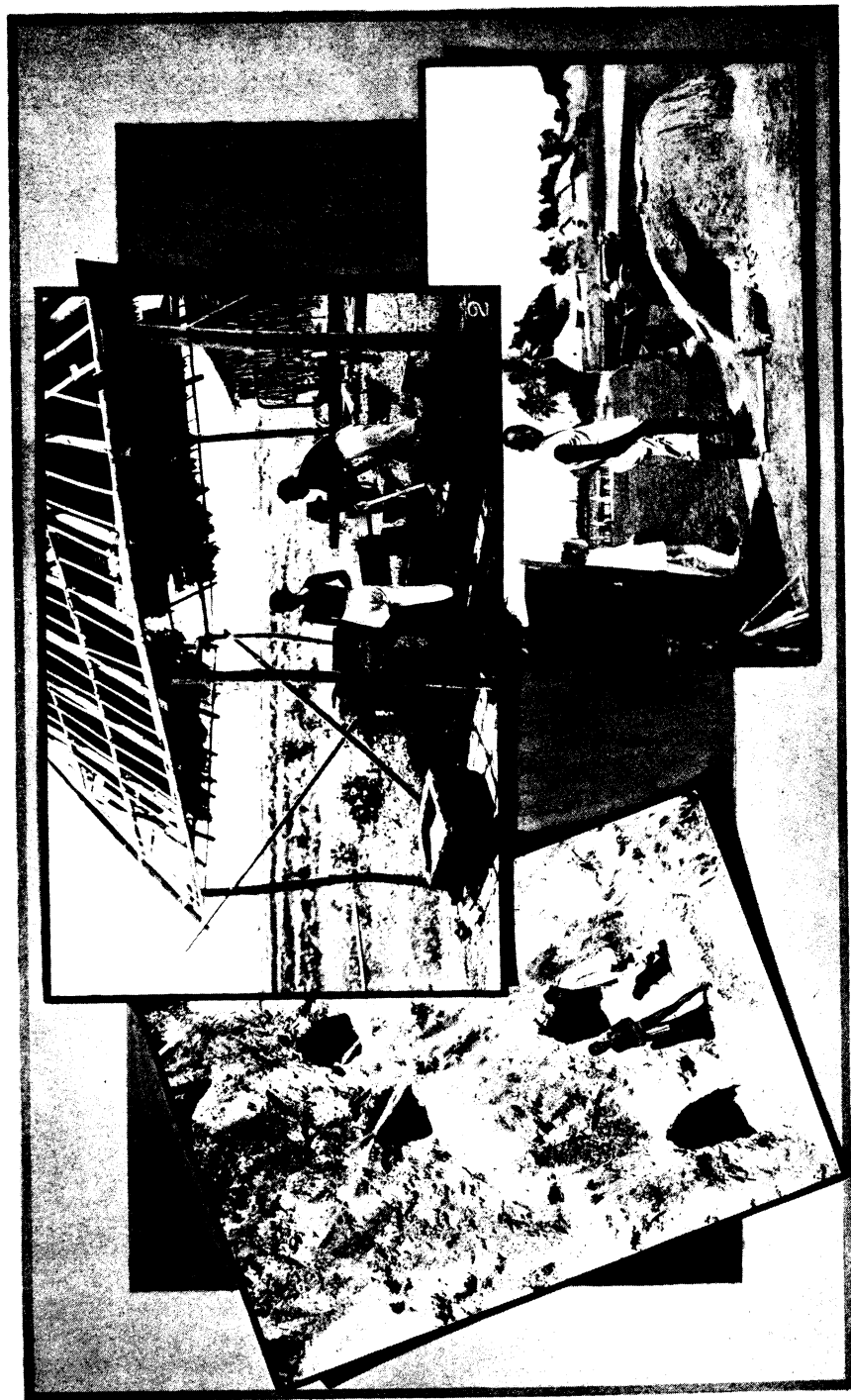
¹ Less than one-hundredth of 1 per cent.
² Six months ending December, 1900.

³ Quantity not reported.
⁴ Including all manufactures of straw.

The manufacture of cordage from hemp is an industry that has been carried on in a small, primitive way in Manila and vicinity for many years.¹ There seems to be no reason why the establishment of extensive factories equipped with the latest machines and appliances and conducted in accordance with modern methods would not prove highly profitable.

The manufacture of tobacco, which has been referred to and of which export statistics are given under the head of Agriculture, is an important Philippine industry. In the more prominent establishments, which are located in Manila, modern machines and methods are used in the production of cigarettes and cigars, and in their packing, boxing, and preparation for sale. Women are employed largely in this industry, their number being in excess of men. Cigars are

¹ See illustration No. 1 on plate facing page 464.



1. TUNNELS ON GOLD QUARTZ VEINS, BENGUET PROVINCE, LUZÓN. 2. BLACKSMITH SHOP. 3. SALTMAKING.

made in standard American and Cuban shapes and sizes; and cigarettes, both machine and hand made, are produced in various sizes, grades, and qualities. These products possess a distinctive flavor that plainly differentiates them from products of tobacco grown in other portions of the world and gives them preference with consumers accustomed to their use.

The production of sugar, with that of manufactured tobacco, as well as vegetable oils and essences, and indigo, have been considered as semiagricultural industries. Information concerning the products named is given in the portion of this report relating to agriculture.

Salt is produced in considerable quantity by the simple process of evaporation, the method having been taught the natives by the Chinese prior to the advent of the Spaniards. Sea water, inclosed in a depression surrounded by dikes, is evaporated by the sun's rays; when the water has disappeared, the salt deposited on the floor of the basin is gathered up by the native workers and cleaned by filtration for domestic use or sale.

Soap has been made in the islands from vegetable oils, for many years, principally by the Chinese. Laundry soaps are mostly made, although toilet soap is also manufactured to a very limited extent.

The making of starch and starch foods is a small industry, though in a few localities starch foods constitute an important addition to the diet of the people. This industry is capable of great expansion, as starch producing plants and trees are abundant.

Dairy products are almost unknown; small quantities of cheese are, however, made in a few districts, some of it being of excellent quality.

Considering the large number of cattle that have in past years been bred in the islands and the great proportion of them that have died of disease during the past few years, to say nothing of those slaughtered for food, it is somewhat surprising that leather has not been produced on a considerable scale. The tanning industry, however, has always been very small, and like nearly all insular industries primitive in character.

The building of ships and boats of the kinds used for coastwise transportation is carried on to a considerable extent in the larger islands, as practically the only means of transportation of the coast dwellers in many places is by these small craft, which are constructed for propulsion by paddles or oars, pole pushing, or sails.

House building is conducted with much skill, not only in the better, more durable class of structures of stone and wood found in Manila and other centers of population, but also in the construction of the bamboo, nipa, and cogon dwellings in which the great majority of the islanders live.

Other industries, such as blacksmithing, bolomaking, wagon and cart making, carriage building, tailoring, shoemaking, baking, making

confectionery, ice, brick, lumber, furniture, matches, pottery, etc., are carried on more or less extensively, while silversmiths, jewelers, dentists, and photographers pursue their semiprofessional trades in Manila and a few other localities only.

Saddlery and harness shops are conducted in several leading towns. The *carrmata*, the ordinary vehicle for personal transportation of the better class of natives, is made and used in most of the provinces. In Manila very fine carriages, as well as superior riding vehicles of other kinds used in the islands, are built, but for these, as well as for the *carrmatas* above mentioned, the springs, axles, boxes, leathers, cloths, and in fact nearly all the component parts other than those of wood, are imported.

There are a few foundries and machine shops in Manila and at other points, some of which are capable of making ordinary repairs in ship and other machinery, and of constructing small engines and boilers suitable for steam launches, a few of which have been built. Castings of almost any desired pattern, provided they are not too large, can be turned out by the foundries, in some of which church bells and small brass cannon have been produced.

Alcohol is distilled in considerable quantities from sugar and the sap of the nipa palm in several provinces, as shown in the tables which follow. Other beverages esteemed by the natives, known as *tuba* and *bino*, are obtained from either the coconut or the *burí* palm throughout the islands generally.

Lumber for building and other purposes is, for the most part, sawed by hand, slowly and laboriously. In Manila, however, and at a few other points, steam sawmills are in operation.

The general prevalence of home industries along restricted lines is referred to in the reports of the provincial governors and census supervisors made to the Director of the Census shortly after the termination of the Philippine census enumeration. These reports, which have been drawn upon in the preparation of the foregoing text, indicate to some extent the industries that, in the opinions of their writers, are needed and could be advantageously installed in different provinces, among which are mentioned cordage works, paper mills, furniture factories, soap works, textile mills, modern sugar mills, improved distilleries, tanneries, oil refineries, glassware and pottery factories, hat factories, shoe factories, brickkilns, sawmills, canneries, and, in the tobacco growing regions, cigar and cigarette factories.

In all the principal islands of the archipelago there is an abundance of waterpower, widely distributed, and more than amply sufficient, when developed, to meet the future requirements of manufacturers in any of the provinces, as well as for the generation of electricity for lighting and transportation purposes.



1. HAULING LOGS WITH CARABAO. 2. ROPEMAKING, MANILA. 3. FILIPINO SAWING MILL.

II. ANALYSIS OF RETURNS.

Form of Schedule—Collection and Tabulation of Data—Industries in Order of Importance—Sugar Producing Industry—Hemp Fiber Industry—General Tables.

The schedule used in the collection of manufacturing statistics was in the following form:

Census of the Philippine Islands taken under the direction of the United States Philippine Commission: 1903.

SCHEDULE No. 6.—INDUSTRIAL PRODUCTS.

Supervisor's District No. ____.
Municipality of ____.

Province of ____.
Judicial District ____.

Compiled by me on the ____ day of ____, 1903.

____, Enumerator.

Name of corporation, company, or individual producing articles to a value of 1,000 pesos per year.	Name of business, manufacture, or product.	Capital invested in real and personal property in the business.	RAW MATERIAL USED, INCLUDING FUEL.			Kind of motor power, machinery, building, or resources.	AVERAGE NUMBER OF LABORERS.		WAGES.		PRODUCT IN 1902.		
			Quantity.	Kind.	Value in pesos.		Males.	Females.	Total average of monthly cost of male laborers.	Total average of monthly cost of female laborers.	Quantity.	Kind.	Value in pesos.

It will be observed that this schedule was intended for use in the enumeration of such establishments only as produced commodities during the year 1902 of the value of at least 1,000 pesos.

The presidentes of the municipalities, acting as special agents of the census, were charged with the collection of the manufacturing statistics, and were well qualified for the work by reason of their official position, their influence in their respective municipalities, and their personal acquaintance with the affairs and pursuits of the people residing in them.

As might have been expected in communities where the most ordinary business records and accounts are rarely kept, and where the memory of the manufacturer or worker is the only source of information, it was quite difficult to obtain the desired data. In fact, it

was found impracticable in a large number of cases to obtain even approximate information regarding the quantities of materials used or the quantities of product. The amount of capital invested, the average number, sex, and average wages of employees, and the total cost of materials purchased and value of product were, however, matters within the knowledge of the producers, and the presentation of these salient facts in the tables which follow show unmistakably the meager extent of manufacturing industries.

Although the schedule called for cost of materials "used," the reports gave the cost of materials "purchased" during the year, whether used or not; the figures relating to material costs in the tables, therefore, represent the total purchases by the various establishments, which, in some industries, were not wholly used during the period covered by the inquiry; consequently they can not be used in calculating costs of production.

The data above indicated are presented for the various insular industries, the value of whose products amounted to 1,000 pesos or over in each establishment in 1902, in nine tables, as follows:

Table 1.—Summary of manufactures by provinces.

Table 2.—Summary of manufactures by specified industries.

Table 3.—Summary of manufactures by groups of industries.

Table 4.—Provinces by specified industries.

Table 5.—Specified industries by provinces.

Table 6.—Summary of sugar producing establishments by provinces.

Table 7.—Summary, by provinces, of sugar producing establishments using steampower.

Table 8.—Summary, by provinces, of sugar producing establishments using waterpower.

Table 9.—Summary, by provinces, of sugar producing establishments using hand or animal power.

In order to avoid the possibility of disclosing the extent or the operations of individual establishments, no separate data are given in these tables for any industry in which less than three establishments were engaged. The figures relating to such industries are combined with those for other industries, with appropriate footnotes.

In tabulating manufactures, sugarmaking has not been included with the other industries presented on account of its semiagricultural character, the figures covering investment of capital and the number and wages of employees not being analogous to or properly to be combined with those of other industries in obtaining totals. In the sugar industry the capital invested and all costs of production relating to both the agricultural and the manufacturing branches of the business are inseparably combined, and this fact rendered it necessary to make a separate tabular presentation for this industry, the statistics con-

cerning which are given in Tables 6, 7, 8, and 9, immediately following those relating to other industries numbered from 1 to 5, inclusive.

These tables show the number of establishments, and give the reported facts covering investment of capital, the average number of employees, and their total average monthly wages, classified by sex, the cost of purchased materials, and the total value of output during the year.

In the table which follows a summary of the above details is presented, by provinces, for all establishments included in the first five tables. This table discloses the relative importance of the different provinces as measured by the values of their manufactured products; the city of Manila heads the list, having produced more than all the provinces combined. Of a total of 35,097,209 pesos, commodities to the value of 23,591,807 pesos—67.2 per cent of the whole—were made in Manila. There were 876, or 40.1 per cent, establishments in the city named, of the 2,184 in the entire archipelago, and the average value of their output was 26,931 pesos, as against an average of 16,070 pesos for all insular manufactures. The capital invested in Manila was greater than in all the balance of the Philippines, having been 20,005,306 out of the total of 36,226,085 pesos reported. The industrial preeminence of the city is also indicated by the number of employees and their total average monthly wages, each amounting to more than half of the totals for the islands; of the total reported number of 34,659 employees, 19,640 were in Manila, who were paid average monthly wages amounting to 411,148 pesos, out of 757,841 pesos paid all employees in the archipelago.

Next to Manila stands Cavite in the value of manufactured products, which amounted to 3,719,756 pesos, though the number of establishments in Cavite (53) was not as large as in several other provinces. The average value of product per establishment in this province was 70,184 pesos—a much higher average than in Manila or elsewhere. This is accounted for by the fact that 3 ship and boat building yards are located in Cavite, whose product constituted 91.7 per cent in value of the total products of the province, as will be seen by referring to Table 4. The only other provinces which produced 1,000,000 pesos and upward of manufactured articles were Bulacán and Pangasinán, in which the values amounted to 1,110,483 and 1,063,528 pesos, respectively.

In order that the relative manufacturing importance of the different provinces may be comprehended readily the following statement is presented, which shows by percentages the capital invested, the number and average monthly wages of employees, the cost of materials purchased, and the value of products. The provinces are arranged in the order of their importance as measured by value of products.

Provinces arranged according to total value of products.

Number in order of importance.	PROVINCE OR COMANDANCIA.	PER CENT OF—				
		Capital.	Employees.		Cost of materials purchased.	Value of products.
			Number.	Average monthly wages.		
	Philippine Islands	100.0	100.0	100.0	100.0	100.0
1	Manila city	55.2	56.7	54.3	47.6	67.2
2	Cavite	31.0	9.9	23.4	36.4	10.6
3	Bulacán	1.3	2.6	1.7	2.5	3.2
4	Pangasinán	1.8	3.2	1.4	1.7	3.0
5	Iloilo	1.6	2.8	1.6	1.3	2.3
6	Ambos Camarines	1.1	1.4	1.2	1.1	2.0
7	Cebu	1.0	1.9	1.4	1.2	1.6
8	Rizal	0.9	4.6	3.5	0.9	1.5
9	La Laguna	0.7	1.5	1.7	1.3	1.2
10	Pampanga	0.8	1.2	1.0	1.0	1.0
11	Ilocos Sur	0.4	0.8	0.5	0.8	1.0
12	Albay	0.2	0.7	0.6	0.8	0.7
13	Tayabas	0.6	1.8	1.3	0.5	0.7
14	Negros Occidental	0.4	1.2	0.7	0.4	0.5
15	Batangas	0.2	0.6	0.4	0.4	0.5
16	Leyte	0.2	0.4	0.5	0.3	0.4
17	Bataán	0.1	0.3	0.2	0.3	0.4
18	Cápit.	0.6	0.5	0.3	0.2	0.3
19	Sorsogón	0.3	0.7	0.7	0.4	0.3
20	Zamboanga ¹	0.2	0.5	0.3	0.1	0.3
21	Tarlac	0.2	0.3	0.3	0.2	0.3
22	Negros Oriental	0.3	2.8	1.4	0.1	0.3
23	Nueva Ecija	0.3	0.4	0.3	0.1	0.2
24	Agayán	0.3	0.3	0.3	0.1	0.1
25	Surigao	(²)	1.1	0.3	(²)	0.1
26	Romblón	0.1	1.2	0.2	0.1	0.1
27	Misamis	(²)	0.1	0.1	0.1	0.1
28	Samar	(²)	0.1	0.1	0.1	(²)
29	Joló ¹	(²)	(²)	(²)	(²)	(²)
30	Masbate	(²)	(²)	(²)	(²)	(²)
31	Ilocos Norte	(²)	(²)	(²)	(²)	(²)
32	Zambales	(²)	(²)	(²)	(²)	(²)
33	Abra	(²)	0.1	(²)	(²)	(²)
	All other provinces ³	0.2	0.3	0.3	(²)	0.1

¹ Comandancia.

² Less than one-tenth of 1 per cent.

³ Includes Bohol, Isabela, La Unión, Mindoro, Nueva Vizcaya, and Paragua Sur, percentages for which can not be shown without disclosing individual operations.

The average value of product per establishment is shown in the following statement, the provinces being arranged in accordance with their importance as measured by this standard:

Provinces arranged according to the average value of production of each establishment.

Number in order of importance.	PROVINCE OR COMANDANCIA.	Number of establishments.	VALUE OF PRODUCTS.	
			Total (pesos).	Per establishment (pesos).
	Philippine Islands	2,184	35,097,209	16,070
1	Cavite	58	3,719,756	70,184
2	Manila city	876	23,591,807	26,931
3	Ilocos Sur	23	334,883	14,560
4	Bataán	10	125,509	12,551
5	Bulacán	98	1,110,482	11,331
6	Pampanga	36	356,022	9,890
7	Ambos Camarines	71	702,006	9,887
8	Pangasinán	128	1,063,528	8,308
9	Iloilo	97	790,833	8,153

Provinces arranged according to the average value of production of each establishment—
Continued.

Number in order of importance.	PROVINCE OR COMANDANCIA.	Number of establishments.	VALUE OF PRODUCTS.	
			Total (pesos).	Per establishment (pesos).
10	Cápiz	17	121,288	7,135
11	Sámar	3	20,500	6,833
12	Tárlac	17	112,903	6,641
13	Cebu	85	549,014	6,459
14	Rizal	88	522,710	5,940
15	Leyte	24	132,408	5,517
16	La Laguna	105	426,612	4,063
17	Negros Occidental	44	170,018	3,864
18	Albay	67	253,396	3,782
19	Cagayán	13	49,045	3,773
20	Joló ¹	3	11,040	3,680
21	Masbate	3	10,840	3,613
22	Misamis	6	21,333	3,556
23	Sorsogón	35	119,886	3,425
24	Zamboanga ¹	35	118,897	3,397
25	Batangas	49	158,738	3,240
26	Surigao	10	28,414	2,841
27	Tayabas	10	251,895	2,799
28	Ilocos Norte	3	7,922	2,684
29	Zambales ¹	3	7,886	2,629
30	Romblón	11	26,173	2,379
31	Negros Oriental	43	94,684	2,202
32	Nueva Ecija	26	55,958	2,152
33	Abra	4	5,433	1,358
	All other provinces ²	8	25,320	3,165

¹ Comandancia.

² Includes Bohol, Isabela, La Unión, Mindoro, Nueva Vizcaya, and Paragua Sur, which can not be shown in the order of their importance without disclosing the operations of individual establishments.

Table 2 gives a summary of insular manufactures by specified industries, alphabetically arranged. It is seen from this table that there were more establishments engaged in making bread and other bakery products than in any other industry, the number being 326; the next largest number (287) was engaged in the production of liquors—distilled, malt and other fermented—while men's clothing, custom work and repairing ranked third, with 119 establishments, and tobacco, cigars, and cigarettes stood fourth, with 108 establishments. No other industry than those above named had as many as 100 separate establishments.

The following statement shows the relative importance of the several industries for which data are given in Table 2, the most important industry being named first in each column:

NUMBER OF ESTABLISHMENTS.		CAPITAL.		TOTAL NUMBER OF EMPLOYEES.	
Rank.	Name of industry.	Rank.	Name of industry.	Rank.	Name of industry.
1	Bread and other bakery products.	1	Ship and boat building.	1	Tobacco, cigars and cigarettes.
2	Liquors, distilled, malt, and other fermented.	2	Tobacco, cigars and cigarettes.	2	Ship and boat building.
3	Clothing, men's, custom work and repairing.	3	Liquors, distilled, malt, and other fermented.	3	Liquors, distilled, malt, and other fermented.
4	Tobacco, cigars and cigarettes.	4	Lumber, sawed.	4	Bread and other bakery products.
5	Boots and shoes.	5	Gas and electric light and power.	5	Lumber, sawed.
6	Soap.	6	Ice, manufactured.	6	Foundry and machine-shop products.
7	Boots and shoes, slippers.	7	Printing and publishing.	7	Printing and publishing.
8	Lumber, sawed.	8	Bread and other bakery products.	8	Brick and tile.
9	Carriages and wagons.	9	Foundry and machine shop products.	9	Hemp, fibering.
10	Rice, cleaning.	10	Rice, cleaning.	10	Salt.
11	Salt.	11	Clothing, men's, custom work and repairing.	11	Clothing, men's, custom work and repairing.
12	Mineral and soda waters.	12	Hats and caps.	12	Rice, cleaning.
12	Silversmithing.	13	Carriages and wagons.	13	Carriages and wagons.
13	Blacksmithing.	14	Soap.	14	Boots and shoes.
14	Candles.	15	Salt.	15	Boots and shoes, slippers.
14	Hemp, fibering.	16	Brick and tile.	16	Hats and caps.
15	Copra.	17	Boots and shoes.	17	Ice, manufactured.
15	Lime.	18	Boots and shoes, slippers.	18	Cloth, from hemp, pifa, and other fibers.
16	Tinsmithing.	19	Mineral and soda waters.	19	Mineral and soda waters.
17	Cloth, jusi.	20	Furniture and cabinet-making.	20	Soap.
18	Confectionery.	21	Candles.	21	Furniture and cabinet-making.
19	Furniture and cabinet-making.	22	Tanning.	22	Cloth, jusi.
20	Tanning.	23	Hemp, fibering.	23	Pottery and terra cotta products.
21	Foundry and machine shop products.	24	Oil, essential (ilang-ilang).	24	Copra.
22	Printing and publishing.	25	Saddlery and harness.	25	Blacksmithing.
23	Brick and tile.	26	Trunks.	26	Lime.
24	Ship and boat building.	27	Lithographing.	27	Trunks.
25	Trunks.	28	Confectionery.	28	Tanning.
26	Hats and caps.	29	Carpentering.	29	Confectionery.
27	Chocolate and cocoa products.	30	Tinsmithing.	30	Gas and electric light and power.
27	Oil, coconut.	31	Photography.	31	Carpentering.
28	Pottery and terra cotta products.	32	Silversmithing.	32	Candles.
29	Saddlery and harness.	33	Blacksmithing.	33	Oil, coconut.
30	Photography.	34	Chocolate and cocoa products.	34	Silversmithing.
31	Carpentering.	35	Pottery and terra cotta products.	35	Tinsmithing.
32	Oil, essential (ilang-ilang).	36	Copra.	36	Lithographing.
33	Oil, lumbang.	37	Oil, coconut.	37	Saddlery and harness.
34	Cloth, from hemp, pifa, and other fibers.	38	Cloth, jusi.	38	Oil, essential (ilang-ilang).
35	Ice, manufactured.	39	Oil, lumbang.	39	Chocolate and cocoa products.
35	Tobacco, smoking.	40	Lime.	40	Photography.
36	Boxes, wooden packing.	41	Tobacco, smoking.	41	Oil, lumbang.
36	Combs.	42	Wood carving.	42	Boxes, wooden packing.

¹The following industries are omitted to avoid disclosing the operations of individual establishments: Bicycle repairing, 2 establishments; boots and shoes, wooden, 2; boxes, cigars, 2; brasswork, 2; cordage and twine, 2; cotton goods, 1; furnishing goods, men's, 1; ink, writing, 1; matches, 1; mats and matting, 2; nets and seines, 1; nipa fabric, 2; paints and colors, 1; pianos, 1; resin, 1; umbrellas, 2.

of their importance.¹

TOTAL AVERAGE MONTHLY WAGES.		COST OF MATERIALS PURCHASED.		VALUE OF PRODUCTS.	
Rank.	Name of industry.	Rank.	Name of industry.	Rank.	Name of industry.
1	Ship and boat building.	1	Ship and boat building.	1	Tobacco, cigars and cigarettes.
2	Tobacco, cigars and cigarettes.	2	Tobacco, cigars and cigarettes.	2	Ship and boat building.
3	Liquors, distilled, malt, and other fermented.	3	Liquors, distilled, malt, and other fermented.	3	Liquors, distilled, malt, and other fermented.
4	Printing and publishing.	4	Bread and other bakery products.	4	Lumber, sawed.
5	Lumber, sawed.	5	Lumber, sawed.	5	Bread and other bakery products.
6	Foundry and machine shop products.	6	Gas and electric light and power.	6	Gas and electric light and power.
7	Bread and other bakery products.	7	Rice, cleaning.	7	Printing and publishing.
8	Ice, manufactured.	8	Foundry and machine shop products.	8	Rice, cleaning.
9	Salt.	9	Ice, manufactured.	9	Foundry and machine shop products.
10	Carriages and wagons.	10	Soap.	10	Ice, manufactured.
11	Clothing, men's, custom work and repairing.	11	Clothing, men's, custom work and repairing.	11	Clothing, men's, custom work and repairing.
12	Hats and caps.	12	Carriages and wagons.	12	Soap.
13	Boots and shoes, slippers.	13	Hats and caps.	13	Hats and caps.
14	Boots and shoes.	14	Printing and publishing.	14	Carriages and wagons.
15	Hemp, fibering.	15	Boots and shoes.	15	Brick and tile.
16	Rice, cleaning.	16	Boots and shoes, slippers.	16	Boots and shoes, slippers.
17	Brick and tile.	17	Mineral and soda waters.	17	Mineral and soda waters.
18	Mineral and soda waters.	18	Oil, essential (ilang-ilang).	18	Boots and shoes.
19	Soap.	19	Candles.	19	Candles.
20	Furniture and cabinet-making.	20	Tanning.	20	Tanning.
21	Gas and electric light and power.	21	Carpentering.	21	Confectionery.
22	Blacksmithing.	22	Confectionery.	22	Carpentering.
23	Tanning.	23	Furniture and cabinet-making.	23	Oil, essential (ilang-ilang).
24	Carpentering.	24	Copra.	24	Furniture and cabinet-making.
25	Candles.	25	Chocolate and cocoa products.	25	Copra.
26	Pottery and terra cotta products.	26	Brick and tile.	26	Blacksmithing.
27	Lithographing.	27	Trunks.	27	Trunks.
28	Oil, coconut.	28	Silversmithing.	28	Silversmithing.
29	Confectionery.	29	Blacksmithing.	29	Chocolate and cocoa products.
30	Trunks.	30	Tobacco, smoking.	30	Salt.
31	Silversmithing.	31	Saddlery and harness.	31	Tinsmithing.
32	Lime.	32	Tinsmithing.	32	Lithographing.
33	Saddlery and harness.	33	Lithographing.	33	Hemp, fibering.
34	Copra.	34	Cloth, jusi.	34	Lime.
35	Tinsmithing.	35	Oil, coconut.	35	Saddlery and harness.
36	Cloth, from hemp, pifa, and other fibers.	36	Oil, lumbang.	36	Oil, coconut.
37	Cloth, jusi.	37	Lime.	37	Pottery and terra cotta products.
38	Chocolate and cocoa products.	38	Pottery and terra cotta products.	38	Photography.
39	Photography.	39	Hemp, fibering.	39	Cloth, jusi.
40	Oil, essential (ilang-ilang).	40	Dyeing.	40	Tobacco, smoking.
41	Oil, lumbang.	41	Photography.	41	Oil, lumbang.
42	Wood carving.	42	Combs.	42	Dyeing.

Industries in the order of

NUMBER OF ESTABLISHMENTS.		CAPITAL.		TOTAL NUMBER OF EMPLOYEES.	
Rank.	Name of industry.	Rank.	Name of industry.	Rank.	Name of industry.
36	Engraving.	43	Dyeing.	43	Food preparations.
36	Lithographing.	44	Food preparations.	44	Tobacco, smoking.
36	Wood carving.	45	Cloth, from hemp, pifa, and other fibers.	45	Cutlery and edge tools.
37	Bookbinding.	46	Cutlery and edge tools.	45	Marble and stone work.
37	Cutlery and edge tools.	47	Marble and stone work.	46	Dyeing.
37	Dyeing.	48	Boxes, wooden packing.	47	Wood carving.
37	Food preparations.	49	Combs.	48	Bookbinding.
37	Gas and electric light and power.	50	Watch, clock, and jewelry repairing.	48	Combs.
37	Marble and stone work.	51	Engraving.	49	Engraving.
37	Watch, clock, and jewelry repairing.	52	Bookbinding.	49	Watch, clock, and jewelry repairing.

their importance—Continued.

TOTAL AVERAGE MONTHLY WAGES.		COST OF MATERIALS PURCHASED.		VALUE OF PRODUCTS.	
Rank.	Name of industry.	Rank.	Name of industry.	Rank.	Name of industry.
43	Boxes, wooden packing.	43	Cloth, from hemp, pifa, and other fibers.	43	Marble and stone work.
44	Tobacco, smoking.	44	Food preparations.	44	Cloth, from hemp, pifa, and other fibers.
45	Marble and stone work.	45	Marble and stone work.	45	Wood carving.
46	Food preparations.	46	Cutlery and edge tools.	46	Combs.
47	Dyeing.	47	Wood carving.	47	Boxes, wooden packing.
48	Bookbinding.	48	Bookbinding.	48	Cutlery and edge tools.
49	Cutlery and edge tools.	49	Engraving.	49	Food preparations.
50	Combs.	50	Boxes, wooden packing.	50	Bookbinding.
51	Watch, clock, and jewelry repairing.	51	Watch, clock, and jewelry repairing.	51	Engraving.
52	Engraving.	52	Salt.	52	Watch, clock, and jewelry repairing.

The following statement shows, by percentages, the relative importance of the various industries in regard to capital, number, and wages of employees, cost of materials purchased, and the value of products; the industries are arranged in the order of their importance as measured by value of products.

Industries in the order of their importance as measured by total value of products.

Number in order of importance.	INDUSTRY.	PER CENT OF—				
		Capital.	Employees.		Cost of materials purchased.	Value of products.
			Number.	Total average monthly wages.		
	All industries.....	100.0	100.0	100.0	100.0	100.0
1	Tobacco, cigars and cigarettes.....	12.4	29.2	18.2	17.1	24.8
2	Ship and boat building.....	34.4	12.1	27.5	38.0	12.8
3	Liquors, distilled, malt, and other fermented.....	11.7	6.3	5.1	9.2	12.5
4	Lumber, sawed.....	7.2	4.4	4.6	5.5	7.8
5	Bread and other bakery products.....	2.7	5.0	3.9	5.8	5.9
6	Gas and electric light and power.....	6.2	0.3	0.7	4.6	4.2
7	Printing and publishing.....	3.1	3.0	4.9	0.8	2.9
8	Rice, cleaning.....	1.7	2.2	1.2	2.3	2.9
9	Foundry and machine shop products.....	2.4	3.6	4.6	1.2	2.8
10	Ice, manufactured.....	6.0	1.7	2.8	1.2	2.5
11	Clothing, men's, custom work and repairing.....	1.0	2.3	2.2	1.0	1.6
12	Soap.....	0.7	0.8	0.8	1.1	1.6
13	Hats and caps.....	0.8	1.7	2.1	0.8	1.4
14	Carriages and wagons.....	0.7	2.2	2.5	0.9	1.4
15	Brick and tile.....	0.7	2.7	1.2	0.3	1.3
16	Boots and shoes, slippers.....	0.6	1.8	2.1	0.7	1.3
17	Mineral and soda waters.....	0.5	1.0	0.8	0.7	1.1
18	Boots and shoes.....	0.6	1.8	1.5	0.6	0.7
19	Candles.....	0.4	0.4	0.5	0.6	0.7
20	Tanning.....	0.4	0.5	0.6	0.5	0.6
21	Confectionery.....	0.2	0.5	0.4	0.4	0.6
22	Carpentering.....	0.2	0.5	0.6	0.5	0.6
23	Oil, essential (ilang-ilang).....	0.4	0.3	0.2	0.7	0.6
24	Furniture and cabinetmaking.....	0.5	0.8	0.8	0.3	0.5
25	Copra.....	0.1	0.6	0.2	0.3	0.4
26	Blacksmithing.....	0.1	0.6	0.6	0.2	0.3
27	Trunks.....	0.2	0.5	0.4	0.3	0.3
28	Silversmithing.....	0.1	0.4	0.4	0.3	0.3
29	Chocolate and cocoa products.....	0.1	0.2	0.2	0.3	0.3
30	Salt.....	0.7	2.4	2.7	(1)	0.3
31	Tinsmithing.....	0.2	0.3	0.2	0.1	0.2
32	Lithography.....	0.2	0.3	0.5	0.1	0.2
33	Hemp, fibering.....	0.4	2.7	1.4	(2)	0.2
34	Lime.....	(2)	0.5	0.3	(2)	0.2
35	Saddlery and harness.....	0.2	0.3	0.3	0.2	0.2
36	Oil, coconut.....	0.1	0.4	0.4	(2)	0.2
37	Pottery and terra cotta products.....	0.2	0.7	0.5	(2)	0.2
38	Photography.....	0.2	0.1	0.2	(2)	0.2
39	Cloth, jusi.....	0.1	0.7	0.2	0.1	0.2
40	Tobacco, smoking.....	(2)	(2)	(2)	0.2	0.1
41	Oil, lumbang.....	(2)	0.1	0.1	(2)	0.1
42	Dyeing.....	(2)	(2)	(2)	(2)	(2)
43	Marble and stone work.....	(2)	(2)	(2)	(2)	(2)
44	Cloth, from hemp, pifa, and other fibers.....	(2)	1.5	0.2	(2)	(2)
45	Wood carving.....	(2)	(2)	(2)	(2)	(2)
46	Combs.....	(2)	(2)	(2)	(2)	(2)
47	Boxes, wooden packing.....	(2)	(2)	(2)	(2)	(2)
48	Cutlery and edge tools.....	(2)	(2)	(2)	(2)	(2)
49	Food preparations.....	(2)	(2)	(2)	(2)	(2)
50	Bookbinding.....	(2)	(2)	(2)	(2)	(2)
51	Engraving.....	(2)	(2)	(2)	(2)	(2)
52	Watch, clock, and jewelry repairing.....	(2)	(2)	(2)	(2)	(2)
	All other industries ³	0.9	2.0	1.0	2.2	2.4

¹ Not reported.

² Less than one-tenth of 1 per cent.

³ Embraces bicycle repairing, 2; boots and shoes, wooden, 2; boxes, cigar, 2; brasswork, 2; cordage and twine, 2; cotton goods, 1; furnishing goods, men's, 1; ink, writing, 1; matches, 1; mats and matting, 2; nets and seines, 1; nipa fabric, 2; paints and colors, 1; pianos, 1; resin, 1; umbrellas, 2.

Table 3 presents statistics for the manufacturing industries of the islands arranged in groups—industries related to each other or of similar character being brought together, and the figures showing their numbers, invested capital, number and wages of male and female employees, cost of materials purchased, and value of products being given for the separate industries and for all industries constituting each group.

The insular industries are placed, in this table, in eleven separate groups; those included in the different groups can be ascertained readily by an examination of the table. For the convenience of the reader, however, the totals for each group are given in the following statement:

Philippine manufactures, by industry groups: 1902.

INDUSTRY GROUP.	Number of separate industries.	Number of establishments.	Capital (pesos).	AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).
				Total.		Men.		Women.			
				Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
				Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
All industries	68	2,184	36,226,085	34,659	757,841	27,045	670,270	7,614	87,571	25,049,452	35,097,206
Group 1. Food and kindred products.....	5	456	1,721,976	2,757	43,698	2,412	40,973	345	2,725	2,228,963	3,417,143
Group 2. Textiles	11	230	895,483	3,456	47,741	1,924	31,919	1,532	15,822	776,118	1,600,776
Group 3. Metal products.....	8	161	1,054,346	1,724	44,669	1,716	44,634	8	135	460,030	1,298,816
Group 4. Lumber and its remanufacture	8	133	2,995,754	2,039	46,822	2,011	46,424	28	398	1,596,662	3,177,606
Group 5. Leather and its products.....	4	219	686,135	1,498	34,241	1,337	32,497	161	1,744	525,623	1,132,558
Group 6. Printing and allied industries	4	39	1,200,623	1,138	40,811	1,051	40,069	87	1,742	230,375	1,115,928
Group 7. Liquors and beverages.....	2	331	4,427,287	2,541	45,210	2,413	44,595	128	615	2,478,042	4,787,718
Group 8. Chemicals and allied products.....	6	92	516,522	1,151	25,736	1,066	25,315	85	1,421	233,249	419,244
Group 9. Clay and stone products.....	4	87	327,716	1,393	15,493	1,367	15,159	26	334	119,965	615,642
Group 10. Tobacco.....	4	113	4,500,403	10,150	138,112	5,223	78,923	4,927	59,139	4,339,682	8,740,516
Group 11. Miscellaneous industries.....	14	323	17,899,840	6,812	274,308	6,525	269,862	287	4,446	12,060,418	8,791,259

The value of products was greater in Group 11, miscellaneous industries, than in any other; these industries are of different kinds and are placed together because none of them is susceptible of combination in any group of analogous industries. Included in this group are ship and boat building establishments, the value of whose products was exceeded by that of only two other industries or groups—liquors and beverages and tobacco products. Gas and electric light and power plants having outputs of relatively large value are also placed under the head of “miscellaneous,” as are several other quite important industries. These points should be borne in mind in reading the following statement, which shows, by percentages, the relative importance of the various groups:

Industry groups in the order of their importance as measured by total value of product.

Number in order of importance.	INDUSTRY GROUP.	PER CENT OF—									
		Number of establishments.	Capital (pesos).	Average number of wage-earners and total average monthly wages.						Cost of materials purchased (pesos).	Value of products (pesos).
				Total.		Men.		Women.			
				Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
	All industries.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	Miscellaneous industries.....	14.8	49.4	19.6	36.2	24.1	40.3	3.8	5.1	48.2	25.0
2	Tobacco	5.2	12.4	29.3	18.2	19.3	11.8	64.7	67.6	17.3	24.9
3	Liquors and beverages.....	15.1	12.2	7.3	6.0	8.9	6.6	1.7	0.7	9.9	13.6
4	Food and kindred products.	20.9	4.8	8.0	5.8	8.9	6.1	4.5	3.1	8.9	9.7
5	Lumber and its manufacture.....	6.1	8.3	5.9	6.2	7.4	6.9	0.4	0.5	6.4	9.1
6	Textiles.....	10.5	2.5	10.0	6.3	7.1	4.8	20.1	18.1	3.1	4.6
7	Metal products.....	7.4	2.9	5.0	5.9	6.4	6.6	0.1	0.1	1.8	3.7
8	Leather and its products.....	10.0	1.9	4.3	4.5	5.0	4.8	2.1	2.0	2.1	3.2
9	Printing and allied industries.	1.8	3.3	3.3	5.4	3.9	6.0	1.2	0.8	0.9	3.2
10	Clay and stone products.....	4.0	0.9	4.0	2.0	5.1	2.3	0.3	0.4	0.5	1.8
11	Chemicals and allied products	4.2	1.4	3.3	3.5	3.9	3.8	1.1	1.6	0.9	1.2

The great attention paid in the islands to the production of luxuries as compared with that of the conveniences and necessities of life is very forcibly brought out by the above statement. The value of tobacco products greatly exceeded that of any other industry; liquors and beverages were worth more than any other manufacture except tobacco, and the combined values of products intended for drinking and smoking constituted 38.5 per cent of the value of all insular products covered by the tables. In the United States, in 1900, the combined values of liquors and beverages and tobacco products were only 5.5 per cent of the total value of manufactures.

While a complete comparison of the relative importance of Philippine industry groups with those of the United States in 1900, as shown in the reports of the Twelfth Census of the United States, can not be made because of the vastly wider range of manufactures in America and the consequent differences in classification, nevertheless, a partial comparison can be drawn, which will show the relative importance in the two countries of certain classes of productive industry. Such a showing is presented, by percentages, in the following table:

Relative importance of manufactures in the Philippines in 1902 and in the United States in 1900, according to percentages of total value of products, by industry groups.

PHILIPPINE ISLANDS.	Per cent of total value.	UNITED STATES.	Per cent of total value.
All industries.....	100.0	All industries.....	100.0
Food and kindred products.....	9.7	Food and kindred products.....	17.5
Textiles.....	4.6	Textiles.....	12.6
Metal products.....	3.7	Iron and steel and their products.....	13.8
Lumber and its remanufacture.....	9.1	Metals and metal products other than iron and steel.....	5.8
Leather and its products.....	3.2	Lumber and its remanufacture.....	7.9
Printing and allied industries.....	3.2	Leather and its finished products.....	4.5
Liquors and beverages.....	13.6	Paper and printing.....	4.7
Chemicals and allied products.....	1.2	Liquors and beverages.....	3.3
Clay and stone products.....	1.8	Chemicals and allied products.....	4.2
Tobacco.....	24.9	Clay, glass, and stone products.....	2.2
Miscellaneous industries.....	25.0	Tobacco.....	2.2
		Miscellaneous industries.....	7.7
		Vehicles for land transportation.....	3.9
		Shipbuilding.....	0.6
		Hand trades.....	9.1

Table 4 presents data for each province relating to the separate industries carried on therein. From this table the number of industries and the number of establishments in each industry in which goods to the value of 1,000 pesos and upward were produced in 1902 in each of the different provinces can be ascertained in connection with other information relative to capital, employees, wages, and values of purchased materials and products.

The lack of diversity in manufactures in the different provinces is brought out by this table. It is of course understood that a somewhat greater variety would be shown in each of the provinces if the household industries hereinbefore referred to could be included. Every province produces various articles of domestic use in quantities and values not ascertainable, but known to be relatively large, which are not covered by the census figures. Subject to this qualification Table 4 is a fair index of provincial productive industry, exclusive of fishing and agriculture.

The following statement shows the number of establishments and the number of separate manufacturing industries reported in each province, the provinces being arranged in the order of their importance as measured by diversity of industries. No manufactures were reported in the provinces not named:

Relative importance of provinces in the Philippine Islands, according to the number of different industries in each province.

Number in order of importance.	PROVINCE OR COMANDANCIA.	Estab-lish-ments.	Indus-tries.	Number in order of impor-tance.	PROVINCE OR COMAN-DANCIA.	Estab-lish-ments.	Indus-tries.
1	Manila city	876	53	11	Bataan	10	6
2	Cebu	85	24	12	Cagayan	13	5
3	Iloilo	97	19	13	Capiz	17	4
4	Rizal	88	17	13	Negros Oriental	43	4
5	Tayabas ¹	90	16	13	Romblon	11	4
6	Bulacan	98	12	14	Misamis	6	3
6	Cavite	53	12	15	Abra	4	2
7	Ambos Camarines	71	11	15	Ilocos Norte	3	2
7	Pangasinan	128	11	15	La Union	2	2
8	Batangas	49	10	15	Mindoro	2	2
8	La Laguna	105	10	15	Samar	3	2
8	Leyte	24	10	15	Surigao	10	2
9	Ilocos Sur	23	9	15	Zambales	3	2
9	Nueva Ecija	26	9	15	Jolo ²	3	2
9	Negros Occidental	44	9	16	Bohol	1	1
9	Sorsogon	35	9	16	Isabela	1	1
9	Zamboanga ²	35	9	16	Masbate	3	1
10	Pampanga	36	7	16	Nueva Vizcaya	1	1
10	Tarlac	17	7	16	Paragua Sur ²	1	1
11	Albay	67	6				

¹Including 5 establishments and 2 industries in the subprovince, Marinduque.
²Comandancia.

Table 5 is the converse of Table 4. In it are shown the provinces in which the various industries are carried on, each industry being considered separately and the same details being given as in the preceding tables.

Examination of this table reveals the geographic distribution of the industries embraced in the census, exclusive of industries whose individual products were worth less than 1,000 pesos. The establishments embraced in this and the other tables and the data relating to them here presented show by their meagerness that either there is an extremely small demand throughout the archipelago for many industrial products considered as indispensable in all sections of America and elsewhere, or that the masses of the people have not had the means with which to purchase such products as they wanted, and their lack of purchasing power has prevented industrial development. It is probable that the limited extent of the different industries in the various provinces is due to both of the causes mentioned.

The following statement shows the relative importance of the industries covered by the tables, the number of provinces in which they are carried on, and the number of establishments and value of products; the separate industries are arranged in accordance with the extent of their provincial apportionment:

Relative importance of manufacturing industries in the Philippines, according to their geographic distribution.

Number in order of importance.	INDUSTRY.	Number of establishments.	Value of products (pesos).	Number of provinces in which carried on.
	All industries.....	2,184	35,097,209	39
1	Bread and other bakery products.....	326	2,084,106	31
2	Liquors, distilled, malt, and other fermented.....	287	4,388,319	21
3	Boots and shoes.....	93	394,213	17
4	Soap.....	90	551,585	16
5	Mineral and soda waters.....	44	399,399	14
6	Carriages and wagons.....	77	477,957	11
6	Lumber, sawed.....	78	2,736,754	11
7	Rice, cleaning.....	73	1,010,965	10
7	Ship and boat building.....	26	4,499,170	10
7	Tanning.....	30	220,745	10
7	Tobacco, cigars and cigarettes.....	108	8,698,634	10
8	Brick and tile.....	27	457,790	9
8	Salt.....	49	91,284	9
9	Boots and shoes, slippers.....	80	446,943	8
10	Blacksmithing.....	43	119,470	7
10	Candles.....	38	230,906	7
10	Clothing, men's, custom work and repairing.....	119	559,788	7
10	Pottery and terra cotta products.....	20	66,499	7
11	Lime.....	37	73,645	6
11	Copra.....	37	151,024	5
12	Foundry and machine shop products.....	29	968,225	5
12	Furniture and cabinetmaking.....	31	167,050	5
13	Confectionery.....	32	214,605	4
13	Ice, manufactured.....	5	862,742	4
13	Oil, coconut.....	22	68,328	4
13	Oil, essential (ilang-ilang).....	9	193,640	4
14	Cloth, jusi.....	34	53,896	3
14	Dyeing.....	3	17,806	3
14	Hemp, fibering.....	38	77,123	3
14	Oil, lumbang.....	8	40,064	3
14	Printing and publishing.....	28	1,024,338	3
14	Silversmithing.....	44	109,141	3
14	Tobacco, smoking.....	5	41,882	3
15	Carpentering.....	11	197,470	2
15	Chocolate and cocoa products.....	22	100,767	2
15	Cloth from hemp, pifa, and other fibers.....	7	13,928	2
15	Cordage and twine.....	2	(¹)	2
15	Cutlery and edge tools.....	3	7,350	2
15	Gas and electric light and power.....	3	1,461,143	2
15	Hats and caps.....	23	507,015	2
15	Photography.....	14	57,083	2
15	Saddlery and harness.....	16	70,657	2
15	Tinsmithing.....	35	85,180	2
16	Bicycle repairing.....	2	(¹)	1
16	Bookbinding.....	3	6,490	1
16	Boots and shoes, wooden.....	2	(¹)	1
16	Boxes, cigar.....	2	(¹)	1
16	Boxes, wooden, packing.....	4	9,700	1
16	Brasswork.....	2	(¹)	1
16	Combs.....	4	10,750	1
16	Cotton goods.....	1	(¹)	1
16	Engraving.....	4	5,500	1
16	Food preparations.....	3	6,700	1
16	Furnishing goods, men's.....	1	(¹)	1
16	Ink, writing.....	1	(¹)	1
16	Lithographing.....	4	79,600	1
16	Marble and stone work.....	3	17,708	1
16	Matches.....	1	(¹)	1
16	Mats and matting.....	2	(¹)	1
16	Nets and seines.....	1	(¹)	1
16	Nipa fabric.....	2	(¹)	1
16	Paints and colors.....	1	(¹)	1
16	Planos.....	1	(¹)	1
16	Resin.....	1	(¹)	1
16	Trunks.....	24	116,500	1
16	Umbrellas.....	2	(¹)	1
16	Watch, clock, and jewelry repairing.....	3	3,100	1
16	Wood carving.....	4	12,700	1

¹ Value of products omitted to avoid disclosing the operations of individual establishments. The combined value of products in the industries to which this note applies was 829,853 pesos.

Tables 6, 7, 8, and 9 relate to the sugar industry, which is not included in the tables preceding them. These four tables embrace the same items as those for other industries, except cost of materials purchased, which in sugarmaking as carried on in the Philippines is not ascertainable. In point of fact, the materials entering into sugar production are not purchased. They are almost universally produced by the same establishments or rancherias producing the sugar. Sugar cane, the principal material, compared with which all other materials used in this industry are of merely nominal value, is generally grown on the plantations of the proprietors who own and operate the sugarmaking plants. Its cost of production is not reported, because it is unascertainable under existing insular methods of accounting.

With the foregoing explanation in mind, the reader will understand that the amounts reported as capital invested in the sugar industry include the sum of investments in both sugar cane growing and sugarmaking. The same is true with regard to the number and wages of employees, male and female. There is no separation in these items of mechanical and agricultural operations.

These tables present data, by provinces, relating, first, to all sugar producing establishments, the value of whose product was not less than 1,000 pesos, in 1902; second, to such of the establishments as used steampower in their manufacturing branch; third, to such as used waterpower; and fourth, to those in which hand or animal power was used in pressing the juice from the cane.

It must be remembered that, in the sugar growing sections of the islands, there are scores and hundreds of small sugar mills not included in the census, operated by hand or carabao, which produced, individually, small amounts of sugar of values less than 1,000 pesos whose aggregate value was undoubtedly large. The sugar produced in these small establishments, as in many of the larger ones, is of a very low grade and would be regarded as totally unfit for use in America.

The tables are brief, and are so plain and simple in their composition as to require little analysis or discussion. Their totals are brought together in the following statement:

Sugar producing establishments in the Philippine Islands using steam, water, and haul or animal power.

KIND OF POWER USED.	Number of establishments.	Capital (pesos).	AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Value of products (pesos).
			Total.		Men.		Women.		
			Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).	
All kinds	1,075	16,933,495	45,247	388,817	41,938	370,820	3,309	17,997	6,603,006
Steam.....	528	12,229,547	31,322	265,462	29,313	255,015	2,009	10,447	4,850,043
Water.....	77	1,532,207	4,001	36,720	3,631	34,596	370	2,124	609,378
Hand or animal	470	3,171,741	9,924	86,635	8,994	81,209	930	5,426	1,143,585

The relative importance of the sugar producing provinces, as indicated by the value of sugar produced, is shown in the following table, in which the provinces are arranged according to their industrial importance in this respect, the number of establishments and the total and average values of sugar made in each province being given:

Number in order of importance.	PROVINCE.	Number of establishments.	VALUE OF PRODUCT.	
			Total (pesos).	Average per establishment (pesos).
	Philippine Islands.....	1,075	6,603,006	6,142
1	Negros Occidental.....	531	4,644,398	8,747
2	Pampanga.....	194	758,691	3,911
3	Iloilo.....	62	372,399	6,006
4	Negros Oriental.....	38	325,611	8,569
5	Cebú.....	69	149,268	2,168
6	Bulacán.....	38	83,070	2,186
7	Tárlac.....	33	162,206	11,777
8	Bataán.....	18	46,520	2,584
9	La Laguna.....	23	40,551	1,768
10	Cavite.....	15	27,452	1,830
11	Antique.....	14	26,018	1,858
12	Batangas.....	8	16,063	2,008
13	Leyte.....	9	11,460	1,272
14	Pangasinán.....	4	8,354	2,089
15	La Unión.....	3	6,600	2,200
16	Misamis.....	3	6,586	2,195
17	Sorsogón.....	4	6,350	1,588
18	Rizal.....	3	6,190	2,063
19	Nueva Ecija.....	4	5,219	1,305
20	Cápiz.....	2	(¹)	(¹)

¹The total value of product and the average value per establishment in Cápiz is included with that in Tárlac, to avoid disclosing the operations of individual establishments.

There were more steampower sugar plants in the province of Negros Occidental in 1902 than in all other provinces combined, 291 such plants having been in operation in that province out of a total of 528 in the islands. The value of product of these establishments was correspondingly large, having been 3,559,041 pesos, or 73.4 per cent of the 4,850,043 pesos worth of sugar manufactured with the aid of steam machinery.

Pampanga stood next to Negros Occidental, with 131 steampower plants, a number in excess of the combined numbers in all other provinces, except the one above named, which amounted to only 106; and Pampanga also ranked second in value of product of this class of establishments, such value amounting to 596,285 pesos, or 12.3 per cent of the total.

The remaining 106 steampower establishments were located as follows: Negros Oriental, 32; Iloilo, 26; Tárlac, 12; Bataán and La Laguna, 10 each; Cebú, 5; Bulacán, 3; Antique, La Unión, and Pangasinán, 2 each; Batangas and Leyte, 1 each. The percentages of the total value of steampower produced sugar in these provinces were as follows: Negros Oriental, 6.5; Iloilo, 5.3; Cebú, 0.6; Tárlac, 0.5; La

Laguna, 0.4; Bataán, 0.3; Bulacán, 0.2; Antique, La Unión, Pangasinán, Batangas, and Leyte combined, 0.4.

In establishments using waterpower, Negros Occidental again ranked first and Pampanga second, both in the number of such establishments and in the value of their product—the first named having 45 and the second 15 waterpower plants, out of a total of 77 in all provinces, which produced 83.4 and 8 per cent, respectively, of the total value of sugar manufactured in establishments of this class, which amounted to 609,378 pesos. The number of waterpower establishments in other provinces, and their percentages of the total value of sugar made in all such establishments, were as follows: Bataán, 8 (4.8); Antique, 3 (1.1); Cavite and Tárlac, 2 establishments each; Bulacán and Cebú, 1 establishment each—the percentage in the four provinces of the total value of production having been 2.7.

In establishments using hand or animal power, of which there were 470 enumerated in the archipelago, Negros Occidental again ranked first, with 195 such establishments. Cebú was second to Negros Occidental, with 63 plants; Pampanga third, with 48; Iloílo fourth, with 36; Bulacán fifth, with 34; and Tárlac sixth, with 19 plants. The remaining 75 establishments were located in 13 provinces, as follows: Cavite and La Laguna, 13 each; Antique, 9; Leyte, 8; Batangas, 7; Negros Oriental, 6; Nueva Écija and Sorsogón, 4 each; Misamis and Rizal, 3 each; Cápiz and Pangasinán, 2 each; La Unión, 1.

The total value of the sugar produced in this class of establishments amounted to 1,143,585 pesos. The percentages of this value produced in the different provinces were as follows: Negros Occidental, 50.5; Cebú, 10.4; Pampanga and Iloílo, 9.9 each; Bulacán, 6.4; Tárlac, 2.9; all other provinces combined, 10.

The following statement shows the number of establishments engaged in the sugarmaking industry, and in all other manufacturing industries embraced by the nine tables to which the foregoing text relates, together with the value of their products in each province:

Number of manufacturing establishments of all kinds, the value of whose product amounted to 1,000 pesos or over in each establishment, and value of products, by provinces: 1902.

PROVINCE OR COMANDANCIA.	NUMBER OF ESTABLISHMENTS.			VALUE OF PRODUCTS.		
	Total.	All industries except sugar.	Sugar industry.	Total (pesos).	All industries except sugar (pesos).	Sugar industry (pesos).
Philippine Islands	3,259	2,184	1,075	41,700,215	35,097,209	6,603,006
Abra	4	4	.....	5,433	5,433	.....
Albay	67	67	.....	258,396	258,396	.....
Ambos Camarines	71	71	.....	702,006	702,006	.....
Antique	14	.....	14	26,018	.....	26,018
Bataan	28	10	18	172,029	125,509	46,520
Batangas	57	49	8	174,801	158,738	16,063
Bohol	1	1	.....	(1)	(1)	.....
Bulacán	136	98	38	1,193,552	1,110,482	83,070
Cağayan	13	13	.....	49,045	49,045	.....
Cápiç	19	17	2	212,288	121,288	(2)
Cavite	68	53	15	3,747,208	3,719,756	27,452
Cebu	154	85	69	698,282	549,014	149,268
Ilocos Norte	3	3	.....	7,992	7,992	.....
Ilocos Sur	23	23	.....	334,883	334,883	.....
Iloilo	159	97	62	1,163,232	790,833	372,399
Isabela	1	1	.....	(1)	(1)	.....
Joló ³	3	3	.....	11,040	11,040	.....
La Laguna	128	105	23	467,163	426,612	40,551
La Unión	5	2	3	16,600	(1)	6,600
Leyte	33	24	9	143,868	132,408	11,460
Manila city	876	876	.....	23,591,807	23,591,807	.....
Masbate	3	3	.....	10,840	10,840	.....
Mindoro	2	2	.....	(1)	(1)	.....
Misamis	9	6	3	27,919	21,333	6,586
Negros Occidental	575	44	531	4,814,416	170,018	4,644,398
Negros Oriental	81	43	38	420,295	94,684	325,611
Nueva Ecija	30	26	4	61,177	55,958	5,219
Nueva Vizcaya	1	1	.....	(1)	(1)	.....
Pampanga	230	36	194	1,114,713	356,022	758,691
Pangasinán	132	128	4	1,071,882	1,063,528	8,354
Paragua Sur ³	1	1	.....	(1)	(1)	.....
Rizal	91	88	3	528,900	522,710	6,190
Romblón	11	11	.....	26,173	26,173	.....
Sámar	3	3	.....	20,500	20,500	.....
Sorsogón	39	35	4	126,236	119,886	6,350
Surigao	10	10	.....	28,414	28,414	.....
Tárlac	50	17	33	2175,109	112,903	2,026
Tayabas	90	90	.....	251,895	251,895	.....
Zambales	3	3	.....	7,886	7,886	.....
Zamboanga ³	35	35	.....	118,897	118,897	.....

¹ The value of products is not given for provinces with less than 3 establishments, to avoid disclosing operations of individual establishments. The total value of product other than sugar for all such provinces was 25,320 pesos.

² The value of product of 2 sugar producing establishments in Cápiç is included with Tárlac, to avoid disclosing operations of individual establishments.

³ Comandancia.

An important industry in the hemp producing sections of the islands is the preparation of the fiber for shipment. While this is in no sense a manufacturing industry, it is mentioned here because it is a manipulative process in which comparatively large capital is used and a considerable number of employees are engaged during the greater portion of each year and in which, in a few localities, modern machines and methods are employed in the final process of baling. The industry includes the proper sorting of the fiber into the different commercial grades or classes as it is brought in to the baling establishments by the hemp growers, as well as packing it into compact

bales ready for shipment to America and Europe. A large proportion of the hemp packed in the provinces is sent to Manila, where much of it is re-sorted and rebaled; but large quantities are also shipped direct from the port of Cebú.

Detailed statistics as to the amount of capital invested in this industry or the number and wages of employees can not be given; the value of the product, however, may be ascertained readily by reference to the table on page 15, showing the value of exports of hemp fiber from the Philippines, as practically the entire output of the hemp baling establishments is exported.

Most of the baling machines used are operated by hand power. After having been sorted the fiber is placed in an orderly way in rectangular receptacles in which coarse mats have been placed to form the outer covering of the forthcoming bale, and pressure is applied by means of a large steel screw, turned by means of levers passing through its head which are pushed by a dozen or more natives, who sing as they work and seem to regard their occupation as a sort of frolic. When the mass of fiber has been pressed to a sufficient degree of compactness, strips of bejuco are passed around the bundle in several places and securely tied, and the bale is complete.

In the few modern baling establishments the process is substantially similar to that described above, but steam or hydraulic power is used, instead of hand power, to apply the pressure necessary to reduce the loose mass of fiber to solid compact bales, by which means a great saving of expense, labor, and time is effected.

According to information secured from leading hemp dealers in the islands, there were, at the date of the Philippine census, 83 hemp baling establishments located at different points convenient for shipping and accessible to growers, all of which were owned and operated by hemp dealers. As far as is known no hemp grower bales the fiber produced on his land. He carries it in hanks, in a more or less loose condition, to the baling establishment of the nearest hemp buyer, who purchases it from him.

Of the 83 baling establishments in the archipelago, 67 were operated by hand, 5 by steam, and 11 by hydraulic power. The introduction of steam and hydraulics in this industry is quite recent; the first steam press was erected at Legaspi, in the province of Albay, in 1885, and the first hydraulic at Calbáyog, in the province and island of Sámar, in 1897. The press last mentioned was not in operation when the census was taken.

The provinces and points where these baling establishments were in operation when the census was taken are shown in the following statement:

Location of hemp baling establishments in the Philippines: 1903.

LOCATION, BY PROVINCE.	Total.	POWER USED.		
		Hand.	Steam.	Hydraulic.
Philippine Islands	83	67	5	11
Albay:				
Legaspi	10	8	1	1
Tabaco	6	5		1
Virac	3	1		2
Ambos Camarines:				
Dát	4	4		
Lagonoy	7	7		
Nueva Cáceres	5	4		1
Cebú:				
Cebú	10	6	1	3
Leyte:				
Baybay	2	2		
Carigara	1			1
Maasin	1		1	
Malitbog	1		1	
Palompón	1	1		
Tacloban	7	7		
Manila city:	8	6		2
Misamis:				
Cagayán	1	1		
Camiguín	1	1		
Oroquieta	1	1		
Sámar:				
Laoang	1	1		
Lapinig	1	1		
Sorsogón:				
Bulan	2	2		
Donsol	1	1		
Gúbat	3	3		
Matnog	1	1		
Sorsogón	4	3	1	
Surigao:				
Surigao	1	1		

The general tables relating to manufactures follow immediately.

TABLE 1.—Summary of manufacturing establishments, the value of whose products

	PROVINCE OR COMANDANCIA.	Number of establishments.	Capital (pesos).
1	Philippine Islands.....	2,184	*36,226,085
2	Abra.....	4	3,735
3	Albay.....	67	88,293
4	Ambos Camarines.....	71	397,376
5	Bataan.....	10	23,675
6	Batangas.....	49	40,695
7	Bulacán.....	98	452,930
8	Cagayán.....	13	105,828
9	Cápiz.....	17	213,610
10	Cavite.....	53	11,220,305
11	Cebu.....	85	361,349
12	Ilocos Norte.....	3	1,724
13	Ilocos Sur.....	23	154,921
14	Iloilo.....	97	581,917
15	Joló ¹	3	4,500
16	La Laguna.....	105	248,885
17	Leyte.....	24	88,697
18	Manila city.....	876	20,005,306
19	Masbate.....	3	7,243
20	Misamis.....	6	10,616
21	Negros Occidental.....	44	141,486
22	Negros Oriental.....	43	124,004
23	Nueva Ecija.....	26	95,525
24	Pampanga.....	36	279,521
25	Pangasinán.....	128	646,512
26	Rizal.....	88	320,388
27	Romblón.....	11	28,983
28	Sámar.....	3	5,000
29	Sorsogón.....	35	117,266
30	Surigao.....	10	14,100
31	Tárlac.....	17	72,243
32	Tayabas.....	90	233,346
33	Zambales.....	3	6,910
34	Zamboanga ²	35	52,263
35	All other provinces and comandancias ¹⁰	8	76,983

¹ Not including sugar producing establishments, data concerning which are shown separately in Tables 6, 7, 8, and 9.

² Not including unreported capital for 21 establishments.

³ Not including unreported number of wage-earners for 11 establishments.

⁴ Not including unreported wages for 17 establishments.

⁵ Not including unreported number of men for 3 establishments.

amounted to 1,000 pesos or over in each establishment, by provinces and comandancias: 1902.¹

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
34,659	4757,841	27,045	670,270	7,614	787,571	25,049,452	35,097,209	1
18	172	12	128	6	44	1,516	5,433	2
248	4,657	236	4,556	12	101	210,786	253,396	3
481	9,128	449	8,564	32	564	286,024	702,006	4
117	1,696	108	1,665	9	81	71,085	125,509	5
220	2,798	174	2,540	46	258	101,697	158,738	6
886	12,857	552	10,157	334	2,700	623,016	1,110,482	7
100	2,584	100	2,584	-----	-----	27,942	49,045	8
161	1,897	161	1,897	-----	-----	48,455	121,288	9
3,420	177,417	3,357	176,191	63	1,226	9,112,673	3,719,756	10
673	10,994	537	9,918	136	1,076	289,286	549,014	11
11	80	11	80	-----	-----	2,528	7,992	12
261	3,949	239	3,552	22	397	193,671	334,883	13
962	12,007	797	11,437	165	570	330,038	790,833	14
9	170	9	170	-----	-----	6,081	11,040	15
536	12,981	421	11,640	115	1,341	319,176	426,612	16
147	3,838	144	3,808	3	30	76,087	132,408	17
19,640	411,148	14,442	340,923	5,198	70,225	11,931,044	23,591,807	18
7	120	7	120	-----	-----	3,998	10,840	19
29	446	23	872	6	74	13,549	21,333	20
409	5,066	884	4,961	25	105	97,390	170,018	21
977	10,345	804	9,289	173	1,056	29,355	94,684	22
133	2,067	90	1,584	48	483	22,472	55,958	23
408	7,956	388	7,772	20	184	248,453	356,022	24
1,118	10,941	1,114	10,915	4	26	423,888	1,063,528	25
1,585	26,587	1,002	22,790	583	3,797	237,697	522,710	26
422	1,676	256	1,626	166	50	16,928	26,173	27
28	456	28	456	-----	-----	11,940	20,500	28
258	4,987	165	3,962	93	1,025	92,910	119,886	29
367	1,928	42	328	325	1,600	7,835	23,414	30
119	2,118	119	2,118	-----	-----	50,963	112,903	31
627	10,200	615	10,047	12	153	118,697	251,895	32
10	121	10	121	-----	-----	1,981	7,886	33
168	2,380	168	2,380	-----	-----	31,121	113,897	34
99	2,074	81	1,619	18	455	9,220	25,320	35

¹ Not including unreported wages of men for 6 establishments.

² Not including unreported wages of women for 3 establishments.

³ Not including unreported cost of materials purchased for 112 establishments.

⁴ Comandancia.

⁵ Includes Bohol, Isabela, La Unión, Mindoro, Nueva Vizcaya, and Paragua Sur.

TABLE 2.—Summary of manufacturing establishments, the value of whose products

INDUSTRY.		Number of establishments.	Capital (pesos).
1	All industries	2,184	* 36,226,085
2	Blacksmithing	43	55,741
3	Bookbinding	3	2,484
4	Boots and shoes	93	226,581
5	Boots and shoes, slippers	80	217,997
6	Boxes, wooden packing	4	5,780
7	Bread and other bakery products	326	965,940
8	Brick and tile	27	237,543
9	Candles	38	162,678
10	Carpentering	11	66,390
11	Carriages and wagons	77	264,725
12	Chocolate and cocoa products	22	54,110
13	Cloth, from hemp, piña, and other fibers	7	7,500
14	Cloth, jusi	34	36,451
15	Clothing, men's, custom work and repairing	119	364,998
16	Combs	4	5,600
17	Confectionery	32	68,920
18	Copra	37	52,554
19	Cutlery and edge tools	3	6,244
20	Dyeing	3	9,565
21	Engraving	4	4,200
22	Food preparations	3	8,200
23	Foundry and machine shop products	29	861,794
24	Furniture and cabinetmaking	31	185,547
25	Gas and electric light and power	3	2,238,660
26	Hats and caps	23	283,762
27	Hemp, fibering	38	156,555
28	Ice, manufactured	5	2,185,098
29	Lime	37	30,431
30	Liquors, distilled, malt, and other fermented	287	4,232,356
31	Lithographing	4	69,580
32	Lumber, sawed	78	2,623,087
33	Marble and stone work	3	5,870
34	Mineral and soda waters	44	194,931
35	Oil, coconut	22	43,039
36	Oil, essential (ilang-ilang)	9	137,376
37	Oil, lumbang	8	30,590
38	Photography	14	60,592
39	Pottery and terra cotta products	20	53,872
40	Printing and publishing	28	1,124,359
41	Rice, cleaning	73	624,806
42	Saddlery and harness	16	81,184
43	Salt	49	245,952
44	Ship and boat building	26	12,478,008
45	Silversmithing	44	55,972
46	Soap	90	262,937
47	Tanning	30	160,373
48	Tinsmithing	35	63,095
49	Tobacco, cigars and cigarettes	108	4,485,503
50	Tobacco, smoking	5	14,900
51	Trunks	24	70,600
52	Watch, clock, and jewelry repairing	3	5,000
53	Wood carving	4	10,300
54	All other industries ¹	24	325,905

¹ Not including sugar producing establishments, data concerning which are shown separately in Tables 6, 7, 8, and 9.

² Not including unreported capital for 21 establishments.

³ Not including unreported number of wage-earners for 11 establishments.

⁴ Not including unreported wages for 17 establishments.

⁵ Not including unreported number of men for 3 establishments.

⁶ Not including unreported wages of men for 6 establishments.

GENERAL TABLES.

497

amounted to 1,000 pesos or over in each establishment, by specified industries: 1902.¹

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
*34,659	*757,841	*27,045	*670,270	7,614	787,571	*25,049,452	85,097,209	1
200	4,617	200	4,617	-----	-----	54,280	119,470	2
10	198	10	198	-----	-----	887	6,490	3
627	11,468	559	10,874	68	594	180,133	394,213	4
606	15,836	526	14,834	80	1,002	179,869	446,943	5
31	380	31	380	-----	-----	720	9,700	6
1,715	29,155	1,669	28,659	46	496	1,459,181	2,084,106	7
954	8,898	948	8,864	6	34	72,840	457,790	8
152	3,792	140	3,642	12	150	156,607	230,905	9
158	4,261	158	4,261	-----	-----	116,158	197,470	10
745	18,798	743	18,758	2	40	218,977	477,957	11
76	1,377	72	1,327	4	50	74,067	100,767	12
505	1,600	100	-----	405	1,600	6,260	13,928	13
246	1,471	29	299	217	1,172	25,340	58,896	14
798	16,915	641	14,180	157	2,735	260,992	559,788	15
10	141	10	141	-----	-----	6,528	10,750	16
174	3,372	171	3,360	3	12	103,873	214,605	17
219	1,861	177	1,586	42	275	79,631	151,024	18
21	182	21	182	-----	-----	3,121	7,350	19
19	203	19	203	-----	-----	14,110	17,806	20
8	132	8	132	-----	-----	768	5,500	21
25	343	25	343	-----	-----	5,022	6,700	22
1,248	34,830	1,248	34,830	-----	-----	307,435	968,225	23
262	5,931	250	5,731	12	200	85,946	167,030	24
171	5,500	171	5,500	-----	-----	1,151,749	1,461,143	25
589	15,930	219	7,375	370	8,555	207,604	507,015	26
985	10,323	773	9,297	162	1,026	20,408	77,123	27
574	21,135	494	20,218	80	917	294,858	862,742	28
184	2,644	184	2,644	-----	-----	21,489	73,645	29
2,195	89,058	2,071	38,470	124	583	2,303,198	4,888,319	30
97	3,457	97	3,457	-----	-----	27,992	79,600	31
1,531	34,965	1,527	34,935	4	30	1,368,860	2,736,754	32
21	344	21	344	-----	-----	4,552	17,708	33
346	6,157	342	6,125	4	32	174,844	399,399	34
144	3,448	111	2,900	33	548	23,160	68,328	35
88	1,228	85	1,153	3	75	168,049	193,640	36
35	831	35	831	-----	-----	22,180	40,064	37
48	1,315	48	1,315	-----	-----	12,304	57,083	38
234	8,607	214	3,307	20	300	21,104	66,499	39
1,023	37,024	936	36,282	87	742	200,728	1,024,338	40
767	9,451	475	7,284	292	2,167	586,820	1,010,965	41
90	2,610	89	2,600	1	10	37,275	70,657	42
841	20,526	804	19,978	37	548	-----	91,284	43
4,200	208,006	4,175	207,267	25	739	9,523,589	4,499,170	44
132	2,971	124	2,836	8	135	61,598	109,141	45
287	6,044	287	6,044	-----	-----	284,655	551,585	46
175	4,327	163	4,189	12	138	128,651	220,745	47
105	1,742	105	1,742	-----	-----	31,111	85,180	48
10,126	187,786	5,201	78,568	4,925	59,168	4,294,702	8,698,684	49
24	876	22	355	2	21	44,980	41,882	50
183	3,083	183	3,083	-----	-----	65,713	116,500	51
8	135	8	135	-----	-----	515	3,100	52
16	532	16	532	-----	-----	3,014	12,700	53
681	7,580	310	4,103	371	3,477	566,095	829,853	54

¹ Not including unreported wages of women for 3 establishments.

² Not including unreported cost of materials purchased for 112 establishments.

³ Embraces bicycle repairing, 2; boots and shoes, wooden, 2; boxes, cigar, 2; brasswork, 2; cordage and twine, 2; cotton goods, 1 (capital not reported); furnishing goods, men's, 1; ink, writing, 1; matches, 1; mats and matting, 2; nets and seines, 1; nipa fabric, 2; paints and colors, 1; pianos, 1; resin, 1; umbrellas, 2.

TABLE 3.—Summary of manufacturing establishments, the value of whose products

	INDUSTRY.	Number of establishments.	Capital (pesos).
GROUP 1.—FOOD AND KINDRED PRODUCTS.			
1	Philippine Islands	456	1,721,976
2	Bread and other bakery products.....	326	965,940
3	Chocolate and cocoa products.....	22	54,110
4	Confectionery.....	32	68,920
5	Food preparations.....	3	8,200
6	Rice, cleaning.....	73	624,806
GROUP 2.—TEXTILES.			
7	Philippine Islands	230	895,483
8	Cloth, from hemp, piña, and other fibers.....	7	7,500
9	Cloth, just.....	34	36,451
10	Clothing, men's, custom work and repairing.....	119	364,998
11	Hats and caps.....	23	283,762
12	Hemp, fiberling.....	38	156,555
13	All other industries ²	9	46,217
GROUP 3.—METAL PRODUCTS.			
14	Philippine Islands	161	1,054,346
15	Blacksmithing.....	43	55,741
16	Cutlery and edge tools.....	3	6,244
17	Foundry and machine shop products.....	29	861,794
18	Silversmithing.....	44	55,972
19	Tinsmithing.....	35	63,095
20	Watch, clock, and jewelry repairing.....	3	5,000
21	All other industries ³	4	6,500
GROUP 4.—LUMBER AND ITS REMANUFACTURE.			
22	Philippine Islands.....	133	2,995,754
23	Boxes, wooden packing.....	4	5,780
24	Carpentering.....	11	66,390
25	Furniture and cabinetmaking.....	31	185,547
26	Lumber, sawed.....	78	2,623,037
27	Wood carving.....	4	10,300
28	All other industries ⁴	5	104,700
GROUP 5.—LEATHER AND ITS PRODUCTS.			
29	Philippine Islands.....	219	686,135
30	Boots and shoes.....	93	225,681
31	Boots and shoes, slippers.....	80	217,997
32	Saddlery and harness.....	16	81,184
33	Tanning.....	30	160,373
GROUP 6.—PRINTING AND ALLIED INDUSTRIES.			
34	Philippine Islands.....	39	1,200,623
35	Bookbinding.....	3	2,484
36	Engraving.....	4	4,200
37	Lithographing.....	4	69,580
38	Printing and publishing.....	28	1,124,359

¹ Not including sugar producing establishments, data concerning which are shown separately in Tables 6, 7, 8, and 9.

² Embraces cordage and twine, 2; cotton goods, 1 (capital not reported); furnishing goods, men's, 1; mats and matting, 2; nets and seines, 1; nipa fabric, 2.

amounted to 1,000 pesos or over in each establishment, by groups of industries: 1902.¹

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
2,757	43,698	2,412	40,973	345	2,725	2,228,963	3,417,143	1
1,715	29,155	1,669	28,659	46	496	1,459,181	2,084,106	2
76	1,377	72	1,327	4	50	74,067	100,767	3
174	3,372	171	3,360	3	12	103,873	214,605	4
25	343	25	343	.....	.....	5,022	6,700	5
767	9,451	475	7,284	292	2,167	586,820	1,010,965	6
3,456	47,741	1,924	31,919	1,532	15,822	776,118	1,600,776	7
505	1,600	100	.....	405	1,600	6,260	13,928	8
246	1,471	29	299	217	1,172	25,340	53,896	9
798	16,915	641	14,180	157	2,735	260,992	569,788	10
589	15,930	219	7,375	370	8,555	207,604	507,015	11
955	10,323	773	9,297	162	1,026	20,408	77,123	12
383	1,502	162	768	221	784	255,514	389,026	13
1,724	44,669	1,716	44,534	8	135	460,030	1,298,816	14
200	4,617	200	4,617	.....	.....	54,280	119,470	15
21	182	21	182	.....	.....	3,121	7,350	16
1,248	34,830	1,248	34,830	.....	.....	307,435	968,225	17
132	2,971	124	2,836	8	135	61,698	109,141	18
105	1,742	105	1,742	.....	.....	31,111	85,180	19
8	135	8	135	.....	.....	615	3,100	20
10	192	10	192	.....	.....	1,970	6,350	21
2,039	46,822	2,011	46,424	28	398	1,596,662	3,177,606	22
81	380	31	380	.....	.....	720	9,700	23
158	4,261	158	4,261	.....	.....	116,158	197,470	24
262	5,931	250	5,731	12	200	85,946	167,030	25
1,531	34,965	1,527	34,935	4	30	1,368,860	2,736,754	26
16	532	16	532	.....	.....	3,014	12,700	27
41	753	29	585	12	168	21,964	63,952	28
1,498	34,241	1,337	32,497	161	1,744	525,928	1,132,558	29
627	11,468	559	10,874	68	594	180,133	394,213	30
606	15,836	526	14,834	80	1,002	179,869	446,943	31
90	2,610	89	2,600	1	10	37,275	70,657	32
175	4,327	163	4,189	12	138	128,651	220,745	33
1,138	40,811	1,051	40,069	87	742	230,375	1,115,928	34
10	198	10	198	.....	.....	887	6,490	35
8	132	8	132	.....	.....	768	5,500	36
97	3,457	97	3,457	.....	.....	27,992	79,600	37
1,023	37,024	936	36,282	87	742	200,728	1,024,338	38

¹ Embraces bicycle repairing, 2; brasswork, 2.

² Embraces boots and shoes, wooden, 2; boxes, cigar, 2; matches, 1.

TABLE 3.—Summary of manufacturing establishments, the value of whose products

	INDUSTRY.	Number of establishments.	Capital (pesos).
	GROUP 7.—LIQUORS AND BEVERAGES.		
39	Philippine Islands	331	4, 427, 287
40	Liquors, distilled, malt, and other fermented	287	4, 232, 356
41	Mineral and soda waters	44	194, 931
	GROUP 8.—CHEMICALS AND ALLIED PRODUCTS.		
42	Philippine Islands	92	516, 522
43	Dyeing	3	9, 565
44	Oil, coconut ¹	23	93, 039
45	Oil, essential (ilang-ilang)	9	137, 376
46	Oil, lumbang	8	30, 590
47	Salt	49	245, 952
	GROUP 9.—CLAY AND STONE PRODUCTS.		
48	Philippine Islands	87	327, 716
49	Brick and tile	27	237, 543
50	Lime	37	30, 431
51	Marble and stone work	3	5, 870
52	Pottery and terra cotta products	20	53, 872
	GROUP 10.—TOBACCO.		
53	Philippine Islands	113	4, 500, 403
54	Tobacco, cigars and cigarettes	108	4, 485, 503
55	Tobacco, smoking	5	14, 900
	GROUP 11.—MISCELLANEOUS INDUSTRIES.		
56	Philippine Islands	323	17, 899, 840
57	Candles	38	162, 678
58	Carriages and wagons	77	264, 725
59	Combs	4	5, 600
60	Copra	37	52, 554
61	Gas and electric light and power	3	2, 238, 560
62	Ice, manufactured	5	2, 185, 098
63	Photography	14	60, 592
64	Ship and boat building	26	12, 478, 008
65	Soap	90	262, 937
66	Trunks	24	70, 600
67	All other industries ²	5	118, 488

¹ One establishment (paints and colors) is included in the classification "oil, coconut," to avoid disclosing the operations of individual establishments.

amounted to 1,000 pesos or over in each establishment, by groups of industries: 1902—Cont'd.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
2,541	45,210	2,413	44,595	128	615	2,478,042	4,787,718	39
2,195	39,053	2,071	38,470	124	583	2,303,198	4,388,319	40
346	6,157	342	6,125	4	82	174,844	399,399	41
1,151	26,736	1,066	25,315	85	1,421	283,249	419,244	42
19	203	19	203	-----	-----	14,110	17,806	43
168	3,948	123	3,150	45	798	28,910	76,450	44
88	1,228	85	1,153	3	75	168,049	193,640	45
35	831	35	831	-----	-----	22,180	40,064	46
841	20,526	804	19,978	37	548	-----	91,284	47
1,393	15,493	1,367	15,159	26	334	119,985	615,642	48
954	8,898	948	8,864	6	34	72,840	457,790	49
184	2,644	184	2,644	-----	-----	21,489	73,645	50
21	344	21	344	-----	-----	4,552	17,708	51
234	3,607	214	3,307	20	300	21,104	66,499	52
10,150	138,112	5,223	78,923	4,927	59,189	4,339,682	8,740,516	53
10,126	137,736	5,201	78,568	4,925	59,168	4,294,702	8,698,634	54
24	376	22	355	2	21	44,980	41,882	55
6,812	274,308	6,525	269,862	287	4,446	12,060,418	8,791,259	56
152	3,792	140	3,642	12	150	156,607	230,905	57
745	18,798	743	18,758	2	40	213,977	477,957	58
10	141	10	141	-----	-----	6,528	10,750	59
219	1,861	177	1,586	42	275	79,631	151,024	60
171	5,500	171	5,500	-----	-----	1,151,749	1,461,143	61
574	21,135	494	20,218	80	917	294,858	862,742	62
48	1,315	48	1,315	-----	-----	12,304	57,083	63
4,200	208,006	4,175	207,267	25	739	9,523,589	4,499,170	64
287	6,044	287	6,044	-----	-----	284,565	551,585	65
183	3,083	183	3,083	-----	-----	66,713	116,500	66
223	4,633	97	2,308	126	2,325	270,897	372,400	67

² Embraces ink, writing, 1; pianos, 1; resin, 1; umbrellas, 2.

TABLE 4.—Manufacturing establishments, the value of whose products amounted to comandan-

	PROVINCE OR COMANDANCIA AND INDUSTRY.	Number of establishments.	Capital (pesos).
	ABRA.		
1	All industries ¹	4	3,735
	ALBAY.		
2	All industries.....	67	88,293
3	Bread and other bakery products.....	25	49,161
4	Liquors, distilled, malt, and other fermented.....	33	25,790
5	Tobacco, cigars and cigarettes.....	3	1,300
6	All other industries ²	6	12,042
	AMBOS CAMARINES.		
7	All industries.....	71	397,376
8	Bread and other bakery products.....	17	74,988
9	Liquors, distilled, malt, and other fermented.....	34	140,849
10	Soap.....	5	12,900
11	Tobacco, cigars and cigarettes.....	7	24,152
12	All other industries ³	8	144,487
	BATAÁN.		
13	All industries.....	10	23,675
14	Bread and other bakery products.....	3	1,868
15	All other industries ⁴	7	21,807
	BATANGAS.		
16	All industries.....	49	*40,695
17	Blacksmithing.....	10	3,161
18	Bread and other bakery products.....	24	15,611
19	Lime.....	3	288
20	Tobacco, smoking.....	3	10,900
21	All other industries ⁵	9	10,835
	BULACÁN.		
22	All industries.....	98	¹³ 452,930
23	Bread and other bakery products.....	18	17,801
24	Foundry and machine shop products.....	5	4,325
25	Liquors, distilled, malt, and other fermented.....	9	289,944
26	Rice, cleaning.....	33	69,147
27	Silversmithing.....	6	9,580
28	Tanning.....	7	36,300
29	Tobacco, cigars and cigarettes.....	11	11,029
30	All other industries ⁶	9	14,804
	CAGAYÁN.		
31	All industries.....	13	105,823
32	Bread and other bakery products.....	3	9,568
33	Furniture and cabinetmaking.....	6	24,864
34	All other industries ⁷	4	71,396
	CÁPIZ.		
35	All industries ⁸	17	213,610

¹ Not including sugar producing establishments, data concerning which are shown separately in Tables 6, 7, 8, and 9.

² Embraces boots and shoes, 2; bread and other bakery products, 2.

³ Not including unreported number of wage-earners for 2 lime establishments.

⁴ Not including unreported wages for 2 lime establishments.

⁵ Embraces lime, 2; mineral and soda waters, 1; oil, essential (ilang-ilang), 2; soap, 1.

⁶ Embraces boots and shoes, 1; boots and shoes, slippers, 1; brick and tile, 2; lumber, sawed, 1; oil, essential (ilang-ilang), 1; ship and boat building, 1; tanning, 1.

⁷ Embraces liquors, distilled, malt, and other fermented, 2; pottery and terra cotta products, 2; ship and boat building, 1; soap, 1; tobacco, cigars and cigarettes, 1.

⁸ Not including unreported capital for 1 tobacco, cigar and cigarette establishment.

* Not including unreported number of wage-earners for 1 salt establishment.

1,000 pesos or over in each establishment, by specified industries for provinces and
cias: 1902.¹

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
18	172	12	128	6	44	1,516	5,433	1
*248	4,657	*236	4,556	12	101	210,786	258,396	2
79	2,070	77	2,050	2	20	109,863	137,551	3
147	2,226	147	2,226	.....	.....	48,048	70,928	4
10	81	.....	.....	10	81	3,955	5,137	5
12	280	12	280	.....	.....	48,920	39,780	6
481	9,128	449	8,564	32	564	286,024	702,006	7
70	1,552	70	1,552	.....	.....	71,859	116,459	8
155	2,355	155	2,355	.....	.....	110,578	195,946	9
15	252	15	252	.....	.....	11,642	27,075	10
43	777	11	213	32	564	11,581	28,268	11
198	4,192	198	4,192	.....	.....	80,364	334,258	12
117	1,696	108	1,665	9	31	71,035	125,509	13
12	151	12	151	.....	.....	4,855	8,175	14
105	1,545	96	1,514	9	31	66,180	117,334	15
*220	102,798	174	2,540	46	258	¹¹ 101,697	158,738	16
47	814	47	814	.....	.....	8,337	26,054	17
72	988	66	923	6	65	49,421	70,700	18
19	133	19	133	.....	.....	1,366	5,500	19
21	256	19	235	2	21	32,006	31,400	20
61	607	23	435	38	172	10,567	25,084	21
886	12,857	552	10,157	334	2,700	623,016	1,110,482	22
68	986	63	927	5	59	43,971	56,414	23
125	1,625	125	1,625	.....	.....	2,330	7,200	24
93	2,414	93	2,414	.....	.....	241,399	411,719	25
381	3,345	149	2,154	182	1,191	163,354	239,021	26
29	695	22	590	7	105	28,375	30,636	27
33	1,006	23	880	10	126	55,292	80,498	28
153	1,636	28	467	125	1,169	73,528	255,718	29
54	1,150	49	1,100	5	50	14,767	29,276	30
100	2,584	100	2,584	.....	.....	27,942	49,045	31
9	220	9	220	.....	.....	6,520	11,325	32
47	1,420	47	1,420	.....	.....	5,730	19,400	33
44	944	44	944	.....	.....	15,692	18,320	34
161	1,897	161	1,897	.....	.....	48,455	121,288	35

¹⁰ Not including unreported wages for 1 salt establishment.

¹¹ Not including cost of materials for 1 salt establishment.

¹² Embraces boots and shoes, 1; boots and shoes, slippers, 1; carriages and wagons, 2; cloth, jusi, mineral and soda waters, 1; salt, 1; tobacco, cigars and cigarettes, 2.

¹³ Not including unreported capital for 2 tobacco, cigar and cigarette establishments.

¹⁴ Embraces boots and shoes, wooden, 2; carriages and wagons, 2; lumber, sawed, 1; oil, lumbang, 2; soap, 2.

¹⁵ Embraces clothing, men's, custom work and repairing, 1; liquors, distilled, malt, and other fermented, 2; ship and boat building, 1.

¹⁶ Embraces bread and other bakery products, 4; candles, 1; liquors, distilled, malt, and other fermented, 11; soap, 1.

TABLE 4.—Manufacturing establishments, the value of whose products amounted to comandancias:

	PROVINCE OR COMANDANCIA AND INDUSTRY.	Number of establishments.	Capital (pesos).
CAVITE.			
36	All industries.....	53	11,220,305
37	Boots and shoes.....	3	8,808
38	Bread and other bakery products.....	18	128,655
39	Clothing, men's, custom work and repairing.....	5	25,649
40	Salt.....	14	66,850
41	Ship and boat building.....	3	10,874,506
42	All other industries ³	10	115,837
CEBÚ.			
43	All industries.....	85	361,349
44	Boots and shoes.....	14	10,400
45	Bread and other bakery products.....	4	10,500
46	Brick and tile.....	3	14,450
47	Candles.....	8	18,200
48	Carriages and wagons.....	3	16,500
49	Clothing, men's, custom work and repairing.....	3	10,300
50	Furniture and cabinetmaking.....	6	13,000
51	Lime.....	6	9,300
52	Liquors, distilled, malt, and other fermented.....	3	47,000
53	Mineral and soda waters.....	3	2,700
54	Salt.....	5	13,400
55	Silversmithing.....	4	2,250
56	Soap.....	6	55,200
57	Tanning.....	4	39,000
58	All other industries ⁴	14	99,149
ILOCOS NORTE.			
59	All industries ⁶	3	1,724
ILOCOS SUR.			
60	All industries.....	23	154,921
61	Boots and shoes.....	5	2,527
62	Bread and other bakery products.....	4	13,650
63	Carriages and wagons.....	4	5,829
64	Liquors, distilled, malt, and other fermented.....	3	88,900
65	Pottery and terra cotta products.....	3	5,185
66	All other industries ⁷	4	38,830
ILOILO.			
67	All industries.....	97	*581,917
68	Boots and shoes.....	7	25,607
69	Bread and other bakery products.....	20	102,634
70	Brick and tile.....	4	42,050
71	Carriages and wagons.....	5	25,339
72	Cloth, just.....	16	30,585
73	Foundry and machine shop products.....	6	102,650
74	Lime.....	16	5,431
75	Liquors, distilled, malt, and other fermented.....	3	121,391
76	Salt.....	4	21,905
77	Tanning.....	3	8,016
78	All other industries ¹¹	13	96,309

¹ Not including unreported capital for 1 tobacco, smoking, establishment.

² Not including cost of materials for 14 salt establishments.

³ Embraces carriages and wagons, 1; chocolate and cocoa products, 2; gas and electric light and power, 1; mineral and soda waters, 2; rice, cleaning, 2; soap, 1; tobacco, smoking, 1.

⁴ Not including cost of materials purchased for the following establishments: Hemp, fibering, 2; salt, 5; soap, 1.

⁵ Embraces blacksmithing, 1; boots and shoes, slippers, 1; cutlery and edge tools, 2; dyeing, 1; foundry and machine shop products, 1; hemp, fibering, 2; ice, manufactured, 1; lumber, sawed, 1; pottery and terra cotta products, 2; printing and publishing, 2.

1,000 pesos or over in each establishment, by specified industries, for provinces and 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
3,420	177,417	3,357	176,191	63	1,226	9,112,673	3,719,756	86
20	251	20	251	-----	-----	3,737	9,912	37
90	1,827	79	1,681	11	146	132,344	166,184	38
26	306	16	211	10	95	14,997	21,980	39
256	5,687	245	5,555	11	132	-----	29,405	40
2,981	167,767	2,956	167,028	25	739	8,929,150	3,412,913	41
47	1,579	41	1,465	6	114	32,445	79,412	42
673	10,994	537	9,918	136	1,076	4289,286	549,014	43
118	1,372	54	804	64	568	28,192	64,075	44
24	565	24	565	-----	-----	22,974	19,700	45
26	430	26	430	-----	-----	1,750	11,875	46
30	402	18	252	12	150	20,323	42,757	47
25	640	25	640	-----	-----	5,134	14,960	48
15	668	14	652	1	16	11,265	26,760	49
29	645	29	645	-----	-----	16,690	20,640	50
26	162	26	162	-----	-----	10,326	15,390	51
25	395	25	395	-----	-----	17,458	26,730	52
14	217	14	217	-----	-----	10,674	8,310	53
43	500	39	480	4	20	-----	6,900	54
8	425	7	395	1	30	5,590	11,083	55
36	501	36	501	-----	-----	63,496	129,753	56
49	622	49	622	-----	-----	20,023	56,076	57
205	3,450	151	3,158	54	292	55,391	94,005	58
11	80	11	80	-----	-----	2,528	7,992	59
261	3,949	239	3,552	22	397	193,671	334,883	60
24	272	24	272	-----	-----	2,506	10,912	61
11	185	10	179	1	6	12,425	17,620	62
54	802	54	802	-----	-----	3,884	12,664	63
121	1,707	118	1,680	3	27	146,256	234,727	64
13	290	13	290	-----	-----	1,560	15,750	65
38	693	20	329	18	364	27,050	43,210	66
962	912,007	797	911,437	165	570	10330,038	790,833	67
76	776	76	776	-----	-----	20,965	37,766	68
110	1,261	109	1,258	1	3	97,760	137,645	69
60	697	60	697	-----	-----	6,738	28,161	70
68	1,034	68	1,034	-----	-----	10,032	32,561	71
148	531	-----	-----	148	531	14,296	24,065	72
147	3,386	147	3,386	-----	-----	23,445	232,271	73
70	359	70	359	-----	-----	1,671	23,620	74
30	564	30	564	-----	-----	53,541	97,600	75
76	615	60	579	16	36	-----	8,651	76
19	350	19	350	-----	-----	25,783	40,762	77
158	2,434	158	2,434	-----	-----	71,807	127,731	78

* Embraces boots and shoes, 2; tanning, 1.

† Embraces brick and tile, 1; candles, 1; mineral and soda waters, 1; tobacco, cigars and cigarettes, 1.

‡ Not including unreported capital for 1 slipper making, 1 ice manufacturing, and 1 tanning establishment.

§ Not including unreported wages for 1 carriage and wagon establishment.

|| Not including cost of materials for 4 salt establishments.

¶ Embraces boots and shoes, slippers, 2; candles, 2; clothing, men's, custom work and repairing, 2; dyeing, 1; furniture and cabinetmaking, 1; ice, manufactured, 1; mineral and soda waters, 2; printing and publishing, 1; ship and boat building, 1.

TABLE 4.—Manufacturing establishments, the value of whose products amounted to comandancias:

PROVINCE OR COMANDANCIA AND INDUSTRY.		Number of establishments.	Capital (pesos).
JOLÓ. ¹			
79	All industries ²	3	4, 500
LA LAGUNA.			
80	All industries.....	105	3248, 835
81	Boots and shoes, slippers.....	3	420
82	Bread and other bakery products.....	12	17, 784
83	Copra.....	14	21, 875
84	Liquors, distilled, malt, and other fermented.....	29	67, 852
85	Oil, coconut.....	16	33, 589
86	Rice, cleaning.....	16	59, 900
87	Soap.....	11	11, 937
88	All other industries ³	4	35, 978
LEYTE.			
89	All industries.....	24	88, 697
90	Blacksmithing.....	4	3, 523
91	Bread and other bakery products.....	11	24, 874
92	All other industries ⁴	9	60, 300
MANILA CITY.			
93	All industries.....	876	720, 005, 306
94	Blacksmithing.....	13	23, 800
95	Bookbinding.....	3	2, 484
96	Boots and shoes.....	39	139, 672
97	Boots and shoes, slippers.....	69	203, 552
98	Bread and other bakery products.....	39	249, 135
99	Brick and tile.....	3	48, 778
100	Candles.....	23	114, 000
101	Carpentering.....	10	56, 390
102	Carriages and wagons.....	47	199, 594
103	Chocolate and cocoa products.....	20	48, 270
104	Clothing, men's, custom work and repairing.....	106	305, 690
105	Combs.....	4	5, 600
106	Confectionery.....	27	61, 620
107	Engraving.....	4	4, 200
108	Food preparations.....	3	8, 200
109	Foundry and machine shop products.....	15	713, 319
110	Furniture and cabinetmaking.....	18	97, 800
111	Hats and caps.....	22	282, 762
112	Lime.....	7	11, 735
113	Lithographing.....	4	69, 580
114	Liquors, distilled, malt, and other fermented.....	10	2, 693, 186
115	Lumber, sawed.....	57	2, 359, 864
116	Marble and stone work.....	3	5, 870
117	Mineral and soda waters.....	21	146, 678
118	Oil, essential (ilang-ilang).....	3	101, 376
119	Oil, lumbang.....	5	21, 560
120	Photography.....	13	60, 192
121	Printing and publishing.....	25	1, 090, 259
122	Saddlery and harness.....	14	78, 548
123	Ship and boat building.....	6	1, 391, 965
124	Silversmithing.....	34	44, 142
125	Soap.....	41	137, 700
126	Tanning.....	7	51, 472
127	Tinsmithing.....	34	61, 729
128	Tobacco, cigars and cigarettes.....	75	4, 409, 771

¹ Comandancia.² Embraces boots and shoes, 2; mineral and soda waters, 1.³ Not including unreported capital for 1 cordage and twine establishment and 1 coconut oil establishment.⁴ Not including unreported cost of materials for 1 rice cleaning establishment.⁵ Embraces candles, 2; cordage and twine, 1; furniture and cabinetmaking, 1.⁶ Embraces carpentering, 1; confectionery, 1; copra, 1; cutlery and edge tools, 1; ice, manufactured, 1; lumber, sawed, 2; mineral and soda waters, 1; soap, 1.

1,000 pesos or over in each establishment, by specified industries for provinces and 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
9	170	9	170	.....	.....	6,081	11,040	79
536	12,981	421	11,640	115	1,341	4319,176	426,612	80
39	765	37	725	2	40	152	6,103	81
78	831	49	611	29	220	30,834	34,208	82
146	5,142	138	5,112	8	30	74,231	88,498	83
128	3,278	95	2,660	33	548	61,716	46,129	84
74	1,293	46	1,005	28	288	20,860	54,048	85
25	526	25	526	.....	.....	111,241	167,387	86
46	1,216	31	1,001	15	215	16,297	22,703	87
147	3,838	144	3,808	3	30	3,855	7,536	88
17	330	17	330	.....	.....	76,087	132,408	89
47	998	47	998	.....	.....	2,738	12,160	90
83	2,510	80	2,480	3	30	53,344	60,588	91
.....	.....	.....	.....	.....	.....	20,005	59,660	92
819,640	9411,148	14,442	340,923	5,198	1070,225	111,931,044	23,591,807	93
81	2,054	81	2,054	.....	.....	24,611	49,723	94
10	1,198	10	1,198	.....	.....	887	6,490	95
265	6,480	265	6,480	.....	.....	97,543	193,008	96
572	15,257	498	14,292	74	965	167,833	418,438	97
554	9,115	554	9,115	.....	.....	489,840	793,937	98
75	577	75	577	.....	.....	5,895	33,405	99
101	2,950	101	2,950	.....	.....	108,794	149,180	100
138	3,261	138	3,261	.....	.....	115,558	192,885	101
494	14,426	492	14,386	2	40	182,579	385,738	102
72	1,257	68	1,207	4	50	69,357	92,967	103
719	15,360	576	12,781	143	2,579	224,325	485,016	104
10	141	10	141	.....	.....	6,528	10,750	105
151	3,109	151	3,109	.....	.....	89,196	192,530	106
8	132	8	132	.....	.....	768	5,500	107
25	343	25	343	.....	.....	5,022	6,700	108
918	28,017	918	28,017	.....	.....	250,695	689,455	109
131	2,582	131	2,582	.....	.....	58,447	110,350	110
579	15,850	211	7,315	368	8,535	207,104	505,515	111
61	1,830	61	1,830	.....	.....	5,358	20,910	112
97	3,457	97	3,457	.....	.....	27,992	79,600	113
589	9,446	479	8,946	110	500	1,163,873	2,567,145	114
884	25,749	884	25,749	.....	.....	1,317,384	2,551,273	115
21	344	21	344	.....	.....	4,552	17,708	116
238	4,624	236	4,604	2	20	123,912	302,544	117
64	781	64	781	.....	.....	127,230	153,000	118
25	620	25	620	.....	.....	13,508	29,100	119
47	1,285	47	1,285	.....	.....	11,929	56,000	120
922	35,593	885	35,113	37	480	193,473	994,347	121
86	2,555	86	2,555	.....	.....	34,659	64,955	122
801	31,334	801	31,334	.....	.....	446,492	634,774	123
95	1,851	95	1,851	.....	.....	27,633	67,422	124
135	3,466	135	3,466	.....	.....	149,812	256,300	125
46	1,900	46	1,900	.....	.....	10,647	14,369	126
104	1,712	104	1,712	.....	.....	30,711	84,180	127
9,160	128,822	4,983	75,352	4,177	53,470	4,103,901	8,189,833	128

¹ Not including unreported capital for 1 carriage and wagon establishment, 1 cotton mill, and 1 printing and publishing establishment.

² Not including unreported number of employees for 2 ship and boat building establishments.

³ Not including unreported wages for 1 cotton mill and 2 ship and boat building establishments.

¹⁰ Not including unreported wages for 1 cotton mill.

¹¹ Not including unreported cost of materials for 1 men's clothing establishment and 2 printing and publishing establishments.

TABLE 4.—*Manufacturing establishments, the value of whose products amounted to comandancias:*

PROVINCE OR COMANDANCIA AND INDUSTRY.		Number of establishments.	Capital (pesos).
MANILA CITY—continued.			
129	Trunks.....	24	70,600
130	Watch, clock, and jewelry repairing.....	3	5,000
131	Wood carving.....	4	10,300
132	All other industries ¹	21	4,618,913
MASBATE.			
133	All industries ²	3	7,243
MISAMIS.			
134	All industries ³	6	10,616
NEGROS OCCIDENTAL.			
135	All industries.....	44	141,486
136	Bread and other bakery products.....	22	64,463
137	Carriages and wagons.....	3	6,760
138	Liquors, distilled, malt, and other fermented.....	6	10,543
139	Rice, cleaning.....	3	6,420
140	All other industries ⁶	10	58,300
NEGROS ORIENTAL.			
141	All industries.....	43	⁶ 124,004
142	Copra.....	4	17,400
143	Hemp, fibering.....	35	102,604
144	All other industries ⁹	4	4,000
NUEVA ÉCJJA.			
145	All industries.....	26	95,525
146	Blacksmithing.....	4	6,694
147	Boots and shoes.....	3	6,842
148	Bread and other bakery products.....	9	29,098
149	Rice, cleaning.....	4	33,970
150	All other industries ¹⁰	6	18,921
PAMPANGA.			
151	All industries.....	36	279,521
152	Bread and other bakery products.....	13	15,000
153	Liquors, distilled, malt, and other fermented.....	9	173,313
154	Pottery and terra cotta products.....	8	14,900
155	All other industries ¹¹	6	76,308
PANGASINÁN.			
156	All industries.....	128	646,512
157	Boots and shoes.....	4	4,510
158	Boxes, wooden packing.....	4	5,780
159	Bread and other bakery products.....	9	8,640
160	Brick and tile.....	3	12,120
161	Carriages and wagons.....	3	2,960
162	Liquors, distilled, malt, and other fermented.....	91	236,792
163	Mineral and soda waters.....	3	5,380
164	Soap.....	7	26,420
165	All other industries ¹²	4	343,910

¹ Embraces bicycle repairing, 2; boxes, cigar, 2; brasswork, 2; cordage and twine, 1; cotton goods, 1 (capital not reported); furnishing goods, men's, 1; gas and electric light and power, 2; ice, manufactured, 2; ink, writing, 1; watches, 1; oil, coconut, 1; paints and colors, 1; pianos, 1; tobacco, smoking, 1; umbrellas, 2.

² The only industry for which reports were received from this province was bread and other bakery products.

³ Embraces bread and other bakery products, 4; clothing, men's, custom work and repairing, 1; tanning, 1.

⁴ Not including unreported cost of materials for 2 bakeries, 1 brickyard, and 1 mineral and soda water establishment.

1,000 pesos or over in each establishment, by specified industries for provinces and 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
183	3,083	183	3,083	-----	-----	65,713	116,500	129
8	135	8	135	-----	-----	515	3,100	130
16	532	16	532	-----	-----	3,014	12,700	131
1,156	30,920	874	27,334	281	3,586	1,963,754	3,054,460	132
7	120	7	120	-----	-----	3,998	10,840	133
29	446	23	372	6	74	13,549	21,333	134
409	5,066	384	4,961	25	105	497,330	170,018	135
146	2,512	146	2,512	-----	-----	56,421	92,520	136
31	259	31	259	-----	-----	5,846	9,785	137
80	454	80	454	-----	-----	525	10,975	138
49	225	27	132	22	93	13,890	16,205	139
103	1,616	100	1,604	3	12	20,708	40,533	140
977	710,345	804	79,289	173	1,056	829,355	94,634	141
60	322	50	297	10	25	3,000	12,561	142
903	9,837	741	8,811	162	1,026	20,398	71,108	143
14	186	13	181	1	5	5,957	11,020	144
138	2,067	90	1,584	48	483	22,472	55,958	145
14	240	14	240	-----	-----	1,060	5,150	146
13	505	13	505	-----	-----	583	4,350	147
18	194	18	194	-----	-----	7,267	16,013	148
45	625	28	445	17	180	9,755	19,565	149
48	503	17	200	31	303	3,807	10,880	150
408	7,956	388	7,772	20	184	248,453	356,022	151
54	715	44	631	10	84	33,954	51,200	152
184	4,657	184	4,657	-----	-----	164,551	214,350	153
84	1,138	84	1,138	-----	-----	6,831	15,350	154
86	1,446	76	1,346	10	100	53,117	75,122	155
1,118	10,941	1,114	10,915	4	26	423,888	1,068,528	156
24	243	24	243	-----	-----	1,337	7,400	157
31	380	31	380	-----	-----	720	9,700	158
39	355	39	355	-----	-----	9,908	18,415	159
559	2,745	557	2,735	2	10	1,805	257,900	160
13	225	13	225	-----	-----	484	3,830	161
275	4,459	273	4,443	2	16	185,980	253,783	162
16	134	16	134	-----	-----	2,645	5,200	163
23	430	23	430	-----	-----	9,074	55,300	164
183	1,970	183	1,970	-----	-----	211,940	452,000	165

⁵ Embraces boots and shoes, 2; brick and tile, 2; confectionery, 2; mineral and soda waters, 2; ship and boat building, 2.

⁶ Not including unreported capital for 2 hemp fiber establishments.

⁷ Not including unreported wages for 1 hemp fiber establishment.

⁸ Not including unreported cost of materials for 3 copra and 19 hemp fiber establishments.

⁹ Embraces bread and other bakery products, 2; soap, 2.

¹⁰ Embraces carriages and wagons, 1; liquors, distilled, malt and other fermented, 1; mineral and soda waters, 1; tinsmithing, 1; tobacco, cigars and cigarettes, 2.

¹¹ Embraces boots and shoes, 1; foundry and machine shop products, 2; rice, cleaning, 2; soap, 1.

¹² Embraces boots and shoes, slippers, 1; candles, 1; rice, cleaning, 2.

TABLE 4.—Manufacturing establishments, the value of whose products amounted to comandancias:

PROVINCE OR COMANDANCIA AND INDUSTRY.		Number of establishments.	Capital (pesos).
RIZAL.			
166	All industries	88	320,388
167	Bread and other bakery products	6	5,373
168	Brick and tile	8	101,695
169	Carriages and wagons	6	3,370
170	Cloth, just	17	2,616
171	Lumber, sawed	4	10,113
172	Mineral and soda waters	3	7,400
173	Pottery and terra cotta products	3	27,475
174	Rice, cleaning	6	361
175	Salt	16	118,075
176	Ship and boat building	6	34,467
177	Tobacco, cigars and cigarettes	5	5,400
178	All other industries ²	8	4,043
ROMBLÓN.			
179	All industries ³	11	428,983
SÁMAR.			
180	All industries ⁶	3	5,000
SORSOGÓN.			
181	All industries	35	117,266
182	Bread and other bakery products	21	60,206
183	Oil, essential (ilang-ilang)	3	8,500
184	All other industries ¹⁰	11	48,560
SURIGAO.			
185	All industries	10	14,100
186	Cloth, from hemp, pifia, and other fibers	6	6,000
187	Liquors, distilled, malt, and other fermented	4	8,100
TÁRLAC.			
188	All industries	17	72,243
189	Bread and other bakery products	8	12,631
190	Liquors, distilled, malt, and other fermented	3	7,990
191	All other industries ¹²	6	51,622
TAYABAS.			
192	All industries ¹³	90	14233,346
193	Blacksmithing	10	13,053
194	Boots and shoes	4	4,466
195	Bread and other bakery products	14	11,191
196	Copra	5	.....
197	Lime	3	1,235
198	Liquors, distilled, malt, and other fermented	27	28,692
199	Lumber, sawed	4	139,525
200	Rice, cleaning	3	10,000

¹ Not including cost of materials for 16 salt establishments.

² Embraces boots and shoes, slippers, 2; confectionery, 2; dyeing, 1; oil, lumbang, 1; soap, 1; tanning, 1.

³ Embraces bread and other bakery products, 4; cloth, from hemp, pifia, and other fibers, 1; lumber, sawed, 5; mats and matting, 1.

⁴ Not including unreported capital for 1 mats and matting establishment.

⁵ Not including unreported wages for 1 clothmaking establishment, and 1 mats and matting establishment.

⁶ Embraces bread and other bakery products, 2; nets and seines, 1.

⁷ Not including unreported number of employees for 1 ship and boat building establishment.

⁸ Not including unreported wages for 1 ship and boat building establishment.

⁹ Not including unreported cost of materials for 1 salt establishment, and 1 ship and boat building establishment.

¹⁰ Embraces blacksmithing, 1; boots and shoes, 2; mineral and soda waters, 2; pottery and terra cotta products, 1; nipa fabric, 2; salt, 1; ship and boat building, 2.

1,000 pesos or over in each establishment, by specified industries for provinces and 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
1,585	26,587	1,002	22,790	583	3,797	¹ 237,697	522,710	166
88	450	82	444	1	6	25,900	83,689	167
179	3,437	179	3,437	.....	.....	50,350	106,084	168
30	659	30	659	.....	.....	4,005	10,555	169
88	900	29	299	59	601	8,444	25,831	170
28	584	28	584	.....	.....	7,126	16,770	171
19	241	17	229	2	12	4,353	11,112	172
43	1,000	43	1,000	.....	.....	10,863	25,387	173
25	108	6	25	19	83	12,936	11,256	174
405	12,070	405	12,070	.....	.....	.....	28,380	175
46	1,410	46	1,410	.....	.....	25,571	59,100	176
662	5,400	162	2,312	500	3,088	75,707	178,550	177
27	328	25	321	2	7	12,442	15,996	178
422	⁵ 1,676	256	⁵ 1,626	166	⁵ 50	16,928	26,173	179
28	456	28	456	.....	.....	11,940	20,500	180
⁷ 258	⁸ 4,987	165	3,962	93	1,025	⁹ 92,910	119,886	181
77	1,784	77	1,784	.....	.....	74,213	67,154	182
13	275	10	200	3	75	3,173	10,140	183
168	2,928	78	1,978	90	950	15,524	42,592	184
367	¹¹ 1,928	42	328	325	¹¹ 1,600	7,835	28,414	185
325	1,600	.....	.....	325	1,600	6,100	11,940	186
42	328	42	328	.....	.....	1,735	16,474	187
119	2,118	119	2,118	.....	.....	50,963	112,903	188
19	292	19	292	.....	.....	21,092	84,487	189
16	375	16	375	.....	.....	25,020	34,400	190
84	1,451	84	1,451	.....	.....	4,851	44,016	191
¹⁶ 627	¹⁶ 10,200	¹⁶ 615	¹⁶ 10,047	12	153	¹⁷ 118,697	251,895	192
25	572	25	572	.....	.....	12,674	19,283	193
14	138	14	138	.....	.....	4,141	8,034	194
28	473	28	473	.....	.....	32,767	38,707	195
15	113	15	113	.....	.....	.....	9,900	196
8	160	8	160	.....	.....	368	4,525	197
97	1,942	97	1,942	.....	.....	17,137	49,249	198
338	4,700	338	4,700	.....	.....	19,503	51,144	199
16	336	8	218	8	118	8,600	12,878	200

¹¹ Not including unreported wages for 1 clothmaking establishment.

¹² Embraces brick and tile, 1; lumber, sawed, 1; pottery and terra cotta products, 1; rice, cleaning, 2; tobacco, cigars and cigarettes, 1.

¹³ Includes 5 establishments in the subprovince of Marinduque.

¹⁴ Not including unreported capital for 5 copra establishments.

¹⁵ Not including unreported number of employees for 4 copra establishments and 1 soapmaking establishment.

¹⁶ Not including unreported wages for 4 copra establishments and 1 soapmaking establishment.

¹⁷ Not including unreported cost of materials for 5 copra establishments, 1 mats and matting establishment, 2 rice cleaning establishments, and 1 soapmaking establishment.

TABLE 4.—*Manufacturing establishments, the value of whose products amounted to comandancias:*

PROVINCE OR COMANDANCIA AND INDUSTRY.		Number of establishments.	Capital (pesos).
TAYABAS—continued.			
201	Ship and boat building	3	11, 050
202	Soap	7	2, 863
203	Tanning	4	6, 585
204	All other industries ¹	6	4, 686
ZAMBALES.			
205	All industries ²	3	6, 910
ZAMBOANGA. ³			
206	All industries	35	52, 263
207	Bread and other bakery products	3	8, 200
208	Copra	13	10, 279
209	Liquors, distilled, malt, and other fermented	4	1, 584
210	Oil, coconut	4	3, 100
211	Salt	6	10, 000
212	All other industries ⁴	5	19, 100
ALL OTHER PROVINCES. ⁵			
213	All industries ⁷	8	*76, 983

¹ Embraces clothing, men's, custom work and repairing, 1; mats and matting, 1; oil, coconut, 1; photography, 1; saddlery and harness, 2.

² Embraces bread and other bakery products, 1; liquors, distilled, malt and other fermented, 2.

³ Comandancia.

⁴ Not including unreported cost of materials for 13 copra, 3 liquor, 4 oil, coconut, and 6 salt establishments.

⁵ Embraces boots and shoes, 1; lumber, sawed, 1; soap, 2; tanning, 1.

1,000 pesos or over in each establishment, by specified industries for provinces and 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
53	1,237	53	1,237	.....	.....	7,260	23,850	201
11	175	11	175	.....	.....	6,613	14,850	202
8	141	7	134	1	7	6,230	8,940	203
14	213	11	185	3	28	3,404	10,535	204
10	121	10	121	.....	.....	1,981	7,886	205
168	2,380	168	2,380	.....	.....	431,121	118,897	206
14	260	14	260	.....	.....	17,994	20,710	207
55	485	55	485	.....	.....	.....	37,665	208
8	120	8	120	.....	.....	185	5,492	209
8	120	8	120	.....	.....	.....	6,280	210
21	315	21	315	.....	.....	.....	8,900	211
62	1,080	62	1,080	.....	.....	12,942	39,850	212
99	2,074	81	1,619	18	455	99,220	25,320	213

⁶ Includes provinces as follows: Bohol, Isabela, La Unión, Mindoro, Nueva Vizcaya, and Paragua Sur.

⁷ Embraces bread and other bakery products, 1; hats and caps, 1; hemp, fibering, 1; liquors, distilled, malt, and other fermented, 1; lumber, sawed, 1; resin, 1; salt, 2.

⁸ Not including unreported capital for 1 salt establishment.

⁹ Not including unreported cost of materials for 2 salt establishments.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000

INDUSTRY AND PROVINCE OR COMANDANCIA.		Number of establishments.	Capital (pesos).
BLACKSMITHING.			
1	Philippine Islands	43	55,741
2	Batangas.....	10	3,161
3	Leyte	4	3,523
4	Manila city	13	23,800
5	Nueva Ecija	4	6,694
6	Tayabas ²	12	18,563
BOOKBINDING.			
7	Philippine Islands ³	3	2,484
BOOTS AND SHOES.			
8	Philippine Islands.....	93	⁴ 226,581
9	Cavite.....	3	8,808
10	Cebu	14	10,400
11	Ilocos Sur	5	2,527
12	Iloilo.....	7	25,607
13	Manila city	39	139,672
14	Nueva Ecija	3	6,842
15	Pangasinán	4	4,510
16	Tayabas	4	4,466
17	All other provinces and comandancias ⁵	14	23,749
BOOTS AND SHOES, SLIPPERS.			
18	Philippine Islands.....	80	⁶ 217,997
19	La Laguna.....	3	420
20	Manila city	69	203,552
21	All other provinces ⁷	8	14,025
BOXES, WOODEN PACKING.			
22	Philippine Islands ⁸	4	5,780
BREAD AND OTHER BAKERY PRODUCTS.			
23	Philippine Islands	326	965,940
24	Albay	25	49,161
25	Ambos Camarines	17	74,988
26	Bataán	3	1,868
27	Batangas.....	24	15,511
28	Bulacán	18	17,801
29	Cagayán	3	9,568
30	Cápiz	4	6,400
31	Cavite	18	128,655
32	Cebu	4	10,500
33	Ilocos Sur	4	13,650
34	Iloilo.....	20	102,634
35	La Laguna.....	12	17,784
36	Leyte	11	24,874
37	Manila city	39	249,135
38	Masbate	3	7,243
39	Misamis	4	2,421
40	Nueva Ecija	9	29,098
41	Negros Occidental	22	64,463
42	Pampanga	13	15,000
43	Pangasinán	9	8,640

¹ Not including sugar producing establishments, data concerning which are shown separately in Tables 6, 7, 8, and 9.

² One establishment in Cebu and 1 in Sorsogón are included in Tayabas to avoid disclosing operations of individual establishments.

³ The only reports received for this industry were from Manila city.

⁴ Not including unreported capital for 1 establishment in Iloilo.

pesos or over in each establishment, by provinces and comandancias: 1902.¹

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
200	4,617	200	4,617	.....	.....	54,280	119,470	1
47	814	47	814	.....	.....	8,387	26,054	2
17	330	17	330	.....	.....	2,738	12,160	8
81	2,054	81	2,054	.....	.....	24,611	49,723	4
14	240	14	240	.....	.....	1,060	5,150	5
41	1,179	41	1,179	.....	.....	17,534	26,383	6
10	198	10	198	.....	.....	887	6,490	7
627	11,468	559	10,874	68	594	180,133	394,213	8
20	251	20	251	.....	.....	3,737	9,912	9
118	1,372	54	804	64	568	28,192	64,075	10
24	272	24	272	.....	.....	2,506	10,912	11
76	776	76	776	.....	.....	20,965	37,766	12
265	6,480	265	6,480	.....	.....	97,543	193,008	13
13	505	13	505	.....	.....	583	4,350	14
24	243	24	243	.....	.....	1,337	7,400	15
14	138	14	138	.....	.....	4,141	8,084	16
73	1,431	69	1,405	4	26	21,129	58,756	17
606	15,836	526	14,834	80	1,002	179,869	446,943	18
572	15,257	498	14,292	74	965	152	6,103	19
34	579	28	542	6	37	167,833	418,438	20
						11,884	22,402	21
31	380	31	380	.....	.....	720	9,700	22
1,715	29,155	1,669	28,659	46	496	⁹ 1,459,181	2,084,106	23
79	2,070	77	2,050	2	20	109,863	187,551	24
70	1,552	70	1,552	.....	.....	71,859	116,459	25
12	151	12	151	.....	.....	4,855	8,175	26
72	988	66	923	6	65	49,421	70,700	27
68	986	63	927	5	59	43,971	56,414	28
9	220	9	220	.....	.....	6,520	11,325	29
20	189	20	189	.....	.....	10,487	13,237	30
90	1,827	79	1,681	11	146	132,344	166,184	31
24	565	24	565	.....	.....	22,974	19,700	32
11	185	10	179	1	6	12,425	17,620	33
110	1,261	109	1,258	1	3	97,760	137,645	34
39	765	37	725	2	40	30,834	34,208	35
47	998	47	998	.....	.....	53,344	60,588	36
554	9,115	554	9,115	.....	.....	489,840	798,937	37
7	120	7	120	.....	.....	3,998	10,640	38
18	253	16	229	2	24	10,157	15,758	39
18	194	18	194	.....	.....	7,267	16,013	40
146	2,512	146	2,512	.....	.....	56,421	92,520	41
54	715	44	631	10	84	33,954	51,200	42
39	355	39	355	.....	.....	9,903	18,415	43

¹ Includes establishments distributed as follows: Abra, 2; Ambos Camarines, 1; Batangas, 1; Ilocos Norte, 2; Joló, 2; Negros Occidental, 2; Pampanga, 1; Sorsogón, 2; Zamboanga, 1.

² Not including unreported capital for 1 establishment in Iloilo.

³ Includes establishments distributed as follows: Ambos Camarines, 1; Batangas, 1; Cebu, 1; Iloilo, 2; Pangasinán, 1; Rizal, 2.

⁴ The only reports received for this industry were from Pangasinán.

⁵ Not including unreported cost of materials for 2 establishments in Negros Occidental.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000 pesos

INDUSTRY AND PROVINCE OR COMANDANCIA.		Number of establishments.	Capital (pesos).
BREAD AND OTHER BAKERY PRODUCTS—continued.			
44	Rizal	6	5,373
45	Romblón	4	4,220
46	Sorsogón	21	60,206
47	Tarlac	8	12,631
48	Tayabas ¹	14	11,191
49	Zamboanga ²	3	8,200
50	All other provinces ³	8	14,725
BRICK AND TILE.			
51	Philippine Islands	27	237,543
52	Cebú	3	14,450
53	Iloilo	4	42,050
54	Manila city	3	48,778
55	Pangasinán	3	12,120
56	Rizal	8	101,695
57	All other provinces ⁴	6	18,450
CANDLES.			
58	Philippine Islands	38	162,678
59	Cebú	8	18,200
60	Manila city	23	114,000
61	All other provinces ⁵	7	30,478
CARPENTERING.			
62	Philippine Islands ⁷	11	66,890
CARRIAGES AND WAGONS.			
63	Philippine Islands	77	⁸ 264,725
64	Cebú	3	16,500
65	Ilocos Sur	4	5,829
66	Iloilo	5	25,339
67	Manila city	47	199,594
68	Negros Occidental	3	6,760
69	Pangasinán	3	2,960
70	Rizal	6	3,370
71	All other provinces ¹⁰	6	4,373
CHOCOLATE AND COCOA PRODUCTS.			
72	Philippine Islands ¹¹	22	54,110
CLOTH, FROM HEMP, PIÑA, AND OTHER FIBERS.			
73	Philippine Islands ¹²	7	7,500
CLOTH, JUSI.			
74	Philippine Islands	34	36,451
75	Iloilo	16	30,585
76	Rizal ¹⁶	18	5,866

¹ Includes 4 establishments in the subprovince of Marinduque.

² Comandancia.

³ Includes establishments distributed as follows: Abra, 2; La Unión, 1; Negros Oriental, 2; Samar, 2; Zambales, 1.

⁴ Not including unreported cost of materials for 1 establishment in Negros Occidental.

⁵ Includes establishments distributed as follows: Ambos Camarines, 2; Ilocos Sur, 1; Negros Occidental, 2; Tarlac, 1.

⁶ Includes establishments distributed as follows: Cápiz, 1; Ilocos Sur, 1; Iloilo, 2; La Laguna, 2; Pangasinán, 1.

⁷ Includes establishments distributed as follows: Leyte, 1; Manila city, 10.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
83	450	32	444	1	6	25,900	33,689	44
21	259	19	239	2	20	8,285	6,476	45
77	1,784	77	1,784	.....	.....	74,213	67,154	46
19	292	19	292	.....	.....	21,092	34,487	47
28	473	28	473	.....	.....	32,767	38,707	48
14	260	14	260	.....	.....	17,994	20,710	49
36	616	33	593	3	23	20,783	34,399	50
954	8,898	948	8,864	6	34	472,840	457,790	51
26	430	26	430	.....	.....	1,750	11,875	52
60	697	60	697	.....	.....	6,738	28,161	53
75	577	75	577	.....	.....	5,895	33,405	54
559	2,745	557	2,735	2	10	1,805	257,900	55
179	3,437	179	3,437	.....	.....	50,350	106,084	56
55	1,012	51	988	4	24	6,302	20,365	57
152	3,792	140	3,642	12	150	156,607	230,905	58
30	402	18	252	12	150	20,323	42,757	59
101	2,950	101	2,960	.....	.....	108,794	149,130	60
21	440	21	440	.....	.....	27,490	38,968	61
158	4,261	158	4,261	.....	.....	116,158	197,470	62
745	*18,798	743	*18,758	2	40	213,977	477,957	63
25	640	25	640	.....	.....	5,134	14,960	64
54	802	54	802	.....	.....	3,884	12,664	65
68	1,034	68	1,034	.....	.....	10,032	32,561	66
494	14,426	492	14,386	2	40	182,579	385,738	67
31	259	31	259	.....	.....	5,846	9,785	68
13	225	13	225	.....	.....	484	3,830	69
30	659	30	659	.....	.....	4,005	10,555	70
30	753	30	753	.....	.....	2,013	7,864	71
76	1,377	72	1,327	4	50	74,067	100,767	72
505	*1,600	100	(14)	405	*1,600	6,260	13,923	73
246	1,471	29	299	217	1,172	25,340	53,896	74
148	531	.....	.....	148	531	14,296	24,065	75
98	940	29	299	69	641	11,044	29,831	76

* Not including unreported capital for 1 establishment in Manila city.

† Not including unreported wages paid 8 employees in 1 establishment in Manila city.

‡ Includes establishments distributed as follows: Batangas, 2; Bulacán, 2; Cavite, 1; Nueva Ecija, 1.

§ Includes establishments distributed as follows: Cavite, 2; Manila city, 20.

|| Includes establishments distributed as follows: Romblón, 1; Surigao, 6.

¶ Not including unreported wages paid 206 employees in 2 establishments.

‡ Not reported.

§ Not including unreported wages paid 105 women in 2 establishments.

¶ One establishment in Batangas is included in Rizal to avoid disclosing the operations of individual establishments.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000 pesos

	INDUSTRY AND PROVINCE OR COMANDANCIA.	Number of establishments.	Capital (pesos).
	CLOTHING, MEN'S, CUSTOM WORK AND REPAIRING.		
77	Philippine Islands	119	364, 998
78	Cavite	5	25, 649
79	Cebu	3	10, 300
80	Manila city	106	305, 690
81	All other provinces ²	5	23, 359
	COMBS.		
82	Philippine Islands ³	4	5, 600
	CONFECTIONERY.		
88	Philippine Islands	32	68, 920
84	Manila city	27	61, 620
85	All other provinces ⁴	5	7, 300
	COPRA.		
86	Philippine Islands	37	52, 554
87	La Laguna	14	21, 875
88	Negros Oriental	4	17, 400
89	Tayabas	5	
90	Zamboanga ⁵	14	13, 279
	CUTLERY AND EDGE TOOLS.		
91	Philippine Islands ¹⁰	3	6, 244
	DYEING.		
92	Philippine Islands ¹¹	3	9, 565
	ENGRAVING.		
93	Philippine Islands ¹²	4	4, 200
	FOOD PREPARATIONS.		
94	Philippine Islands ¹³	3	8, 200
	FOUNDRY AND MACHINE SHOP PRODUCTS.		
95	Philippine Islands	29	861, 794
96	Bulacán	5	4, 325
97	Iloilo	6	102, 650
98	Manila city	15	713, 319
99	All other provinces ¹³	3	41, 500
	FURNITURE AND CABINETMAKING.		
100	Philippine Islands	31	185, 547
101	Cagayán	6	24, 864
102	Cebu	5	13, 000
103	Manila city ¹⁴	20	147, 683
	GAS AND ELECTRIC LIGHT AND POWER.		
104	Philippine Islands ¹⁵	3	2, 238, 560

¹ Not including unreported cost of materials for 1 establishment in Manila city.

² Includes establishments distributed as follows: Cagayán, 1; Iloilo, 2; Misamis, 1; Tayabas, 1.

³ The only reports received for this industry were from Manila city.

⁴ Includes establishments distributed as follows: Leyte, 1; Negros Occidental, 2; Rizal, 2.

⁵ Not including unreported capital for 5 establishments in Tayabas.

⁶ Not including unreported number of employees for 4 establishments in Tayabas.

⁷ Not including unreported wages for 4 establishments in Tayabas.

⁸ Not including unreported cost of materials for 3 establishments in Negros Oriental, 5 in Tayabas, and 13 in Zamboanga.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
798	16,915	641	14,180	157	2,735	1,260,992	559,788	77
26	306	16	211	10	95	14,997	21,980	78
15	668	14	652	1	16	11,265	26,760	79
719	15,360	576	12,781	143	2,579	224,325	465,016	80
38	581	35	536	3	45	10,405	26,082	81
10	141	10	141	.....	.....	6,528	10,760	82
174	3,372	171	3,360	3	12	103,873	214,605	88
151	3,109	151	3,109	.....	.....	89,196	192,530	84
23	263	20	251	3	12	14,677	22,075	85
219	1,861	177	1,586	42	275	79,631	151,024	86
78	831	49	611	29	220	74,231	88,498	87
60	322	50	297	10	25	3,000	12,561	88
15	113	15	113	.....	.....	.....	9,900	89
66	595	63	565	3	30	2,400	40,065	90
21	182	21	182	.....	.....	3,121	7,350	91
19	203	19	203	.....	.....	14,110	17,806	92
8	132	8	132	.....	.....	768	5,500	93
25	343	25	343	.....	.....	5,022	6,700	94
1,248	34,830	1,248	34,830	.....	.....	307,435	968,225	95
125	1,625	125	1,625	.....	.....	2,330	7,200	96
147	3,386	147	3,386	.....	.....	27,445	232,271	97
918	28,017	918	28,017	.....	.....	250,695	689,455	98
58	1,802	58	1,802	.....	.....	26,965	39,299	99
262	5,931	250	5,731	12	200	85,946	167,030	100
47	1,420	47	1,420	.....	.....	5,730	19,400	101
29	645	29	645	.....	.....	16,690	20,640	102
186	3,866	174	3,666	12	200	63,526	126,990	103
171	5,500	171	5,500	.....	.....	1,151,749	1,461,143	104

⁹Comandancia. One establishment in Leyte is included in Zamboanga to avoid disclosing the operations of individual establishments.

¹⁰Includes establishments distributed as follows: Cebu, 2; Leyte, 1.

¹¹Includes establishments distributed as follows: Cebu, 1; Iloilo, 1; Rizal, 1.

¹²The only reports received for this industry were from Manila city.

¹³Includes establishments distributed as follows: Cebu, 1; Pampanga, 2.

¹⁴One establishment in Iloilo and 1 in La Laguna are included in Manila city to avoid disclosing the operations of individual establishments.

¹⁵Includes establishments distributed as follows: Cavite, 1; Manila city, 2.

TABLE 5.—Specified industries the value of whose products amounted to 1,000 pesos

	INDUSTRY AND PROVINCE OR COMANDANCIA.	Number of establishments.	Capital (pesos).
	HATS AND CAPS.		
105	Philippine Islands ¹	23	288,762
	HEMP, FIBERING.		
106	Philippine Islands.....	38	*156,555
107	Negros Oriental.....	35	102,604
108	All other provinces ²	3	53,951
	ICE, MANUFACTURED.		
109	Philippine Islands ³	5	†2,185,098
	LIME.		
110	Philippine Islands.....	37	30,431
111	Batangas.....	3	288
112	Cebú.....	6	9,300
113	Iloilo.....	16	5,431
114	Manila city.....	7	11,735
115	Tayabas ⁴	5	3,677
	LIQUORS, DISTILLED, MALT, AND OTHER FERMENTED.		
116	Philippine Islands.....	287	4,232,356
117	Albay.....	33	25,790
118	Ambos Camarines.....	34	140,849
119	Bulacán.....	9	289,944
120	Cápiz.....	11	204,510
121	Cebú.....	3	47,000
122	Ilocos Sur.....	3	88,900
123	Iloilo.....	3	121,391
124	La Laguna.....	29	67,352
125	Manila city.....	10	2,693,186
126	Negros Occidental.....	6	10,543
127	Pampanga.....	9	173,313
128	Pangasinán.....	91	236,792
129	Surigao.....	4	8,100
130	Tárlac.....	3	7,990
131	Tayabas.....	27	28,692
132	Zamboanga ⁵	4	1,584
133	All other provinces ⁶	8	86,420
	LITHOGRAPHING.		
134	Philippine Islands ⁷	4	69,580
	LUMBER, SAWED.		
135	Philippine Islands.....	78	2,623,037
136	Manila city.....	57	2,359,864
137	Rizal.....	4	10,113
138	Romblón.....	5	23,263
139	Tayabas.....	4	139,525
140	All other provinces and comandancias ⁸	8	90,272

¹ Includes establishments distributed as follows: Isabela, 1; Manila city, 22.

² Not including unreported capital for 2 establishments in Negros Oriental.

³ Not including wages paid 10 employees in 1 establishment in Negros Oriental who received one-half the product in lieu of wages.

⁴ Not including unreported cost of materials for 2 establishments in Cebú and for 19 in Negros Oriental.

⁵ Includes establishments distributed as follows: Cebú, 2; Mindoro, 1.

⁶ Includes establishments distributed as follows: Cebú, 1; Iloilo, 1; Leyte, 1; Manila city, 2.

⁷ Not including unreported capital for 1 establishment in Iloilo.

⁸ Not including unreported number of employees for 2 establishments in Albay.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
589	15,930	219	7,375	370	8,555	207,604	507,015	105
935	310,323	773	9,297	162	1,026	420,408	77,123	106
903	9,337	741	8,811	162	1,026	20,398	71,103	107
32	486	32	486	.....	.....	10	6,020	108
574	21,135	494	20,218	80	917	294,858	862,742	109
3184	92,644	3184	92,644	.....	.....	21,489	73,645	110
19	133	19	133	.....	.....	1,366	5,500	111
26	162	26	162	.....	.....	10,326	15,390	112
70	359	70	359	.....	.....	1,671	23,620	113
61	1,830	61	1,830	.....	.....	5,358	20,910	114
8	160	8	160	.....	.....	2,768	8,225	115
2,195	39,053	2,071	38,470	124	583	112,303,198	4,388,319	116
147	2,226	147	2,226	.....	.....	48,048	70,928	117
155	2,355	155	2,355	.....	.....	110,578	195,946	118
93	2,414	93	2,414	.....	.....	241,399	411,719	119
137	1,628	137	1,628	.....	.....	32,778	100,211	120
25	395	25	395	.....	.....	17,458	26,730	121
121	1,707	118	1,680	3	27	146,256	234,727	122
30	564	30	564	.....	.....	53,541	97,600	123
146	5,142	138	5,112	8	30	61,716	46,129	124
589	9,446	479	8,946	110	500	1,163,873	2,567,145	125
80	454	80	454	.....	.....	625	10,975	126
184	4,657	184	4,657	.....	.....	154,551	214,350	127
275	4,459	273	4,443	2	16	185,980	253,783	128
42	328	42	328	.....	.....	1,735	16,474	129
16	375	16	375	.....	.....	25,020	34,400	130
97	1,942	97	1,942	.....	.....	17,137	49,249	131
8	120	8	120	.....	.....	185	5,492	132
50	841	49	831	1	10	42,418	52,461	133
97	3,457	97	3,457	.....	.....	27,992	79,600	134
1,531	34,965	1,527	34,935	4	30	1,368,860	2,736,754	135
884	25,749	884	25,749	.....	.....	1,317,384	2,551,273	136
28	584	28	584	.....	.....	7,126	16,770	137
141	1,417	137	1,387	4	30	8,333	16,109	138
338	4,700	338	4,700	.....	.....	19,503	51,144	139
140	2,515	140	2,515	.....	.....	16,514	101,458	140

⁹ Not including unreported wages for 2 establishments in Albay.

¹⁰ Two establishments in Albay are included in Tayabas to avoid disclosing the operations of individual establishments.

¹¹ Not including unreported cost of materials for 3 establishments in Zamboanga.

¹² Comandancia.

¹³ Includes establishments distributed as follows: Bataán, 2; Cagayán, 2; La Unión, 1; Nueva Ecija, 1; Zambales, 2.

¹⁴ The only reports received for this industry were from Manila city.

¹⁵ Includes establishments distributed as follows: Ambos Camarines, 1; Bulacán, 1; Cebú, 1; Leyte, 2; Mindoro, 1; Tárlac, 1; Zamboanga, 1.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000 pesos

	INDUSTRY AND PROVINCE OR COMANDANCIA.	Number of establishments.	Capital (pesos).
MARBLE AND STONE WORK.			
141	Philippine Islands ¹	3	5,870
MINERAL AND SODA WATERS.			
142	Philippine Islands	44	194,931
148	Cebu	3	2,700
144	Manila city	21	146,678
145	Pangasinán	3	5,380
146	Rizal	3	7,400
147	All other provinces and comandancias ²	14	32,773
OIL, COCONUT.			
148	Philippine Islands	22	443,039
149	La Laguna	16	33,589
150	Zamboanga ³	6	9,450
OIL, ESSENTIAL (ILANG-ILANG).			
151	Philippine Islands	9	137,376
152	Manila city	8	101,376
153	Sorsogón	3	8,500
154	All other provinces ⁴	3	27,500
OIL, LUMBANG.			
155	Philippine Islands	8	30,590
156	Manila city	5	21,560
157	All other provinces ⁵	3	9,030
PHOTOGRAPHY.			
158	Philippine Islands ⁶	14	60,592
POTTERY AND TERRA COTTA PRODUCTS.			
159	Philippine Islands	20	53,872
160	Ilocos Sur	3	5,185
161	Pampanga	3	14,900
162	Rizal	3	27,475
163	All other provinces ¹⁰	6	6,312
PRINTING AND PUBLISHING.			
164	Philippine Islands	28	11,124,359
165	Manila city	25	1,090,259
166	All other provinces ¹³	3	34,100
RICE, CLEANING.			
167	Philippine Islands	73	624,806
168	Bulacán	33	69,147
169	La Laguna	16	59,900
170	Negros Occidental	3	6,420

¹ The only reports received for this industry were from Manila city.

² Not including unreported cost of materials for 1 establishment in Negros Occidental.

³ Includes establishments distributed as follows: Albay, 1; Batangas, 1; Cavite, 2; Ilocos Sur, 1; Iloilo, 2; Joló, 1; Leyte, 1; Negros Occidental, 2; Nueva Ecija, 1; Sorsogón, 2.

⁴ Not including unreported capital for 1 establishment in La Laguna.

⁵ Not including unreported cost of materials for 4 establishments in Zamboanga.

⁶ One establishment in Manila city and 1 in Tayabas are included in Zamboanga to avoid disclosing the operations of individual establishments.

⁷ Includes establishments distributed as follows: Bulacán, 2; Rizal, 1.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
21	344	21	344	.....	.....	4,552	17,708	141
346	6,157	342	6,125	4	32	2174,844	399,399	142
14	217	14	217	.....	.....	10,674	8,310	143
238	4,624	236	4,604	2	20	123,912	302,544	144
16	134	16	134	.....	.....	2,645	5,200	145
19	241	17	229	2	12	4,353	11,112	146
59	941	59	941	.....	.....	33,260	72,233	147
144	3,448	111	2,900	33	548	623,160	68,328	148
128	3,208	95	2,660	33	548	20,850	54,048	149
16	240	16	240	.....	.....	2,310	14,280	150
88	1,228	85	1,153	3	75	168,049	193,640	151
64	781	64	781	.....	.....	127,230	153,000	152
13	275	10	200	3	75	3,173	10,140	153
11	172	11	172	.....	.....	37,646	30,500	154
35	831	35	831	.....	.....	22,180	40,064	155
25	620	25	620	.....	.....	13,508	29,100	156
10	210	10	210	.....	.....	8,672	10,964	157
48	1,315	48	1,315	.....	.....	12,304	57,083	158
234	3,607	214	3,307	20	300	21,104	66,499	159
13	290	13	290	.....	.....	1,550	15,750	160
84	1,138	84	1,138	.....	.....	6,831	15,350	161
43	1,000	43	1,000	.....	.....	10,863	25,387	162
94	1,179	74	879	20	300	1,860	10,012	163
1,023	37,024	936	36,282	87	742	12200,728	1,024,338	164
922	35,593	885	35,113	37	480	193,473	994,347	165
101	1,431	51	1,169	50	262	7,255	29,991	166
767	9,451	475	7,284	292	2,167	1415586,820	1,010,965	167
831	3,345	149	2,154	182	1,191	163,354	239,021	168
74	1,293	46	1,005	28	288	111,241	167,387	169
49	225	27	132	22	93	13,890	16,205	170

⁸ Includes establishments distributed as follows: Albay, 2; Ambos Camarines, 1.

⁹ Includes establishments distributed as follows: Manila city, 13; Tayabas, 1.

¹⁰ Includes establishments distributed as follows: Bataan, 2; Cebu, 2; Sorsogon, 1; Tarlac, 1.

¹¹ Not including unreported capital for 1 establishment in Manila city.

¹² Not including unreported cost of materials for 2 establishments in Manila city.

¹³ Includes establishments distributed as follows: Cebu, 2; Iloilo, 1.

¹⁴ Not including unreported cost of materials for 1 establishment in La Laguna and 2 in Tayabas.

¹⁵ Not including cost of uncleaned rice which was not reported by many establishments—thus accounting for the discrepancy between cost of materials and value of product.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000 pesos

	INDUSTRY AND PROVINCE OR COMANDANCIA	Number of establishments.	Capital (pesos).
RICE, CLEANING—continued.			
171	Nueva Ecija	4	33, 970
172	Rizal	6	361
173	Tayabas	3	10, 000
174	All other provinces ¹	8	445, 008
SADDLERY AND HARNESS.			
175	Philippine Islands ²	16	81, 184
SALT.			
176	Philippine Islands	49	3245, 952
177	Cavite	14	66, 850
178	Cebú	5	13, 400
179	Iloilo	4	21, 905
180	Rizal	16	118, 075
181	Zamboanga ⁷	6	10, 000
182	All other provinces ⁸	4	15, 722
SHIP AND BOAT BUILDING.			
183	Philippine Islands	26	12, 478, 008
184	Cavite	3	10, 874, 506
185	Manila city	6	1, 391, 965
186	Rizal	6	34, 467
187	Tayabas ¹²	3	11, 050
188	All other provinces ¹³	8	166, 020
SILVERSMITHING.			
189	Philippine Islands	44	55, 972
190	Bulacán	6	9, 580
191	Cebú	4	2, 250
192	Manila city	34	44, 142
SOAP.			
193	Philippine Islands	90	262, 937
194	Ambos Camarines	5	12, 900
195	Cebú	6	55, 200
196	La Laguna	11	11, 937
197	Manila city	41	137, 700
198	Pangasinán	7	26, 420
199	Tayabas	7	2, 863
200	All other provinces and comandancias ¹⁷	13	15, 917
TANNING.			
201	Philippine Islands	30	160, 373
202	Bulacán	7	36, 300
203	Cebú	4	39, 000
204	Iloilo	3	5, 018
205	Manila city	7	51, 472
206	Tayabas	4	6, 585
207	All other provinces and comandancias ¹⁸	5	19, 000

¹ Includes establishments distributed as follows: Cavite, 2; Pampanga, 2; Pangasinán, 2; Tárlac, 2.

² Includes establishments distributed as follows: Manila city, 14; Tayabas, 2.

³ Not including unreported capital for 1 establishment in Nueva Vizcaya.

⁴ Not including unreported number of employees for 1 establishment in Batangas.

⁵ Not including unreported wages for 1 establishment in Batangas in which employees were reported as receiving one-half the product in lieu of wages.

⁶ Impracticable to show cost of materials.

⁷ Comandancia.

⁸ Includes establishments distributed as follows: Batangas, 1; Bohol, 1; Nueva Vizcaya, 1; Sorsogón, 1.

⁹ Not including unreported number of employees for 2 establishments in Manila city and 1 establishment in Sorsogón.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
45	625	28	445	17	180	9,755	19,565	171
25	108	6	25	19	83	12,936	11,256	172
16	336	8	218	8	118	8,600	12,878	173
227	3,519	211	3,305	16	214	267,044	544,653	174
90	2,610	89	2,600	1	10	37,275	70,657	175
4841	620,526	804	19,978	37	548	(⁶)	91,284	176
256	5,687	245	5,555	11	132	.....	29,405	177
43	500	39	480	4	20	.....	6,900	178
76	615	60	579	16	36	.....	8,651	179
405	12,070	405	12,070	.....	.....	.....	28,380	180
21	315	21	315	.....	.....	.....	8,900	181
40	1,339	34	979	6	360	.....	9,048	182
94,200	10208,006	4,175	207,267	25	739	119,523,589	4,499,170	183
2,981	167,767	2,956	167,028	25	739	8,929,150	3,412,913	184
801	31,334	801	31,334	.....	.....	446,492	634,774	185
46	1,410	46	1,410	.....	.....	25,571	59,100	186
53	1,237	53	1,237	.....	.....	7,260	23,850	187
319	6,258	319	6,258	.....	.....	115,116	368,533	188
132	2,971	124	2,836	8	135	61,598	109,141	189
29	695	22	500	7	105	28,375	30,636	190
8	425	7	395	1	30	5,590	11,083	191
96	1,851	95	1,851	.....	.....	27,633	67,422	192
14287	16,044	14287	16,044	.....	.....	16284,565	551,585	193
15	252	15	252	.....	.....	11,642	27,075	194
36	501	36	501	.....	.....	63,496	129,753	195
25	526	25	526	.....	.....	16,297	22,703	196
135	3,466	135	3,466	.....	.....	149,812	256,300	197
23	430	23	430	.....	.....	9,074	55,300	198
11	175	11	175	.....	.....	6,613	14,850	199
42	694	42	694	.....	.....	27,631	45,604	200
175	4,327	163	4,189	12	138	128,651	220,745	201
33	1,006	23	880	10	126	55,292	80,498	202
49	622	49	622	.....	.....	20,023	56,076	203
19	350	19	350	.....	.....	25,783	40,762	204
46	1,900	46	1,900	.....	.....	10,647	14,369	205
8	141	7	134	1	7	6,230	8,940	206
20	308	19	303	1	5	10,676	20,100	207

¹⁰Not including unreported wages for 2 establishments in Manila city and 1 establishment in Sorsogón.

¹¹Not including unreported cost of materials for 1 establishment in Sorsogón.

¹²Includes 1 establishment in the subprovince of Marinduque.

¹³Includes establishments distributed as follows: Ambos Camarines, 1; Bataán, 1; Cagayán, 1; Iloilo, 1; Negros Occidental, 2; Sorsogón, 2.

¹⁴Not including unreported number of employees for 1 establishment in Tayabas.

¹⁵Not including unreported wages for 1 establishment in Tayabas.

¹⁶Not including unreported cost of materials for 1 establishment in Cebú and 1 in Tayabas.

¹⁷Includes establishments distributed as follows: Albay, 1; Bataán, 1; Bulacán, 2; Cápiç, 1; Cavite, 1; Leyte, 1; Negros Oriental, 2; Pampanga, 1; Rizal, 1; Zamboanga, 2.

¹⁸Includes establishments distributed as follows: Ambos Camarines, 1; Ilocos Norte, 1; Misamis, 1; Rizal, 1; Zamboanga, 1.

TABLE 5.—Specified industries, the value of whose products amounted to 1,000 pesos

	INDUSTRY AND PROVINCE OR COMANDANCIA.	Number of establishments.	Capital (pesos).
TINSMITHING.			
208	Philippine Islands ¹	35	63,095
TOBACCO, CIGARS AND CIGARETTES.			
209	Philippine Islands.....	108	*4,485,503
210	Albay.....	8	1,800
211	Ambos Camarines.....	7	24,152
212	Bulacán.....	11	11,029
213	Manila city.....	75	4,409,771
214	Rizal.....	5	5,400
215	All other provinces ²	7	33,851
TOBACCO, SMOKING.			
216	Philippine Islands ⁴	5	⁶ 14,900
TRUNKS.			
217	Philippine Islands ⁶	24	70,600
WATCH, CLOCK, AND JEWELRY REPAIRING.			
218	Philippine Islands ⁶	3	5,000
WOOD CARVING.			
219	Philippine Islands ⁶	4	10,300
ALL OTHER INDUSTRIES. ⁷			
220	Philippine Islands ⁶	24	⁹ 325,905

¹ Includes establishments distributed as follows: Manila city, 34; Nueva Écija, 1.

² Not including unreported capital for 1 establishment in Batangas, and 2 establishments in Bulacán.

³ Includes establishments distributed as follows: Bataán, 1; Batangas, 2; Ilocos Sur, 1; Nueva Écija, 2; Tárlac, 1.

⁴ Includes establishments distributed as follows: Batangas, 3; Cavite, 1; Manila city, 1.

⁶ Not including unreported capital for 1 establishment in Cavite.

⁶ The only reports received for this industry were from Manila city.

or over in each establishment, by provinces and comandancias: 1902—Continued.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Cost of materials purchased (pesos).	Value of products (pesos).	
Total.		Men.		Women.				
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).			
105	1,742	105	1,742	.....	.....	31,111	85,180	208
10,126	137,736	5,201	78,568	4,925	59,168	4,294,702	8,698,634	209
10	81	.....	.....	10	81	3,955	5,187	210
43	777	11	213	32	564	11,581	28,268	211
153	1,636	28	467	125	1,169	73,528	255,718	212
9,160	128,822	4,983	75,352	4,177	53,470	4,103,901	8,189,833	213
682	5,400	162	2,312	500	3,088	75,707	178,550	214
98	1,020	17	224	81	796	26,030	41,128	215
24	376	22	355	2	21	44,980	41,882	216
183	3,083	183	3,083	.....	.....	65,713	116,500	217
8	135	8	135	.....	.....	515	3,100	218
16	592	16	592	.....	.....	3,014	12,700	219
681	¹⁰ 7,580	310	4,103	371	3,477	¹¹ 556,095	829,853	220

⁷ Embraces bicycle repairing, 2; boots and shoes, wooden, 2; boxes, cigar, 2; brasswork, 2; cordage and twine, 2; cotton goods, 1; furnishing goods, men's, 1; ink, writing, 1; matches, 1; mats and matting, 2; nets and seines, 1; nipa fabric, 2; paints and colors, 1; pianos, 1; resin, 1; umbrellas, 2.

⁸ Includes establishments distributed as follows: Bulacán, 2; La Laguna, 1; Manila city, 15; Paragua Sur, 1; Romblón, 1; Sámar, 1; Sorsogón, 2; Tayabas, 1.

⁹ Not including unreported capital for 1 establishment in La Laguna, 1 in Manila city, and 1 in Romblón.

¹⁰ Not including unreported wages for 1 establishment in Manila city and 1 in Romblón.

¹¹ Not including unreported cost of materials for 1 establishment in Tayabas.

TABLE 6.—Summary of sugar producing establishments, the value of whose

PROVINCE.		Number of establishments.	Capital (pesos).
1	Philippine Islands.....	1,075	16,933,495
2	Antique.....	14	146,308
3	Bataan.....	18	149,660
4	Batangas.....	8	38,362
5	Bulacán.....	38	150,627
6	Cavite.....	15	51,325
7	Cebu.....	69	538,719
8	Iloilo.....	62	801,922
9	La Laguna.....	23	171,014
10	La Unión.....	3	17,210
11	Leyte.....	9	168,500
12	Misamis.....	3	15,967
13	Negros Occidental.....	581	11,189,150
14	Negros Oriental.....	38	919,410
15	Nueva Ecija.....	4	14,649
16	Pampanga.....	194	2,432,745
17	Pangasinán.....	4	38,130
18	Rizal.....	3	1,168
19	Sorsogón.....	4	6,464
20	Tárlac ¹	35	82,165

¹ Not including unreported capital for 2 establishments in Negros Occidental.

² Not including unreported employees for 11 establishments in Cebu, and 2 in Negros Occidental.

³ Not including unreported wages for 11 establishments in Cebu and 2 in Negros Occidental.

TABLE 7.—Summary of sugar producing establishments using steampower, the value of

PROVINCE.		Number of establishments.	Capital (pesos).
1	Philippine Islands.....	528	12,229,547
2	Bataan.....	10	73,766
3	Bulacán.....	3	29,050
4	Cebu.....	5	116,093
5	Iloilo.....	26	567,472
6	La Laguna.....	10	111,289
7	Negros Occidental.....	291	8,382,491
8	Negros Oriental.....	32	884,761
9	Pampanga.....	131	1,886,351
10	Tárlac.....	12	45,784
11	All other provinces ¹	8	132,490

¹ Not including unreported capital for 1 establishment in Negros Occidental.

² Not including unreported number of employees for 2 establishments in Negros Occidental and 1 in Cebu.

products amounted to 1,000 pesos or over in each establishment, by provinces: 1902.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Value of products (pesos).	
Total.		Men.		Women.			
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
45,247	388,817	41,938	370,820	3,309	17,997	6,603,006	1
608	4,299	396	3,254	212	1,045	28,018	2
741	9,730	704	9,481	37	249	46,520	3
131	1,770	121	1,698	10	72	18,063	4
638	9,355	587	8,786	246	569	88,070	5
194	1,882	176	1,780	18	102	27,452	6
1,155	10,200	1,051	9,114	104	1,086	149,268	7
2,493	15,111	2,197	13,874	296	1,237	372,399	8
716	8,895	632	8,024	84	871	40,551	9
65	480	63	450	2	30	6,600	10
119	3,051	110	3,002	9	49	11,460	11
57	254	53	244	4	10	6,586	12
28,885	215,099	26,574	203,365	2,311	11,734	4,644,398	13
2,123	18,267	2,065	17,978	58	289	325,611	14
24	216	24	216	-----	-----	5,219	15
6,328	78,969	6,272	78,623	56	346	758,691	16
149	1,813	149	1,813	-----	-----	8,354	17
25	615	19	552	6	63	6,190	18
73	753	73	753	-----	-----	6,350	19
728	8,558	672	8,313	56	245	62,206	20

⁴Two establishments in Cápiz are included in Tárlac to avoid disclosing the operations of individual establishments.

whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Value of products (pesos).	
Total.		Men.		Women.			
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
31,322	265,462	29,313	255,015	2,009	10,447	4,850,043	1
848	4,510	328	4,369	20	141	17,368	2
63	801	61	782	2	19	8,395	3
229	762	218	729	11	33	27,825	4
1,718	10,100	1,489	9,047	229	1,053	259,486	5
420	5,216	377	4,780	43	486	22,500	6
21,108	159,789	19,546	151,944	1,562	7,845	3,559,041	7
2,030	17,755	1,974	17,471	56	284	317,706	8
4,806	60,003	4,772	59,763	34	240	596,285	9
299	3,997	292	3,927	7	70	23,454	10
801	2,529	256	2,203	45	326	17,983	11

⁵Not including unreported wages for 2 establishments in Negros Occidental and 1 establishment in Cebú.

⁴Includes establishments distributed as follows: Antique, 2; Batangas, 1; La Unión, 2; Leyte, 1; Pangasinán, 2.

TABLE 8.—Summary of sugar producing establishments using waterpower, the value of

	PROVINCE.	Number of establishments.	Capital (pesos).
1	Philippine Islands	77	1,532,207
2	Antique.....	3	64,786
3	Bataan.....	8	75,894
4	Negros Occidental.....	45	1,140,080
5	Pampanga.....	15	211,942
6	All other provinces ²	6	39,605

¹ Not including unreported number of employees for 1 establishment in Cebu.

² Not including unreported wages for 1 establishment in Cebu.

TABLE 9.—Summary of sugar producing establishments using hand or animal power, provinces:

	PROVINCE.	Number of establishments.	Capital (pesos).
1	Philippine Islands	470	1,817,741
2	Antique.....	9	48,822
3	Batangas.....	7	28,762
4	Bulacán.....	34	112,828
5	Cavite.....	13	43,425
6	Cebu.....	63	406,626
7	Hollo.....	36	234,450
8	La Laguna.....	13	59,725
9	Leyte.....	8	128,500
10	Misamis.....	3	15,967
11	Negros Occidental.....	195	1,666,629
12	Negros Oriental.....	6	34,649
13	Nueva Ecija.....	4	14,649
14	Pampanga.....	48	334,452
15	Sorsogón.....	4	6,464
16	Rizal.....	3	1,168
17	Tarlac.....	19	16,539
18	All other provinces ¹	5	18,086

¹ Not including unreported capital for 1 establishment in Negros Occidental.

² Not including unreported number of employees for 9 establishments in Cebu.

whose products amounted to 1,000 pesos or over in each establishment, by provinces: 1902.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Value of products (pesos).	
Total.		Men.		Women.			
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
14,001	236,720	3,631	34,596	370	2,124	609,378	1
149	1,104	104	872	45	232	6,815	2
393	5,220	376	5,112	17	108	29,152	3
2,960	24,227	2,661	22,508	299	1,719	508,290	4
413	5,186	408	5,161	5	25	48,899	5
86	983	82	943	4	40	16,222	6

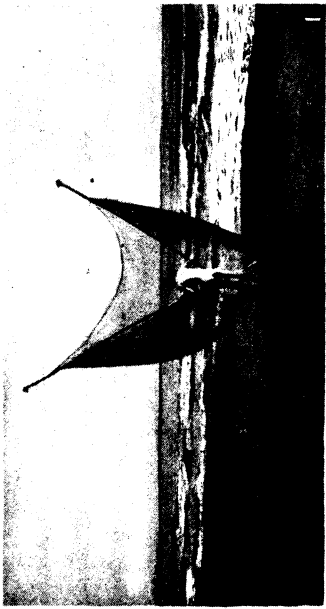
* Includes establishments distributed as follows: Bulacán, 1; Cavite, 2; Cebú, 1; Tárlac, 2.

the value of whose products amounted to 1,000 pesos or over in each establishment, by 1902.

AVERAGE NUMBER OF WAGE-EARNERS AND TOTAL AVERAGE MONTHLY WAGES.						Value of products (pesos).	
Total.		Men.		Women.			
Number.	Wages (pesos).	Number.	Wages (pesos).	Number.	Wages (pesos).		
29,924	286,635	8,994	81,209	930	5,426	1,143,585	1
339	1,999	212	1,482	127	517	14,908	2
111	1,629	106	1,587	5	42	13,284	3
561	8,379	517	7,829	44	550	73,875	4
161	1,570	143	1,468	18	102	18,437	5
926	9,438	833	8,385	93	-1,063	119,518	6
775	5,011	708	4,827	67	184	112,913	7
296	3,679	255	3,244	41	435	18,051	8
108	2,959	99	2,910	9	49	10,460	9
57	254	53	244	4	10	6,586	10
4,817	31,083	4,367	28,913	450	2,170	577,067	11
98	512	91	507	2	5	7,905	12
24	216	24	216	-----	-----	5,219	13
1,109	13,780	1,092	13,699	17	81	113,507	14
73	753	73	753	-----	-----	6,850	15
25	615	19	552	6	63	6,190	16
814	3,962	304	3,862	10	100	32,770	17
135	796	98	731	37	65	7,050	18

* Not including unreported wages for 9 establishments in Cebu.

† Includes establishments distributed as follows: Cápiz, 2; La Unión, 1; Pangasinán, 2.



1. FISHING IN THE SURF WITH A SCOOP NET. 2. SELLING THE CATCH AT THE BEACH. 3. SEINE FISHING, WITH FLEET OF FISHING BOATS IN THE BACKGROUND.

FISHERIES.

Importance of Industry—Pearl Fisheries—Moro Fishing.

Fish forms one of the principal items of food of the Filipino people, and a large proportion of the people are fishermen; that is to say, they devote a portion of their time to catching fish, sharing that occupation with farming or other employments.

The most complete existing list of fishes found in Philippine waters is given in *El Archipiélago Filipino*, a compilation of facts relative to the islands by the fathers of the Jesuit Mission at Manila, published by the United States Government in 1900. A translation of the list referred to was published in Volume III of the Report of the Philippine Commission for 1900, to which the reader desiring information on the subject is referred.

Fish are caught by various devices. In favorable situations the shores are lined in the shallow waters with traps, weirs, or corrals built of bamboo, and in them a large part of the catch is made. Nets and seines of various patterns are also extensively used, as well as the ordinary hook and line, and, in some localities, the spear.

In many localities fishing is carried on as a business, as distinguished from that conducted by individuals for their personal domestic purposes, and is frequently quite extensive and profitable. For example, the governor of the province of Albay states that "the fisheries of this province are very extensive and very valuable, the owners of some of the fish corrals stating that the value of the product of their corrals will average in the neighborhood of 10,000 pesos per year."

The markets of Manila are always bountifully supplied with fresh fish of many varieties and of fine flavor, and the fisheries in the vicinity which supply the city are said to be highly remunerative. The same is true at other centers of population throughout the Philippines, and it may be safely asserted that, in the archipelago as a whole, there is no single industry more important to all the people and none more essential to their well-being and contentment than that of fishing, whether carried on along commercial lines or pursued for the purpose of replenishing the family larders of the individual fishermen.

No statistics relating to Philippine fisheries being available, the supervisors of the census were requested to furnish, from the best information at their disposal, general data regarding the extent of the industry and the catch and consumption of fish. The replies to these inquiries, while they can be regarded as only approximations, give a fairly correct idea of the magnitude of the industry. It appears from the statements of the supervisors that about nine-tenths of the people of the islands use fish as their principal flesh diet. The average family consumes in the neighborhood of 800 pounds of fish per annum. The figures, however, differ greatly in different parts of the archipelago, those provinces which have a long sea front commonly using more than those which have but a small extent of coast, while the inland provinces have the least. The total annual consumption of fish in the islands approximates half a million long tons. In this industry there are employed, during a part or all of their time, the estimated number of 119,000 persons and 28,000 boats.

The Moros of the Sulu archipelago devote considerable attention to shark fishing, shark fins and tails being articles of commerce with Chinese traders, and to the gathering of sea worms which the Chinese also buy from them.

Fishing for mother-of-pearl shells and, incidentally, for pearls, is carried on to some extent in the waters of the Sulu archipelago. The instruments used in this industry are, for the most part, crude and of small effectiveness, though there are a few shell-fishing outfits equipped with modern diving apparatus—helmet, waterproof suit, pump, etc. The shells are plentiful and valuable, and pearls are frequently found, sometimes very fine ones of high value. The industry is said to be extremely profitable, and is believed to be capable of great enlargement. The investment of comparatively small capital will, it is said, yield large returns under intelligent and businesslike management.

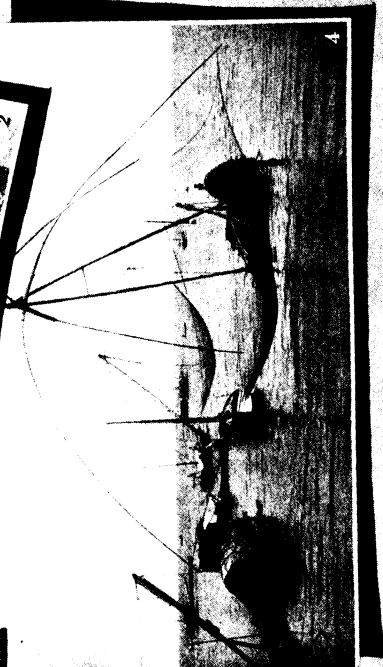
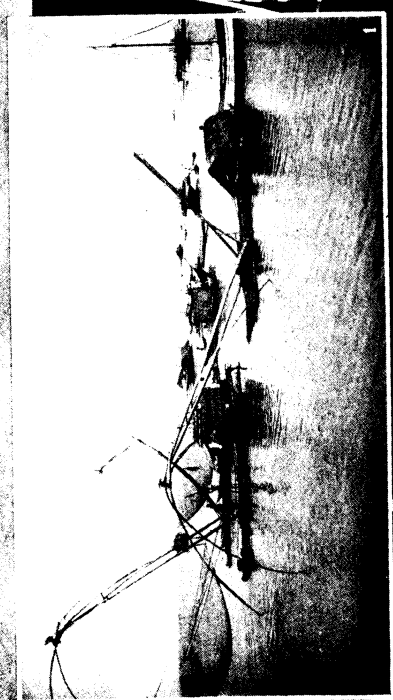
The following interesting account of Moro fishing for sharks, sea worms, shells, and pearls in the southern seas is taken from the report of Capt. H. R. Hickock, U. S. Army, the supervisor of census for the district of Siassi:

All of the Moros are fishermen to a greater or less extent.

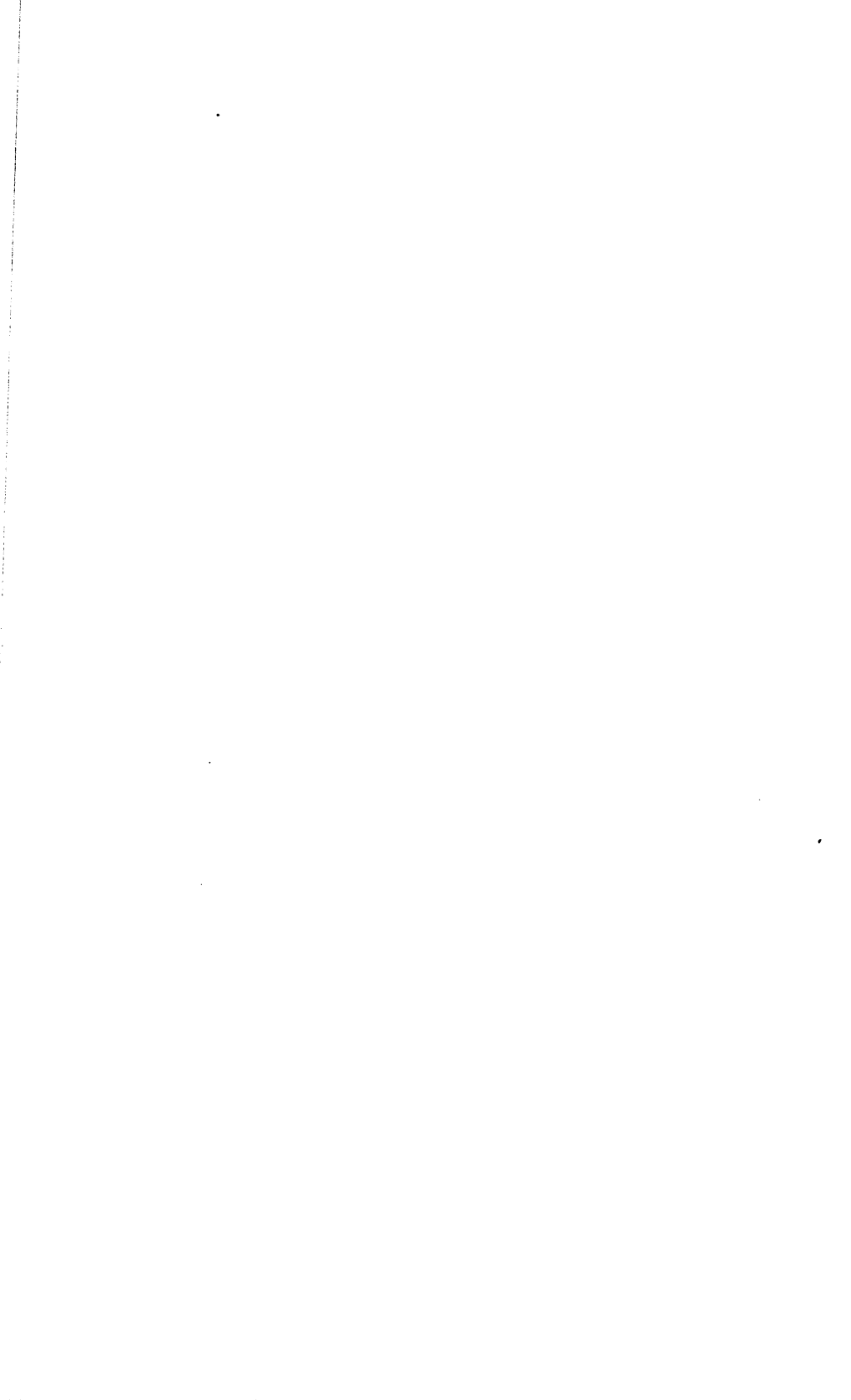
Shark fishing is done by trolling in deep water with about 40 or 50 feet of line. After a shark is hooked he is first tired out and then drawn up to the boat and killed with a spear. The tail and fins are then cut off and traded to the Chinos, by whom they are then shipped to China.

The tail and fins of a shark will average about 10 pounds in weight. The Chino traders recognize two grades of this article, for which they pay 45 and 125 pesos, respectively, per picul of 137 pounds.

Sea worms, which are muscular, gelatinous animals, living attached to rocks at a depth of water of 6, 8, or 10 feet, are also secured by the Moros and sold to the Chinos, who recognize ten classes, for which they pay from 8 to 80 pesos per picul.



1. FISH NETS IN POSITION FOR CATCH. 2. LIFE ON THE NET RAFT. 3. FISH WEIRS, MOUTH OF PÁSCO RIVER. 4. NET RAFT. NET IN POSITION FOR CASTING.



In fishing for mother-of-pearl shells the months of April, May, and June, and November, December, and January are the most favorable, and practically none is done at any other period. These seasons are determined by the character of the winds, the calm weather being an essential to success. Pearls are found mostly in water about 50 fathoms deep.

The apparatus used consists of a rake, the teeth of which are very long, thick, and curved; the handle being comparatively short. The whole apparatus distinctly resembles a cradle, such as was used in the United States for cutting grain thirty to fifty years ago, and if suspended by the end of the handle will take a horizontal position. To the end of the handle is attached a piece of *bejuca* (rattan) about one-half to three-quarters of an inch thick. At the head of the handle is attached another piece of *bejuca* about half as thick as that at the other end. In length each piece of *bejuca* is about one and a half times the depth of the water in which they fish.

One of these apparatus is dropped overboard and the boats are paddled with the tide. When it is felt that the rake is full, it is lifted by means of the thick length of the *bejuca*, and the contents emptied into the boat. Should the rake become lodged at the bottom of the sea, it is pulled out by means of the thinner *bejuca*, and the operation proceeds as before.

When the tide turns, the boats also turn and go with it.

The shells having been deposited at the bottom of the boat are opened by means of a sharp knife, with which they cut out the oyster, which they then search for flesh pearls. These latter are uniformly the finest. The points to be sought in a pearl are size, color, and luster, sphericity, and freedom from spots, specks, and blemishes. Pearls taken from the surface of the shell itself are always deficient in some of these respects.

In shallow water, where the bottom can be seen, men dive for the shells. The boats are paddled along slowly with the tide; a man in the bow keeps a close watch upon the bottom of the sea, and when a shell is seen he dives head first to secure it.¹ Some of the men are expert divers, going to a depth of 18 to 20 fathoms, unaided by the use of weights.

Diving apparatus, helmet, waterproof suit, pump, etc., is not used by the Siassi natives, though some of the boats from Joló that fish in this vicinity are so equipped.

A large pair of shells will weigh 10 to 12 pounds.

It is estimated that probably more than 2,000 boats in the Siassi group are more or less engaged in pearl fishing.

The average annual product is estimated at over 2,000 piculs (137 pounds) of mother-of-pearl shells, for which the Chinos pay 80 pesos per picul, or, say, a total product for the shells alone of 160,000 pesos.

The finding of pearls is merely incidental to the larger industry.

During the past year some pearls, each worth \$3,000, local currency, were brought in.

The sale of pearls is much hampered by the chiefs. The natives' lives are very open. Whenever a man does anything the fact is usually generally known. Due to the autocratic power possessed by the chiefs, they claim and take nearly everything they wish. If a fisherman finds a pearl of any value it is at once appropriated by the chief. Should he have sold it and his chief hears of the fact, the man would be fined a greater sum than the value of the pearl, or otherwise punished. This leads to sequestration of their funds and to clandestine dealings with the Chinese traders.

The supervisor of census for the Tawi Tawi group of islands, Capt. K. W. Walker, U. S. Army, in his report to the Director of the

¹ See illustration No. 1 on plate facing page 580.

Philippine Census, says that practically the entire population is engaged in fishing, and use fish as their principal meat diet, seeming to prefer sun-dried to fresh fish. The waters surrounding the islands appear alive with fish, which the natives catch in traps, with hooks or by spearing. All the boats pertaining to the group, of which there are approximately 2,000, are engaged more or less in fishing, the annual catch per boat being in the neighborhood of 3,000 pounds.

In speaking of shell and pearl fishing in the waters of the Tawi Tawi group, the supervisor says:

Another industry, which sometimes gives good returns, is pearl fishing. This is carried on at the islands of Obián, Sokubong, Landubas, Sibutu, Sitankan, and Latuan. The mother-of-pearl is shipped to Singapore, and fishing for it is a good business, with always the element of chance that a valuable pearl may be found.

CURRENCY AND BANKING.

Monetary Standard—Ratio Between American and Mexican Currency—Number of Banks—Spanish-Filipino Bank—Banking Statistics.

Regarding the monetary system of the Philippines prior to American occupation, it is sufficient to say, without going into a lengthy or detailed discussion, that the Mexican dollar, or peso, had been the principal monetary unit and standard of values for many years, the currency of the islands having been, originally, Spanish gold coin, accompanied by a circulation of Spanish and Mexican silver dollars or pesos, the latter frequently commanding a premium over the gold.

When the world's production of silver became so large as to cause it to depreciate, exportation of the gold coin in the archipelago set in and was extensively carried on in exchange for Mexican silver pesos. The substitution of Mexican silver coin for gold became so great as to cause the then existing government, in 1877, to prohibit the importation of silver and to permit only such silver pesos to possess legal tender quality as bore date prior to 1878.

The legal inhibition failed of its purpose. The exportation of gold continued until, in a brief period, it had practically disappeared from the islands. The importation of Mexican silver continued, by smugglers, and in a short time it became almost the sole currency of the country.

In 1897 the Spanish Government sent to the islands 6,000,000 silver dollars of the same fineness and weight as silver dollars current in Spain, but coined especially for circulation in the Philippines and bearing the word *Filipinas*. These dollars, added to the large stock of Mexican pesos—estimated at eight or ten millions—and the subsidiary coins in the islands, together with the bank notes of the Spanish-Filipino Bank, made up the bulk of money in the archipelago—the Mexican peso, though nominally contraband when not bearing a date prior to 1878, constituting the larger part of the currency and, practically, the standard of values.

When the Americans occupied the islands, in 1898, the Philippine currency consisted principally of the following coins:

Mexican silver dollar, or peso.

Spanish Filipino silver peso.

Filipino silver half peso.

Filipino silver peseta, with a currency value of one-fifth of a peso.

Filipino silver half peseta, with a currency value of one-tenth of a peso.

Filipino copper centavo, with a currency value of one one-hundredth of a peso.

Filipino copper cuarto, with a currency value of one one-hundred and sixtieth of a peso, 20 cuartos being equal to 1 real, of which a peso contained 8.

In addition to the foregoing, a local silver coin was in limited circulation known as the *salapí*, valued at 0.50 of a Mexican peso, which was subdivided into the *tatlong bahaque*, valued at 0.37; the *cahati*, valued at 0.25; the *sicápat*, valued at 0.12; and the *sicolo*, valued at 0.06 of a Mexican peso.

Coins of neighboring oriental countries were also in circulation to some extent, particularly copper coins; and, in addition to the metallic money extant in the country, the paper money issues of the Spanish-Filipino Bank were in circulation.

When to the different classes of money above specified were added, upon American occupation, the gold, silver, nickel, copper, and paper currency of the United States, the financial confusion that previously existed was accentuated, and the business of the money changers thrived as never before.

At first the established and accepted basis of exchange of United States money for Mexican silver, both of which were recognized as legal tender moneys, was at the rate of 1 to 2; but in a short time the ratio began to fluctuate violently, and Mexican silver rapidly depreciated, both from legitimate causes and because of the combinations and speculations of local financiers, until \$1 of United States money could be exchanged for \$2.50 Mexican, and, later, for \$2.68 and \$2.70.

The frequent and erratic changes in commercial rates of exchange as between Mexican and United States moneys caused great annoyance and frequent loss in private transactions, as well as to government employees, contractors, and others, and to the government itself. In order to minimize as much as possible the evils attending the use of different moneys of almost daily varying relative values, the Philippine Government arbitrarily fixed, from time to time, the ratio of exchange, which fixed ratio approximated, as nearly as possible, the commercial ratio, and governed all financial transactions involving the use of the two classes of money to which the government was a party.

Before the present civil government was created and established, while the islands were under military rule, instructions were given to disbursing officers of the United States Army by General Orders, No.

65, Adjutant-General's Office, dated April 10, 1899, for keeping their accounts, whether for purchases or service, in the currency under which the indebtedness was incurred—i. e., foreign silver or gold, or United States currency. At that time the ratio between Mexican silver and United States currency was about 2 for 1; subsequently the peso slightly depreciated, but an official ratio of \$2 Mexican for \$1 United States money was established by General Orders, No. 107, of the insular military government, dated August 11, 1900, which ratio was again fixed by General Orders, No. 53, of the military government, dated July 1, 1901.

The United States Philippine Commission began the exercise of certain governmental powers in the Philippine Islands on September 1, 1900, and in order to prevent depletion of the supply of local currency imposed an export tax of 10 per cent upon all Mexican money thereafter exported from the islands, by act No. 45, enacted November 12, 1900; this law was repealed by act No. 213, enacted August 31, 1901.

The same official ratio, as had been previously established by the military authorities, of 2 for 1, was fixed, on September 25, 1901, by executive order No. 17 of the civil governor of the Philippine Islands as between Philippine and United States currency. After this the Philippine currency depreciated rapidly until early in 1903, when the commercial value of the Mexican dollar began to rise. The civil government of the islands endeavored to protect its own interests and those of others by changing from time to time, by executive orders, the official ratios between the two currencies.

It would be difficult to follow the daily, often hourly, fluctuations in commercial rates of exchange, but a good idea of the instability of value, as far as insular local currency was concerned, can be had from the civil governor's executive orders which fixed from time to time the official ratio as between Philippine and United States currency; these orders endeavored to keep the official ratio somewhere near the commercial one, but the fluctuations were so frequent and violent that a wide difference often existed.

The act of Congress (No. 235), approved July 1, 1902, which temporarily provided for the administration of the affairs of civil government in the Philippine Islands, authorized, by section 84, "the civil governor thereof in his discretion to establish the equivalent rates of the money in circulation in said islands with the money of the United States as often as once in ten days."

The numbers and dates of the civil governor's executive orders, both before and subsequent to the Congressional authorization above quoted, and relative official values of United States and insular currency established thereby are shown in the following statement:

EXECUTIVE ORDER.		Official ratio between insular and United States currency.
No.	Date.	
17	Sept. 25, 1901	2 to 1 for quarter ending Dec. 31, 1901.
39	Dec. 26, 1901	2.10 to 1 for quarter ending Mar. 31, 1902.
(1)	Mar. 31, 1902	2.27 to 1 for quarter ending June 30, 1902.
96	July 7, 1902	2.35 to 1 for at least 10 days, and until further notice.
103	Sept. 23, 1902	2.40 to 1 for at least 10 days, and until further notice.
106	Oct. 22, 1902	2.46 to 1 for at least 10 days, and until further notice.
107	Nov. 11, 1902	2.50 to 1 for at least 10 days, and until further notice.
110	Nov. 23, 1902	2.60 to 1 for at least 10 days, and until further notice.
2	Jan. 25, 1903	2.66 to 1 for at least 10 days, and until further notice.
6	Mar. 11, 1903	2.60 to 1 for at least 10 days, and until further notice.
11	Apr. 3, 1903	2.55 to 1 for at least 10 days, and until further notice.
17	May 1, 1903	2.50 to 1 for at least 10 days, and until further notice.
18	May 14, 1903	2.45 to 1 for at least 10 days, and until further notice.
55	July 18, 1903	2.38 to 1 for at least 10 days, and until further notice.
(2)	Oct. 23, 1903	2.30 to 1 until Jan. 1, 1904.

¹ Reported by cable to United States War Department; number of order not stated.

² Proclamation of civil governor.

By an act of Congress (No. 137) approved March 2, 1903, entitled "An act to establish a standard of value and to provide for a coinage system in the Philippine Islands," a distinctive silver currency was provided for the islands, which has since gone into circulation; the civil governor's proclamation of October 23, specified in the statement above, was made pursuant to said act, and was as follows:

In pursuance of the authority vested in the civil governor of the Philippine Islands by virtue of section seven of the act of Congress approved March second, nineteen hundred and three, entitled "An act to establish a standard of value and to provide for a coinage system in the Philippine Islands," proclamation is hereby made that Mexican silver dollars shall be receivable for public dues, at a rate to be fixed from time to time by the proclamation of the civil governor, until the first day of January, nineteen hundred and four, and that on and after that date such coins shall cease to be so receivable. The rate at which such coins shall be receivable for public dues from the date of this proclamation until January first, nineteen hundred and four, shall be two dollars and thirty cents of Mexican currency for one dollar of money of the United States, unless said rate shall be subsequently changed by proclamation.

Done at the city of Manila, this twenty-third day of October, nineteen hundred and three.

When the Philippine census was taken, nine banking institutions were in operation, four of which had been in existence prior to the date of American occupation. The names of these banks and the years in which they began business in the Philippines are as follows:

NAME.	Year when established in the Philippines.
Spanish-Filipino Bank	1852
Chartered Bank of India, Australia and China	1878
Hongkong and Shanghai Banking Corporation	1876
Monte de Piedad y Caja de Ahorras	1882
American Bank	1901
Wai Hung Bank	1902
International Banking Corporation	1902
Guaranty Trust Company of New York	1902
Abreu, Newberry and Reyes	1902

In addition to the foregoing there were numerous small financial establishments, whose operations were confined to the exchange of Philippine currency and American money for each other. These establishments were conducted by Filipinos, Spaniards, and Chinamen, who, on small operating capitals, made large profits, the use of two systems of currency of constantly fluctuating relative values, as hereinbefore described, rendering necessary frequent transactions in the way of money changing.

The Spanish-Filipino Bank, the oldest bank in the islands, was founded by an order of the Spanish Government uniting the *obras pias* funds of the four orders of friars in the Philippines. These funds were known as the Santo Domingo, San Francisco, Isabel, and Recoletos, and were derived from legacies of pious Catholics, the incomes from which were devoted to the purposes mentioned in the wills—such as masses for the repose of the souls of the deceased, or for some charitable object, or for the benefit of the religious order to which the bequests pertained. The funds were originated by the Spaniards and were generally invested in mortgages at high rates of interest; the Filipinos had no interest in them.

The Spanish-Filipino Bank was given the exclusive right to issue circulating notes in the Philippines by royal decree of October 17, 1854, and by subsequent decrees, under which sanction a maximum issue of 3,400,000 pesos had been attained in 1898. This amount has since been materially reduced, having been in constant process of reduction up to the date of the census. The bank named claimed the exclusive right, under various royal decrees, to extend its issue of bank notes to the amount of 4,500,000 pesos, and that such right would continue unimpaired until January 1, 1928. A full account of the claims of this bank and the important questions involved therein, as well as of all other matters affecting currency, coinage, and banking in

the islands, can be found in the report to the Secretary of War, made by Charles A. Conant, November 25, 1901, on "Coinage and Banking in the Philippine Islands."

Statistics covering the assets, liabilities, receipts, disbursements, etc., of the Philippine banking institutions above specified were collected by the Philippine Census for the calendar year 1902, and the aggregates of the figures are given below. The data are not presented for the separate establishments, as assurances were given the individual institutions that their identities and business would not be disclosed in the published report of the census. The finances of the nine banks are expressed in Mexican currency—pesos—that being the principal money of the country during 1902, to which year the figures relate.

The aggregate assets and liabilities of the banks in the Philippines on December 31, 1902, are shown in the two following tables:

Assets of banks in the Philippine Islands on December 31, 1902.

ASSETS.	Value expressed in pesos.
Total	54,119,188.06
United States gold	810,636.46
United States silver or other United States coin	436,194.34
Coin other than United States	6,989,300.33
Paper money, United States currency	5,091,962.24
Paper money other than United States	11,365.21
Government securities	327,540.46
Stocks and bonds of other organizations	295,870.70
Foreign exchange	1,176,408.11
Checks on other financial institutions	1,452,005.67
Bills receivable, face value	2,594,643.74
Accrued interest on bills receivable	1,147.41
Deposits in other financial institutions	9,497,630.98
Overdrafts by depositors	10,047,130.74
Other assets not covered by the foregoing items ¹	15,887,951.67

¹ Including real estate, office furniture and fixtures, and other unspecified assets.

Liabilities of banks in the Philippine Islands on December 31, 1902.

LIABILITIES.	Amount expressed in pesos.
Total	54,119,188.06
Capital stock	3,410,477.73
Deposits, United States gold or equivalent	14,638,664.38
Deposits, local currency	18,634,547.10
Accrued unpaid interest on deposits	57,162.35
Unpaid dividends on stock	108,110.10
Reserve or sinking funds	1,599,111.77
Foreign exchange outstanding	1,342,076.40
Other liabilities not covered by the foregoing items ¹	14,829,088.23

¹ Including surplus, undivided profits, and other unspecified liabilities.

The aggregate receipts and disbursements during the calendar year 1902, of the nine banks whose assets and liabilities are given on the preceding page, are shown in the two following tables:

Receipts of banks in the Philippine Islands during the calendar year 1902.

RECEIPTS.	Amount expressed in pesos.
Total	688,845,932.57
On hand January 1, 1902, or at commencement of business during the year:	
United States gold.....	479,860.00
United States coin other than gold.....	852,243.88
Coin other than United States.....	8,099,471.00
Paper money, United States currency.....	4,333,351.94
Paper money other than United States currency.....	4,796.51
Received for deposit.....	494,966,108.14
Gold received in exchange for local currency.....	9,405,413.71
Local currency received in exchange for gold.....	7,121,871.55
Payments on loans by borrowers:	
Principal.....	57,297,172.57
Interest.....	677,804.63
Amount received for foreign exchange.....	93,224,165.56
Receipts from all sources not covered by the foregoing items.....	12,384,173.08

Disbursements of banks in the Philippine Islands during the calendar year 1902.

DISBURSEMENTS.	Amount expressed in pesos.
Total	688,845,932.57
Salaries and wages of employees and officials.....	263,463.47
Dividends on stocks.....	155,684.00
Deposits withdrawn.....	498,170,736.73
Gold paid in exchange for local currency.....	7,121,371.55
Local currency paid in exchange for gold.....	9,405,413.71
Interest on deposits.....	232,381.08
Discounts, local commercial paper.....	8,168,803.55
Amount loaned on notes, mortgages, or other collateral security.....	54,391,371.41
Amount paid for foreign exchange.....	89,129,023.27
All disbursements not covered by the foregoing items.....	8,968,275.22
Cash remaining on hand December 31, 1902.....	12,839,458.58

At the close of the year there were 8,258 depositors in Philippine banks. One of these institutions, having 1,495 depositors, was unable to state the number that were female; of the remaining 6,763 depositors, 853 were females and 5,910 were males.

The total amount of deposits at the end of the year was 33,273,211.48 pesos, an average of 4,029.21 pesos per depositor. The comparatively small number of depositors and large average deposits are due to the fact that the banks are not used, except to a slight extent by a few Americans, for savings purposes or for the safe-keeping of money. Their patrons are, almost wholly, commercial establishments. The insular government was, also, a heavy depositor in local banks, and

the large amounts to its credit helped to swell the average of deposits beyond their normal size.

The deposits ranged in magnitude from balances of from 1 centavo to 1 peso, to one of over five and a half million pesos, the latter being a deposit by the insular government.

An effort was made to ascertain the average rates of exchange charged by the banks in buying or selling Mexican currency, but the frequent fluctuation in the value of the peso—and the fact that its purchase or sale was usually a “counter transaction” of which no permanent record was made—rendered it impossible for the banks engaged in local money changing, with a single exception, to furnish the desired information. The bank that was able to furnish data on this point was principally engaged in money changing, and stated that, during 1902, an average rate of \$2.40 Mexican silver was charged for \$1 in gold given in exchange therefor, and that, in exchanging Mexican silver for gold, the average ratio was 2.38 pesos to \$1 in gold. Enough has been said, however, to give a good general idea regarding this subject.

The local commercial paper reported as discounted during the year amounted to 8,984,600 pesos, the rates of discount ranging from 2 per cent per month to 7 per cent per year in the different banks.

There were 37,807 loans made in the course of the year on notes, mortgages, or other collateral security, 36,493 of which were loans by a single institution which, while classed as a bank, conducted a pawn-broking business. The rates of interest on loans varied from 2 per cent per month to 8½ per cent per year.

The banking business of the islands is centered at Manila. A few of the banks have branches at Iloílo and Cebú, but no other localities in the archipelago have banking facilities. However, the large hemp, sugar, tobacco, and copra dealers, whose headquarters are at Manila, have agencies at several points on the island of Luzón as well as on other islands, for the purchase of the commodities in which they deal, and by means of these agencies money is circulated throughout the provinces whose agricultural products of export are sufficient to justify their maintenance; through these agencies a semibanking business is occasionally conducted, in the way of buying or selling exchange on Manila; but this is the only extent to which the people of the islands generally, outside of Manila, Iloílo, and Cebú, are favored with any means of facilitating financial or other business transactions, aside from such aid as can, in some localities, be secured through small local merchants or usurious money lenders.

INSURANCE.

I. FIRE AND MARINE.

List of Companies and Kind of Property Each Insures—Rates—General Tables.

Fire and marine insurance is of considerable magnitude in the Philippines. Sixty-four foreign companies maintain agencies in Manila and subagencies at a few other points. No local company exists, and the profits arising from the business go to swell the incomes of the parent companies.

The following statement gives the names of the companies transacting business in the Philippines, the kinds of property they insure, the cities and countries where their home offices are located, and the territory in the Philippines in which they operate:

List of fire and marine insurance companies transacting business in the Philippine Islands during the year 1902.

NAME OF COMPANY AND KIND OF PROPERTY INSURED.	Location of home office.	Territory of operation in the Philippines.
<i>Class 1. Buildings and merchandise in buildings:</i>		
Aachen Leipzig Insurance Co	Aachen, Germany	Manila.
Aachen and Munich Fire Insurance Co.....	Aachen, Germany	Manila and suburbs.
Atlas Assurance Co., Limited	London, England	Manila.
Bombay Marine and Fire Insurance Co	Bombay, India	Entire archipelago.
China Fire Insurance Co., Limited	Hongkong, China	Manila, Iloilo, Cebu.
Commercial Union Assurance Co.....	London, England	In many parts of the archipelago.
Guardian Assurance Co., Limited	London, England	Manila.
Hamburg Bremen Fire Insurance Co.....	Hamburg, Germany	Manila.
Hanseatische Feuer-Versicherungs-Gesellschaft.	Hamburg, Germany	Manila.
Hongkong Fire Insurance Co.....	Hongkong, China	Manila and Iloilo.
Imperial Fire Office, united with the Alliance Assurance Co., Limited.	London, England	In many parts of the archipelago.
La Balaise Fire Insurance Co.....	Basel, Switzerland.....	Manila, Iloilo, Jolo, and Jaro.
Lancaster Insurance Co.....	Liverpool, England	Manila and Iloilo.
Law Union and Crown Insurance Co.....	London, England	Manila, Iloilo, and Cebu.
Liverpool and London and Globe Insurance Co.	Liverpool, England	Manila.
London Assurance Corporation.....	London, England	Manila, Cebu, and Iloilo.
London and Lancaster Fire Insurance Co	Liverpool, England	Manila and Iloilo.
Magdeburg Fire Insurance Co	Magdeburg, Germany ..	Manila.
Manchester Assurance Co.....	Manchester, England	Manila and Iloilo.
Mercantile Fire Insurance Co.....	Liverpool, England	Entire archipelago.
National Assurance Co. of Ireland	Dublin, Ireland	Manila, Iloilo, and Nueva Cáceres.
National Union Society, Limited	Bedford, England	Manila.
Netherlands Fire and Life Insurance Co	The Hague, Holland	Manila.

(545)

List of fire and marine insurance companies transacting business in the Philippine Islands during the year 1902—Continued.

NAME OF COMPANY AND KIND OF PROPERTY INSURED.	Location of home office.	Territory of operation in the Philippines.
<i>Class 1. Buildings and merchandise in buildings—Continued.</i>		
New Zealand Insurance Co.....	Auckland, New Zealand	Manila, Iloilo, and Nueva Cáceres.
Norddeutsche Feuer-Versicherungs-Gesellschaft	Hamburg, Germany....	Manila and suburbs.
North British and Mercantile Insurance Co.....	London, England	Manila, Iloilo, and Cebu.
Northern Assurance Co.....	London, England.....	Manila, Iloilo, and Nueva Cáceres.
Norwich Union Insurance Society.....	Norwich, England.....	Manila, Iloilo, Cebu.
Palatine Insurance Co.....	London, England.....	Manila, Iloilo, Cebu.
Patriotic Assurance Co.....	Dublin, Ireland.....	Manila.
Phenix Insurance Co.....	Chicago, United States.	Manila.
Phoenix Assurance Co., Limited.....	London, England.....	Manila.
Royal Insurance Co.....	Liverpool, England.....	Manila, Iloilo, Cebu, and, to a limited extent, in the provinces.
Samarang Sea and Fire Insurance Co.....	Samarang, Java.....	Manila.
Scottish Union and National Insurance Co.....	Edinburgh, Scotland.....	Manila, Iloilo, and Nueva Cáceres.
State Fire Insurance Co., Limited.....	Liverpool, England.....	Manila, Iloilo, Cebu.
Sun Insurance Office.....	London, England.....	Manila, Iloilo, Cebu.
Union Assurance Society.....	London, England.....	Entire archipelago.
Western Assurance Co.....	London, England.....	Entire archipelago.
Yorkshire Fire and Life Insurance Co.....	York, England.....	Entire archipelago.
<i>Class 2. Buildings and merchandise in buildings and in water craft:</i>		
Batavia Sea and Fire Insurance Co.....	Batavia, Java.....	Manila.
Hipon Insurance.....	Hongkong, China.....	Manila.
Royal Exchange Assurance Corporation.....	London, England.....	Manila, Iloilo, Cebu.
South British Fire and Marine Insurance Co. of New Zealand.	Auckland, New Zealand	In many parts of the archipelago.
<i>Class 3. Water craft and merchandise in water craft:</i>		
Canton Insurance Office, Limited.....	Hongkong, China.....	Entire archipelago.
China Traders' Insurance Co., Limited.....	Hongkong, China.....	Manila and Cebu.
Tokio Marine Insurance Co., Limited.....	Tokyo, Japan.....	Manila, Iloilo, Cebu.
Union Insurance Society of Canton, Limited.....	Hongkong, China.....	Manila and Iloilo.
Yangtze Insurance Association, Limited.....	Shanghai, China.....	Manila, Iloilo, Cebu.
<i>Class 4. Merchandise in water craft:</i>		
British and Foreign Marine Insurance Co.....	Liverpool, England.....	Manila.
Federal Marine Insurance Co., Limited.....	Zurich, Switzerland.....	Manila and Iloilo.
Fook On Assurance and Godown Co., Limited.....	Hongkong, China.....	Manila and Iloilo.
Hang On Marine and Fire Insurance and Godown Co., Limited.	Berlin, Germany.....	Manila.
Imperial Marine Transport and Fire Insurance Co., Limited.	Hongkong, China.....	Cebu, Iloilo, and Manila.
La Balaise Marine Insurance Co.....	Tokyo, Japan.....	Entire archipelago.
Man On Insurance Co., Limited.....	Basel, Switzerland.....	Manila.
	Hongkong, China.....	Cebu, Iloilo, and Manila.
Maritime Insurance Co., Limited.....	Liverpool, England.....	Manila.
Netherlands India Sea and Fire Insurance Co.....	Batavia, Java.....	Manila, Cebu, Iloilo.
North China Insurance Co., Limited.....	Shanghai, China.....	Manila and Iloilo.
Penang Khean Guan Insurance Co., Limited.....	Penang.....	Manila.
Po On Marine Insurance and Godown Co., Limited.	Hongkong, China.....	Manila, Iloilo, Cebu.
Triton Insurance Co., Limited.....	Calcutta, India.....	Manila.
Yan On Marine and Fire Insurance Co., Limited.	Hongkong, China.....	Cebu, Iloilo, Manila.

The Fire Insurance Association of Manila, which is composed of the agents of a majority of the fire insurance companies doing business in the Philippines, has adopted a tariff of rates on buildings and their contents, which governs, in general, the cost of insurance in Manila and elsewhere in the archipelago, except the city of Iloilo, for which a separate tariff is in force. All items of insurance are subject to the pro rata condition of average under this tariff, and many risks are not insured in conformity with it, but are specially rated, either

higher or lower than the rates fixed by the tariff, according to their extra hazardous nature or their exceptional lack of liability to loss.

No rates have been adopted by the association governing the insurance of buildings with thatched roofs, the kind of roof prevailing generally throughout the islands, it being expressly provided that risks on such buildings can be accepted at "whatever rate each company considers fit." The rates on other buildings and their contents are regulated according to their construction, classified as follows:

Class A.—Buildings constructed wholly of brick or stone or of brick nogging, with slate, tiled, or metal roof.

Class B.—First story of stone or brick, with second story of timber or iron, with slate, tiled, or metal roof; and buildings constructed wholly of iron.

Class C.—Buildings constructed wholly of timber, with slate, tiled, or metal roof.

Under the above classification separate minimum rates are established for buildings occupied by Europeans and Americans, and those occupied by natives or Chinese, as follows, for the city of Manila—risks outside of Manila being subject to an additional charge of 20 per cent:

Minimum rates of adopted tariff for the city of Manila, by classes.

A.

EUROPEAN OR AMERICAN OCCUPATION ONLY.	Class A.	Class B.	Class C.
1. Dwelling houses, offices, churches, schools, convents, banks, and other buildings, no part being used for manufacturing purposes or storage of merchandise	1½	2½	1 3
2. Hotels, restaurants, and cafés	1½	2½	1½
3. Warehouses and godowns:			
(a) Warranted to contain nonhazardous goods only	1	1½	2
(b) Occupied for storage of hemp or containing a hemp press	1	1½	1½
(c) Occupied for storage or hazardous goods	1	1½	2
4. Retail stores and shops:			
(a) Used exclusively for the sale of leaf tobacco	1	1½	.....
(b) Warranted to contain nonhazardous goods only	1½	1½	.....
(c) Occupied for sale of hazardous goods	1½	2	.....

NOTE.—It is understood that under item 3 (a) hazardous goods may be stored in any godown to the extent of 3 per cent only of the total value of the whole merchandise contained in such godown, and such hazardous goods must be specified in the policy and be limited to cotton, vegetable fibers of all kinds, rags, mungo, shoddy, waste of all kinds, turpentine in iron drums, varnish in tins, gutta-percha, and matches of all kinds.

The contents of the custom-house at Manila are rated under Class B of item 3 (b) at four-fifths per cent per annum.

Minimum rates of adopted tariff for the city of Manila, by classes—Continued.

B.

CHINESE OR NATIVE OCCUPATION.	Class A.	Class B.	Class C.
1. Dwelling houses, offices, churches, schools, convents, banks, and other public buildings, no part being used for manufacturing purposes or storage of merchandise	1	1½	2
2. Hotels, clubs, restaurants, and cafés	2	3	(1)
3. Warehouses and godowns:			
(a) Warranted to contain nonhazardous goods only	1	1½	2
(b) Occupied for storage of hazardous goods	1½	2	4
4. Retail stores and shops:			
(a) Used exclusively for the sale of leaf tobacco	1½	1½	(1)
(b) Warranted to contain nonhazardous goods only	1½	2	(1)
(c) Occupied for sale of hazardous goods	2	1½	.....

¹Special.

In addition to the foregoing, the association has adopted a special petroleum tariff covering various classes of tank installation and buildings in which oil is stored.

There is no regular tariff governing marine insurance, the rate on each risk being determined by circumstances, such as the kind of vessel, the character of the freight, the voyage to be made, etc.

The companies transacting fire and marine insurance business in the Philippines have been grouped into four classes, according to the kind of property they insured in 1902, as per the following tables.

Table 1 shows, for each class of companies described and for all classes, the number of policies issued, the amount of premiums for insurance covered thereby, and the amount of insurance paid for on buildings, on merchandise in buildings, on water craft and on merchandise in water craft, respectively, during the calendar year 1902.

From this table it is ascertained that during the year stated the average cost of both classes of risks was 1.21 per cent. The percentages of cost of marine insurance were, on water craft, 0.88, on their cargoes, 0.38, and on all marine insurance, 0.41. The total average cost of all insurance, both fire and marine, was 0.78 per cent.

Table 2 gives data, classified and presented in the same manner as the information contained in Table 1, regarding insurance outstanding at the end of the calendar year 1902. The fire insurance then in force on buildings cost an average of 1.38 per cent; on merchandise in buildings, 1.23 per cent; and on both classes of risks, 1.27 per cent. The percentages of marine insurance were, on water craft, of which only a small amount was outstanding, 17.21; on their cargoes 0.38; and on all marine insurance 0.71. The total average cost of all outstanding insurance, both fire and marine, was 1.24 per cent.

TABLE 1.—Number and amount of risks written by fire and marine insurance companies

CLASS.	Number.	INSURANCE ON BUILDINGS.			INSURANCE ON MERCHANDISE IN BUILDINGS.		
		Number of policies issued.	Premiums paid (pesos).	Amount (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).
Total.....	64	2,259	278,607	20,431,410	4,213	654,128	56,413,612
Class 1, insuring buildings and merchandise in buildings.	40	1,980	249,011	18,164,922	3,835	589,395	50,753,968
Class 2, insuring buildings and merchandise in buildings and in water craft.	4	279	29,596	2,266,488	378	64,733	5,659,644
Class 3, insuring water craft and merchandise in water craft.	5	.....	.....	.....	.....	.....	.....
Class 4, insuring merchandise in water craft.	15	.....	.....	.....	.....	.....	.....

¹ All money items are expressed in Mexican currency.

² Includes insurance on cargoes which 1 company in class 3 failed to report separately.

TABLE 2.—Number and amount of risks written by fire and marine insurance com-

CLASS.	Number.	INSURANCE ON BUILDINGS.			INSURANCE ON MERCHANDISE IN BUILDINGS.		
		Number of policies issued.	Premiums paid (pesos).	Amount paid (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).
Total.....	64	2,206	274,706	219,904,935	3,856	615,415	50,108,887
Class 1, insuring buildings and merchandise in buildings.	40	1,933	247,050	17,904,712	3,512	557,732	45,450,763
Class 2, insuring buildings and merchandise in buildings and in water craft.	4	273	27,656	2,000,223	344	57,683	4,658,124
Class 3, insuring water craft and merchandise in water craft.	5	.....	.....	.....	.....	.....	.....
Class 4, insuring merchandise in water craft.	15	.....	.....	.....	.....	.....	.....

¹ All money items are expressed in Mexican currency.

² Not including unreported figures for 5 companies in class 1.

transacting business in the Philippine Islands during the year ending December 31, 1902.¹

INSURANCE ON WATER CRAFT.			INSURANCE ON MERCHANDISE IN WATER CRAFT.			TOTAL.		
Number of policies issued.	Premiums paid (pesos).	Amount (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).
2709	254,676	26,182,164	214,162	2320,980	285,203,176	21,843	1,308,391	168,230,362
						5,815	838,406	68,918,890
			1,810	33,273	9,719,688	1,967	127,602	17,645,820
709	54,676	6,182,164	1,961	105,981	27,563,823	2,670	160,657	33,745,987
			10,891	181,726	46,919,665	10,891	181,726	47,919,665

² Does not include insurance on cargoes which 1 company in class 3 combined with insurance on water craft.

panies transacting business in the Philippine Islands outstanding December 31, 1902.¹

INSURANCE ON WATER CRAFT.			INSURANCE ON MERCHANDISE IN WATER CRAFT.			TOTAL.		
Number of policies issued.	Premiums paid (pesos).	Amount (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).	Number of policies issued.	Premiums paid (pesos).	Amount (pesos).
213	216,783	297,500	2763	217,851	24,761,419	6,838	924,755	74,872,741
						5,445	804,782	63,355,475
			397	8,539	3,085,192	1,014	93,878	9,743,539
13	16,783	97,500	78	4,590	963,582	91	21,373	1,061,082
			288	4,722	712,645	288	4,722	712,645

³ Not including unreported figures for 1 company in class 3.

⁴ Not including unreported figures for 1 company in class 2 and 1 company in class 3.

TABLE 3.—*Operating expenses and earnings and number and amount of losses of fire and ending Decem-*

CLASS.	PHILIPPINE AGENCIES.			
	Number.	Expense of maintain- ing (pesos).	Commis- sions earned (pesos).	Net earn- ings for companies (pesos).
Total.....	64	291,525	127,444	435,007
Class 1, insuring buildings and merchandise in build- ings.	40	139,015	97,839	216,956
Class 2, insuring buildings and merchandise in build- ings and in water craft.	4	44,967	6,258	11,709
Class 3, insuring water craft and merchandise in water craft.	5	43,630	11,631	71,734
Class 4, insuring merchandise in water craft.....	15	63,913	11,716	84,558

¹All money items are expressed in Mexican currency.

²Not including unreported figures for 1 agency in class 1; includes "commissions earned" for 1 agency in class 2 which was not separately reported.

³Not including unreported figures for 1 agency in class 1 and 1 agency in class 2.

marine insurance companies transacting business in the Philippine Islands during the year
ber 31, 1902.¹

LOSSES ON BUILDINGS.		LOSSES ON MERCHANDISE IN BUILDINGS.		LOSSES ON WATER CRAFT.		LOSSES ON MERCHANDISE IN WATER CRAFT.		TOTAL LOSSES.	
Number.	Losses paid (pesos).	Number.	Losses paid (pesos).	Number.	Losses paid (pesos).	Number.	Losses paid (pesos).	Number.	Losses paid (pesos).
6	40,462	529	404,210	2	12,106	58	63,042	95	519,820
6	40,462	23	356,657	-----	-----	-----	-----	29	397,119
-----	-----	6	47,553	-----	-----	5	1,822	11	49,375
-----	-----	-----	-----	2	12,106	9	16,730	11	28,836
-----	-----	-----	-----	-----	-----	44	44,490	44	44,490

¹Not including unreported figures for 1 agency in class 1; not considering losses reported by 6 companies in class 1.

²Not including unreported number of losses for 2 companies in class 1.

³Not including unreported number of losses for 1 company in class 3.

II. LIFE.

Number of Companies—Data Regarding Extent of Life Insurance.

The business of insuring lives is new in the Philippines. There are 5 companies having agencies in Manila, 3 of which confine their operations to that city, while the other 2 sell insurance in various parts of the archipelago. They have all begun business in the islands since the date of American occupation.

The names of the companies, the locations of their home offices, and the years in which they extended their business to the Philippines are shown in the following statement:

COMPANY.	Location of home office.	Year in which business was commenced in the Philippines.
Sun Life Insurance Co	Montreal, Canada	1898
China Mutual Life Insurance Co., Limited	Shanghai, China	1900
Standard Life Assurance Co.	Edinburgh, Scotland	1900
Manufacturers Life Insurance Co.	Toronto, Canada	1901
New York Life Insurance Co.	New York, United States	1901

¹ In the month of October.

The above-mentioned companies are of the kind denominated "old line." Their combined gross assets, according to the last annual statements issued by them prior to the taking of the census, amounted to 946,482,348 pesos, and their net assets, or surplus, to 125,709,475 pesos. The amounts are expressed in Mexican currency, because that was the prevailing money of the country during the period covered by the information here presented.

The following table gives comprehensive information regarding the extent of life insurance business transacted in the Philippines up to December 31, 1902, including not only the number of policies issued, amount of insurance, and number of deaths among those insured, but much other data which, studied in connection with the mortuary statistics presented elsewhere in this report, will prove of interest to students of life insurance problems and will serve to throw considerable light on questions affecting the business in the islands. The data, which are given separately for Filipinos and for other than Filipinos, are classified by sex.

	FILIPINOS.		OTHER THAN FILIPINOS.		Total.
	Male.	Female.	Male.	Female.	
Number of policies issued during 1902	96	7	202	3	308
Aggregate premiums collected on policies issued during 1902 (pesos)	37,830	1,649	66,340	449	106,268
Total insurance covered by policies issued during 1902 (pesos)	549,856	32,408	903,813	5,000	1,491,077
Number of persons to whom policies were issued during 1902	93	7	193	3	296
Number of persons examined for life insurance during 1902	129	9	225	4	367
Number of persons whose applications for life insurance were rejected during 1902	30	2	36	1	69
Average insurance covered by each policy issued during 1902 (pesos)	5,912	4,630	4,683	1,667	5,037
Aggregate amount paid by companies during 1902 on account of deaths (pesos)			75,212		75,212
Total number of persons insured who died during 1902	3	1	9		13
Total number of policies on lives of persons who died during 1902	3	1	10		14
Average amount covered by each policy of insurance on lives of persons who died during 1902 (pesos)	5,654	1,000	12,280		10,054
Average premium that had been paid on each policy on lives of persons who died during 1902 (pesos)	1,329	296	1,472		1,857
Total number of policies outstanding Dec. 31, 1902	225	25	390	14	654
Total number of persons on whose lives policies were outstanding Dec. 31, 1902	211	25	348	14	598
Aggregate insurance covered by policies outstanding Dec. 31, 1902 (pesos)	1,525,872	113,624	2,383,426	55,944	4,078,866
Number of policies forfeited for nonpayment of premiums during 1902	27	3	20		50
Number of persons whose policies were forfeited for nonpayment of premiums during 1902	25	4	11		40
Total insurance covered by policies forfeited for nonpayment of premiums during 1902 (pesos)	146,541	12,000	80,881		239,422
Aggregate premiums paid on policies forfeited for nonpayment of premiums during 1902 (pesos)	17,529	1,453	14,487		33,469

The total expense to the companies of conducting their Philippine branches or agencies amounted in 1902 to 63,079 pesos, of which 44,579 pesos were paid in salaries and commissions to agents and solicitors. The aggregate amount of money collected by the companies during the year was 235,135 pesos.

When the short time that has elapsed since the introduction of life insurance into the islands is considered in connection with the prevailing unsettled condition of affairs and the general lack of means in the hands of the people wherewith to meet the expense incident to this form of investment and protection, the showing made above is highly creditable and, it is thought, gives indication that life insurance is capable of expansion measurably commensurate with the increasing prosperity of the islands and the growing familiarity of the people with modern ideas and methods. The constant betterment of sanitary conditions and the resultant decrease in the hitherto abnormally high death rate will probably encourage additional companies to enter the field, and the growth of insular life insurance may be such as to render possible an extremely interesting and gratifying comparison between the data here given and those collected at the next Philippine census.

COMMERCE AND TRANSPORTATION.

I. COMMERCE.

Early Restrictions—Customs Duties—Tables Showing Growth of Commerce—
Foreign and Interisland Shipping Facilities.

A general account of Philippine commerce has already been given by Señor Pardo de Tavera in his historical sketch, from which it appears that for about two and a half centuries a series of laws, royal orders, and *cédulas* restrained the foreign trade of the islands to narrow limits, and thus seriously impaired their industries, their wealth, and their internal improvement.

The necessity of protecting the merchants of Seville, through whom the trade of Spain with her colonies was chiefly carried on, against the cheap merchandise of the Orient, was the principal cause of many, if not all, the restrictions referred to.

Some of the early governors of the Philippines, as well as the clergy and the people, remonstrated and petitioned against these restrictions as being unfair to the Spanish residents and injurious to the prosperity of the islands, but from the time of the establishment of Spanish sovereignty until 1815 all insular foreign commerce, except that with China, Japan, and other oriental countries, was required to be carried on in government ships limited in number and capacity, and even the kind, quantity, and value of exported merchandise, and the returns to be received therefor were mostly limited to specific classes of goods and to fixed amounts.

The remonstrances of the islanders against the commercial restrictions imposed by their Sovereign were without avail until the loss by Spain of her Mexican possessions, and other national and international changes, brought about an amelioration in the condition of affairs.

Not until 1834 was Philippine trade opened to the world and ships other than those of Spain permitted to have a share in Philippine commerce. The galleon trade with Mexico had previously been brought to an end by the successful rebellion of that country against Spain. After the declaration of Mexican independence on August 23, 1821,

direct commerce with Spain via Cape of Good Hope was established and no restrictions were placed on the carrying of Philippine products to the Peninsula, though limitations on the value of exports of Chinese goods from Manila were imposed, so that general trade with the whole commercial world was gradually developed. American, English, and German firms and those of other nationalities were established from time to time at Manila, Iloílo, and Cebú, some of whom maintained important branches at other insular points.

The introduction of foreign trade into the Philippines constantly encountered Spanish jealousy and opposition. The import duties on merchandise on foreign ships were double those on Spanish vessels. The tonnage duties on foreign ships laden with cargoes were double those on such ships in ballast, and if a foreign ship in ballast landed even a small parcel the double rate was exacted. These port charges were abolished in 1869 by royal decree.

Strangers were excluded from the interior of the islands by royal decree in 1844, and in 1857, by the revival of old decrees, it was attempted to prevent foreigners from establishing themselves in the colony. Nevertheless, foreign firms flourished, and eventually controlled the greater portion of the business of the islands. Since American occupation, and for some years prior thereto, a comparatively small proportion of the trade has been under the control of Spanish merchants.

The commerce of the islands from its commencement until after 1834 centered at Manila, where, during the entire period, the only custom-house, which had been established in 1573, was located. After the colonial trade was opened to the world other ports of entry and custom-houses were established.

Zamboanga, in Mindanao, was made a port of entry, and a custom-house was established there by virtue of a royal decree of January 24, 1833; historians differ as to the year when it was opened for business.

Custom-houses at other insular ports were established as follows: Cebú, April, 1842; Iloílo and Sual, March, 1855; Legaspi and Tacloban, January, 1874.

The ports of Sual, in the province of Pangasinán, Legaspi, in the province of Albay (both on the island of Luzón), and Tacloban, in the province and island of Leyte, failed to develop and were discontinued. The custom-houses at Manila city, Iloílo, Cebú, and Zamboanga remained in operation up to the time of the American occupation of the islands, after which they were reopened under American authority, together with other ports, as follows: Manila city, Luzón, August 20, 1898; Iloílo, Panay, February 22, 1899; Cebú, Cebú, March 14, 1899; Joló (Sulu), Sulu archipelago, December 26, 1899; Siassi, Sulu archi-

pelago, December 26, 1899 (discontinued June 1, 1902); Zamboanga, Mindanao, December 26, 1899; Aparri, Cagayán, Luzón, June 1, 1902.

Under the Spanish régime in the Philippines the *aduana* (custom-house) was not a distinct department until 1779, when the administration of the foreign trade between the islands and Mexico, China, and other countries was separated from that of the interisland traffic; in 1805 the custom-house was made an independent branch of the treasury.

Theoretically, the ad valorem duties on exports and imports applicable to all Spanish colonies by the Laws of the Indies applied to the Philippines as soon as they were acquired by Spain; but the royal participation in trade, the granting of privileges and exemptions, and the many restrictions imposed on foreign commerce operated to keep down the customs revenues and prevented them from becoming important until after the trade of the islands was opened to the world, in the nineteenth century.

The customs duties, as fixed by the Laws of the Indies, were changed early in the seventeenth century and subsequently, from time to time, to suit conditions in the Philippines. The duties collected did not accrue directly to the Philippine Government, but to the Royal Treasury of Spain. The only taxes on foreign commerce which the insular government enjoyed were port and anchorage dues, collected principally from Chinese traders, and the revenue from this source practically ended when the non-Christian Chinese were banished in 1755.

While the duties, both export and import, were in theory ad valorem, they became in reality specific by the fixing of arbitrary values upon the goods upon which they were levied. Prior to 1734 these values were assessed by a board consisting of a royal officer and two merchants, especially appointed by the governor for each case, with the royal fiscal as an intervener. In 1734 a permanent board of valuations (*junta de valoraciones*) was established, which was suppressed in 1782, and was followed in 1828 by a tariff board (*junta de aranceles*), trade during the interim having been, for the most part, in the hands of the *Compañía Real de Filipinas*.

Prior to the adoption of the new tariff, framed by the tariff board, which went into effect January 1, 1832, the customs duties of the Philippines, which were payable in coin or bullion, gold or silver, were embraced in four general classes, as follows:

1. Fifteen per cent on all goods shipped from Spain or Mexico to the Philippines, of which 5 per cent was payable on the departure of the vessel, and 10 per cent on arrival at Manila, except wines, upon which 5 per cent additional was collected before the commencement of the voyage.

2. Three per cent on all goods imported from other countries, except goods from China, on which 6 per cent was paid.

3. Ten per cent on all Asiatic merchandise exported to Mexico.

4. Three per cent on all exported goods other than Asiatic.

The valuations of merchandise for customs purposes under the tariff provisions above stated were, perhaps, at first fixed with reference to the true value of the goods; but the valuation of a particular kind of merchandise once made became a precedent for subsequent valuations of the same kind of goods, until finally it became the practice to publish tables of "official values," which were used as the basis for computing duties, regardless of the true values of the wares upon which they were levied.

The tariff board, the appointment of which was authorized by royal order of April 6, 1828, was instructed to prepare a new tariff, with the following purposes in view: To increase the revenue of the exchequer, to nourish and protect especially the agriculture and arts of the islands, and to offer all needful encouragement to the increase of both national and foreign commerce. In framing this tariff, the board was directed to take into consideration, among other things, the kind of wares dealt with, whether they were of Spanish or foreign origin, and whether they were shipped under the Spanish or a foreign flag.

Duties under the tariff regulations, prepared under the instructions above noted, were collected from January 1, 1832, until April 1, 1891, when a new tariff went into operation under a royal order of January 7, 1891, during which period there were several revisions of classes and rates, which did not, however, affect the principles upon which the tariff was based.

Under this tariff of 1832 over 1,100 classes or articles of import were specified and, with but few exceptions, their values fixed; and 15 articles of export were enumerated, though all exported merchandise was made subject to duty, except gold, silver, and tobacco shipped to Spain.

On imports four rates of duty were established for each article, with reference to the origin of the merchandise or the flag under which it was brought to the islands. The first and lowest rate was on Spanish goods imported in Spanish ships, the second on Spanish goods in foreign ships, the third on foreign goods in Spanish vessels, and the fourth on foreign goods in foreign vessels. Similar distinctions were made in the duties on exports.

The great majority of imported goods were dutiable at the following rates, according to their origin or shipment as previously classified: (1) 3 per cent, (2) 8 per cent, (3) 7 per cent, (4) 14 per cent. The rates of duty on spirits were: (1) 10 per cent, (2) 25 per cent, (3) 30 per cent, (4) 60 per cent, except Spanish rum, which was assessed (1) 3 per cent

or (2) 8 per cent; beer and cider paid (1) 3 per cent, (2) 10 per cent, (3) 20 per cent, (4) 25 per cent. On a few commodities, including among other things of minor importance wines and vinegar, certain textiles of silk, linen, wool, cotton, or mixed materials, olives and olive oil, certain vegetables, boots and shoes, preserved fruits, and salt fish, the rates of duty were: (1) 3 per cent, (2) 8 per cent, (3) 40 per cent, (4) 50 per cent.

Agricultural implements had been admitted free of duty since 1828, under a royal order of April 6, of that year, and their free admission was continued under the new tariff. The only other imports admitted free were trees and shrubs for horticulture, gold and silver (unwrought or in coin), unwrought paving stones, horses for breeding purposes, goats, young bulls, and two kinds of cotton thread. Diamonds and brilliants were required to pay 1 per cent duty; and a few products from the islands to the southwest—reeds, birds' nests, and tortoise shell—were admitted at 2 per cent, the low rate being given to encourage the trade with China. Exported merchandise not included in the 15 articles specified by the tariff regulations were subject to 1 per cent if shipped under the flag of Spain, 2 per cent if under a foreign flag to Spain, and 3 per cent if under a foreign flag to a foreign port. The duties on hemp were: In Spanish vessels to a Spanish port, 1 per cent, and to foreign ports, $1\frac{1}{2}$ per cent; in foreign vessels to either Spanish or foreign ports, 2 per cent. Rice could be exported free of duty in Spanish vessels to either a Spanish or a foreign port, but in foreign vessels to a Spanish port it paid 3 per cent duty, and to a foreign port 4 per cent duty. Silver coin paid 2 per cent under the Spanish flag, and 4 per cent in foreign vessels when exported to a foreign port. The other specified articles of export all came from Joló and were taxed only one-half per cent if shipped in Spanish vessels.

Among the changes made from time to time in the tariff of 1832 was the exemption in 1857 of rice and paddy from import duties. Prior to that year rice had been an article of export, but with the increased production of hemp, sugar, tobacco, and other staples, its exportation diminished, and finally almost ceased, and its importation steadily increased; and being a principal food article of the great mass of the Philippine people, its free admission became necessary. Exemptions were also made in favor of railroad and tramway supplies, of certain industrial machinery, of books, scientific instruments, and a few unimportant articles.

In 1870, when the Suez canal was opened, a change was made in the method of levying duties which up to that time had been based upon the fixed values of the goods; thereafter, the duties with some excep-

tions were calculated upon the quantity instead of the value of exports and imports, thus becoming actually specific as they had been, virtually, prior to that year.

The discriminations of the tariff as between shipments in Spanish and foreign bottoms caused most of the imports to be brought to the islands under the flag of Spain; on the other hand, they were not sufficiently strong to shut out foreign vessels from participating in the commerce, nearly all exports having been carried from the islands under foreign flags.

On April 1, 1891, a new tariff, which had been promulgated by Governor-General Weyler, on March 3, 1891, went into effect and, with occasional modifications, remained in force up to the date of American occupation. Upon the reopening of the Manila custom-house, August 20, 1898, this tariff was continued by the United States military government of the islands, and remained in operation until November 15, 1901, since when the revised tariff adopted by the Philippine Commission September 17, 1901, has been in force.

The tariff of 1891 materially changed the rates of duty on imports, all of which were made specific; reduced the free list, but exempted all Spanish merchandise imported in Spanish vessels from the payment of duty; increased the tariff protection to the Philippine market for Spanish and insular wares; and provided for special export duties on the staple products of the islands, namely: Abacá, indigo, rice, sugar, coconuts, and copra, and raw or manufactured tobacco.

In addition to the customs duties inherited from Spain by the American Government, there were certain other charges and fees imposed on commerce that added heavily to the amount of duties collected. These were:

1. Wharf charges of 1 peso and harbor dues of one-half peso per gross ton of 1,000 kilograms on all goods exported, and one-half peso per 1,000 kilos gross on goods imported for transshipment to other Philippine ports.
2. Light-house dues on vessels from foreign ports of 0.10 peso per net ton.
3. Stamps on ships' papers amounting to 4 pesos in each case.
4. Consumption taxes, levied specifically upon imports of spirituous liquors and cider, at from 0.10 to 0.30 peso per liter; on vegetables, at 0.02 peso per kilo; on flour, at 0.50 peso per 100 kilos; and on salt and mineral oils, at 1 peso per 100 kilos.
5. A surtax of 10 per cent of the amount of regular duties on imports, in addition thereto, for the benefit of harbor improvements.
6. A tax of 8 per cent on the "official values" of imported goods, such values being arbitrary amounts published in an official list used in computing this tax.

Under Spanish administration each of the last three taxes specified and the regular duties were calculated separately on each cargo, and the same system of computation and collection was continued for a time by American authorities, causing much misunderstanding and annoyance; but in 1900 a combined rate was worked out and published for every article subject to duty, and these rates were used thereafter by customs officers and merchants until November 15, 1901, when the revised tariff now in force went into effect.

The following statement shows the officially declared values of imports and exports of the islands for the calendar years specified, as given in available official publications, together with the excess of exports over imports or of imports over exports in each year. The values prior to American occupation were reported in Mexican pesos, and are so given in the statement, with their equivalents in United States money, in order to make comparison with values since the establishment of the American administration, which are reported in the last-named currency.¹

¹ Average annual value of the Mexican silver dollar or peso, in United States gold coin, as computed by the Bureau of the Mint, United States Treasury Department, is shown for each specified calendar year.

YEAR.	Bullion value.	YEAR.	Bullion value.	YEAR.	Bullion value.	YEAR.	Bullion value.
1831.....	\$0.9676	1853.....	\$1.0592	1870.....	\$1.0435	1887.....	\$0.7696
1837.....	1.0254	1854.....	1.0592	1871.....	1.0419	1888.....	0.7384
1838.....	1.0246	1855.....	1.0508	1872.....	1.0388	1889.....	0.7348
1839.....	1.0396	1856.....	1.0508	1873.....	1.0197	1890.....	0.8222
1840.....	1.0396	1857.....	1.0631	1874.....	1.0048	1891.....	0.7763
1841.....	1.0341	1858.....	1.0508	1875.....	0.9762	1892.....	0.6848
1842.....	1.0239	1859.....	1.0686	1876.....	0.9147	1893.....	0.6131
1843.....	1.0191	1860.....	1.0625	1877.....	0.9444	1894.....	0.4988
1844.....	1.0246	1861.....	1.0495	1878.....	0.9064	1895.....	0.5139
1845.....	1.0199	1862.....	1.0576	1879.....	0.8831	1896.....	0.5309
1846.....	1.0215	1863.....	1.0568	1880.....	0.8998	1897.....	0.4753
1847.....	1.0278	1864.....	1.0568	1881.....	0.8897	1898.....	0.4637
1848.....	1.0246	1865.....	1.0514	1882.....	0.8923	1899.....	0.4727
1849.....	1.0286	1866.....	1.0521	1883.....	0.8722	1900.....	0.4872
1850.....	1.0340	1867.....	1.0435	1884.....	0.8745	1901.....	0.4688
1851.....	1.0506	1868.....	1.0419	1885.....	0.8348	1902.....	0.4162
1852.....	1.0419	1869.....	1.0411	1886.....	0.7816		

Value of imports and exports of the Philippine Islands during certain calendar years, from 1831 to 1902.¹

YEAR.	IMPORTS.		EXPORTS.		TOTAL IM- PORTS AND EXPORTS.	EXCESS OF EXPORTS OVER IM- PORTS.
	Pesos.	Dollars.	Pesos.	Dollars.	Dollars.	Dollars.
1831.....	1,249,148	1,208,676	1,185,009	1,146,615	2,365,291	2 62,061
1837.....	2,060,143	2,112,471	1,956,754	2,006,456	4,118,927	2 106,015
1838.....	2,710,456	2,777,133	2,894,068	2,965,262	5,742,395	188,129
1839.....	2,153,247	2,238,516	2,674,220	2,780,119	5,018,635	541,603
1840.....	1,844,424	1,917,463	2,475,942	2,573,989	4,491,452	565,526
1841.....	2,252,997	2,329,824	3,366,734	3,481,540	5,811,364	1,151,716
1842.....	2,856,096	2,924,357	3,073,580	3,147,039	6,071,396	222,682
1843.....	2,191,685	2,233,546	2,923,795	2,979,639	5,213,185	746,093
1844.....	3,309,312	3,390,721	3,242,392	3,322,155	6,712,876	2 68,566
1845.....	3,934,824	4,013,127	3,020,717	3,080,829	7,093,956	2 932,298
1846.....	2,639,494	2,696,243	2,972,967	3,036,886	5,733,129	340,643
1847.....	3,429,931	3,525,283	3,126,141	3,213,048	6,738,331	2 312,235
1848.....	3,149,164	3,226,633	2,975,807	3,049,012	6,275,645	2 177,621
1849.....	2,443,215	2,513,091	3,723,921	3,880,425	6,343,516	1,317,334
1850.....	3,178,249	3,286,309	3,573,067	3,694,551	6,980,860	408,242
1851.....	3,301,334	3,468,382	4,172,274	4,383,391	7,851,773	915,009
1852.....	3,951,333	4,116,894	5,016,313	5,226,497	9,343,391	1,109,603
1853.....	4,004,530	4,241,598	5,778,676	6,120,774	10,362,372	1,879,176
1854.....	3,756,345	3,978,721	6,352,348	6,728,407	10,707,128	2,749,686
1855.....	4,243,602	4,459,177	6,121,622	6,432,600	10,891,777	1,973,423
1856.....	6,969,254	7,312,784	9,133,317	9,597,290	16,910,074	2,284,506
1857.....	9,907,299	10,532,450	11,895,821	12,646,447	23,178,897	2,113,997
1858.....	5,798,720	6,093,295	9,416,975	9,895,357	15,988,652	3,802,062
1859.....	6,271,560	6,701,789	9,082,868	9,705,953	16,407,742	3,004,164
1860.....	8,739,474	9,286,565	9,509,481	10,104,775	19,391,340	818,210
1861.....	10,148,160	10,650,494	8,065,530	8,464,774	19,115,268	2 2,185,720
1862.....	6,941,735	7,341,579	9,100,797	9,625,003	16,966,582	2,283,424
1863.....	7,465,063	7,889,079	10,056,818	10,628,045	18,517,124	2,738,966
1864.....	10,901,584	11,520,794	10,657,026	11,262,345	22,783,139	2 258,449
1865.....	17,870,523	18,789,068	20,932,617	22,008,554	40,797,622	3,219,436
1866.....	17,711,791	18,634,575	22,182,523	23,338,232	41,972,807	4,703,657
1867.....	15,180,853	15,841,220	22,006,804	22,964,100	38,805,320	7,122,880
1870.....	23,500,000	24,522,250	28,000,000	29,218,000	53,740,250	4,695,750
1872.....	22,163,142	23,023,072	16,430,655	17,068,164	40,091,236	2 5,954,908
1873.....	13,217,836	13,478,227	23,522,529	23,985,923	37,464,150	10,507,696
1874.....	13,704,254	13,770,034	17,302,977	17,386,031	31,156,065	8,615,997
1875.....	12,215,153	11,924,432	18,920,475	18,470,168	30,394,600	6,545,736

¹ The statistics representing the officially declared values of imports and exports in this statement, and in all other statements in this report covering quantities or values of imports and exports, are derived from the following sources for the calendar years indicated:

For 1831 and succeeding years up to and including 1894, the figures are taken from the annual official commercial reports, published at Manila, covering Philippine imports and exports for the calendar years below specified, printed under the following titles:

1831, 1837 to 1853, inclusive, and 1856, *Cuadro, General del Comercio Exterior de Filipinas.*

1854 and 1855, *Balanza, General del Comercio de las Islas Filipinas.*

1857, 1858, 1859, 1860, and 1861 to 1865, inclusive, *Balanza, Mercantil de las Islas Filipinas.*

1866, 1867, 1870, 1872, and 1873 to 1880, inclusive, *Estadística Mercantil del Comercio Exterior de las Islas Filipinas.*

1881 to 1894, inclusive, *Estadística General del Comercio Exterior de las Islas Filipinas.*

1895, *El Archipiélago Filipino*, published by the United States Government in 1900.

1898 to 1902, inclusive, *Monthly Summaries of Commerce of the Philippine Islands*, prepared in the

Bureau of Insular Affairs, United States War Department.

² Excess of imports over exports.

Value of imports and exports of the Philippine Islands during certain calendar years, from 1831 to 1902—Continued.

YEAR.	IMPORTS.		EXPORTS.		TOTAL IM- PORTS AND EXPORTS.	EXCESS OF EXPORTS OVER IM- PORTS.
	Pesos.	Dollars.	Pesos.	Dollars.	Dollars.	Dollars.
1876.....	11,987,162	10,964,657	14,837,796	13,572,132	24,536,789	2,607,475
1877.....	19,535,864	18,449,670	16,362,444	15,452,692	33,902,362	12,996,978
1878.....	17,292,847	15,674,237	17,470,305	15,835,084	31,509,321	160,847
1879.....	18,031,547	15,923,659	18,813,452	16,614,159	32,537,818	690,500
1880.....	25,493,319	22,938,888	23,450,285	21,100,566	44,039,454	1,838,322
1881.....	20,777,209	18,485,483	24,579,006	21,867,942	40,353,425	3,382,459
1882.....	21,260,762	18,970,978	20,673,333	18,446,815	37,417,793	1,524,163
1883.....	21,308,074	18,584,902	26,380,727	23,009,270	41,594,172	4,424,368
1884.....	21,246,241	18,579,838	22,672,833	19,827,392	38,407,230	1,247,554
1885.....	19,199,468	16,027,716	24,553,685	20,497,416	36,525,132	4,469,700
1886.....	20,073,598	15,689,524	25,721,032	20,103,559	35,798,083	4,414,085
1887.....	17,530,198	13,491,240	25,257,139	19,437,894	32,929,134	5,946,654
1888.....	21,208,432	15,660,343	26,293,271	19,414,951	35,075,294	3,754,608
1889.....	24,790,906	18,216,358	34,926,969	25,664,337	43,880,695	7,447,979
1890.....	19,797,257	16,277,305	26,213,554	21,552,784	37,830,089	5,275,479
1891.....	21,647,280	16,804,783	26,905,102	20,886,431	37,691,214	4,081,648
1892.....	23,817,373	16,310,137	27,976,569	19,158,354	35,468,491	2,848,217
1893.....	25,922,515	15,893,094	36,275,566	22,240,550	38,133,644	6,347,456
1894.....	28,558,552	14,245,006	33,149,984	16,535,212	30,780,218	2,290,206
1895.....	25,398,798	13,052,442	36,655,727	18,837,378	31,889,820	5,784,936
1898 ².....	.....	5,380,963	.....	5,165,356	10,546,319	1,215,607
1899.....	.....	19,192,986	.....	14,846,582	34,039,568	14,346,404
1900.....	.....	24,863,779	.....	22,990,373	47,854,152	11,873,406
1901.....	.....	30,162,471	.....	24,503,353	54,665,824	15,659,118
1902.....	.....	33,342,166	.....	28,671,904	62,014,070	14,670,262

¹ Excess of imports over exports.

² Five months, August to December, inclusive.

The above figures indicate the steady though frequently interrupted growth of Philippine commerce. From 1831, the first year for which the values of both imports and exports are given, until 1865 the trade, though it fluctuated considerably and in some years fell off heavily as compared with preceding years, gradually increased; the growth during that period was such that the combined value of imports and exports, which in 1831 was 2,434,157 pesos, or \$2,355,291, had increased in 1865 to 38,803,140 pesos, or \$40,797,622, a gain of 1,732 per cent.

In 1870, coincident with the opening of the Suez canal, there was a heavy increase in trade, the total gold (United States money) value of which was \$53,740,250, equivalent to 51,500,000 pesos. The gold value of the trade of that year was never again reached during Spanish sovereignty; nor was the value expressed in pesos again reached until 1889, when the exports and imports amounted to nearly 60,000,000 pesos, but to only \$43,880,695—the value of the Mexican

silver dollar or peso having declined from \$1.0435, in 1870, to \$0.7348, in 1889.

In 1893 the total trade amounted to a little over 62,000,000, and in 1894 to nearly 63,000,000 pesos; but, expressed in United States money, the values for those years were \$38,133,644 and \$30,780,218, respectively, the value of the peso having fallen to \$0.6131 in 1893 and \$0.4988 in 1894.

The distribution of the foreign commerce of the Philippines since 1854, except for the period from January, 1896, to July, 1898, inclusive, of which no record exists, is shown in the two following tables, which present statistics covering the values of merchandise imported and exported, expressed in United States gold currency, for each calendar year specified, by countries in Europe, Asia, Africa, North America, Central and South America, West Indies, and Oceania.

The figures are derived from the same official reports upon which the table given on page 564 is based; and those representing values of imports and of exports for the years prior to American occupation of the islands are reduced from pesos to United States gold currency in accordance with ratios furnished by the Director of the United States Mint, as given in the footnote on page 563.

These tables are sufficiently clear and simple to render unnecessary any analysis or discussion of them.

Value, in United States gold currency, of merchandise imported into the

YEAR.	EUROPE.				
	United Kingdom.	Germany.	France.	Spain.	Italy.
1 1854.....	\$2, 197, 977	\$1, 613	\$433	\$234, 288	
2 1855.....	2, 347, 546	73, 271	6, 280	177, 308	
3 1856.....	2, 640, 200			300, 686	
4 1857.....	3, 674, 135	120, 269		904, 662	
5 1858.....	3, 821, 673	122, 551	1, 253	465, 523	
6 1860.....	5, 482, 394	161, 149	28, 317	644, 669	
7 1861.....	7, 175, 246			526, 834	
8 1862.....	2, 987, 376	255, 435	22, 823	1, 159, 604	
9 1863.....	2, 645, 611	74, 650	13, 167	658, 480	
10 1864.....	3, 773, 429	226, 017	86, 181	912, 449	
11 1865.....	7, 985, 782	584, 230		995, 217	
12 1866.....	10, 709, 841	12, 013	164	700, 169	
13 1867.....	8, 882, 918	282, 168		685, 676	
14 1873.....	3, 633, 722	227, 268	16, 112	514, 370	
16 1874.....	3, 491, 654	135, 259		443, 402	
16 1875.....	2, 991, 246	256, 470		624, 251	
17 1876.....	2, 856, 062	202, 731		549, 852	
18 1877.....	4, 538, 618	295, 715		908, 589	
19 1878.....	3, 788, 983	199, 325		685, 598	\$59
20 1879.....	2, 823, 754	294, 569		697, 404	
21 1880.....	5, 738, 814	256, 414		749, 687	
22 1881.....	5, 296, 087	485, 603		1, 365, 201	
23 1882.....	5, 901, 049	608, 841	967	2, 040, 831	
24 1883.....	5, 049, 451	217, 259	169, 953	676, 313	
25 1884.....	5, 176, 966	1, 300, 240	323, 679	880, 614	26, 024
26 1885.....	6, 917, 629	1, 060, 425	364, 777	1, 473, 394	8, 168
27 1886.....	5, 363, 639	1, 158, 069	292, 675	1, 424, 979	17, 641
28 1887.....	4, 857, 075	517, 071	217, 113	1, 912, 743	7, 420
29 1888.....	7, 178, 816	874, 760	432, 921	660, 128	7, 964
30 1889.....	5, 581, 774	1, 380, 288	678, 069	1, 021, 165	15, 344
31 1890.....	5, 768, 971	185, 499	22, 171	1, 125, 133	444
32 1891.....	5, 124, 667	312, 213	171, 954	3, 377, 562	356
33 1892.....	5, 194, 675	527, 433	272, 787	4, 396, 358	8, 787
34 1893.....	4, 248, 576	1, 246, 451	477, 104	5, 105, 707	32, 391
35 1894.....	3, 524, 798	927, 721	398, 037	5, 242, 407	5, 656
36 1895.....	2, 829, 841	1, 011, 511	278, 766	4, 776, 190	9, 241
37 1898 ¹	1, 059, 040	599, 309	115, 652	1, 140, 881	
38 1899.....	3, 244, 109	922, 844	292, 423	2, 702, 158	65, 752
39 1900.....	5, 576, 931	1, 631, 816	978, 095	1, 989, 235	137, 283
40 1901.....	5, 692, 579	2, 205, 695	1, 907, 074	1, 934, 251	118, 606
41 1902.....	5, 639, 274	2, 262, 039	1, 204, 727	2, 917, 546	202, 209

¹Including Hongkong, the imports from which were \$4,610,913 in 1900, \$1,165,738 in 1901, and \$1,681,358 in 1902.

²Includes Cochin China and Japan, not separately reported.

Philippines, by countries, in certain calendar years from 1854 to 1902.

EUROPE—continued.					ASIA.		
Austria-Hungary.	Belgium.	Netherlands.	All other Europe.	Total.	China. ¹	Japan.	British East Indies.
				\$2,434,311	\$1,094,107		\$385,821
				2,604,405	1,021,559		750,616
				2,940,886	3,338,228		500,658
				4,699,066	4,086,084		1,026,368
				4,411,000	904,051		368,202
				6,316,529	2,021,521		448,345
				7,702,080	2,235,583		538,802
				4,425,238	2,229,710		339,579
				3,391,908	3,630,126		536,834
				4,998,076	5,825,287		398,656
				9,565,229	8,003,630		570,685
				11,422,187	*5,725,213	(*)	895,006
		\$2,996		9,853,758	*5,138,203	(*)	391,510
				4,391,472	*399,266	(*)	8,169,575
				4,070,315	497,994	\$12,876	8,572,704
\$33,341				3,905,308	446,089	417	7,307,040
				3,608,645	1,324,214	29,205	5,828,928
				5,742,922	1,171,761	66,012	10,723,382
				4,673,965	1,260,548	297,306	8,556,960
				3,815,727	987,917	51,029	10,234,317
				6,744,915	691,051	45,604	14,711,189
				7,146,891	554,916	793	9,949,852
				8,551,738	472,077	457	8,411,683
				6,112,976	426,805	1,117	10,339,083
355,655	\$394,880	30,675	\$93,338	8,582,071	647,771	7,631	7,184,019
77,964	51,748	18,078	180,923	10,153,106	405,036	987	4,770,601
39,529	123,426	135,257	93,497	8,648,712	490,069	157	5,257,254
42,517	79,881	33,353	106,407	7,773,580	390,407	62	3,934,545
23,802	154,123	4,084	144,221	9,480,819	3,281,988	78,943	1,008,261
32,633	401,683	41,312	62,849	9,215,117	4,313,994	13,778	1,990,197
	521,826	5,850	937	7,630,831	3,904,672	31,201	2,541,776
1,969	294,401	5,825	8,517	9,297,464	3,536,102	33,872	1,813,392
18,982	175,457	13,000	295,614	10,903,093	3,029,055	37,960	987,364
62,981	78,355	40,605	472,839	11,765,009	2,237,836	182,707	158,767
41,400	58,659	38,288	533,801	10,770,767	2,295,256	86,212	220,093
62,390	74,787	38,021	795,789	9,876,536	2,184,909	69,794	177,254
24,324	4,538	6,955	19,975	2,970,674	1,708,572	47,224	28,374
72,131	114,475	178,549	301,515	7,893,956	8,333,443	184,398	784,363
88,634	203,533	160,173	985,027	11,750,727	7,738,482	441,319	1,745,124
117,765	224,391	151,512	1,056,765	13,408,638	5,050,704	1,061,131	3,334,065
117,074	262,157	155,154	877,496	13,637,676	6,469,543	726,637	1,668,326

¹Included with China.

*Five months, August to December.

Value, in United States gold currency, of merchandise imported into the

YEAR.	ASIA—continued.				Africa.
	Dutch East Indies.	French East Indies.	All other Asia.	Total.	
1 1854.....	\$3,375		\$610	\$1,483,913	
2 1855.....	40,416			1,812,591	
3 1856.....	112,944			3,951,830	
4 1857.....	248,779			5,361,231	\$808
5 1858.....	355,693			1,627,946	
6 1860.....	76,331	\$3,407		2,549,604	
7 1861.....	75,838	11,531		2,861,704	
8 1862.....	127,152	6,501		2,702,912	
9 1863.....	183,461	120		4,350,641	
10 1864.....	141,828			6,368,771	
11 1865.....	328,849			8,903,164	
12 1866.....	324,232	(1)	696	6,945,147	
13 1867.....	231,421	(1)		5,761,134	
14 1873.....	314,978	¹ 159,874		9,043,693	
15 1874.....	177,677	349,774		9,611,025	
16 1875.....	92,769	34,251		7,880,566	554
17 1876.....	91,729	5,282		7,279,358	
18 1877.....	72,232	508,239	12,246	12,553,872	
19 1878.....	102,829	246,515	406,197	10,870,355	
20 1879.....	35,159	568,612	5,191	11,882,225	
21 1880.....	80,500	164,087		15,692,431	
22 1881.....	56,351	511		10,562,423	
23 1882.....	17,146	131,607		9,032,870	
24 1883.....	106	804,937		11,572,048	
25 1884.....	19,610	1,647,052		9,506,083	3,314
26 1885.....	25	488,426	71,242	5,736,317	
27 1886.....	6,282	862,534		6,616,296	36
28 1887.....	73,849	877,307	35,731	5,311,901	2,934
29 1888.....	37	1,186,029	101,705	5,656,958	1,096
30 1889.....	1,512	2,058,048	40,928	8,418,457	
31 1890.....	6,167	1,558,802		8,042,618	39,880
32 1891.....		1,712,554		7,100,920	6,678
33 1892.....		1,002,781		5,057,160	12,490
34 1893.....		518,017		3,097,327	3,185
35 1894.....		443,545		3,045,106	599
36 1895.....	4,168	138,226		2,574,351	1,124
37 1898 ²				1,784,170	
38 1899.....	25,450			9,327,654	5
39 1900.....	17,588	760,084	51,173	10,753,770	4,276
40 1901.....	23,242	2,359,039	696,117	12,574,298	4,620
41 1902.....	97,417	5,575,199	482,503	15,019,625	3,607

¹ Cochin China included with China.

² Five months—August to December, inclusive.

VALUE OF IMPORTS.

571

Philippines, by countries, in certain calendar years from 1854 to 1902—Continued.

NORTH AMERICA.			Central America, South America, and West Indies.	OCEANIA.			All countries.	
United States.	All other North America.	Total.		Austral- asia.	All other Oceania.	Total.		
\$38,268		\$38,268		\$14,758	\$7,471	\$22,229	\$3,978,721	1
30,339		30,339		9,787	2,055	11,842	4,459,177	2
293,004		293,004	\$67,370	35,301	24,393	59,694	7,312,784	3
398,621		398,621	49,603	15,024	8,097	23,121	10,532,450	4
45,536		45,536		1,070	7,743	8,813	6,093,295	5
403,596		403,596		3,192	13,644	16,836	9,286,565	6
71,113		71,113	6,382		279	8,936	10,650,494	7
94,234		94,234	15,615	88,264	15,286	103,550	7,341,579	8
146,630		146,630					7,859,079	9
152,343		152,343		1,604		1,604	11,520,794	10
320,675		320,675					18,789,068	11
175,968		175,968	87,605		3,768	3,768	18,634,575	12
59,970		59,970	166,358				15,841,220	13
32,123		32,123	10,939				13,478,227	14
71,969		71,969	16,725				13,770,034	15
137,856		137,856			148	148	11,924,432	16
71,896		71,896		4,758		4,758	10,964,657	17
141,692		141,692		11,184		11,184	18,449,670	18
121,205		121,205	1,175	7,537		7,537	15,674,237	19
194,739		194,739	1,545	29,423		29,423	15,923,659	20
442,034		442,034	30,815	28,693		28,693	22,938,888	21
771,006		771,006	5,163				18,485,483	22
1,378,327		1,378,327	8,043				18,970,978	23
869,245		869,245	11,112	19,521		19,521	18,584,902	24
398,900		398,900	89,470				18,579,838	25
128,778		128,778	9,515				16,027,716	26
424,480		424,480					15,689,524	27
402,825		402,825					13,491,240	28
463,187		463,187		58,283		58,283	15,660,343	29
558,103		558,103		24,681		24,681	18,216,358	30
540,638		540,638	6,266	17,072		17,072	16,277,305	31
347,472		347,472	3,936	48,313		48,313	16,804,783	32
208,331		208,331	9,468	119,595		119,595	16,310,137	33
956,862		956,862	5,301	65,410		65,410	15,893,094	34
362,732		362,732	240	65,612		65,612	14,245,006	35
531,301		531,301	771	68,309		68,309	13,052,442	36
567,266		567,266		58,853		58,853	5,380,963	37
1,353,086		1,353,086		616,273	2,012	618,285	19,192,986	38
2,153,198	\$4,034	2,157,232		197,774		197,774	24,863,779	39
3,534,255	61,325	3,595,580	2,757	575,972	606	576,578	30,162,471	40
4,153,174	25,322	4,178,496	3,856	498,245	661	498,906	33,342,166	41

Value, in United States gold currency, of merchandise exported from

YEAR.	EUROPE.					
	United Kingdom.	Germany.	France.	Spain.	All other Europe. ¹	Total.
1 1854.....	\$1,801,100	\$30,916	\$58,301	\$523,272	.....	\$2,413,589
2 1855.....	1,261,391	30,559	119,396	785,377	\$43,422	2,240,145
3 1856.....	2,127,179	.....	76,248	1,358,952	35,134	3,597,513
4 1857.....	2,230,241	.....	101,100	1,882,550	74,815	4,288,706
5 1858.....	1,810,597	.....	172,532	1,104,226	.....	3,087,355
6 1860.....	2,511,349	.....	85,140	434,144	.....	3,030,633
7 1861.....	2,728,368	89	156,476	454,789	.....	3,339,672
8 1862.....	3,370,655	38,639	117,836	1,183,816	.....	4,710,946
9 1863.....	2,603,539	.....	114,000	1,205,720	.....	3,923,259
10 1864.....	4,158,582	.....	97,792	557,692	.....	4,814,066
11 1865.....	4,473,490	.....	356,268	2,823,174	.....	7,652,932
12 1866.....	6,757,459	4,747	175,809	1,734,942	.....	8,672,957
13 1867.....	7,108,642	.....	208,426	2,572,046	134,685	10,023,799
14 1873.....	9,635,763	.....	138,393	1,922,772	372,063	12,068,991
15 1874.....	6,095,016	.....	.....	1,619,413	.....	7,714,429
16 1875.....	8,121,689	.....	.....	1,761,189	.....	9,882,878
17 1876.....	4,712,368	.....	.....	461,239	.....	5,173,607
18 1877.....	5,768,314	.....	.....	626,524	.....	6,394,838
19 1878.....	4,558,660	.....	.....	906,944	.....	5,465,604
20 1879.....	4,602,810	.....	123,729	913,704	.....	5,640,243
21 1880.....	5,462,506	54,441	.....	1,002,404	.....	6,519,351
22 1881.....	8,312,653	.....	.....	973,001	.....	9,285,654
23 1882.....	6,236,895	.....	.....	2,238,381	.....	8,475,276
24 1883.....	5,326,807	.....	.....	2,487,995	.....	7,814,802
25 1884.....	3,345,504	874	.....	3,607,227	.....	6,953,605
26 1885.....	2,856,026	809	54,000	3,008,947	55,096	5,974,878
27 1886.....	1,936,298	487	12,080	5,380,861	21,693	7,351,419
28 1887.....	2,837,715	3,925	17,912	1,764,674	47,360	4,671,486
29 1888.....	4,554,073	21,487	8,774	2,341,415	22,903	6,948,652
30 1889.....	6,702,207	71,111	5,028	2,246,079	31,336	9,056,761
31 1890.....	5,967,522	33,665	5,201	2,303,062	18,102	8,327,552
32 1891.....	8,943,324	12,536	64,511	2,077,428	.....	11,097,799
33 1892.....	6,369,259	.....	.....	1,838,572	.....	8,207,831
34 1893.....	9,961,573	19,731	241,883	1,919,567	57,715	12,200,469
35 1894.....	4,333,351	14,393	615,155	1,423,878	10,105	6,396,882
36 1895 ⁶.....	.....	.....	.....	.....	.....	.....
37 1898 ⁷	1,394,552	51,022	41,460	734,495	1,940	2,213,469
38 1899.....	3,531,995	24,360	574,929	977,106	4,113	5,112,503
39 1900.....	8,105,220	126,729	2,533,607	1,566,972	449,360	12,781,888
40 1901.....	11,126,226	81,432	1,323,513	1,263,150	116,253	13,910,574
41 1902.....	8,017,525	99,791	2,315,788	749,829	356,408	11,539,342

¹ Including Austria-Hungary, the exports to which in 1900 were \$406,865; for 1901, \$30,150; and 1902, \$148,603.

² Including Hongkong, the exports to which in 1900 were \$3,870,994; for 1901, \$2,924,974; and 1902, \$3,000,266.

³ Including Cochin China and Japan not separately reported.

the Philippines, by countries in certain calendar years from 1854 to 1902.

ASIA.							Africa.
China. ²	Japan.	British East Indies.	Dutch East Indies.	French East Indies.	All other Asia.	Total.	
						\$988,643	1
\$833,766		\$85,719	\$69,158			1,534,607	2
1,286,487		177,124	70,999			1,130,625	3
880,311		100,232	150,082			2,183,209	4
1,388,262		674,215	119,943		\$789	3,523,744	5
2,748,746	\$458	329,107	174,190	\$218,914	52,329	2,933,038	6
2,230,275		503,162	181,144	5,489	12,968	2,341,748	7
1,769,356		291,763	267,401	13,141	87	1,848,960	8
1,501,174		149,573	159,602	37,613		5,163,162	9
3,861,169		1,174,143	117,234	10,616		3,301,297	10
2,918,324		216,128	164,685	2,160		7,680,939	11
6,734,356		621,680	324,670	233		6,761,034	12
³ 4,218,574	(⁴)	2,116,613	403,250	(⁵)	22,597	4,802,233	13
³ 3,898,983	(⁴)	674,509	228,741	(⁵)		3,976,290	14
³ 213,977	(⁴)	3,404,479	190,924	⁵ 140,084	26,826	3,772,273	15
59,228	301	3,412,509	300,096	139		2,185,222	16
40,863		2,057,589	62,160	24,610		2,701,647	17
62,198		2,557,812	81,405	232		3,085,874	18
4,135	19	2,976,810	85,666	5,041	14,203	5,011,839	19
140,238		4,625,241	74,654	123,950	47,756	6,456,615	20
90,256	32,595	6,248,416	48,969	3,064	33,315	5,040,443	21
35,599	4,053	4,588,351	43,536	368,904		4,243,510	22
60,809	77,296	4,053,522	51,664	219		3,155,390	23
12,664		3,028,903	5,856	107,967		4,471,289	24
12,452		4,443,515	14,636	686		5,828,737	25
29,687	49	5,710,667	157	88,177		6,132,950	26
55,380	32,980	5,987,771	1,670	55,149		6,088,465	27
52,271	1,756	5,414,690	39,422	580,326		5,729,605	28
64,203	20,925	5,377,128	38,210	229,062	77	5,514,519	29
3,724,334	4,940	1,649,069		135,807	369	7,126,182	30
5,897,475	2,528	936,004	100,166	190,009		9,260,966	31
7,518,192	1,251	1,172,535	40,541	528,447		4,440,500	32
3,323,822	44,938	828,814		242,926		7,661,077	33
5,776,761	127,986	1,574,450		181,880		5,787,448	34
4,867,434	305,732	513,969	94,587	5,726		4,898,162	35
3,374,193	617,291	842,095	63,049	1,534		935,269	36
						45,142	37
840,965	66,319	27,985				5,426,115	38
4,013,506	1,022,020	368,345	22,244			5,973,534	39
4,109,821	794,453	1,009,388	16,027	396	43,449	30,434	40
3,042,977	1,584,218	728,163	18,599	1,622	1,354	108,338	41
3,676,240	708,345	816,244	31,764	3,822	6,324		

¹ Included with China.

² Cochin China included with China.

³ No data obtainable.

⁴ Five months—August to December, inclusive.

Value, in United States gold currency, of merchandise exported from the Philippines, by countries, in certain calendar years from 1854 to 1902—Continued.

YEAR.	NORTH AMERICA.			Central America, South America, and West Indies.	OCEANIA.			All countries.
	United States.	All other North America.	Total.		Australasia.	All other Oceania.	Total.	
1854.....	\$2,655,627	.....	\$2,655,627	.....	\$667,829	\$2,719	\$670,548	\$6,728,407
1855.....	1,951,600	.....	1,951,600	\$27,710	676,416	2,122	678,538	6,432,600
1856.....	3,544,941	.....	3,544,941	9,304	1,303,495	11,412	1,314,907	9,597,290
1857.....	3,277,994	.....	3,277,994	21,140	2,872,243	.....	2,872,243	12,646,447
1858.....	2,251,474	\$47	2,251,521	.....	1,029,910	1,482	1,031,392	9,895,357
1860.....	3,167,385	.....	3,167,385	45,963	890,755	37,001	927,756	10,104,775
1861.....	1,447,786	.....	1,447,786	26,062	1,306,937	2,569	1,309,506	8,464,774
1862.....	1,568,941	.....	1,568,941	41,334	1,452,403	2,419	1,454,822	9,625,003
1863.....	1,532,213	.....	1,532,213	9,411	.....	.....	.....	10,628,045
1864.....	2,718,599	.....	2,718,599	126	428,257	.....	428,257	11,262,345
1865.....	5,685,644	.....	5,685,644	42,819	946,220	.....	946,220	22,008,554
1866.....	7,606,359	.....	7,606,359	269,889	.....	27,993	27,993	23,338,232
1867.....	6,843,713	.....	6,843,713	537,475	746,713	10,167	756,880	22,964,100
1873.....	7,940,642	.....	7,940,642	.....	.....	.....	.....	23,985,923
1874.....	5,340,175	.....	5,340,175	.....	559,154	.....	559,154	17,386,031
1875.....	5,787,322	.....	5,787,322	.....	614,658	88	614,746	18,470,168
1876.....	5,566,351	.....	5,566,351	.....	130,527	.....	130,527	13,572,132
1877.....	5,943,592	.....	5,943,592	.....	28,388	.....	28,388	15,462,692
1878.....	5,118,605	.....	5,118,605	.....	239,036	.....	239,036	15,835,084
1879.....	4,330,843	.....	4,330,843	.....	186,458	.....	186,458	16,614,159
1880.....	9,373,658	.....	9,373,658	89	167,025	.....	167,025	21,100,566
1881.....	8,214,371	.....	8,214,371	.....	124,407	.....	124,407	21,867,942
1882.....	6,676,949	.....	6,676,949	.....	139,200	.....	139,200	18,446,815
1883.....	10,496,546	.....	10,496,546	.....	226,633	.....	226,633	23,009,270
1884.....	6,868,321	.....	6,868,321	.....	176,729	.....	176,729	19,827,392
1885.....	8,389,588	.....	8,389,588	.....	.....	.....	.....	20,497,416
1886.....	6,662,200	.....	6,662,200	.....	.....	.....	.....	20,103,559
1887.....	9,035,496	.....	9,035,496	.....	.....	.....	.....	19,437,894
1888.....	6,951,558	.....	6,951,558	.....	222	.....	222	19,414,951
1889.....	8,591,042	.....	8,591,042	.....	86,244	.....	86,244	25,664,337
1890.....	3,213,204	.....	3,213,204	.....	247	.....	247	21,552,784
1891.....	4,391,306	.....	4,391,306	.....	9,954	.....	9,954	20,886,431
1892.....	2,902,800	.....	2,902,800	.....	.....	.....	.....	19,158,354
1893.....	2,995,385	.....	2,995,385	53,708	46,587	.....	46,587	22,240,550
1894.....	3,681,615	.....	3,681,615	43,695	1,277,747	.....	1,277,747	16,535,212
1895 ¹.....	.....	.....	.....	.....	.....	.....	.....	.....
1898 ²	1,637,844	.....	1,637,844	.....	333,632	.....	333,632	5,165,356
1899.....	3,935,255	4,721	3,939,976	.....	320,103	3,425	323,528	14,846,582
1900.....	2,960,851	15,605	2,976,456	3,914	621,892	4,290	626,182	22,990,373
1901.....	4,546,292	11,241	4,557,533	1,021	621,200	5,658	626,858	24,503,353
1902.....	11,475,948	8,333	11,484,281	3,878	285,682	7,644	293,326	28,671,904

¹ No data obtainable.

² Five months—August to December, inclusive.

Since American occupation the increase in Philippine commerce has been substantial and, under the circumstances, remarkable. During this period the islands have been visited by a series of calamities as already related elsewhere; nevertheless and despite all these drawbacks the commerce has steadily increased, and under established conditions gives promise of a growth far beyond any heretofore enjoyed and only to be measured by the wonderful productive capacity of the islands.

The United States maintained commercial relations with the Philippines as early as 1825, in which year a Mr. Hubell acted as commercial agent. It is probable that such relations existed between the United States and the Philippines even earlier than 1825. Several foreign countries are represented by consuls or commercial agents; some of them have had such representatives for many years. The following statement shows the foreign consulates, with the years in which they were respectively established, as far as can be ascertained:

NAMES OF COUNTRIES MAINTAINING CONSULATES IN THE PHILIPPINES.	Years in which consulates were established.	NAMES OF COUNTRIES MAINTAINING CONSULATES IN THE PHILIPPINES.	Years in which consulates were established.
Austria-Hungary	1871	Japan	1889
Belgium	¹ 1842	Liberia	1886
Brazil	1854	Mexico	³ 1877
Chile	1851	Netherlands.....	² 1881
China	1898	Portugal.....	1851
Denmark	1851	Russia.....	1875
Ecuador	1886	Spain.....	1899
France.....	1836	Sweden and Norway.....	1852
Germany.....	² 1881	Switzerland.....	1863
Great Britain.....	1847	Uruguay.....	1895
Italy.....	1867	Venezuela.....	(4)

¹ Earliest recorded year; was probably established prior to 1842.

² Earliest recorded year; was probably established prior to 1881.

³ The consul for Mexico also performs consular duties for Bolivia.

⁴ Consular officer for Venezuela is located at Cebú; the year in which the consulate was established is not recorded.

FOREIGN AND INTERISLAND SHIPPING FACILITIES.

FOREIGN COMMERCE.

The facilities for commercial intercourse between Manila, the center of trade between the Philippines and America, Europe, the Orient, and elsewhere, have been sufficient for the demands of commerce, and have increased with the remarkable increase in imports and exports since the establishment of American sovereignty. The steamers of fourteen steamship companies in addition to the steamers of the army transport service, visited Manila regularly, either weekly, semi-monthly, or monthly, during 1902, carrying passengers and merchandise to and from the various foreign countries engaged in trade with the islands.

The statement which follows is from the records of the customhouse, Manila, and gives some of the details of this traffic. This statement is followed by two others which give similar statistics regarding

tramp steamships and sailing vessels. These tables show the excellent transportation facilities enjoyed by the Philippines, which have direct communication with several leading foreign ports, and through connections at Hongkong with all parts of Europe and America. They also indicate the limited extent to which American bottoms are employed, and that by far the largest amount of the foreign trade of the islands is carried on by ships sailing under the British and German flags—principally the former. It is a rare spectacle to see a commercial vessel of any kind in the harbor of Manila flying the American flag.

Commercial steamships arriving regularly at Manila from the United States and foreign countries during the year 1902.

STEAMSHIP COMPANY.	SERVICE.		STEAMSHIPS.		
	Between Manila and—	Frequency.	Number.	Flag.	Total net tonnage.
Indo-China Steam Navigation Co., Limited.	Hongkong	Weekly	2	British	2,200
China-Manila Steamship Co.	.....do.....	.....do.....	4	.....do.....	5,740
China Navigation Co.	.....do.....	Semimonthly.	1	.....do.....	1,060
Toyo Kisen Kaisha.....	.....do.....	.....do.....		Japanese	2,400
North German Lloyd Steamship Co.	Singapore and Borneo.....	.....do.....	7	German	5,590
Nippon Yusen Kaisha...	Australia, Hongkong, and Japanese ports.	Monthly.....	3	Japanese ...	7,050
China Navigation Co....	.....do.....	.....do.....	4	British	5,800
Eastern and Australian Steamship Co., Limited.	.....do.....	.....do.....	4	.....do.....	7,590
Pacific Mail Steamship Co., Limited.	San Francisco, Honolulu, Hongkong, and Japanese ports.	.....do.....	3	American ..	8,860
Occidental and Oriental Steamship Co., and Toyo Kisen Kaisha, combined.			3	British	8,340
			3	Japanese ...	10,200
British India Steamship Co.	Calcutta, Rangoon, Singapore, Hongkong, and Japanese ports.	.....do.....	7	British	14,858
Compania Transatlantica.	Liverpool, Spanish ports, Suez canal, and Singapore.	.....do.....	6	Spanish	17,233
Indra Line	New York, Suez canal, Singapore, Hongkong, and Shanghai.	.....do.....	5	British	16,550

Commercial tramp steamships arrived at Manila from the United States and foreign countries during the year 1902.

ARRIVED FROM—	Number of trips.	STEAMSHIPS.		
		Number.	Flag.	Total net tonnage.
Australia	17	15	British	27,550
Do	1	1	German	1,230
Do	1	1	Norwegian	1,990
Borneo	2	2	British	3,120
Do	1	1	German	1,390
French Indo-China	5	2	American	1,620
Do	3	1	Belgian	1,200
Do	7	4	British	4,630
Do	2	1	French	690
Do	62	25	German	23,900
Do	18	10	Norwegian	10,060
Do	3	2	Swedish	2,420
Germany via Suez canal and Singapore	7	7	German	18,647
Great Britain	2	2	British	2,369
Do	1	1	German	770
Do	1	1	British	4,900
Guam	1	1	Japanese	90
Do	3	3	American	1,955
Hongkong	1	1	Austrian	2,030
Do	1	1	Danish	1,130
Do	1	1	German	2,390
Do	9	9	British	13,848
Do	2	2	Austrian	7,085
Japan	26	21	British	57,870
Do	2	1	German	1,690
Do	7	5	Japanese	5,903
Do	8	6	Norwegian	6,120
Do	1	1	Russian	1,380
Do	2	2	British	4,310
Russia	3	3	American	4,130
Shanghai	1	1	British	4,195
Do	1	1	Danish	3,200
Do	1	1	Norwegian	1,220
Do	1	1	British	960
Siam	2	2	Norwegian	1,480
Do	3	3	British	6,420
Singapore	1	1	Dutch	1,860
Do	1	1	Dutch	1,860
United States:	20	19	British	52,030
New York via Suez canal and Singapore	1	1	French	2,750
Do	3	3	German	9,810
Do	3	3	American	15,320
Do	1	1	Austrian	2,164
Other United States ports	9	8	British	22,050
Do	2	2	Norwegian	3,770

Sailing vessels arrived at Manila from the United States and foreign countries during the year 1902.

ARRIVED FROM—	Number of trips.	SAILING VESSELS.		
		Number.	Flag.	Total net tonnage.
Australia	4	4	American	5,830
Do	1	1	British	1,460
Hongkong	1	1	do	780
Japan	2	1	Japanese	770
Do	8	8	American	6,836
United States, various ports in	1	1	British	1,400
Do	1	1	Chilean	1,390

From the last two tables it appears that of the 249 vessels plying between Manila and other points during the year ending December 31, 1902, but 14 were American, and of the 17 sailing vessels 12 were American.

INTERISLAND COMMERCE.

A heavy interisland commerce is constantly and increasingly carried on. This trade has been in existence for many years, though it did not begin to assume important proportions until well into the eighteenth century, and even then its growth was slow and comparatively small until after 1834, in which year, as already stated, the foreign trade of the islands, theretofore restricted to Spain, Mexico, and oriental countries, was opened to the world.

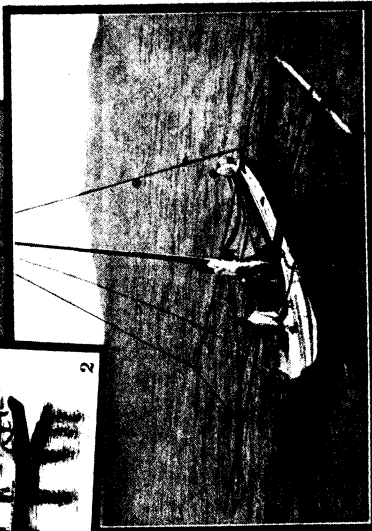
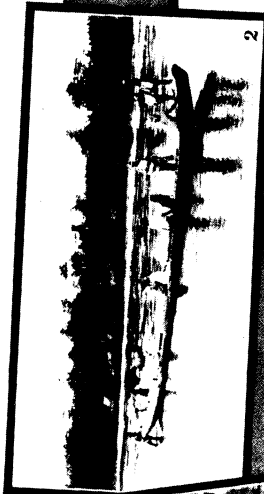
Since American occupation the increase in foreign trade has necessarily been accompanied by a corresponding growth of interisland commerce. Unfortunately no record of the quantities or values of merchandise thus transported from island to island can be found, and, consequently, the extent of the traffic can not be shown. It is, however, indicated by the number and tonnage of vessels engaged in the home or coastwise trade, as shown in the following table, which covers the number of coastwise vessels of 15 registered tons and upward for which licenses were issued at Manila and other customs ports during the year 1902.

It will be understood that a large number of boats of less than 15 tons registered were also licensed during the year, but such small water craft are almost wholly used for purely local purposes and are not employed in interisland traffic. They are consequently not included in the statement which follows:

Vessels of 15 tons register and upward engaged in Philippine coastwise trade for which custom-house licenses were issued during the calendar year 1902.

CUSTOMS DISTRICT.	ALL VESSELS.			SAILING VESSELS. ¹			STEAM VESSELS.		
	Total number.	Tonnage.		Number.	Tonnage.		Number.	Tonnage.	
		Total.	Average.		Total.	Average.		Total.	Average.
Total	1,469	88,803.04	60.45	1,294	59,181.75	45.73	175	29,621.29	169.26
Aparri	22	435.32	19.79	22	435.32	19.79			
Manila	1,187	78,193.97	65.88	1,028	49,639.91	48.28	159	28,554.06	179.59
Iloilo	137	5,769.31	42.11	130	5,315.65	40.89	7	453.66	64.81
Cebu	110	3,937.99	35.80	101	3,324.42	32.92	9	613.57	68.17
Zamboanga ...	5	140.13	48.03	5	240.13	48.03			
Jol6	8	226.32	28.29	8	226.32	28.32			

¹Includes craft operated wholly or partly by oars or poles.



1. POLING A CASCO. 2. CANOES MADE FROM THE LOG OF A SINGLE TREE. 3. SINGLE-STICK OUTRIGGER, LAGUNA DE BAY, LUZÓN. 4. MORO VINTA. 5. OUTRIGGERED SAILING CRAFT OF PANAY AND LETE.



LIST OF PORTS.

At the date of the census there were 196 open coastwise ports and subports in the Philippine archipelago which had been made legally available for interisland traffic since American occupation. The number of such ports and subports under Spanish rule, immediately prior to American occupation, was only 63. The present insular government has fostered trade and transportation in all possible ways, and has endeavored to encourage insular maritime traffic by establishing open ports and subports whenever and wherever the interests and convenience of the public have made such action advisable. On November 12, 1902, Philippine Act No. 519 was passed, throwing open the coastwise trade to foreign vessels until July 1, 1904.

The following statement gives a complete alphabetical list of the 196 coastwise ports and subports in the archipelago on March 2, 1902, together with the island in which situated and the date of the opening of the port:

Ports of the archipelago March 2, 1902, with date of opening and island in which situated.

NAME.	Island.	Date of opening.
Agno.....	Luzón.....	Nov. 8, 1900
Alegria.....	Cebú.....	Jan. 28, 1902
Alfonso XIII.....	Paragua.....	Feb. 10, 1903
Areceli.....	Dumarán.....	Aug. 1, 1902
Argao.....	Luzón.....	Nov. 1, 1900
Aroroy.....	Masbate.....	Jan. 26, 1903
Atimonan.....	Luzón.....	June 10, 1900
Bacólod.....	Negros.....	Nov. 26, 1900
Bacón.....	Luzón.....	Jan. 14, 1902
Bacuit.....	Paragua.....	Aug. 19, 1902
Bagaña.....	Mindanao.....	May 28, 1901
Bais.....	Negros.....	June 25, 1902
Balambán.....	Cebú.....	Mar. 13, 1900
Balayán ¹	Luzón.....	June 1, 1900
Baler.....	do.....	July 1, 1902
Balingasag.....	Mindanao.....	Feb. 5, 1903
Bantayán.....	Bantayán.....	Apr. 25, 1902
Barcelona.....	Luzón.....	Jan. 16, 1902
Barili.....	Cebú.....	Jan. 28, 1902
Batangas ¹	Luzón.....	Feb. 1, 1900
Bató.....	Catanduaes.....	Dec. 5, 1902
Banan.....	Luzón.....	Feb. 26, 1903
Baybay.....	Leyte.....	Feb. 22, 1900
Bóac.....	Marinduque.....	May 16, 1901
Bogó.....	Cebú.....	June 1, 1900
Bolinao.....	Luzón.....	Apr. 7, 1900
Bongao.....	Bongao.....	Mar. 13, 1900
Borongan.....	Samar.....	Sept. 27, 1902
Botolan.....	Luzón.....	Jan. 22, 1903
Bulalácao.....	Mindoro.....	May 30, 1902
Bulan.....	Luzón.....	Jan. 30, 1900
Bulusan.....	do.....	Jan. 16, 1902
Butúan.....	Mindanao.....	Apr. 6, 1901
Cabalian.....	Leyte.....	Aug. 2, 1901
Cabañán.....	Luzón.....	Dec. 24, 1900
Cádiz Nuevo.....	Negros.....	Sept. 2, 1902
Cagayán.....	Mindanao.....	Jan. 25, 1902
Caibiran.....	Biliran.....	Nov. 25, 1902
Calapán.....	Mindoro.....	May 30, 1902
Calasían.....	Paragua.....	Aug. 19, 1902
Calbáyog.....	Samar.....	May 30, 1902
Candón.....	Luzón.....	Dec. 20, 1900
Canoan.....	Siquiljor.....	Oct. 17, 1902
Cápiz.....	Panay.....	Jan. 15, 1900
Caraga.....	Mindanao.....	Dec. (2)
Caramúan.....	Luzón.....	Dec. 29, 1902

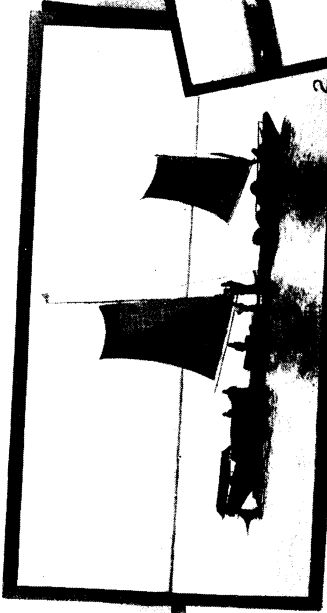
¹ Closed December 10, 1901, by military orders; reopened May 1, 1902.

² Date of opening unknown.

Ports of the archipelago March 2, 1902, with date of opening and island in which situated—Continued.

NAME.	Island.	Date of opening.
Carangian		
Cárcar	Dalupiri	Nov. 20, 1902
Carigara	Cebú	Feb. 4, 1900
Casiguran	Leyte	Mar. 5, 1900
Cataingan	Luzón	Jan. 16, 1902
Catanauan	Masbate	Jan. 26, 1903
Catarmán	Luzón	Nov. 19, 1901
Catbalogan	Sámar	Nov. 20, 1902
Cátubig	do	May 30, 1902
Córdova	do	Dec. 16, 1902
Corón	Mactán	Jan. 13, 1903
Cottabato	Busuanga	Aug. 19, 1902
Cuilón	Mindanao	Jan. 2, 1900
Currimao	Calamianes	June 9, 1901
Cuyo	Luzón	Oct. 17, 1900
Dáet	Cuyo	June 9, 1901
Dagupan	Luzón	Apr. 10, 1900
Dalaguete	do	Jan. 1, 1900
Danao	Cebú	May 15, 1901
Danao	do	Mar. 13, 1900
Dapitan	Negros	Sept. 2, 1902
Dasol	Mindanao	Apr. 3, 1900
Dávao	Luzón	Jan. 22, 1903
Donsol	Mindanao	Jan. 12, 1903
Dúlag	Luzón	Jan. 30, 1901
Dumaguete	Leyte	Sept. 2, 1902
Dumanhug	Negros	June 15, 1900
Estancia	Cebú	Mar. 12, 1900
Gazán	Panay	Feb. 20, 1902
Gúbat	Marinduque	May 16, 1901
Guijulgán	Luzón	Feb. 14, 1900
Guinayanán	Negros	Apr. 25, 1902
Guindulman	Luzón	Oct. 22, 1900
Guiuan	Bohol	May 22, 1902
Hindang	Sámar	May 30, 1902
Hinunangan	Leyte	Dec. 5, 1902
Iba	do	Aug. 2, 1901
Iligan	Luzón	Jan. 16, 1900
Inabañga	Mindanao	Apr. 3, 1900
Isabela	Bohol	June 22, 1900
Jagna	Basilan	Apr. 1, 1900
Jimamailan	Bohol	Sept. 2, 1902
Jiménez	Negros	Feb. 20, 1902
Jubán	Mindanao	Nov. 19, 1901
La Granja	Luzón	Jan. 16, 1902
Laguán	Sámar	Nov. 20, 1902
Lañgaran	do	May 30, 1902
Laog	Mindanao	July 1, 1902
Lavezares	Luzón	Jan. 1, 1900
Legaspi	Sámar	Nov. 25, 1902
Lemery ¹	Luzón	Jan. 30, 1900
Leyte	do	Mar. 1, 1900
Lagata	Leyte	Jan. 13, 1903
Liloan	Panay	Apr. 22, 1902
Loay	Leyte	Jan. 13, 1903
Loboc	Bohol	May 22, 1902
Loboó	do	Do.
Loculan	Luzón	May 1, 1902
Lucena	Mindanao	Nov. 10, 1902
Maasin	Luzón	May 22, 1900
Magallanes	Leyte	July 7, 1900
Magallanes	Luzón	Jan. 16, 1902
Magdalena	Sibuyán	Jan. 13, 1903
Malabang	Masbate	Jan. 25, 1903
Maltbog	Mindanao	Dec. 5, 1902
Mambájao	Leyte	Feb. 22, 1900
Mandaón	Camiguín	Sept. 6, 1901
Mangarin	Masbate	Jan. 26, 1903
Marauñás (Boni Boni)	Mindoro	May 30, 1902
Maribojoc	Paragna	Aug. 19, 1902
Masinloc	Bohol	Sept. 2, 1902
Matnog	Luzón	Apr. 7, 1901
Matti	Luzón	Apr. 4, 1901
Maubán	Mindanao	Mar. 13, 1900
Milagros	do	Apr. 13, 1900
Misamis	Masbate	May 8, 1902
	Mindanao	Apr. 3, 1900

¹ Closed December 10, 1901, by military orders; reopened May 1, 1902.



1. MORO DIVERS, TAPUL GROUP. 2. DOUBLE-MASTED OUTRIGGER, LAGUNA DE BAY, IZÓN. 3. SAILING CRAFT, VISAYAS. 4. MORO VINTA AT JOLÓ. 5. MORO VINTA WITH THATCHED AWNING.

LIST OF PORTS.

581

Ports of the archipelago March 2, 1902, with date of opening and island in which situated—Continued.

NAME.	Island.	Date of opening.
Naga.....	Cebú.....	Feb. 4, 1900
Nasugbu ¹	Luzón.....	Dec. 17, 1900
Nauján.....	Mindoro.....	Jan. 20, 1903
Naval.....	Biliran.....	Sept. 2, 1902
Nueva Cáceres.....	Luzón.....	Mar. 10, 1900
Odióngán.....	Tablas.....	Jan. 13, 1903
Olongapó.....	Luzón.....	Nov. 27, 1900
Orani.....	do.....	Jan. 1, 1900
Orás.....	Samar.....	Dec. 16, 1902
Ormoc.....	Leyte.....	Feb. 22, 1900
Oroquieta.....	Mindanao.....	Oct. 1, 1900
Oslob.....	Cebú.....	Jan. 28, 1902
Palanas.....	Masbate.....	Jan. 26, 1903
Palánog (Masbate).....	do.....	June 1, 1900
Paláwig.....	Luzón.....	Feb. 21, 1901
Palompón.....	Leyte.....	July 7, 1900
Palián.....	Mindoro.....	May 30, 1902
Parang Parang.....	Mindanao.....	Dec. 5, 1902
Pasacao.....	Luzón.....	Mar. 10, 1900
Pilar.....	do.....	Jan. 16, 1902
Pitogo.....	do.....	Nov. 19, 1901
Pola.....	Mindoro.....	May 30, 1902
Polloc.....	Mindanao.....	Dec. 6, 1900
Poró.....	Camote Islands.....	Jan. 13, 1903
Puerto Galera.....	Mindoro.....	Jan. 20, 1903
Puerto Princesa.....	Paragua.....	June 9, 1901
Ragay.....	Luzón.....	Dec. 4, 1902
Romblón.....	Romblón.....	June 10, 1900
Sablayán.....	Mindoro.....	Jan. 20, 1903
Salomague.....	Luzón.....	Dec. 10, 1900
San Antonio.....	do.....	May 2, 1901
Do.....	Samar.....	Nov. 20, 1902
San Carlos.....	Negros.....	Feb. 20, 1902
San Felipe.....	Luzón.....	June 1, 1900
San Fernando.....	do.....	Jan. 1, 1900
Do.....	Ticao.....	Jan. 7, 1902
San Isidro del Campo.....	Leyte.....	Jan. 13, 1903
San Jacinto.....	Ticao.....	Jan. 7, 1902
San José de Buenavista.....	Panay.....	Feb. 1, 1900
San José de Lagonoy.....	Luzón.....	July 14, 1900
San Narciso.....	do.....	May 2, 1902
Santa Cruz.....	Luzón (Zambales).....	Jan. 26, 1900
Do.....	Marinduque.....	May 16, 1901
Santa Cruz de Laguna.....	Luzón.....	July 23, 1900
Santa María.....	Mindanao.....	June 21, 1902
Santo Tomás.....	Luzón.....	Oct. 20, 1902
Siassi ²	Siassi.....	June 1, 1902
Siatón.....	Negros.....	Feb. 7, 1903
Sibonga.....	Cebú.....	Jan. 28, 1902
Silay.....	Negros.....	June 15, 1900
Sorsogón.....	Luzón.....	Jan. 30, 1900
Sual.....	do.....	Apr. 7, 1900
Súbic.....	do.....	Jan. 26, 1900
Surigao.....	Mindanao.....	Apr. 3, 1900
Taal.....	Luzón.....	Jan. 13, 1901
Tabaco.....	do.....	Feb. 14, 1900
Tacloban.....	Leyte.....	Jan. 30, 1900
Tagbilaran.....	Bohol.....	Mar. 22, 1900
Tagoloan.....	Mindanao.....	Feb. 6, 1903
Talibón.....	Bohol.....	Sept. 2, 1902
Talisayan.....	Mindanao.....	Feb. 2, 1903
Tanauan.....	Leyte.....	Sept. 2, 1902
Tarangnán.....	Samar.....	Sept. 16, 1902
Taytay.....	Paragua.....	Aug. 19, 1902
Toledo.....	Cebú.....	Jan. 28, 1902
Torrijos.....	Marinduque.....	May 16, 1901
Tubigon.....	Bohol.....	Apr. 5, 1900
Tuburan.....	Cebú.....	Jan. 28, 1902
Ubay.....	Bohol.....	May 22, 1902
Umus.....	Cagayán Sulu.....	Sept. 25, 1902
Usón.....	Masbate.....	Jan. 26, 1903
Vigan.....	Luzón.....	Jan. 1, 1900
Villaba.....	Leyte.....	Jan. 13, 1903
Virac.....	Catanduanes.....	Jan. 13, 1903

¹ Closed December 10, 1901, by military orders; reopened May 1, 1902.

² Opened as a port of entry December 26, 1899; discontinued May 31, 1902.

An effort was made through special agents of the census to ascertain the value, construction, tonnage, and number of employees of vessels of 15 tons and upward engaged in interisland traffic, which met with remarkable success, considering the difficulties attending such an investigation.

The constant shifting from place to place of the native boats, the frequent changes in ownership, and the impossibility, in many cases, of locating vessels because of prolonged absence from their home ports on insular coast voyages, or on account of their being temporarily idle, or disabled and laid up in some obscure place, or lost at unknown points along the coast, rendered a complete enumeration of all licensed vessels impracticable; but in spite of these difficulties, 1,146 vessels were found by the census agents, and information, more or less complete, secured concerning them. The data thus obtained are presented in the three following tables, the titles and headings of which sufficiently indicate the character of the information they contain. It should be stated that the employees in Table 3 are only those who were reported as receiving regular monthly wages, and do not include those who were paid by the voyage or by a share of the proceeds of the voyage, or those whose wages could not be learned. The number of employees whose monthly wages are stated is sufficiently large to clearly and accurately show the wage rates of seamen prevailing throughout the different sections of the archipelago, and the fact that the table does not include all maritime wage-earners is therefore unimportant.

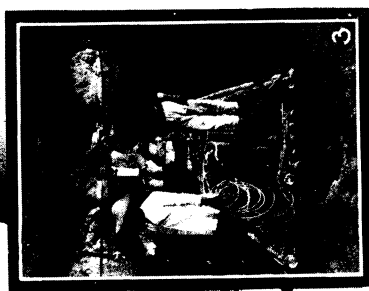
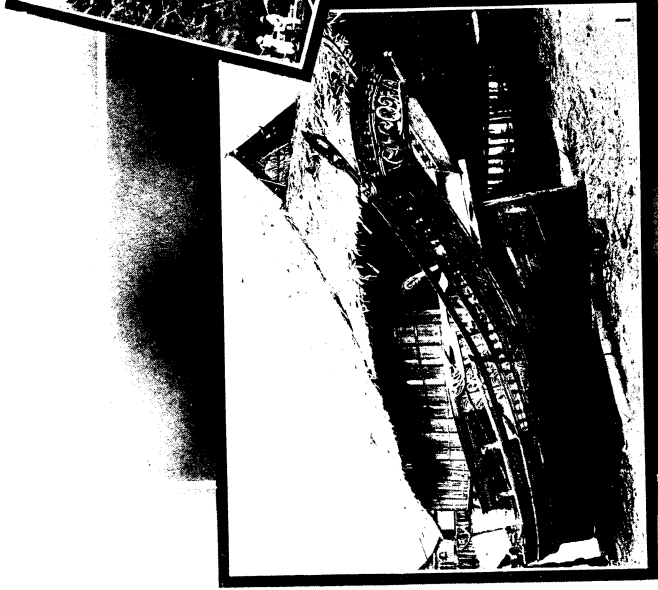
TABLE 1.—Number, management, tonnage, value, construction, and employees of Philippine coastwise vessels, by customs districts, as enumerated by Philippine census agents.

CUSTOMS DISTRICT.	NUMBER OF VESSELS.			Tonnage.	Value (Mexican currency).	NUMBER WITH HULL OF—		Number of em- ployees (officers and crews).
	Total.	Owned.	Char- tered.			Wood.	Iron or steel.	
Total	1,146	1,085	61	82,541.04	\$14,849,578	1,041	105	*10,478
Aparri.....	18	18	.....	¹ 343.86	² 9,540	18	.....	145
Manila	985	938	47	74,508.80	13,567,933	882	103	8,869
Iloilo	90	84	6	4,155.44	802,148	89	1	858
Cebu	42	34	8	3,153.85	438,957	41	1	527
Zamboanga	4	4	.....	180.63	6,000	4	.....	23
Joló	7	7	.....	198.46	25,000	7	.....	56

¹ Not including unreported tonnage of 13 vessels.

² Not including unreported value of 61 vessels.

³ Not including unreported number of employees for 143 vessels.



1. OLD MORO PIRATE BOAT. 2. CASCOES, OR THE COMMON LIGHTER OF THE PHILIPPINES. 3. PASSENGER RAFT ON THE MAGAT RIVER, PROVINCE OF NUEVA VIZCAYA. 4. SINGLE-STUCK OUTRIGGER.



TABLE 2.—Number, management, tonnage, value, construction, and employees of Philippine coastwise vessels, classified by kinds, as enumerated by Philippine census agents.

KIND.	NUMBER OF VESSELS.			TONNAGE.		VALUE (MEXICAN CURRENCY).		NUMBER WITH HULL OF—		Number of employees (officers and crews).
	Total.	Owued.	Chartered.	Total.	Average. ¹	Total.	Average. ²	Wood.	Iron or steel.	
All craft .	1,146	1,085	61	\$82,541.04	72.85	\$14,849,578	\$13,708	1,041	105	610,478
Steamers ⁶	155	144	11	29,915.14	195.52	9,348,240	61,909	87	68	3,586
Steam launches	34	32	2	975.25	31.45	650,689	23,239	31	3	252
Brigantines.....	4	4	.....	716.08	179.02	53,500	13,375	4	.....	59
Schooners.....	22	20	2	3,510.11	159.55	231,375	11,018	22	.....	264
Pilot boats.....	74	68	6	5,812.85	79.63	469,909	6,910	74	.....	900
Pontines.....	16	12	4	561.86	35.12	27,300	2,100	16	.....	178
Pancos.....	27	21	6	776.37	28.75	33,630	1,345	27	.....	245
Paraos.....	4	2	2	116.81	29.20	1,950	650	4	.....	25
Barangayanes .	27	27	.....	501.39	18.57	13,740	509	27	.....	227
Balandras.....	9	9	.....	236.77	26.31	40,000	4,444	9	.....	63
Faluchos.....	5	5	.....	207.33	41.47	17,100	3,420	5	.....	56
Virays.....	3	3	.....	60.17	20.06	1,800	600	3	.....	21
Lorchas.....	249	231	18	15,799.22	64.22	1,644,079	7,611	236	13	1,942
Barges and lighters.....	64	64	.....	6,247.23	97.61	770,716	12,042	44	20	330
Cascoes.....	416	413	3	14,300.81	34.63	1,382,358	3,372	416	.....	2,038
Bancas.....	26	23	3	549.44	21.13	60,914	2,343	26	.....	175
Unclassified sailing vessels	11	7	4	2,254.21	225.42	102,278	9,298	10	1	117

¹ The figures in this column represent the average tonnage of vessels whose tonnages only were reported.

² The figures in this column represent the average values of vessels whose values only were reported.

³ Not including unreported tonnage of 13 vessels.

⁴ Not including unreported value of 62 vessels.

⁵ Not including unreported number of employees for 143 vessels.

⁶ Of the 155 steamers reporting, 5 were side-wheelers, 1 a stern-wheeler, 11 were twin-screw propellers, and 138 were single-screw propellers. Eight of the steamers were reported as being employed partly in foreign traffic.

TABLE 3.—Monthly wages in Mexican currency of employees on Philippine coastwise vessels, classified by occupations and by customs districts, as reported by Philippine census agents.

DISTRICT.	ALL EMPLOYEES.			CAPTAINS.		
	Number.	Monthly wages (pesos).		Number.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	9,486	261,064	27.52	162	24,024	148.30
Aparri.....	7	75	10.71	.....	.....	.....
Manila.....	8,235	239,575	29.09	128	20,992	164.00
Iloilo.....	783	12,341	15.76	7	877	125.29
Cebu.....	390	7,926	20.32	26	2,130	81.92
Zamboanga.....	15	195	13.00	1	25	25.00
Jol6.....	56	952	17.00	.....	.....	.....

COMMERCE AND TRANSPORTATION.

TABLE 3.—Monthly wages in Mexican currency of employees on Philippine coastwise vessels, classified by occupations and by customs districts, as reported by Philippine census agents—Continued.

DISTRICT.	PILOTS.			BOATSWAINS.		
	Number.	Monthly wages (pesos).		Number.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	209	16,086	76.97	196	6,478	33.05
Manila	195	14,691	75.34	157	5,588	35.59
Iloilo	10	1,240	124.00	10	315	31.50
Cebu	4	155	38.75	21	420	20.00
Zamboanga				1	15	15.00
Joló				7	140	20.00

DISTRICT.	FIREMEN.			OILERS.		
	Number.	Monthly wages (pesos).		Number.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	421	10,729	25.48	199	5,739	28.84
Manila	385	9,958	25.86	176	5,254	29.85
Iloilo	20	488	24.40	14	291	20.79
Cebu	16	283	17.69	9	194	21.56

DISTRICT.	SAILORS.			COOKS.		
	Number.	Monthly wages (pesos).		Number.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	3,792	57,083	15.05	293	5,790	19.76
Manila	2,987	50,691	16.97	210	4,917	23.41
Iloilo	521	3,123	5.99	54	434	8.04
Cebu	247	2,759	11.17	21	345	16.43
Zamboanga	9	90	10.00	1	10	10.00
Joló	28	420	15.00	7	84	12.00

DISTRICT.	SHIP CARPENTERS.			MASTERS.		
	Number.	Monthly wages (pesos).		Number.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	43	1,372	31.91	460	15,134	32.90
Aparri				1	15	15.00
Manila	40	1,211	30.28	379	12,470	32.90
Iloilo	1	50	50.00	76	2,504	33.74
Cebu	2	111	55.50	2	50	25.00
Zamboanga				2	35	17.50

TABLE 3.—*Monthly wages in Mexican currency of employees on Philippine coastwise vessels, classified by occupations and by customs districts, as reported by Philippine census agents—Continued.*

DISTRICT.	ROWERS.			HELMSMEN.		
	Num-ber.	Monthly wages (pesos).		Num-ber.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands	574	8,633	15.04	249	5,990	21.47
Manila	567	8,521	15.03	225	5,658	35.12
Iloilo				15	225	15.00
Cebu				9	112	12.44
Joló	7	112	16.00			

DISTRICT.	LIGHTERMEN.			SUPERCARGOES.		
	Num-ber.	Monthly wages (pesos).		Num-ber.	Monthly wages (pesos).	
		Total.	Average.		Total.	Average.
Philippine Islands.....	25	293	11.72	199	4,203	21.12
Manila.....	17	228	13.41	193	4,058	21.03
Iloilo				3	60	20.00
Cebu	8	65	8.13	2	65	32.50
Zamboanga				1	20	20.00

DISTRICT.	NOT CLASSIFIED.		
	Num-ber.	Monthly wages (pesos).	
		Total.	Average.
Philippine Islands	2,251	62,755	27.88
Aparri	6	60	10.00
Manila	2,206	62,282	28.23
Iloilo	24	160	6.67
Cebu	8	57	7.13
Joló	7	196	28.00

The data in this table only cover wages of employees for whom monthly wages were reported. Many employees are reported as paid by the trip, or as paid indefinite amounts not capable of reduction to a monthly basis.

II. TRANSPORTATION.

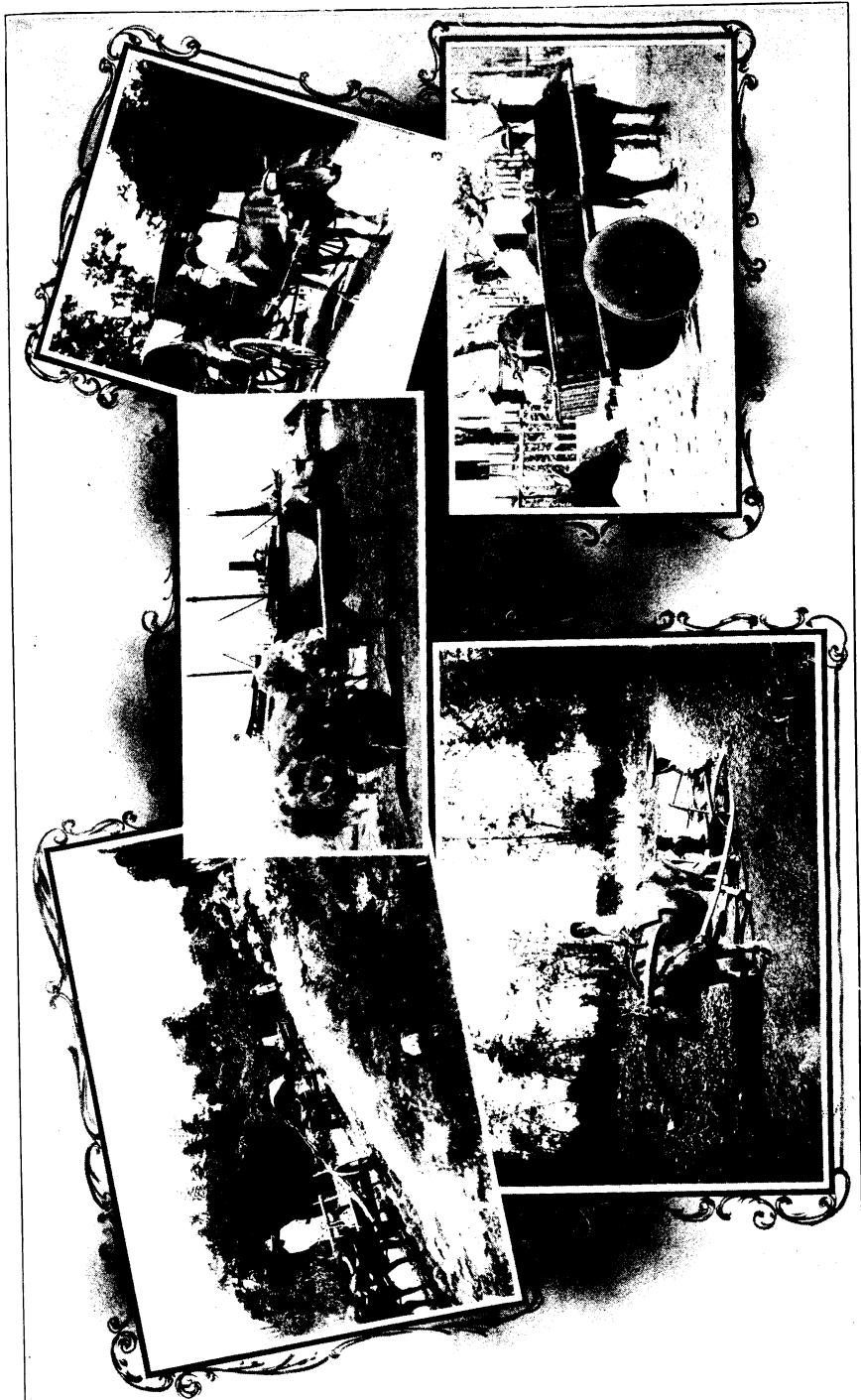
Condition of Roads—Means of Transportation—Steam Railroads—Benguet Electric Railway—Street Railways.

Land transportation in the rural districts of the Philippine Islands is not easy for wheeled vehicles at any time, and during the rainy season in many places is entirely impracticable. This is due to the effect of the heavy annual rainfall, the temporary character of the roadbeds and the flimsy bridges which are often carried away by the swollen streams, and to the lack of sufficient funds for repairs and for new constructions. A great deal was done by the army during the period of military government toward improving land communication by grading and ditching the roads and constructing bridges, but the work was usually of a temporary character and hurriedly carried on to facilitate military operations.

Good roads are a great convenience in all civilized communities, but in the Philippine Islands they are regarded as a necessity on which the tranquillity of the people and their material progress largely depend. This appears to have been fully recognized by both the insular and provincial authorities, who have done probably as much as is practicable under existing circumstances to improve the roads. One of the first appropriations made by the insular government was \$1,000,000 in gold for the repair and construction of the roads.

Two kinds of roads appear to be recognized by the insular government, first, insular roads, leading from one side of an island to another, or those connecting different provinces, which are too general in their character and too expensive to be a charge against any particular province, which are maintained by insular funds; and, secondly, those roads which lie entirely within a province and are essentially for its own benefit. For the construction and repair of provincial roads and bridges the provincial board is required to levy one-eighth of 1 per cent on the assessable land of the province; in addition, a large amount of money has been loaned the provinces by the insular government during the past two years to enable them to fulfill their obligations in regard to the roads, but their condition is not good, and a great deal remains to be done to render them available for traffic, as appears from the following extracts taken from the general reports of the supervisors of the census:

Abra.—The bridges and roads, both those in the interior of the province and those leading to adjacent provinces, are in very bad condition, owing to the lack of funds



1. CARABAO CARTS. 2. HEMP FIBER AS BROUGHT TO MARKET. 3. TROTTING BULL OF PANAY. 4. TYPICAL WOODEN-WHEELED BULL CART. 5. CARABAO WITH SLED.



for their improvement and repair, the greater part of them being passable only for foot passengers and horses.

Bamboo rafts with cars and *tiquines* (long bamboo poles), upon the rivers, and mud boats without wheels, drawn by oxen or carabao on the roads, are the ordinary means of transportation. Only upon the roads near the capital, due to their favorable condition, is it possible to use the *quilez* (two-wheeled cart), carriages, and carts drawn by oxen or horses.

Albay.—A great deal of attention has been paid in this province to the construction of public highways and bridges. There remains throughout the province a system of public highways and bridges, constructed during the Spanish régime, which at one time must have been done at a very great outlay of labor, but through the neglect of the past ten or fifteen years it has practically gone to ruin. The present provincial government is endeavoring, within the resources of the province, to restore these public highways and bridges as rapidly as possible, and during the past year the supervisor's department completed about 22 miles of macadamized road through the center of the big hemp district of this province. The traffic on this road is very great and necessitates a complete system of repair work in order to keep it in a very serviceable condition. During the present year the antiquated bull cart has been prohibited from passing over the recently constructed highways, and in its place carts with modern wheels having a 4-inch tread on a fixed axle have been adopted. This is doing a great deal toward preserving the recently constructed highways.

Ambos Camarines.—There are about 135 miles of road, of which 15 miles are in good condition, the remaining 120, part of which has been lately repaired, still need further repairs, at an estimated cost of about \$400,000 local currency. It is urgently recommended that an appropriation be made to build, as soon as practicable, a road from Pili to Lagonoy via Mabatobató. At the present time only a very poor trail connects these two points and during the rainy season communication is almost impossible. In exceptional cases only is there communication by sea, as no boats ply regularly between Nueva Cáceres and the Lagonoy district, and travel by smaller craft is out of the question. Twenty-five bridges are needed, of which at least twenty are an urgent necessity. With the exception of two large bridges, it is estimated that the required number could be put in at a cost of about 100,000 pesos, with wood as the material.

While the original cost of iron or steel bridges would be considerably more than that of wooden bridges, they would prove in time to be much more economical, and would do away with continuous breaking down and repairs as is now the case.

Bataan.—The public highways and bridges are in fair condition, and sufficient to accommodate the public. Freight is usually transported by carabao carts, and between coast towns by small boats.

Batangas.—The principal roads of the province and the bridges are in very good condition, which they never were during the time of the Spanish Government; but some bridges are lacking on some roads.

The ordinary means of transportation in this province are: On land, the *carrromata* (two-wheeled gig), carriages, *quilez*, wagons, *paragus* or *canga*, and horses or other pack animals, and *bancas* (native boats) or bamboo rafts on rivers.

Benquet.—There are no wheels in this part of the mountains. Those who can afford it have ponies; the others walk; and even for this limited mode of transportation there were but few trails a year ago over which one could ride a horse. Last year the Igorot made 200 miles of horse trail, which is a narrow road, say, 1 meter wide at the least, and of such grade that it makes it possible for American horses to travel over.

Bohol.—Since the year 1901 up to the present time the roads and bridges of this province have been in such condition that they leave much to be desired. This has been caused either by the ravages of time or by war, and because the provincial and

municipal funds combined have been insufficient to provide for their repair and preservation. Their number is sufficient in the littoral section, but in the regions of the interior it is necessary that branches be established connecting the different sections, as was the intention during the period of the late Spanish Government.

The means of transportation in the littoral sections is by vessels, vehicles, and horses; but in the interior horses are used for persons and carabao both for persons and the transportation of goods and merchandise.

Bulacán.—There are very good roads in the province, although general repairs are necessary. This is also the case regarding the bridges and their construction in some towns, their number being insufficient for the shortest communication between towns.

The ordinary means of transportation used in this province are carts, wagons, and small vessels.

Cagayán.—The roads are not in good condition, but they are sufficient in number and ramifications for the needs of the people. Neither are the bridges in good condition of stability, and many are lacking which are necessary for the comfort and utility of the inhabitants of the townships and of travelers.

The ordinary and common means of transportation are by small vessels, known as *barangay* or *barangayan*, or *viray* or *taculi*, propelled by oars, rivers being the best means, in view of the bad condition of the roads and bridges.

Cápiz.—Unfortunately the province does not have a good complete road, and the works begun with the \$25,000 which the Commission loaned this province have not sufficed to complete the road connecting the capital with Calibo; the other roads are not completed. At least \$100,000 are necessary to complete a good system of roads, such as previously existed when the personal tax was in force.

Horses, carabao, cows, carriages, wagons, and native carts called *kangas*, are used in land transportation, and *barotas*, *paraos*, *pancos*, *lorchas* (all native boats like canoes), and sailing boats for river and sea transportation.

Cavite.—The public highways and bridges in this province are, generally speaking, in a state of utter ruin. In the rainy season they are almost impassable, and in the dry season, they are little more than trails. There must be noted a few exceptions to this. There is a good road from Bacoor to Imus, and from La Caridad to San Francisco de Malabón, and from Naic to Indáng, and from Naic to Maragondóng. The provincial authorities have tried to improve the roads, but conditions have been such that little could be accomplished. The roads reach all the towns, and if they could be restored to their apparent and reputed Spanish-time condition, when the natives were forced to work them, they would be amply sufficient for the people.

The ordinary means of transportation are the carabao, carromata, and horse, the vehicles being used where the roads will permit.

Cebú.—Highways and bridges are in a deplorable condition and insufficient for the needs of the province. Roads connecting the east and west coasts are needed. The provincial board plans to build a wagon road from Kabkad (Cárcar) to Barili, another from Minglanilla to Toledo, and a third from Sógod to Tuburan. All recognize the advantages of highways, and unquestionably both commerce and agriculture will be benefited thereby. Living would be cheapened, and local products would find greater facilities for reaching a market.

The usual means of land transportation both for passengers and freight are the native vehicles, viz, *tartanillas*, *flechas*, *carros*, and *carretones*; by sea, by means of *barratos*, *bancas*, *lorchas*, steamers, etc., the number of the latter having been doubled since the close of the Spanish régime.

Dapitan.—The roads are poor, but sufficient for the present traffic. There is only one bridge in the province. All transportation to and from the interior is by boat. In the towns, carts, sleds, and carabao are used.

Iligan.—There are no bridges or highways, except trails through the woods and the recently built military roads, but such as they are they accommodate the populace.

The ordinary mode of transportation of materials is by packers. The people walk, except when an especially grand sultan wishes to make an impression; then he rides a horse covered with jangling bells.

Ilocos Norte.—The roads and bridges of the province are, as a rule, in good condition, although there are bridges and stretches of road of more or less length which require repairs for the free passage of travelers, and it might be advisable to have a road between the towns of Banná and Bátac, and another from Piddig and Vintar, in order to facilitate communication and business between said towns.

The means of transportation on land are the cart and *pasagad*, drawn by horses while ascending the river, and by sea, the *virais*, *bilegs*, and *banquillas* (native boats).

Ilocos Sur.—The work done by the provincial supervisor up to June of the past year in the repair of bridges and roads was sufficient to place them in a fairly good condition, so that it was possible to go over the general road of the province from north to south along its entire length without great difficulty, but the rainy season came and destroyed a large section of the work done on the road, and with reference to the bridges, some were also destroyed.

The repair of the roads in a firm and durable manner, capable of resisting the destructive action of the rains, is a problem still to be solved in these islands, as since the time of the Spanish Government, when the provincial governments had at their disposal the forced personal services of the inhabitants, this was an object of extensive study, and no satisfactory solution was attained. At that time the townships worked their roads by means of the personal service tax, without any expense to the province; but the action of the rains and the wheels of the carts destroyed the best roads.

The only means of transportation in this province are vehicles drawn by horses and carts drawn by oxen, and also *birayes* or barotos, which are used along the coast.

Iloilo.—The condition of the bridges and roads of this province leaves much to be desired. No special care having been given to this important branch of the administration during the past régime, which was furthermore completely abandoned during the war, it was one of the first matters which demanded the consideration of the provincial government at the time of the change of administration. The provincial board of this province, understanding the undoubted importance of this service for the encouragement of agriculture and commerce, made all efforts possible to improve it. It was not satisfied with its own means, which had to be small on account of the penury of the province; it solicited for this important matter a loan of \$25,000, which was granted by the civil commission. Thanks to this assistance, it became possible to proceed with the repair of the principal roads and bridges of absolute necessity in the ordinary life of these towns, leaving the rest for lack of means in the condition they were at the time. It should be noted that some bridges were constructed at the expense of the military government then established.

The means of transportation by sea are steam and sailing vessels, including in the last-named class the small vessels, known in the language of this section by the name of *paraos* and *vilox*, made of wood and bamboo; by land no other means of transportation are known except the cart drawn by one or two carabao or oxen, and the so-called *carroza*, which is somewhat similar to the cart. It is made of bamboo, but without wheels, and is generally used in the fields and in places where a wagon can not pass, or where the poor landowner does not have sufficient means to provide himself with the latter means of locomotion. It is seldom that the animals are used as pack animals, this being only resorted to when the condition of the roads makes the passage of carts very difficult. Horses are used by some merchants only to go from one market to another.

One of the principal difficulties of transportation in the province is the absence of bridges over some rivers which connect some central and much-traveled towns. This during the rainy season makes transit across the rivers very difficult and even impossible sometimes, communication being interrupted when there are heavy rains and the rivers overflow. Consequently the number of bridges in this province is insufficient.

Isabela.—As to the condition of the roads and bridges of this province, they are sufficient in number and ramifications for the necessities of the people, but they are rather difficult for traveling during the rainy season, especially in the southern townships, from Echague to Cordón. In the northern towns, from Ilagan to Tamaufni, they are passable with their bridges, if the latter are not carried away by the water, but without the bridges they are almost impassable during the period named.

The ordinary means of transportation are horses, wagons, *garusas* or *tuncles* (mud boats), without wheels, drawn by carabao and small vessels commonly called *barangayanes*, *banquillas*, and *balsas*. The balsas are only suitable for going down the river with the current. No other means of transportation can be used on account of the difficulty of communication between the towns.

La Laguna.—At present the roads are in need of general repairs; the bridges at some points are of cane (bamboo) and are in bad condition, not filling the necessities of the people. Transportation, as a general rule, is by wagons or horses, which, in view of their high cost, makes the price of articles of prime necessity rather high.

La Unión.—The present condition of the bridges and roads is pretty fair. From 1897 to 1901, when the civil government was established, no work had been done, not even in repairing the roads. During the past two years, notwithstanding the scarcity of funds, more than one hundred bridges and gutters have been reconstructed. The longest is 656 feet long and the shortest 4.7 feet.

With regard to the roads, important repairs have been made. In general, the entire road, from the northern to the southern part of the province, is in good condition for traveling. There are two ordinary means of transportation, maritime and land. The means of maritime transportation are represented by the *pontines* and *pancos* (sailing vessels), *viraya* and *paraos* (sailing and rowing boats), and *mangcuernas*, for oars only.

The means of land transportation are the wagons drawn by cattle and carabao, and the *cangas* or *passagad* (mud boats), a species of wagon without wheels, low and small, drawn by carabao.

Lepanto-Bontoc.—As there is not a wheel in the province, everything that is transported must be carried on the backs of men or pack animals. Nine-tenths of the transportation is accomplished by Igorot *cargadores* (packers), and the other tenth by the aid of the pack ponies owned by persons at the coast towns. The Igorot is beyond question a marvel as a pack animal over the tortuous and precipitous trails of this region. For packing 50 pounds, or a little more, from Candón to Cervantes, 46 miles, he receives 1½ pesos, the trip there and back taking him four days, and he furnishes his own rations. While it is possible to secure *cargadores* by sending word in advance to the different districts, for men who will pack straight through from the coast to Cervantes, it is customary to carry in relays, say from Candón to Salcedo, from there to Concepción, thence to Angaqui, and finally to Cervantes. This is the way the people prefer to work. In the eastern and northern sections it is difficult to secure *cargadores* for greater distances than from one town to the next, as the people are seldom friendly with more than a few adjacent towns, and often not with them, in which event nothing but a constabulary escort for protection will induce them to move.

There is not a highway or wagon road in the province. There are main trails which were surveyed and constructed by the Spaniards, with comparatively good

grades—if one can secure good grades in a region where the mountains rise, in a few miles, from the river beds, over divides 3,000 feet or more in height. The country is ramified by what are known as Igorot trails, where a horse can not pass, and which ascend the steepest of slopes, follow along sharp-backed ridges, and drop—when it is necessary to go down—straight to the river beds. The rule in roadmaking among the Igorots seems to be to strike out straight for the highest ridges, follow them as long as possible, drop promptly to the waterways, and climb out again onto the highest point most nearly in the direction they wish to go. Americans, in fact, have great difficulty in following the Igorot over roadways where he travels up and down all day long, with absolute sure-footedness, and with little evidence of fatigue.

LeYTE.—Of the 30 miles of roadway along the coast, 11 miles have been built by the supervisor, and this part of the road is macadamized and in excellent condition; this road and bridge work is steadily going on, and 100 laborers are employed.

The ordinary means of transportation are steamboats, sailboats, *barcos*, *lorchas*, *vilos*, *paraos*, and *barotos*; by land, *carromatas*, *carretones*, pulled by native ponies and *carabao*. The bicycle is also used to considerable extent in traveling on the coast.

Manila city.—With regard to roads and bridges, their construction and repair is under charge of the municipal board.

The means of transportation are carriages, *calesas*, *calasines*, *carretelas*, small two wheeled gigs, carts, wagons, etc., on land, and steamers, steam launches, *banca*s, and *cascoes* on the river.

Marinduque.—There are two good roads, the one from *Bóac* to *Gazán*, as far as the *barrio* of *Buenavista*, and that from *Bóac* to the next town of *Mogpog*. Both are as level as streets and they may be traveled with vehicles without serious inconvenience. Communication with *Mogpog* and *Santa Cruz*, *Santa Cruz* and *Torrijos*, is over the mountains, and at the present time the roads are in a worse condition than during the past administration, but the government of the province has extensive plans to improve these roads, and it is hoped that within the present year they will be in better condition. With regard to bridges, there are some very good ones, although most of them leave much to be desired. They are not sufficient in number and should be increased in order that communication may be perfect and answer to the requirements of the people.

Safety on the roads is absolute and tranquillity is complete. No one emigrates; all work as much as they can, and this is a symptom revealing relative prosperity.

Masbate.—The few existing roads and bridges leave much to be desired, but they are not seriously missed, as it is more practical in this region to use maritime and river communications than the best road which could be constructed, especially as the quickest and cheapest means of transportation is by boats.

Mindoro.—There are no public highways or bridges, of which the province is sadly in need.

The ordinary means of transportation are the *banca* and *carabao* cart or sled.

Misamis.—The condition of the roads and bridges is deplorable, and therefore it is frequently the case that the only means of transportation is either on *carabao* or on pack horses, except in the townships near the capital where there are passable roads. The people prefer river transportation, employing it just as created by nature without the changes which human industry has wrought in great modern works, such as dredging, building canals, ports, etc., in order to adapt them to the necessities and demands of commercial life of nations.

Nueva Écija.—The roads and bridges in the southern townships are sufficient for the needs of the people, but the same can not be said of the northern townships, where, as a rule, not even a passable trail for either foot passengers or horses can be found, and in the rainy season communication with the southern townships is almost impossible.

The usual means of transportation are horses, carabao, carromatas, wagons, carts, and bancas. The condition of the public highways and bridges is most deplorable, and the old roads are insufficient and require extending. In the wet season it is almost impossible to get in or out of the province. The bridges are of the most flimsy and provisional nature where any exist at all, and it is almost impossible for the natives to transport their products over the trails to the neighboring provinces. The ordinary means of transportation are packing on men's backs; one man is able to carry 50 pounds weight. Bamboo sleds are used, and a few carts with solid wooden wheels where the roads permit of their use, but this is impractical generally. Formerly ponies were numerous and extensively used for packing, but there are probably not over 150 in the whole province now.

There are no funds available for repairing roads or building bridges.

There are no public roads, but difficult trails exist, being almost impassable for anyone but an Igorot. Their settlements are hidden away in the most isolated places, especially selected on account of their inaccessibility; and while there are thousands of acres of vacant land in this province which will lend itself to easy cultivation, yet the Igorot, in his peculiar desire to escape contact with the outside world, hides himself in the most rugged mountains, where he has to excavate and level off steps on the mountain sides, retained by stone and other walls, representing an amount of work and industry which can not be seen in any other part of the islands and few places in the world, except Japan.

Negros Occidental.—The province is encompassed by a general road along the coast of about 280 kilometers in length, from which various branches go out, communicating with the interior towns. The greater portion thereof, passable during the dry season, is in an exceedingly bad condition during the rainy season, and in the northern end, from Manapla to San Carlos, it may be considered rather as a dangerous path at some points.

The same may be said of the bridges as of the roads. A large number of them are in a very bad condition, and at the present time we have only eight built by the provincial supervisor, and four or five others in a fair state of preservation. Said bridges and roads, after they have been repaired, will be sufficient in number and extent for the local necessities of the province. But even after the conditions have been improved the island of Negros requires a road giving a direct and short communication between the two zones into which it is divided by the mountain range.

At the present time the only means of transportation by land between one town and another of this province is by wagons drawn by oxen or carabao, although on difficult roads, goods are carried on the back of the carabao.

Communication between the towns of this province, and of this province with neighboring ones, is established by means of steamers of small draft which make periodical trips between Iloilo and the towns of San Carlos, Silay, and Pulupandán, but more especially by means of lorchas, paraos, and vilos.

Negros Oriental.—There is much to be desired in this direction in view of the deplorable condition of the roads and bridges. In general terms it may be said that nothing has been done toward improving the highways, with the exception of rebuilding some bridges in 1902 with an inferior class of timber, but they have made the rivers passable that could not be forded. The provincial road which unites the coast towns, and is approximately 60 kilometers long, is passable for carts and light vehicles called flechas. On the other hand, there are approximately 187 kilometers that have been completely abandoned, so that at any time of the year there are certain places which it is almost impossible to cross even on horseback, and therefore many towns are obliged to sell their products at whatever price the

Chinese merchant pleases to give, paying for the same with prime articles of consumption, at very high prices.

Pampanga.—The roads and bridges of the province are fair, and after they have been properly repaired they will be sufficient in number and ramifications for the present needs of the people.

The means of transportation used by travelers are the *carromatas*, which are vehicles drawn by horses, and for transportation, carts, drawn by *carabao*. At the present time these means of transportation are scarce, owing to the lack of cattle for drawing. In coastwise towns the *bancas* are extensively used.

Pangasinán.—The roads and bridges leave much to be desired, although they are relatively better than formerly. The roads are sufficient in number and ramifications for the necessities of the people, although this is not so with regard to the bridges; many more of the latter are needed to meet the necessities of the public and commerce.

Paragua.—There are practically no public highways or bridges in the province. In fact, there is not a cart or a wagon or wheeled vehicle in the province, except what belongs to the government. There are trails across the islands, but many times these are only possible for a person on foot. The ordinary means of transportation is by water, if the place can be reached by water; if not, then by horse or cattle or carriers.

Rizal.—The total length of all the roads of the province, situated on level or other ground, may be estimated at 100 miles, more or less. Of these, about 60 or 70 are available for wagon traffic and heavy loads, and also for *carromatas*.

It may be stated that, in view of the growing development of industries and agriculture in this province, the few roads existing at the present time are not sufficient by far for the fast growing necessities of these towns, as, in order to go from Montalbán, San Mateo, Taytay, Caintá, Mariquina, and Pásig to Manila, it is necessary to take the road to the last town, and from there take the road from San Pedro Macatí to Santa Ana toward the capital.

With regard to new roads we have nothing which will ordinarily attract attention, with the exception of those known and utilized since the last administration, and these are in such a terrible condition that I fear they will become ponds or places for the breeding of frogs at the next rainy season.

Furthermore, if the province has very bad roads, it has, on the other hand, bridges which are still worse. We have the bridge of Parañaque, which, tired of so many repairs and patches, decided to fall down; we have the bridge which divides Pililla and Tanay, which, when we desire to cross it, we previously require the administration of all the sacraments in order to be ready to die; we have bridges between San Juan del Monte and San Felipe Nery which became tired of asking for repairs and have now converted themselves into precipices and bottomless abysses; we have the blank space which is noticed across the Pásig at San Pedro Macatí, adjoining Manila, where a bridge is conspicuous by its absence, and finally we have bridges which are only so in name.

Romblón.—The roads and bridges of the province are but fair and in some places the roads are very steep, difficult to pass on horseback, and there are bridges which during the rainy season are, as a rule, impassable.

Sámar.—In so far as roads and bridges are concerned, the province could not be worse off. There are no roads and highways; there only exist paths or trails.

It is absolutely necessary that roads be built in this province if it be desired that it progress and prosper. Within a short time the provincial government, thanks to a loan of \$25,000, Mexican, granted the province by the state, will begin the construction of a road or highway connecting with the east and west coasts, passing

through convenient places, and will devote a portion of its funds to the reconstruction of bridges which are of importance to the province. When these works shall have been completed a long felt want of the province will have been supplied. Of course, not only one but many roads should be built in all directions; but one, at least, placing the east and west coasts in communication, is absolutely necessary. The east coast is washed by the Pacific ocean, and during a season of the year navigation is difficult and dangerous along said coast. Navigation along the northern coast is easier.

As there are no roads and the paths existing being really impassable, it is easy to deduce that the ordinary means of transportation are vessels. Here everything is done by sea. In order to go from one place to another, the barotos, bancos, or steam launches are employed.

Sorsogón.—The roads of the province as yet leave much to be desired, as from the time of the Spanish Government up to a year ago they had been abandoned; nevertheless, if we could fix them all as we wish, they would be good enough not only for the construction of a railway passing through the province, which it needs very much for the exploitation of its products, but all the towns would also be very much favored, as any attempt to disturb public order could be quickly subdued. Thus, if the main road passing through the province were repaired, all branches which it would be desired to make therefrom would be secondary and easy work.

By reason of the topography of the province and its peculiar conditions, the easiest present means of transportation for products from one town to another is by water, for which vessels of greater or lesser draft are used, according to the ports and rivers to be crossed, such as cascos, lanchas, lorchas, or the vessels called here paraos, which are sailing vessels constructed in this province.

Surigao.—Roads and bridges do not exist in this province, this being the main cause of the general backwardness and the daily rise in the prices of articles of prime necessity, as there is not that facility of communication between inhabitants and for the transportation of their products from one town to another; it is true that there are some short roads between some towns; but in truth they are paths which are used by the people when obliged to go to another town and are not able to use the baroto, or banca, which are the ordinary means of transportation.

Tárlac.—In general terms, the roads and bridges of this province are sufficient in number and ramifications for the public use if they were put in a good state of repair, which is not the case at the present time.

Zambales.—In view of the topographical situation of the province, its great length, the location of the towns, distant from each other and almost in a straight line from north to south near the sea, the large number of rivers which rise in the mountain range which separates the four provinces of Pangasinán, Tárlac, Pampanga, and Bataán, and empty into the China sea, they must necessarily be crossed by the roads of the province, and, when they overflow during the rainy season, they destroy the bridges and roads; for this reason the roads and bridges are not in a good condition, and on the other hand the provincial treasury has not sufficient funds for their repair. During the dry season it is possible to travel from one town to another without much difficulty, but in the rainy season it is very difficult, if not impossible, to do so, on account of the swollen streams and the absence of bridges. The towns at this season (southwest monsoon) can not communicate with each other by water, but only by land, and, as the ordinary means of transportation are carts drawn by carabao, the result is, in view of the bad condition of the roads and bridges, that the towns suffer great loss, this circumstance contributing not a little to the backwardness of agriculture and commerce of this province.

Zamboanga.—There are three principal highways running out from the town of Zamboanga—the Tetuan road, running along the east coast of the Zamboanga penin-

sula; the Santa María road, running in a northern direction through the township of Santa María and on into the mountains, about 5 miles in length; the San José, or Gusu road, running in a northwesterly direction through San José, past Caldera bay, and on into the San Ramón colony. There are other roads of less importance connecting these, in the nature of short cuts or improvements on them. The three main roads are in a very good condition for a distance of about 1 mile outside of the town of Zamboanga, due to grading done under the direction of the municipal council. In the dry season all three are passable for a distance of about 5 miles, or even more. But in the rainy season, all but the graded parts already referred to are as good as useless for want of grading. There are numerous small bridges on these roads, especially on those leading to Tetuán and San José. Usually, they are poorly constructed affairs, and with very little traffic become dangerous or useless. They are not used much, however, except by the natives; and as the carabao sledge and wooden wheeled cart are the usual vehicles of transportation, this does not worry the natives much. The municipal authorities seem to be unable to extend the improvements beyond a mile outside the town, presumably due to lack of intelligent direction. These roads are sufficient in number to accommodate the populace. Some connecting crossroads, however, would no doubt be appropriate.

STEAM RAILROADS.

At the close of the year 1902 two steam railroads were in operation in the Philippines, both in the island of Luzón. One of these roads, operated by the Compañía de las Tranvias de Filipinas, runs from Tondó, in the city of Manila, to the town of Tambóbong, or Malabón, in the province of Rizal, a distance of 4.35 miles. The other runs from Manila to Dagupan, in the province of Pangasinán, a distance of 121.79 miles, and is operated by the Manila and Dagupan Railway Company, Limited.

The road from Manila to Tambóbong is operated by the same company operating the Manila street railway in 1902 and is confined exclusively to passenger traffic. Its track is 3.5 feet wide, ballasted with sand, and laid with steel rails weighing 35.3 pounds per yard. It has 4 passenger locomotives, which, with filled tenders, have an average weight of 20,500 pounds; 10 passenger cars and 1 baggage car, none of which are first class, with hand brakes and chain couplers.

During the year 1902 this road carried 562,089 passengers, and its income was \$53,965 Mexican; the cost of operating the road was \$33,034, leaving a gross profit of \$20,931 Mexican.

The value of all property pertaining to this road, including locomotives, cars, stations and grounds, roadbed, and three small bridges, was stated by the company to be only \$115,800 Mexican. This valuation is believed to be approximately correct, and indicates the low grade and poor condition of construction and equipment.

The 121.79 miles of railroad from Manila to Dagupan, though comparing unfavorably with railroads in the United States in all essential particulars, is a highly important and well patronized line.

Its construction was commenced in 1888 and completed in 1894, and before the insurrection the stations along its route, of which there are 29, were generally provided with substantial buildings and conveniences for its patrons. At present, ruins usually mark the sites of its former station buildings except at the termini of the road, and its business is mostly transacted in sheds or patched-up portions of the old ruined buildings.

The following data regarding the construction and equipment of the road were furnished by the company:

The track is 3.5 feet wide; 16.2 miles of switches and side track are used in its station yards; the road is ballasted with sand and sharp ballast; the rails are of steel and weigh on some portions of the road 45 pounds, on other portions 60 pounds per yard; the roadbed and track are in good condition and well maintained; 34 locomotives are used, of which 15 are passenger, 15 freight, and 4 switching, etc.; the average maximum weight of the passenger locomotives is 32 tons, of the freight 34 tons, and of the others 14 tons; 76 passenger cars are used, of which 2 are special or private, 6 first class, 11 second class, 52 third class, and 5 mixed first and second class; 16 baggage and 2 mail cars are employed; the freight cars number 537, of which 421 are box, 79 are open, and 37 are flat cars; 40 hand cars and 98 other cars are used for construction, wrecking, etc.

Vacuum brakes are used on passenger and hand brakes on freight trains; screw couplers with safety chains are employed on both freight and passenger trains. Most of the rolling stock is of small, ancient pattern, though a few modern cars are in use.

The road crosses 254 bridges and 11 culverts. Of the bridges, 177 are of less than 17 feet span, 47 of from 17 to 60 feet, 8 of 60 to 100 feet, and 22 of over 100 feet; they are built with brick and concrete or cast-iron cylinder abutments and piers, with the exception of the bridge over the Río Grande, which is supported on caissons; the girders are of steel or, in short spans, of hard wood; trestles are constructed of hard wood, and all bridges and trestles are maintained in good order.

The value on December 31, 1902, in Mexican currency, of all property pertaining to the road, including \$7,000,000 as the value of the company's franchise, is placed at \$17,270,620, while the liabilities, including \$12,300,000 capital stock, are stated to have been \$19,650,900—\$2,380,280 in excess of the company's assets.

The gross income of the company during 1902 was \$1,238,235, and the gross expenditures \$864,532, leaving a gross profit of \$373,703.

The traffic was as follows: 1,104,372 passengers were carried, of whom 19,679 traveled first class, 32,134 second class, and 1,052,559 third class; the number of passengers carried 1 mile, i. e., the number

of miles traveled by all passengers, was 23,591,024. The gross revenue derived from passenger traffic was \$683,206.

The total number of tons of freight carried was 165,760; the number of tons carried 1 mile, i. e., the number of miles all tons were carried, was 9,706,855. The gross revenue derived from freight traffic was \$397,699.

The business of the road is constantly growing. It is stated to have been very much better since American occupation than at any time prior thereto, and in view of the certain prospect of largely increased industrial and commercial activity, the Manila and Dagupan Railway Company, Limited, has secured concessions from the Philippine Commission, by acts No. 554, 703, and 704, authorizing it to construct two additional lines—one from Bigaá, a station on the company's existing line in the province of Bulacán, to Cabanatuán, in the province of Nueva Écija, and the other from a point on the company's existing line 0.93 of a mile from the Manila station to Antipolo, in Rizal province. These two branch lines will aggregate 65.87 miles in estimated length.

The road from Bigaá to Cabanatuán is required to be completed within three years from December 8, 1902, the date of the act granting the franchise. The construction of this line was commenced July 11, 1903, and is described by an official of the company as follows:

The estimated length of the line will be 44.12 miles, and the gauge will be 3 feet 6 inches. The stations on the line, in addition to its termini, will be Quiñgua, Pulilan, Baluag, San Idefonso, San Miguel de Mayumo, Gapán, San Isidro, and Santa Rosa. Five important bridges will be required by the route across the rivers Quiñgua, Masim, Gailan, San Miguel, and Chico de San Isidro. The route will be from Bigaá through the towns of Quiñgua and Pulilan, crossing the river Quiñgua and running along its left bank through the town of Baluag and barrio of Sampáloc. Here the road bends to the left, passing the towns of San Idefonso and San Miguel de Mayumo, crossing rivers Masim, Gailan, and San Miguel, running to the left of the public road to Gapán, crossing river Chico to the barrio of Tambó, and thence following the left bank of the Rio Grande, passing near the town of San Isidro and through the town of Santa Rosa to Cabanatuán.

The maximum grade is to be 2 per cent, and the minimum curve 200 meters radius. The rails are to be of steel 30 feet long and weighing 65 pounds per yard. Two thousand one hundred and twelve sleepers of hard wood, 6 feet long, 5 inches thick, and 8 inches wide, are to be used per mile of track, and all necessary sidings are to be provided at each station.

The line from near the present Manila station to Antipolo, Rizal province, was authorized by Act No. 703, of March 27, 1903, which required its construction to be commenced within six months and to be completed within three years from that date. The estimated length of the road will be 21.75 miles and the gauge will be 3 feet 6 inches.

The stations on the line, in addition to its termini, will be Sampáloc, Santa Mesa, San Felipe Nery, San Juan del Monte, Mariquina, Caintá, and Taytay. Four important bridges will be required—across the rivers San Juan, Mariquina, Cutcut, and Cayticlin.

The route will be from a point on the Manila and Dagupan Railroad, 0.93 mile distant from the present Manila station; from this junction the line will run easterly, passing north of the district of Sampáloc, through the district of Pandacan, passing near the present race course, commonly called the "Santa Mesa race track," crossing the river San Juan, following a northeasterly course by tangents and curves, and bending southeasterly to the barrio of San Isidro, crossing the river Mariquina to the municipality of Mariquina, running thence southeasterly to the municipality of Caintá, bending thence easterly and crossing the rivers Cutcut and Cayticlin to the municipality of Taytay, and thence northeasterly by tangents and curves to Antipolo. A spur or branch of this road will begin at a point near the eastern end of its crossing of the river San Juan and bend in a southeasterly direction to the Pásig river, along and up which it runs to a point opposite the municipality of San Pedro Macatí.

The requirements as to grade, curves, rails, sleepers, and sidings are the same as for the line from Bigaá to Cabanatuán.

The sections of country penetrated by these two lines are populous and fertile. It is predicted by those who have made a careful study of the subject that the completion of the roads will undoubtedly be followed by such industrial development of the territory and by such profits for the enterprise as to induce the investment of capital in the construction, of other lines not only in the island of Luzón but in other principal islands, where economical and rapid means of transportation are greatly needed.

Since the introduction to this report was written a bill has been passed by Congress, and approved by the President, February 6, 1905, which authorizes the general government of the Philippine Islands to guarantee an income of not exceeding 4 per cent upon the cash capital actually invested in the construction and equipment of such roads, or any part thereof, in the Philippines.

BENGUET ELECTRIC RAILWAY.

An electric railway is in process of construction from the municipality of Pozorubio, in the province of Pangasinán, to Baguió, in the province of Benguet, the following account of which has been prepared for the Philippine Census by Maj. L. W. V. Kennon, Tenth U. S. Infantry, in charge of the work:

The healthful mountain plateaus of Benguet province were long known to the Spaniards. A trail was laid out and built by them from the town of Naguilian, near

the port of San Fernando, Unión, about the year 1892, and an extensive sanitarium was planned in which Europeans could regain health and vitality in the cool and reviving climate of Benguet.

These highlands are reached only by the steep Spanish trail and other rough trails in use solely by the native Igorot. The advantages of the section were nullified by its inaccessibility. The desirability of such a resort being so great, the American Government, by Act No. 2 of the Philippine Commission, enacted September 12, 1900, appropriated the sum of \$5,000 Mexican currency, "for the purpose of making a survey to ascertain the most advantageous route for a railroad into the mountains of Benguet * * * and the probable cost thereof."

On December 21, 1900, Act No. 61 of the Commission authorized the construction of a highway from the vicinity of the town of Pozorubio, in the province of Pangasinán, to Baguío, in the province of Benguet, along the general line of the survey made for the railway between said towns. The sum of \$75,000 United States currency was appropriated for this purpose, and the work was directed to be pushed to a completion by July 1, 1901. By the terms of this act the road was to be built "under the general supervision of the military governor and the immediate direction of Capt. C. W. Mead, Thirty-sixth Infantry, U. S. Volunteers," that officer having made the survey called for in Act No. 2.

The work of construction was begun at the barrio of Agaat, within the limits of the municipality of Pozorubio, on January 16, 1901, from which point it was pushed toward the old Spanish road between Pozorubio and Álava. Some work was also done at the Baguío end of the road.

On August 13, 1901, the act of December 21, 1900, was so amended as to place the work of construction under the general supervision of the civil governor and the immediate direction "under a civil engineer to be appointed by him." Mr. N. W. Holmes assumed charge of the work on the 15th of August, 1901.

It would seem that the difficulties of construction had been very greatly underestimated, and the first appropriation was soon followed by others. Instead of grassy slopes and earth cuts, there was found at the upper end a series of unstable, rocky cliffs, which, on loosening, caused landslides which carried away the constructed roadway and seemed to render the chosen line impracticable. Another line was therefore sought in the Bued river canyon, where a firmer foothold was found, but where also very heavy work was necessary.

The total length of the Benguet road, when completed, will be about 27.2 miles. Of this 4.1 miles are of easy construction; the remaining 23.1 miles are of very difficult character, involving the blasting away of conglomerate cliffs, and of cuts in the unstable rock of 150 feet in depth. It is estimated that the grades, masonry, and bridges on this section will cost about \$62,500 United States currency per mile.

On June 1, 1903, the Commission determined to put an electric railway on this road, and the same resolution stated that it was its intention to make Baguío the summer capital of the Philippine Islands.

By resolution of the Commission of July 2, 1903, Maj. L. W. V. Kennon, U. S. Army, was placed, to date from June 1, 1903, in charge of the improvements to be made for the insular government in Benguet, to include "the construction of the Benguet road from Pozorubio to Baguío; the laying out and construction of a wagon road from Naguilán to Baguío; the construction of the houses already provided for by resolution of the Commission, and laying out of grounds in the town of Baguío, to be used for insular government purposes." The work has been conducted under the direction of Major Kennon since that date.

On December 22, 1903, the Commission directed that the surveys, plans, and specifications for the Benguet road should be made solely for the purpose of electric railway construction.

The following sums have been appropriated to date for the construction of the Benguet road:

ACT NO.	Date.	Amount, United States currency.	Expended under direction of—
2	Sept. 12, 1900	\$2,500.00	Capt. Charles W. Mead, U. S. Volunteers.
61	Dec. 21, 1900	75,000.00	Do.
311	Dec. 4, 1900	25,000.00	Mr. N. W. Holmes.
356	Feb. 17, 1902	25,000.00	Do.
879	Mar. 17, 1902	40,000.00	Do.
418	June 17, 1902	50,000.00	Do.
490	Oct. 27, 1902	30,487.80	Do.
595	Jan. 13, 1903	120,000.00	Do.
885	Aug. 20, 1903	238,575.00	Maj. L. W. V. Kennon, U. S. Army.
1083	Dec. 28, 1903	120,500.00	Do.
	Total ...	\$727,062.80	

While the difficulties of construction of this road have been great, the most careful surveys prove it to be entirely practicable, and when completed it will be one of the scenic routes of the world. It will open up the most promising mining districts in the Philippines, as the mines of Benguet yield copper and gold. Limestone cliffs furnish a fine quality of lime. Coal is found in the Bued river canyon. Hot sulphur and mineral springs abound. The mountains are covered with timber and are crowned with forests of pine. Many of the fruits and vegetables of the Temperate Zone are successfully cultivated in Benguet. In the time during which accurate meteorological reports have been kept the maximum temperature observed has been 82° F. In the cooler season frost is not infrequent in the mountains. A military reservation has been declared, on which it is proposed to place a large hospital for the use of the army. A reservation for the buildings necessary for the purpose of the civil government has also been made, and surveys for the location of streets, water, and sewerage systems are well under way.

Baguío has already proved a health resort of great value and a sanitarium especially adapted to the treatment and cure of tropical diseases, more especially amoebic dysentery to which foreigners, careless of their habits, are liable. When this road is completed and the hospital accommodations now projected are fully established it may be reasonably expected that the death rate among Americans in the Philippines will be no greater in proportion to their number than in the United States, and consequently those in good health who seek employment in Manila need feel no apprehension on account of the climate.

STREET RAILWAYS.

In 1881 a concession was granted the Compañía de las Tranvias de Filipinas by the then existing government under which four lines of street railway were constructed and operated by horsepower in the city of Manila, the only place in the Philippines having this means of transportation. These roads are shown in the following table:

NAME OF LINE.	Length of line (kilometers).	Year when completed.	Termini.
Tondó.....	2.5	1884	San Gabriel Plaza and Tondó station. San Gabriel Plaza and Sampaloc station.
Sampaloc.....	2.8	1887	
Intramuros.....	2.0	1888	Calle Nueva (Binondo) and Walled City.
Malate.....	3.9	1889	Calle Nueva (Binondo) and Malate.
Total.....	11.2		

Operation of the Intramuros line has been suspended since August 1, 1900; the other three lines were in operation when the Philippine census was taken. The termini of the Malate line are on opposite sides of the Pásig river; the tracks of the company formerly crossed the river on the Bridge of Spain, but they were recently removed and this crossing has not been used since by the company to connect the section of the line from the Pásig to Malate with that on the other side of the river. The entire system will be superseded by an electric trolley line, now in process of construction by the Manila Electric Railroad and Light Company, to whom a franchise was granted March 24, 1903, information concerning which will be given further on.

The following data regarding the horse car lines were given by officials of the operating company:

The gauge of the road, which has 4.915 kilometers of double track, is 1.067 meters; the tracks are ballasted with stone and sand, and are of steel rails of both flat and T style, varying in weight per meter from 17½ to 29 kilograms.

On December 31, 1902, the company owned 132 horses, of which an average of 125 was used daily, and 34 cars, open and closed, of the usual American pattern, but of cheap construction, of which an average of 10 was in daily use.

The total assets of the company December 31, 1902, were valued at \$954,315 Mexican currency, including \$350,000 as value of franchise; the liabilities amounted to \$600,020, including \$350,000 capital stock, leaving surplus assets to the value of \$354,295. The statement of assets and liabilities covers the entire affairs and property of the company, including the steam railroad, information concerning which has been previously given. The receipts of the company from its street car lines during 1902 were \$56,364 and the expenditures \$87,902, leaving a deficit of \$31,538.

During the year 2,626,606 passengers were carried, each paying 2 or 3 centavos fare, according to distance traveled on each line.

As the horse car system will soon be displaced by a modern electric street railway, it is scarcely necessary to go into details regarding the character of the service, other than to say that it has been extremely unsatisfactory to Americans in every way, although useful to the natives.

Under the franchise granted the Manila Electric Railroad and Light Company by the municipal board of the city of Manila, March 24, 1903, as authorized by act of the Philippine Commission enacted October 20, 1902, 59.55 kilometers of track are to be laid, of which 38.63 kilometers will be provided with T rails weighing 70 pounds per yard and 20.92 kilometers with grooved girder rails weighing 92 pounds per yard.

The gauge of the road is 4 feet 8½ inches; T rails will be laid on ties placed 2 feet apart from their centers and ballasted with gravel; girder rails on streets paved with wood, stone block, or vitrified brick will be laid on concrete stringers. Paving between the tracks will correspond with that of the streets on which the tracks run; the greater portion of the streets on which the tracks will be laid are paved with macadam, but through the business streets in the center of the city the pavement is of stone block.

The company is required by the terms of the franchise to pave and keep in good and permanent repair the surface of the streets on which its lines run, between the rails and tracks and 18 inches on each side of the tracks, under the supervision of the municipal authorities and in such manner as they shall prescribe.

The system to be used is that known as the overhead trolley system, using direct current at from 500 to 550 volts. Both iron and wood poles will be used. On wide streets the poles will be placed in the center of the streets, and on narrow streets at the sides. The service will begin with an equipment of 80 cars.

The company was required, when it was awarded the franchise, to deposit with the treasurer of the Philippine archipelago \$175,000, United States currency, in approved securities, as security for the performance of its obligations; but it was provided in the ordinance granting the franchise that the full amount should be returned to the company in the event of the faithful performance of the conditions of the franchise and the obligations imposed on the grantee whenever, within the period fixed for the completion and operation of the road, three-fourths of the required mileage should be constructed.

The company is allowed twenty-six months from the date of the granting of the franchise in which to complete the tramway and electric light system. It was expected, however, when this information was furnished that the whole system would be in operation in October, 1904.

The rates of fare, as established by the franchise, are as follows: First class, 6 cents, or 100 tickets for \$5.50; second class, 5 cents, or 6 tickets for 24 cents—all fares to be in United States currency.

Where a change of cars by passengers is necessary transfers will be furnished them, so that for one fare a continuous ride from one point to another reached by any of the company's lines within the limits of the city may be had. On any of the company's lines running outside the city limits additional fare or fares may be charged, at the rate of 5 cents on first class and 3 cents on second class cars for each 2 miles or fraction thereof.

The fares of children under 7 years of age, and of those under 16 years of age going to and from school, are limited by the franchise not to exceed half the ordinary rates of fare. Members of the police and fire departments of the city wearing official badges are entitled to ride free of charge.

On the gross revenue derived from tickets sold or cash fares collected within the city limits the company is required to pay $2\frac{1}{2}$ per cent monthly to the municipal government of Manila, and the same percentage is required to be paid to municipalities in the province of Rizal on the gross income of the company collected from passengers outside of the city limits. In addition, the company must pay to the city of Manila $2\frac{1}{2}$ per cent of its gross income derived from the sale of electricity for light, power, or heat, either in the city or suburbs. On the other hand, the company is expressly exempted from the payment of taxes and assessments of any nature upon its privileges, earnings, income, franchises, roadbed, tracks, rolling stock, poles, wires, transformers, and insulators, the payment of $2\frac{1}{2}$ per cent on its gross income, as required by the franchise, being in lieu of such taxes and assessments.

III. TELEGRAPH LINES.

List of Telegraph and Cable Lines—Number of Messages—Value of Property—
Employees—Telephones—Signal Corps Telegraph System in the Philippines.

The information contained in this paper regarding telegraph facilities in the Philippine Islands covers the year ending December 31, 1902. Up to that date cablegrams from Manila to the United States were sent by the cables of the Eastern Extension, Australasia, and China Telegraph Company (Limited) via Hongkong. After that date, direct cable communication was established between Manila and San Francisco by way of Honolulu at much less expense and delay than by the previous roundabout method.

At the expiration of the year 1902 various localities in the principal islands were connected by the cables of the United States Army Signal Corps, the use of which is allowed for commercial or private purposes, and these lines not only afford means of interisland telegraphic communication, but, in connection with the land lines of the Signal Corps and the line from Manila to Hongkong above mentioned, give facilities for sending telegrams from many principal points in the different islands to the United States and to all countries possessing telegraphic connections.

In addition to the cable lines of the United States Signal Corps, cable communication exists over the lines of the company above named between Iloílo, on the island of Panay, and Bacólod, on the island of Negros, between which points the cable was completed in October, 1897; that between Manila and Iloílo in March, 1899; and between Iloílo and Cebú, on the island of Cebú, in June, 1899.

The following table shows the termini of insular marine cables in existence December 31, 1902, both interisland and foreign, the date of completion of each line, and the distances between termini:

Insular marine cables, with date of completion and length: 1902.

TERMINI OF CABLES.	Date of completion.	Distance between termini (kilometers).
Malate, Manila, Luzón-Cavite, Cavite, Luzón.....	(1)	17.93
Liloan, Cebú-Ormoc, Leyte.....	Apr. 19, 1900	115.40
Tacloban, Leyte-Basey, Sámar.....	Apr. 21, 1900	2.32
Liloan, Cebú-Cebú, Cebú.....	Apr. 24, 1900	21.96
Guinayanigan, Tayabas, Luzón-Pasacao, Ambos Camarines, Luzón.....	May 28, 1900	80.63
Naic, Cavite, Luzón-Corregidor, Cavite, Corregidor.....	June 4, 1900	22.71
Calamba, La Laguna, Luzón-Santa Cruz, La Laguna, Luzón.....	Sept. 30, 1900	31.05
Santa Cruz, La Laguna, Luzón-Siniloan, La Laguna, Luzón.....	Oct. 1, 1900	19.46
Calamba, La Laguna, Luzón-Los Baños, La Laguna, Luzón.....	Oct. 2, 1900	7.23
Misamis, Misamis, Mindanao-Lintogo, Misamis, Mindanao.....	Jan. 6, 1901	36.70
Dumaguete, Negros Oriental, Negros-Misamis, Misamis, Mindanao.....	Jan. 11, 1901	186.04
Misamis, Misamis, Mindanao-Iligan, Misamis, Mindanao.....	Jan. 17, 1901	50.65
Iligan, Misamis, Mindanao-Cagayan, Misamis, Mindanao.....	Jan. 25, 1901	97.90
Tukuran, Cottabato, Mindanao-Zamboanga, Zamboanga, Mindanao.....	Feb. 21, 1901	255.58
Zamboanga, Zamboanga, Mindanao-Joló, Sulu archipelago.....	Feb. 26, 1901	161.23
Osloc, Cebú-Dumaguete, Negros Oriental, Negros.....	Mar. 18, 1901	27.78
Catbalogan, Sámar-Carigara, Leyte.....	July 13, 1901	70.92
Calbáyog, Sámar-Catbalogan, Sámar.....	July 15, 1901	59.58
Loón, Bohol-Argao, Cebú.....	July 18, 1901	23.00
Malabang, Cottabato, Mindanao-Parang Parang, Cottabato, Mindanao.....	July 24, 1901	41.14
Tukuran, Cottabato, Mindanao-Malabang, Cottabato, Mindanao.....	July 27, 1901	76.93
Calapán, Mindoro-Batangas, Batangas, Luzón.....	Aug. 8, 1901	48.51
Calapán, Mindoro-Bóac, Marinduque.....	Aug. 16, 1901	74.72
Calbáyog, Sámar-Palánog, Masbate.....	Sept. 6, 1901	123.00
Palánog, Masbate-Sorsogón, Sorsogón, Luzón.....	Sept. 13, 1901	101.78
Legaspi, Albay, Luzón-Bacón, Sorsogón, Luzón.....	Sept. 17, 1901	48.25
Maasin, Leyte-Surigao, Surigao, Mindanao.....	Sept. 29, 1901	89.71
Zamboanga, Zamboanga, Mindanao-Isabela, Basilan.....	Oct. 5, 1901	30.99
Joló, Sulu archipelago-Siasi, Siasi.....	Oct. 10, 1901	79.60
Cápiz, Cápiz, Panay-Milagros, Masbate.....	Nov. 5, 1901	120.22
Los Baños, La Laguna, Luzón-Malahi, La Laguna, Luzón.....	Nov. 18, 1902	12.98
Palánog, Masbate-Romblón, Romblón.....	Nov. 20, 1902	189.21
Romblón, Romblón-Bóac, Marinduque.....	Nov. 22, 1902	121.20
Iloílo, Iloílo, Panay-Guimará, Iloílo, Guimará.....	Nov. 24, 1902	2.22
Corregidor, Cavite, Corregidor-Mariveles, Bataán, Luzón.....	Nov. 30, 1902	13.62
Iloílo, Iloílo, Panay-Bacólod, Negros Occidental, Negros ²	Oct. 18, 1897	46.59
Manila, Luzón-Iloílo, Iloílo, Panay ²	Mar. 17, 1899	730.78
Cebú, Cebú-Iloílo, Iloílo, Panay ²	June 4, 1899	348.17
Manila, Luzón-Hongkong, China ²	² Apr. 4, 1898	1,372.74
Total.....		4,960.48

¹ Not reported.

² Cables of the Eastern Extension, Australasia and China Telegraph Company (Limited); all cables except the last four in the table are of the United States Signal Corps.

³ The line from Hongkong landed at Bolinao, on the north coast of Zambales province, prior to April 4, 1898.

With the exception of the very short lines of the Eastern Extension, Australasia, and China Telegraph Company, at Manila and Iloílo, connecting their city offices with their cable landings, which need not be mentioned further, all land lines of telegraph used for commercial or governmental purposes were under the control of the United States Signal Corps up to September 15, 1902, between which date and December 31, 1902, 1,459.18 kilometers of their land lines were transferred to the Philippine civil government; the remaining lines, both land and marine, continued under control of the Signal Corps.

Subsequent to December 31, 1902, during the year 1903, the Signal Corps transferred various other lines to the civil government, including two cable lines, one from Tacloban, Leyte, to Basey, Sámar, and the other from Maasin, Leyte, to Surigao, Surigao, aggregating 92.03 kilometers in length; the distance between termini of land lines transferred during 1903 amounted to 1,071.83 kilometers, making the aggregate

length of land and marine lines transferred 1,163.86 kilometers, in addition to the 1,459.18 kilometers previously transferred.

The railroad company operating from Manila to Dagupan maintains a telegraph system along the line of its road solely for the business of the company, no commercial or private telegrams being transmitted over its wires. Its poles are utilized, however, by the United States Signal Corps, which has four wires strung on them between the points named.

The dates of completion of the various land lines under the control of the Signal Corps and the insular government have not been reported, but their termini and lengths are shown in the following tables, by islands:

Land telegraph lines and length, by islands: 1902.

I. TERMINI OF LINES UNDER THE CONTROL OF THE UNITED STATES SIGNAL CORPS.	Distance between termini (kilometers).
LUZÓN:	
Aparri, Cagayán-San Fernando, Pampanga	560.14
Bangui, Ilocos Norte-Dagupan, Pangasinán	383.08
Dagupan, Pangasinán-Manila (4 wires)	238.22
Dagupan, Pangasinán-Lingayén, Pangasinán	11.27
Angeles, Pampanga-Olongapó, Zambales	70.82
Candón, Ilocos Sur-Cervantes, Lepanto-Bontoc	64.38
Manila-Naic, Cavite	48.29
Bacoor, Cavite-Dasmariñas, Cavite	17.71
Naic, Cavite-Silang, Cavite	32.19
Manila-Montalbán, Rizal	35.41
Manila-Santo Tomás, Batangas (4 wires)	86.92
Pásig, Rizal-Tanay, Rizal	42.65
Muntinlupa, Rizal-Cabyao, Rizal	22.53
Mórong, Rizal-Binañonap, Rizal	11.27
Santo Tomás, Batangas-Batangas, Batangas (2 wires)	31.39
Batangas, Batangas-Nasugbú, Batangas	89.83
Santo Tomás, Batangas-Guinayanigan, Tayabas (2 wires)	238.22
Candelaria, Tayabas-San Juan de Bocoboc, Batangas	11.27
Tayabas, Tayabas-Lucena, Tayabas	13.68
Pasacao, Ambos Camarines-Legaspi, Albay (2 wires)	127.16
Iriga, Ambos Camarines-Buhi, Ambos Camarines	14.49
Bacón, Sorsogón-Sorsogón, Sorsogón	9.66
MASBATE:	
Masbate-Milagros	35.41
MINDORO:	
Calapán-Nauján	22.53
LEYTE:	
Carigara-Jaro (2 wires)	19.32
Jaro-Tacloban	40.24
Tacloban via Dulag-Dagami	35.41
Jaro-Ormoc	40.24
Ormoc-Maasin	127.16
CEBÚ:	
Cebú-Argao (2 wires)	64.38
Argao-Osloc	54.73
BOHOL:	
Tubigon via Loón-Tagbilaran	135.21
NEGROS:	
Dumaguete, Negros Oriental, via V. Hermosa and La Castellana to Bacólod, Negros Occidental	315.48
Bacólod, Negros Occidental-Escalante, Negros Occidental	122.83
La Castellana, Negros Occidental-Isid, Negros Occidental	91.75
PANAY:	
Iloilo, Iloilo-Cápiz, Cápiz	154.52
Iloilo, Iloilo-San José de Buenvista, Antique	86.92
Iloilo, Iloilo-to Panay end of Guimará's cable, Iloilo	4.83
GUIMARAS:	
Cable Landing-Camp Jossman	3.22
Dock-Camp Jossman	3.22
MINDANAO:	
Lintogoup, Misamis-Tukuran, Cottabato	35.41
Malabang, Cottabato-Camp Vicars, Lanao	48.29
Farang Farang, Cottabato-Cottabato, Cottabato	20.92
Farang Farang, Cottabato-Polloc, Cottabato	11.27
Cottabato, Cottabato, via Makar, Dávao-Dávao, Dávao	386.30
Total	4,019.17

Land telegraph lines and length, by islands: 1902—Continued.

II. TERMINI LINES UNDER CONTROL OF THE INSULAR CIVIL GOVERNMENT.		Distance between termini (kilo- meters).
LUZÓN:		
Vigan, Ilocos Sur-Bangued, Abra	.....	28.86
Bangued, Abra-San Juan, Abra	.....	15.23
Bangued, Abra-San José, Abra	.....	22.45
Bánang, La Unión-Naguilian, La Unión	.....	9.62
Naguilian, La Unión-Sablán, Benguet	.....	14.43
Sablán, Benguet-La Trinidad, Benguet	.....	16.03
La Trinidad, Benguet-Baguio, Benguet	.....	16.03
Magaldán, Pangasinán-Binalonan, Pangasinán	.....	21.81
Binalonan, Pangasinán-Rosales, Pangasinán	.....	20.84
Bautista, Nueva Ecija-East line of Pangasinán province (Lupao), Nueva Ecija	.....	69.75
Lupao, Nueva Ecija-Talavera, Nueva Ecija	.....	43.29
Cabanatúan, Nueva Ecija-Aliaga, Nueva Ecija	.....	16.03
Bayambang, Pangasinán-San Miguel de Camiling, Tárlac	.....	17.64
Paniqui, Tárlac-Cuyapó, Nueva Ecija	.....	18.44
Gerona, Tárlac-Victoria, Tárlac	.....	14.43
San Fernando, Pampanga-Bacolor, Pampanga	.....	6.41
Malolos, Bulacán-Baliuag, Bulacán-Norzagaray, Bulacán	.....	44.89
Baliuag, Bulacán-San Miguel de Mayumo, Bulacán	.....	24.85
Lingayén, Pangasinán-Sual, Pangasinán	.....	18.44
Sual, Pangasinán-Alaminos, Pangasinán	.....	20.84
Alaminos, Pangasinán-Bolinao, Pangasinán	.....	44.89
Alaminos, Pangasinán-Balincaguin, Pangasinán	.....	12.83
Balincaguin, Pangasinán-Dasol, Pangasinán	.....	20.84
Dasol, Pangasinán-Santa Cruz, Zambales	.....	30.46
Santa Cruz, Zambales-Iba, Zambales	.....	68.94
Iba, Zambales-Botolan, Zambales	.....	11.22
Botolan, Zambales-San Felipe, Zambales	.....	32.07
San Felipe, Zambales-San Marcelino, Zambales	.....	17.64
San Marcelino, Zambales-Súbic, Zambales	.....	17.64
Súbic, Zambales-Olongapó, Zambales	.....	16.03
Dinalupijan, Bataan-Orion, Bataan	.....	14.43
Santa Cruz-Pagsanjan-Magdalena-Majayjay-Bay, La Laguna-San Pablo, La Laguna	.....	56.12
San José, Batangas-Cuenca, Batangas	.....	9.62
San José, Batangas-Ibaán, Batangas-Taysán, Batangas	.....	17.64
Tayabas, Tayabas-Lucbán, Tayabas	.....	12.83
Lucbán, Tayabas-Sampaloc, Tayabas	.....	12.83
Sampaloc, Tayabas-Maubán, Tayabas	.....	12.83
Lucena (Local) Tayabas	.....	1.60
Lucena, Tayabas-Cotta, Tayabas	.....	3.21
Cotta, Tayabas-Pisque, Tayabas	.....	3.21
Nueva Cáceres, Ambos Camarines-Daet, Ambos Camarines	.....	92.99
Nueva Cáceres, Ambos Camarines-Pili, Ambos Camarines-San José de Lagonoy, Ambos Camarines	.....	57.72
Bacón, Sorsogón-Sorsogón, Sorsogón	.....	11.22
MARINDUQUE:		
Gazán-Bóac-Mogpog, Marinduque-Santa Cruz, Marinduque	.....	48.10
Santa Cruz, Marinduque-Torrijos, Marinduque	.....	25.65
MASBATE:		
Masbate, Masbate-Milagros, Masbate	.....	24.05
Masbate, Masbate-Catánigan, Masbate	.....	60.93
CEBÚ:		
Cebú, Cebú-Danao, Cebú	.....	35.27
Cebú, Cebú-Talisay, Cebú	.....	9.62
Barili, Cebú-Dumanjug, Cebú	.....	16.03
Barili, Cebú-Balambán, Cebú	.....	54.51
PANAY:		
Boundary of Cápiz province east of Dumarao, Iloilo-Concepción, Iloilo	.....	27.26
Pototan, Iloilo-Banate, Iloilo	.....	20.84
Santa Bárbara, Iloilo-Cabatúan, Iloilo	.....	8.02
Cabatúan, Iloilo-Maasin, Iloilo	.....	6.41
Cabatúan, Iloilo-January, Iloilo	.....	11.22
Tigbauan, Iloilo-León, Iloilo	.....	14.43
MINDANAO:		
Misamis, Misamis-Lanigan, Misamis	.....	57.72
Total	.....	1,459.18

From the foregoing tables it will be seen that the total distance between all termini of both land and marine insular telegraph and cable lines on December 31, 1902, was 9,066.09 kilometers, the land lines covering 5,478.35 kilometers, of which 4,019.17 were under control of the United States Signal Corps and 1,459.18 under that of the insular

government, and the cables 3,587.74 kilometers. These figures do not include the distance covered by the cable from Manila to Hongkong, 1,372.74 kilometers.

In addition to the land lines of telegraph in operation December 31, 1902, as shown by the above tables, the Signal Corps had projected three additional short lines, as follows: From Iligan to Marahuí, in the province of Misamis, Mindanao, a distance of 4.02 kilometers; from Jinigaran to La Castellana, in the province of Negros Occidental, a distance of 2.41 kilometers, and from Punta Separación to Alfonso XIII, across the island of Paragua, a distance of 2.41 kilometers.

By way of general description, it may be said that the telegraph systems, land and marine, of the archipelago are of modern type and construction and are equipped with the most improved appliances and devices obtainable. Nearly 75,000 telegraph poles of tubular iron, hard wood, and bamboo, of an average height of 6 meters and an average distance apart of 54 meters, are used in carrying the wires of the land lines.

At the close of the year 1902 the total length of wire used in the land lines amounted to 8,538 kilometers—equivalent to 5,305 miles—and 2,462 kilometers—1,528 miles—of cables were used in the inter-island marine systems exclusive of those operated by the company before named, which cover a distance of 1,125 kilometers—699 miles—making a total of 12,125 kilometers—7,532 miles—of wire and cable used in the insular telegraph and cable lines, without taking into consideration the cables to foreign countries. The length of cable from Manila to Hongkong, as before stated, is 1,372.74 kilometers—853 miles.

The amount of business transacted by Philippine land and marine telegraph and cable lines is indicated by the following table, which shows the number of messages transmitted free and for pay, with the amounts collected for paid messages, during 1902:

Free and paid messages transmitted by marine and land telegraph lines, and receipts: 1902.

LINE.	MESSAGES TRANSMITTED.			Received for paid messages.
	Total number.	Free.	Pay.	
Manila to Hongkong ¹	80,105	215,972	64,133	\$362,956
Manila to Iloilo ¹	34,015	4,404	29,611	15,231
Iloilo to Cebu ¹	25,193	8,424	16,769	13,587
Iloilo to Bacólod ¹	3,057	780	2,327	1,114
United States Signal Corps and insular government land and marine lines.....	888,497	4721,517	166,980	\$62,953
Total.....	1,030,867	751,047	279,820	455,841

¹ Lines of the Eastern Extension, Australasia and China Telegraph Company (Limited).

² Messages relating to the weather, to other telegrams, or to company affairs.

³ Not including amount paid for messages received at Manila via Hongkong; not reported.

⁴ Official messages, civil and military; 896 messages were transmitted free and for pay over insular government lines, not separately reported.

⁵ The amount received for paid messages over insular government lines was \$32.09.

The estimated value, expressed in United States currency, of property pertaining to the above lines and to those of the Manila and Dagupan Railroad Company, which were not used for commercial or governmental purposes, on December 31, 1902, is given as follows:

Estimated value of marine and land telegraph lines: 1902.

LINE.	Estimated value.
Manila and Dagupan Railroad Company	\$52, 192
Eastern Extension, Australasia and China Telegraph Company (Limited).....	¹ 15, 612
United States Signal Corps land and marine lines	² 1, 378, 070
Lines transferred by Signal Corps to insular government.....	³ 98, 300
Total	1, 544, 174

¹ Not including value of cables, which the company was unable to estimate, the greater portion of the cables having been submerged for nearly twenty years.

² Including \$1,170, estimated value of instruments.

³ Not including value of instruments, for which no estimate is given.

In the telegraph department of the Manila and Dagupan Railroad there were employed, during the year 1902, 2 inspectors of telegraph, who were each paid \$50 per month; 15 telegraph clerks or operators, whose wages were \$26 per month each; 11 assistant telegraph clerks, whose wages were \$20 per month each; and 6 linemen, who received \$15 per month each. These employees had no regular hours of labor, but worked such length of time daily, including Sundays, as the requirements of the service demanded.

The Eastern Extension, Australasia and China Telegraph Company (Limited) employed in the Philippines 27 operators and 1 lineman, all of whom worked seven hours per day, seven days per week; the wages of operators ranged from \$22.50 to \$60 per month, the lower rate being paid beginners, the intermediate rates being \$28 and \$40. The lineman was paid \$12 per month.

The United States Signal Corps employed an average of 600 men in the Philippines during 1902, as indicated in the following statement, which shows the number of each class of employees in the telegraph and cable service during the year, with their hours and days of labor and their average monthly wages:

Number, hours, and days of labor, and wages of employees: 1902.

OCCUPATION.	Average number of employees.	Hours of labor per day.	Days of labor per week.	Average monthly wages.
Electricians.....	8	6	6½	\$49. 33
Operators.....	281	10	6½	40. 30
Line foremen.....	8	10	7	56. 00
Linemen.....	121	10	7	40. 30
Assistant repairmen (natives).....	182	10	7	10. 00

The total amount of money paid United States Signal Corps employees in wages and salaries during the year was \$309,727; of this sum, \$39,225 was paid in salaries to officials and clerks, the remainder, \$270,502, was paid in wages to other employees.

The Philippine land and marine telegraph lines under control of the United States Signal Corps afforded means of communication between 204 stations on the principal islands at the end of 1902. The telegraph offices at these stations were in buildings of every type of Filipino construction, from convent to nipa hut. These offices were, as a rule, in excellent sanitary condition, and all possible means were employed to keep them so in order to maintain the good health of men of the Corps, whose efficiency and faithfulness amid surroundings and under conditions frequently uncongenial and trying, and, generally, at remote and isolated points, entitled them to the highest degree of consideration and care.

The number of stations reached by lines that had been transferred to the civil government at the end of 1902 was 91.

Only one interruption of service over the cables of the commercial company occurred during 1902, due to chafing of the cable between Manila and Hongkong.

In regard to the number of interruptions of service and the causes therefor in the lines of the Signal Corps, Maj. W. A. Glassford, chief signal officer, stated that it is "practically impossible to answer the question, as regards land lines, no record of them having been kept, but that very few interruptions to the land lines were due to the fault of the workmen. The usual causes of a greater part of the interruptions are rain and wind storms. In the Cagayán valley forest fires cause interruptions, but it is hoped this will soon be remedied by the substitution of iron poles for the wooden poles now in use."

There were twelve interruptions of the cable system during the calendar year of 1902, as follows:

- Zamboanga-Joló cable broken in February.
- Zamboanga-Tukuran cable broken in March.
- Misamis-Dumaguete cable broken in April.
- Misamis-Iligan cable broken in April.
- Malabang-Parang Parang cable broken in April.
- Zamboanga-Isabela cable broken in April.
- Ormoc-Liloan cable broken in May.
- Sorsogón-Palánog cable broken in July.
- Tukuran-Malabang cable broken in August.
- Misamis-Iligan cable broken in August.
- Zamboanga-Joló cable broken in October.
- Sorsogón-Palánog cable broken in November.

Causes of these interruptions in most cases were seismic disturbances and ships' anchors catching and drawing the cables so taut as to break or strain them.

Closely related to insular telegraphic facilities are those afforded by the telephone lines in Manila and elsewhere in the islands. These lines, which were in operation at the close of the year 1902, are still used, namely, the military telephone lines under control of the United States Signal Corps, the civil government lines which are operated by the Philippine constabulary, and the commercial system of the city of Manila owned and operated by a private corporation. In Manila all three systems are used; elsewhere a few lines are operated by the Signal Corps or the constabulary which were, in most cases, formerly telegraph lines of the Army, it having been found convenient and economical to substitute telephonic for telegraphic means of communication, when the distances to be covered were short.

The following account of the construction, operation, and maintenance of the Signal Corps telegraph system in the Philippines was furnished for the Philippine census by Brig. Gen. A. W. Greely, Chief Signal Officer U. S. Army. In his letter transmitting this account, General Greely states that it is confined to actual facts, as far as they are obtainable, his desire being to present a résumé of the work accomplished under conditions of trial and hardship, omitting anything which might be considered commendatory of the courage, perseverance, or ability of either the men or officers of the Signal Corps.

SIGNAL CORPS TELEGRAPH SYSTEM IN THE PHILIPPINES.

The present system of electrical intercommunication in the Philippine Islands depends almost entirely on the military cable, telephone, and telegraph lines constructed by the Signal Corps primarily for military purposes, but speedily thrown open to civil use and commercial purposes. This system, unequalled in the history of war as to its importance, efficiency, and extent, reaches every important island in the Philippine archipelago except Paragua. It extends 1,684 miles from north to south, from Bangui, Luzón, within 300 miles of Formosa, to Siassi, 100 miles from Borneo, covering over 13 degrees of latitude and 5 degrees of longitude. In its greatest extent the system had in operation 607 offices, and about 7,000 miles of cable, telegraph, and telephone lines.

Description of system.—Up to December 31, 1902, the Signal Corps installed, operated, and maintained a telegraphic system aggregating 10,232 miles, of which 336 miles were telephone lines, 1,528 miles of submarine cables, and 8,368 miles of land telegraph lines.¹

Of this amount 2,733 miles of land lines were almost entirely of a temporary character, and were recovered or abandoned or destroyed by the insurgents.¹

Of this system there were constructed under Lieut. Col. R. E. Thompson 1,156 miles, of which 268 were flying lines, 40 miles cable,

¹See Note 1, page 612.

and 848 miles permanent lines. Under Lieut. Col. James Allen 7,903 miles were constructed, of which 607 were flying lines, 150 telephone lines, 1,346 cables, and 5,800 permanent land lines; and under Maj. W. A. Glassford there were constructed 1,173 miles, of which 213 were cable, 774 land, and 186 telephone lines.¹

From September 15, 1902, to December 31, 1902, there were transferred to the civil government of the Philippine Islands 983 miles of land lines. This leaves under control of the Signal Corps 4,508 miles of land lines (including 186 miles of telephone lines in Manila) and 1,528 miles of cable, aggregating 6,036 miles.¹

Cost.—There have been disbursed by the Signal Corps in the construction of this system of lines, from August, 1898, to December 31, 1902, \$1,381,614.44 for Signal Corps property and other expenses properly payable out of the appropriations for the Signal Corps of the Army. It is impossible to give the detailed expenses of the Quartermaster's Department and other bureaus of the Army, but it is probable their expenditures on account of telegraphic construction in the Philippine Islands would not exceed \$750,000. For local repairs and maintenance there have been probably spent \$90,000 from the insular funds. Including expenses of every kind—pay, subsistence, clothing, material, transportation, etc.—it is a reasonable estimate that the entire cost to the United States for the maintenance, operation, and repair of this system from August, 1898, to December 31, 1902, was less than \$2,500,000.

Exact information is unobtainable regarding the number of messages handled by the telegraph lines, no account having been kept except at the principal offices; and even there, under war conditions, where sixteen hours' work per day was required of operators, the compilation of reports was impossible. At times the volume of business was enormous, there being handled in Manila in one day, July 23, 1902, 2,250 original messages, which contained about 100,000 words.

The following data regarding telegraph messages are incomplete, and much under the full amount of business done. The official messages have been reduced to words, the military dispatches averaging, as appears from the count at various times of several thousand messages, from 33.3 to 45 words per dispatch. Assuming the minimum as an average, there were transmitted:

	Words.
For the ten months ending June 30, 1899	8,682,960
For the year ending June 30, 1900.....	27,788,800
For the year ending June 30, 1901.....	56,480,700
For the year ending June 30, 1902.....	35,565,033
For the six months ending December 31, 1902.....	21,009,666

¹The figures given in these paragraphs represent the miles of wire used, not the distances between termini which are shown, for lines in operation December 31, 1902, in the tables on pages 605 and 606.

The tariff value of messages sent under disturbed conditions in the Philippines can not be satisfactorily determined. It may be stated, however, that the only telegraph company in the islands, the Eastern Extension Telegraph Company, at a minimum commercial tariff of 10 cents per word charged on official telegrams, would have received for this work \$14,952,716. Attention is called to the fact, however, that the cost to the United States through the Signal Corps operations was but one-sixth of this amount.

To complete the calculation there should be added the tariffs on more than 2,000,000 of telephone messages, which at a very low rate of 10 cents per message amounts to \$200,000. There are also to be considered the tariffs, aggregating \$82,996.12, collected for commercial messages and deposited in the insular treasury.

Installation of system.—The initiation and development of this system was briefly as follows: On entering the Philippine archipelago in 1898 the Army of the United States found the islands practically destitute of telegraph lines. Prior to the American occupation the insurgents had destroyed the few land lines on the islands of Panay, Negros, and Cebú, which were essential components of the Visayan cable system of the Eastern Extension Telegraph Company. The Manila-Hongkong cable had been promptly cut by Admiral Dewey, and later the land lines of Luzón, practically the only remaining telegraph lines in the archipelago, were systematically destroyed by the insurgents as they retreated before the advance of the American Army. Indeed, the only Philippine telegraph material that came into the possession of the Signal Corps of the Army consisted of about 400 miles of dilapidated and antiquated lines in the Cagayán valley and along the west coast of Luzón.

The Signal Corps of the Army, under Lieut. Col. R. E. Thompson, commenced its telegraphic construction in August, 1898, by building and operating temporary lines, which kept in communication the besieging forces of Manila. Later, in the attack on Manila, the Signal Corps, carrying a flying telegraph line into the city, opened telegraphic communication within half an hour after its occupation. On August 18 the Signal Corps repaired the Manila-Hongkong cable, which was reopened for regular communication on August 21, 1898.

As the army gradually enlarged its field of operations in the neighborhood of Manila, every detached command of any importance was placed in telegraphic or telephonic communication with the headquarters of the military division at Manila.

When Panay, Negros, and Cebú were occupied, the connecting land lines of the Visayan system of cables of the Eastern Extension Telegraph Company were rebuilt and telegraphic communication restored over these cables, one officer, Capt. George H. Tilly, Volunteer Sig-

nal Corps, being killed on May 27, 1899, at Escalante, Negros, in this connection.

In addition, as detached commands were established in the islands of Panay, Negros, Cebú, Bohol, and Leyte, these troops were promptly brought into telegraphic communication by land lines and cables both with the brigade or other headquarters throughout the Visayan Islands, and with Manila.

In Luzón during the operations of General MacArthur toward Dagupan, of General Lawton toward San Isidro, and of General Bates in southern Luzón, field telegraph lines were constructed as the troops advanced and recovered as they retreated, and later were replaced when any section of the country was permanently occupied. The rapidity of the operations and the enormous labor connected with the construction and recovery of these lines prevented any detailed reports as to the exact amount of work done. The only detailed report is that of Capt. D. J. Carr, Signal Corps, which shows that he constructed and replaced in northern Luzón, between August, 1900, and November, 1901, not less than 1,817 miles of field line, excluding lines between Manila and San Fernando. The labors of Capt. Edgar Russell, Signal Corps, with General MacArthur, were almost equally comprehensive, he constructing 953 miles in one year, so that by these two officers in northern Luzón alone 2,770 miles of field line were built, of which more than 800 miles were recovered, destroyed, or abandoned.

In Manila a modern telephone system, operated by power from dynamos and storage batteries, was installed with aerial cables aggregating 186 miles in linear conductors, and having 21 separate lines centering in a 100-drop switchboard.

Operations in the Visayan Islands, Panay, Negros, Cebú, Leyte, and Sámar necessitated telegraphic field communications commensurate with the military needs, and in the fiscal year ending June 30, 1900, 909 miles of line were built. Similar telegraphic and telephonic facilities were constructed in Mindanao and at Joló.

Cable operations.—In 1898 it became evident to the Chief Signal Officer of the Army that a comprehensive system of cables was necessary to successful military operations in the Philippines, where the only intercommunication between islands was over the lines of the Eastern Extension, Australasia and China Telegraph Company from Manila to Cápiz, Panay; from Liloan to Bacólod, Negros; and from Iloílo to Cebú. This system was interrupted through the destruction by insurgents of the land lines between Cápiz and Iloílo. Although later these lines were reconstructed by the Signal Corps, yet it seemed advisable to permit the extension of the English cable from Manila to Panay, so as to land at Iloílo instead of Cápiz.

Meantime General Greely, Chief Signal Officer, took steps to provide suitable military cables. Light copper-armored cable was purchased in quantities and shipped by military transports to Manila, by means of which a temporary cable system was established in Laguna de Bay and at other points.

Arrangements were also made for the purchase of deep-sea cable, and for this purpose the first long submarine cable ever manufactured in the United States (212 miles) was sent to Manila on the United States transport *Hooker*. The military situation was such that it did not seem to the commanding general advisable to then connect the various islands, so that the *Hooker*, after remaining two and one-half months in Manila harbor, was sent to Hongkong for coal. She was wrecked en route, never having been used as a cable ship, but simply as a transport. This shipwreck apparently ended all local plans of cable extensions.

However, the Eastern Extension cable between Manila and Iloilo broke in May, 1900, and, remaining unrepaired for a month, interrupted all telegraphic communication between Luzón and the rest of the archipelago, which demonstrated the absolute necessity of a military system.

General MacArthur, taking command during this long interruption of the English commercial cable, found it impossible to communicate promptly with any troops, except in Luzón northwestward of the Camarines. Important military events were sometimes a month old in the Visayan Islands, Mindanao, and the Sulu group before the information reached Manila. General MacArthur, by cablegrams, urged upon the War Department the necessity of at once establishing a comprehensive cable system, which would bring within telegraphic reach every important military garrison in the Philippines.

In his official report he says:

The wire service of the Signal Corps is simply indispensable. It is not too much to say that in the absence of this efficient service it would be impossible to hold this archipelago with less than 150,000 men, which is now well and efficiently performed by 60,000. We need wires, instruments, and operators everywhere, the more the better; it simplifies everything, makes unity of action possible, insures concentration of troops on threatened points, and altogether is of such importance that it is impossible to say too much in behalf of its indefinite extension to the limit of possible usefulness. * * * The purpose of the present writing is to impress the War Department with the view that successful operations in these islands absolutely depend upon the Signal Corps, in consequence of which provisions therefor should be made upon a scale commensurate with the importance of the interests involved.

General MacArthur's views, concurred in by General Greely, Chief Signal Officer, were promptly approved by Secretary of War Root, and an allotment made therefor from the emergency war fund. The scheme contemplated intercommunication between all the prin-

cipal islands and the establishment of alternative telegraphic routes to points of the greatest value to the military administration.

General Greely immediately arranged for the construction of large quantities of American submarine cable, which was transported to the Philippine Islands partly by commercial steamers and partly in Government ships, especially the quartermaster's transport *Burnside*, which was fitted up with the most modern appliances as a cable ship.

The Signal Corps cable recovered from the wreck of the *Hooker* was used in connecting Liloan, Cebú and Ormoc, Leyte; second, Liloan and Cebú; and, third, Tacloban, Leyte, with Sámar. Such dispatch was made in manufacture, shipment, and installation that by October, 1901, the telegraph system of the Philippines was complete and in working order. The islands of Basilan, Bóac, Bohol, Corregidor, Cebú, Joló, Leyte, Luzón, Masbate, Mindanao, Mindoro, Negros, Panay, Sámar, and Siassi were all in telegraphic intercommunication.

In connection with the insurrection in Sámar, following the Balangiga massacre, an extensive system of flying telegraph lines was constructed, connecting points of military importance and contributing materially to the successful suppression of the insurrection.

In southern Luzón similar telegraphic facilities were afforded Gen. J. Franklin Bell, who, at the end of the campaign which resulted in the establishment of peace in Luzón, says:

Mail facilities are so very slow and uncertain in this brigade that, had it not been for the exceptionally valuable service rendered by the Signal Corps in connection with my work here, I feel morally certain that I could not have accomplished in six months what has already been accomplished in six weeks. * * * The Signal Corps has been assisting in a hard campaign worked out under very unusual conditions. The rapidity of such success as we have attained depends almost exclusively upon the very exceptional and valuable service the members of the Signal Corps have rendered me; at least, such rapidity could not possibly have been achieved without their assistance.

In the campaign caused by the rising of the Moros in Mindanao comprehensive systems of telegraph and telephone lines were built in the Lake Lanao region, connecting the military camps with the cable stations at Malabón and Iligan.

Commercial business.—Under conditions conserving the military interests of the United States the military lines were first thrown open to commercial business in February, 1900, on the island of Panay under the supervision of Maj. George P. Scriven, Signal Corps.

On his visit to the archipelago in June, 1901, General Greely made arrangements which very largely increased the facilities for commercial business, every office in the islands being thrown open for insular commercial messages, while about 60 of the larger offices were accorded facilities for foreign cablegrams.

The value of telegraphic service in the Philippines to commerce

and trade may be estimated by the statement that in 1901 it was found by tests that it required on an average thirty days to obtain an answer—when made immediately by the recipient—to communications sent by post from Manila to various towns in Luzón. In connection with other islands delays of two or three months were not unusual.

Commencing July 1, 1901, the commercial telegraph business rapidly increased in volume, although the receipts were not conspicuously large, owing to the unusually low tariffs fixed by the Chief Signal Officer of the Army—2 cents per word between any points on any island, and 4 cents per word to points beyond the limits of the island on which the message originated. The average rate per commercial message was slightly less than 38 cents. From July 1, 1901, to December 31, 1902, there were transmitted about 220,000 commercial messages, and the receipts, \$82,996.12, were deposited in the insular treasury; the appropriations made from the insular treasury for the local maintenance of the lines practically offset the commercial receipts.

Operation, maintenance, and repairs.—It is impossible to give the exact number of officers, men, and employees engaged in the construction, operation, and maintenance of the military telegraph lines. There were, however, engaged in this duty to December 31, 1902, 58 officers and 1,151 enlisted men of the Signal Corps. Between August, 1898, and December, 1902, the civilian force, consisting almost entirely of Filipino and Chinese laborers, has fluctuated between say 50 as a minimum and 500 as a maximum. It is thought that the average number of civilian employees would not vary much from 350, the number given by Major Glassford for the year 1902 being 319.

The work of repair and reconstruction of telegraph lines has been very great. Apart from the labor, the work of reconstruction was exceedingly dangerous both for the army and civilian employees. In one year no less than 16 Signal Corps men were killed, wounded, or captured, the percentage being double that for the whole army of like casualties for the same period in the Philippines. It is estimated that fully 500 miles of lines were destroyed by the insurgents during the insurrection. Apart from the vicissitudes of war, the rapid decay of wooden poles in the Philippines, through climate and insects, has necessitated frequent rebuilding of very long sections of line, and it is the opinion of officers of the longest experience in the Philippines that the reconstructed land lines far exceed in mileage those originally constructed. Certainly, it is well within the truth to say, there have been rebuilt more than 5,000 miles of land lines, which work is not included in the construction reports.

Present value of lines.—The estimated value per mile of the telegraph lines in the United States ranges from a minimum of \$100 to a maximum of \$250 or more, according to the location, number of wires, etc.

It is therefore reasonable to estimate the present value of the Philippine land lines at \$100 per mile, it being doubtless less in some localities and more in others.

Similar difficulties exist as to placing a value upon the telephone lines and submarine cables. The low estimated value of \$50 per mile for telephone lines chiefly results from the telephone cable system of Manila. While the Chief Signal Officer generally places the value of each mile of submarine cable at \$700, yet he reduces it to the lowest estimate made, that of \$600 per mile by Major Glassford.

On the above basis the military telegraph system of the Philippines has a present value of \$1,376,900, while the 983 miles transferred to the insular government has an estimated value of \$98,300. These values are exclusive of any instruments used in connection with lines or cables, concerning which no exact data are readily obtainable.

Lines transferred to the Philippine civil government.—In the maintenance and extension of the military lines the Philippine civil government actively cooperated by appropriations for the maintenance of these lines and by the purchase of cables. In 1902 the civil government having made appropriations, the Signal Corps purchased, installed, and operated cables connecting the islands of Bóac with Romblón, Masbate with Romblón, Panay with Guimarás, Corregidor with Luzón (Mariveles), and Malahi (Talim) with Luzón (Los Baños).

By authority of Secretary of War Root, General Greely, during his inspection of the telegraph system in the Philippines in 1901, arranged by conference with the civil governor, Hon. W. H. Taft, and with the commanding general, Maj. Gen. A. R. Chaffee, U. S. Army, for the gradual transfer of the military system of cables and land lines to the civil government.

September 15, 1902, an act was passed by the Philippine civil government authorizing the Philippine constabulary to take over the telegraph and telephone lines from the Signal Corps of the Army, and with a view of insuring the most harmonious cooperation, First Lieut. C. S. Wallace, Signal Corps, was detailed for civil duty as superintendent of the constabulary lines. By December 31, 1902, 983 miles¹ of line had been transferred, while 58 were abandoned as being of no utility to either the civil government or the United States. There was also in process of transfer at that date 1,021 miles¹ of land lines and 55 miles of cable.

¹ Miles of wire.

IV. EXPRESS COMPANIES.

Agencies in Manila—List of Companies—Volume of Business—Prospects of Enlargement of Business.

No facilities exist, as yet, for the forwarding of merchandise by express between points in the Philippine Islands; all commodities must be shipped as ordinary freight on the interisland boats or on the railroad, except such as are permitted by the postal regulations to be forwarded by mail.

A small express business, so-called, with the United States and England is carried on by foreign express companies through local agencies in Manila; but in reality it is not express business, as the merchandise handled is shipped as ordinary freight on arriving or departing steamers, the Manila agents merely acting as receivers or forwarders, and assuming no other responsibility.

The agents of the foreign express companies in Manila are engaged in other kinds of business, and only give incidental attention to the receiving or forwarding of express packages.

During the year 1902, 9 express companies transacted business with the Philippines, 1 of which was Canadian, 1 English, and 7 of the United States, as follows:

COMPANY.	Location of home office.	Date of establishment of Manila agency.
Dominion Express Co.....	Montreal, Canada	(1)
Geo. Wheatley & Co.....	London, England	Feb., 1902.
Wells, Fargo & Co.....	San Francisco, Cal., United States of America.	Sept., 1901.
Davis, Turner & Co.....	New York, N. Y., United States of America.	July, 1902.
American Express Co.....	.....do.....	Oct., 1901.
Adams Express Co.....	.....do.....	Do.
International Express Co.....	.....do.....	Do.
United States Express Co.....	.....do.....	Do.
R. F. Downing & Co.....	.....do.....	Do.

¹ Not reported; agency is stated to have been established many years ago.

The small amount of business transacted through the Manila agency of the Dominion Express Company could not be ascertained, because, as stated by the local agents, the few parcels sent from or received in

Manila were shipped as ordinary freight and manifested as such, no separate accounts of expressed matter having been kept. This was the only company having an agency in Manila prior to American occupation of the islands.

The following statement shows the volume of Philippine express business transacted through the Manila agencies of all companies except the Dominion Express Company:

The total number of packages received was 619, varying in weight from 15 to 100 pounds each, and in declared value from \$15 to \$100 each, United States currency. Nearly all these packages were from the United States, though a few were from England.

The total number of packages sent was 62, all of which were for consignees in the United States. Their weights ranged from 15 to 40 pounds, and their declared values from \$20 to \$25.

From the foregoing it will be seen that the foreign express business of the Philippines is in its infancy. Whether it is capable of profitable development will largely depend on the general course of trade between the islands and other countries, more especially the United States.

INDEX.

- Aachen and Munich Fire Insurance Co., 545.
Aachen Leipzig Insurance Co., 545.
Abacá. *See* Hemp.
Abella, Mariano, article on cultivation of abacá by, 20-25.
Abra, province, total area of, 181; agricultural area of, 181, 250, 261, 278, 314; number of farms in, 182, 184, 185; size of farms in, 182, 184, 185, 192, 250, 261, 268, 278, 289, 314; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 268, 303; cultivated area in, 199, 250, 261, 278, 296, 314; cultivation of tobacco in, 209; production of corn in, 217; production of rice in, 219; production of sugar in, 220; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 254, 289, 296, 303; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 438, 440, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 465, 474, 475, 490-492, 494, 502, 514, 520, 522 (*note*), 523 (*note*), 525 (*note*), 526; industrial importance of, 485; fisheries of, 533; establishment of custom-house in, 558; roads and bridges in, 587; means of transportation in, 587.
Aleshire, Maj. J. B., U. S. A., 427.
Allen, Lieut. Col. James, construction of Signal Corps telegraph lines supervised by, 612.
Alliance Assurance Co., Limited, 545.
Ambos Camarines, province, production of hemp in, 17, 20, 24, 210; production of rice in, 93; total area of, 181; agricultural area of, 181, 250, 261, 279, 315; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 261, 268, 279, 289, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 268, 304; cultivated area in, 199, 250, 261, 279, 297, 315; production of cocoa in, 207; production of bananas in, 212; production of copra in, 214; production of guavas in, 215; production of mangoes in, 216; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 254, 289, 297, 304; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; public libraries in, 407; hospitals in, 409; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 438, 440, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 474, 490, 492, 494, 502, 514, 516 (*note*), 520, 523 (*note*), 524-527; industrial importance of, 485; roads and bridges in, 587; means of transportation in, 587.
American Bank, 541.
American Express Co., 619.
Animal power. *See* Power.
Animals, domestic, general description of, 130; classification and description of, 224-248; number of, owned by Christian population, 229; number of, owned by wild tribes, 247, 248; distribution of, between urban and rural localities, 340-394; number which died and were slaughtered in 1902, 340-394.
Antipolo, railroad to Manila from, 597, 598.
Antique, province, production of sugar in, 29, 220; total area of, 181; agricultural area of, 181, 250, 261, 279, 315; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 261, 268, 279, 289, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 268, 304; cultivated area in, 199, 250, 261, 279, 297, 315; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified

Antique, province—Continued.

by color, 254, 289, 297, 304; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 409; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 488-490, 528-531.

Apples, production of, 202.

Area, total, 181, 182; agricultural, 181, 182; forest and nonforest, in farms, 187, 250; percentage under cultivation, 194.

Armors, wages of, 429.

Aromatic plants. *See* Plants.

Asia, value of merchandise imported into the Philippines by, 570; value of merchandise exported from the Philippines to, 573.

Assault and battery, imprisonment for, 425.

Atlas Assurance Co., Limited, 545.

Australasia, value of merchandise imported into the Philippines by, 571; value of merchandise exported from the Philippines to, 574.

Austria-Hungary, value of merchandise imported into the Philippines by, 569, 571; consulate established in the Philippines by, 575.

Bacolod, town, newspapers and periodicals published in, 401, 402.

Baguio, town, climate of, 600.

Bakers, wages of, 434, 438, 442.

Bamboo, general use of, 119; quantity of production of, 202.

Bamboo and rattan furniture makers. *See* Furniture-makers.

Bananas, varieties of, 124; quantity of production of, 202; provinces in which produced, 212, 213.

Band musicians. *See* Musicians.

Banking, prior to American occupation, 537; institutions in the Philippines, number of, 541; statistics of, 542, 543; agencies, on Luzon and other islands, 544. *See also* Currency and banking.

Banks, list of, in Philippines, 541; assets and liabilities of, 542; number of depositors in, during 1902, 543; receipts and disbursements of, 543; total amount deposited in, during 1902, 543; amount of commercial paper discounted by, during year, 544; range of deposits in, 544; loans made by, 544; rates of discount in, 544; rates of exchange charged by, 544.

Bantayan, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; number of poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; port of, 579.

Barbers, wages of, 434, 438, 442.

Basilan, comandancia, total area of, 181; agricultural area of, 181, 250, 261, 279, 315; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 261, 268, 279, 290, 297, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 268, 304; cultivated area in, 199, 250, 261, 279, 297, 315; production of copra in, 214; production of sugar in, 220; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 254, 290, 297, 304; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457.

Bataán, province, production of hemp in, 17; production of sugar in, 29, 220; total area of, 181; agricultural area of, 181, 250, 261, 279, 315; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 261, 269, 279, 290, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 269, 304; cultivated area in, 199, 250, 261, 279, 297, 315; production of pineapples in, 211; production of sugar in, 220; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241,

Bataán, province—Continued.

243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 254, 290, 297, 304; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 488-490, 494, 502, 514, 521 (*note*), 523 (*note*), 525 (*note*), 526 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 587; means of transportation in, 587.

Batán, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.

Batangas, province, production of hemp in, 17; production of sugar in, 28, 29; cultivation of coffee in, 78-84; production of rice in, 92, 93; total area of, 181; agricultural area of, 181, 250, 261, 279, 290, 315; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 261, 269, 279, 290, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 269, 304; cultivated area in, 199, 250, 261, 279, 297, 315; production of tuba in, 206; production of cocoa in, 207; production of coffee in, 207, 208; production of cotton in, 209; production of pineapples in, 211; production of bananas in, 212; production of oranges in, 215; production of mangoes in, 215, 216; production of corn in, 217; production of rice in, 218, 219; production of sugar in, 220; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 254, 290, 297, 304; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 474, 475, 488, 490, 494, 502, 514, 517 (*note*), 520, 522 (*note*), 524 (*note*), 526 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 587; means of transportation in, 587.

Batavia Sea and Fire Insurance Co., 546.

Beans, production of, 202, 221.

Belgium, value of merchandise imported into the Philippines by, 568; consulate established in the Philippines by, 575.

Bell, Gen. J. Franklin, extract from report of, in regard to Signal Corps, 616.

Benguet, province, coffee culture in, 84-86; introduction of fruits from the United States into, 124; total area of, 181; agricultural area of, 181, 250, 261, 280, 315; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 261, 269, 280, 290, 315; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 269, 305; cultivated area in, 199, 250, 261, 280, 297, 315; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 254, 290, 297, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures in, 448-457; roads and bridges in, 587; means of transportation in, 587.

Benguet Electric Railway, description of, 598-600, appropriations for, 600.

Betel nuts, production of, 123, 202, 213; use of, 213.

Bicycle repairing industry, relative importance of, 486.

Bigaa, railroad to Cabanatuan from, 597.

Bilibid prison, description of, 423-426; commitments to and releases from, 424; classes of crimes

Bilibid prison—Continued.

of convicts of, 425; educational condition of prisoners of, 426; sex, age, race, and conjugal condition of prisoners of, 426; occupations of prisoners of, 426.

Biliran, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579, 581.

Blacksmithing industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502, 504 (note), 506, 508, 510, 514.

Blacksmiths, wages of, 429, 442, 444-446.

Board, of prisons, 419, 420; of valuations, 559, 560.

Boatbuilders, wages of, 434, 438, 442.

Boatmen, wages of, 434, 438, 442.

Boatswains in coastwise service, number and wages of, 584.

Bohol, island, production of hemp in, 17, 210; production of sago in, 123; total area of, 182; agricultural area of, 182, 252, 266, 287, 302, 323; number of farms in, 184, 185; size of farms in, 184, 186, 192, 252, 266, 276, 287, 295, 323; forest and non-forest land in farms of, 184, 185, 252, 266, 287, 302, 323; tenure of farms in, 191, 259, 266, 276, 312; cultivated area in, 200, 252, 266, 287, 302, 323; production of cocoa in, 207; production of bananas in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 259, 295, 302, 312; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 580, 581.

Bohol, province, production of sugar in, 29; total area of, 181; agricultural area of, 181, 250, 262, 280, 316; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 269, 280, 290, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 269, 305; cultivated area in, 199, 250, 262, 280, 297, 316; production of cocoa in, 207; production of hemp in, 210; production of bananas in, 212; production of copra in, 214; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 255, 290, 297, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 495 (note), 513 (note), 524 (note); roads and bridges in, 587; means of transportation in, 588.

Boilermakers, railroad, number, hours, and wages of, 444.

Bombay Marine and Fire Insurance Co., 545.

Bookbinding industry, wages of employees, 442; relative importance of, 478-480, 486; statistics of establishments engaged in, 496, 498, 506, 514.

Books in public libraries, number and language of, 407.

Boot and shoe industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502 (note), 503 (note), 504, 506, 508, 510, 512 (note), 514.

Boots, tariff rates on, 561.

Box, packing, industry, relative importance of, 476, 478-480, 486; statistics of establishments engaged in, 496, 498, 508, 514.

Brakemen, railroad, number, hours, and wages of, 444.

Brasswork industry, relative importance of, 486.

Brazil, consulate established in the Philippines by, 575.

Bread and other bakery products, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502, 504, 506, 508, 510, 512, 514, 516.

Breadfruit, production of, 202.

Brick and tile industry, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 502 (note), 504, 506, 508, 510, 516.

Brick masons. See Masons.

Brickmakers, wages of, 434, 438, 442.

British and Foreign Marine Insurance Co., 546.

British East Indies, value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 573.

British India Steamship Co., 576.

Bulacán, province, production of rice in, 91-93, 219; total area of, 181; agricultural area of, 181, 250, 262, 280, 316; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 262, 269, 280, 290, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 269, 305; cultivated area in, 199, 250, 262, 280, 297, 316; production of tuba in, 206; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of mangoes in, 216; production of corn in, 217; production of sugar in, 220; death rate of carabao in, 228; live stock in, 231, 235, 236, 239-241, 243; poultry in, 245; occupants of farms in, classified by color, 255, 290, 297, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 473, 474, 488-490, 494, 502, 514, 517 (note), 518-531; industrial importance of, 485; roads and bridges in, 588; means of transportation in, 588.

Buri palm, growth and general use of, 120, 121, 123, 206; provinces and islands reporting cultivation of, 205.

Burias, island, origin of name, 123; sago produced in, 123.

Butchers, wages of, 442.

Cabanatuan, town, terminus of proposed railroad, 597.

Cabinetmakers, wages of, 442.

Cables, insular marine, list of, with date of completion and length, 605; length of, from Manila to Hongkong, 608; interruptions in working of, 610; operation of, by Signal Corps, 611; purchase of, by General Greely, 614, 615; estimated value of, per mile, 618.

Cacao, localities in which cultivated, 105; climatic conditions favorable to cultivation of, 106; character of soil suitable to cultivation of, 106; varieties of, 107; method of planting, 107, 108; ravages of insects on, 108, 110, 111; fruit-bearing properties of, 109; pruning of, 109; harvesting of, 110; precautions in caring for, 112; expenses and income of plantations of, 112-115; medicinal virtues of, 115; origin of, 115; quantity of production of, 115, 116; length of life of, 116; production of, 206, 207, 325.

Cagayan, province, cultivation of tobacco in, 35-53, 209; total area of, 52, 181; agricultural area of, 181, 250, 262, 280, 316; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 269, 280, 290, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 269, 305; cultivated area in, 199, 250, 262, 280, 297, 316; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 255, 290, 297, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-

- Cagayan, province—Continued.**
 339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 474, 475, 490, 494, 502, 514, 518, 521 (*note*), 525 (*note*); industrial importance of, 485; roads and bridges in, 588; means of transportation in, 588.
- Cagayancillo, town, library in, 407.**
- Caillies, Hon. Juan, article on the cultivation of the coconut by, 56-58.**
- Camachile and tamarinds, quantity of production of, 202.**
- Camarines Sur, province, production of rice in, 92.**
- Camiguin, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; port of, 580.**
- Camote Islands, ports of, 581.**
- Camotes. See Potatoes.**
- Canada, exports of sugar to, 30.**
- Candlemakers, wages of, 4-2.**
- Candlemaking industry, statistics concerning, 476, 477, 480, 486, 496, 500, 503 (*note*), 504, 506, 509 (*note*), 516.**
- Canton Insurance Office Limited, 546.**
- Cápiiz, province, production of sugar in, 29, 220; production of rice in, 92, 219; total area of, 181; agricultural area of, 181, 250, 262, 280, 316; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 270, 280, 290, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 270, 306; cultivated area in, 199, 250, 262, 280, 298, 316; production of tuba in, 206; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of copra in, 214; production of corn in, 217; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 255, 290, 298, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; libraries in, 407; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488-490, 494, 502, 514, 516 (*note*), 520, 525 (*note*); industrial importance of, 485; roads and bridges in, 588.**
- Captains in coastwise service, number and wages of, 583.**
- Carabao, value of, in agriculture, 130, 225, 227, 230; deaths among, 222, 225, 227-229, 330-332, 340-343, 352-354, 363-365, 374-376, 385-387; number of, 225, 235, 238, 239, 246, 330-332, 340-343, 352-354, 363-365, 374-376, 385-387; number of, per 100 of population, 236, 237; number slaughtered, 330-332, 340-343, 352-354, 363-365, 374-376, 385-387.**
- Carpening industry, statistics concerning, 476, 477, 480, 486, 496, 498, 506, 516.**
- Carpenters, wages of, 428, 429, 434, 438, 442, 444-446.**
- Carr, Capt. D. J., construction of telegraph lines under direction of, 614.**
- Carriage and wagon industry, statistics concerning, 469, 476, 477, 480, 486, 496, 500, 503 (*note*), 504, 506, 508, 510, 516.**
- Carriage builders, wages of, 442.**
- Catanduanes, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579, 581.**
- Cattle, neat, value of, 130, 131, 225, 230, 329-332, 340-343, 352-354, 362-365, 373-376, 384-387; number of, 225, 235, 238, 239, 329-332, 340-343, 352-354, 362-365, 373-376, 384-387; deaths among, 225, 227, 229-332, 340-343, 352-354, 362-365, 373-376, 384-387; number of, per 100 of population, 236, 237; number of, slaughtered, 329-332, 340-343, 352-354, 362-365, 373-376, 384-387, 362-365, 373-376, 384-387.**
- Cavite, province, production of hemp in, 17, 210; production of sugar in, 28, 29, 220; production of rice in, 93, 94, 219; total area of, 181; agricultural area of, 181, 250, 262, 280, 316; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 262, 270, 280, 290, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 270, 305; cultivated area in, 199, 250, 262, 280, 298, 316; production of coffee in, 207, 208; production of betel nuts in, 213; production of mangoes in, 216; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 255, 290, 298, 305; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; libraries in, 407; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 473, 474, 488-490, 494, 504, 514, 517 (*note*), 518, 522 (*note*), 524, 526 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 588; means of transportation in, 588.**
- Cavite, town, library in, 407; penitentiary in, 421.**
- Cebu, island, total area of, 182; agricultural area of, 182, 252, 266, 287, 323; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 266, 276, 287, 295, 323; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 259, 266, 276, 312; cultivated area in, 200, 252, 266, 287, 302, 323; production of cocoa in, 207; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 259, 295, 302, 312; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.**
- Cebu, province, production of hemp in, 20, 210; production of sugar in, 29, 220; total area of, 181; agricultural area of, 181, 250, 262, 281, 316; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 270, 281, 291, 316; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 270, 306; cultivated area in, 199, 250, 262, 281, 298, 316; production of cocoa in, 207; production of tobacco in, 209; production of pineapples in, 211; production of bananas in, 212; production of copra in, 214; production of mangoes in, 216; production of corn in, 217; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 240, 241, 243; poultry in, 245; occupants of farms in, classified by color, 255, 291, 298, 306; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; libraries in, 407; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488, 489, 490, 492, 494, 504, 514, 516, 518-525, 528-531; industrial importance of, 485; roads and bridges in, 588; means of transportation in, 588.**
- Cebu, town, sugar trade in, 27-29, 32; periodicals published in, 401, 402; libraries in, 407; coastwise trade with, 583-585; banking facilities of, 544; establishment of custom-house in, 558.**
- Census of Philippine Islands, form of schedule used for obtaining agricultural data for, 177, 178; collection of specific data for, 178; extract from writings of Director of, 201.**

- Central America, importance of commerce with, 574.
- Chamber of Commerce, Manila, extract from report of, 29, 30.
- Chartered Bank of India, Australia, and China, 541.
- Chemicals and allied products, manufacturing statistics concerning, 482-484, 500.
- Chickens. *See* Poultry.
- Chile, consulate established in the Philippines by, 575.
- China, exports of sugar to, 30; interest of, in shark and pearl fisheries, 534, 535; early trade with, 558; revenues from trade with, 559, 561; importance of commerce with, 568, 573.
- China Fire Insurance Co., 545.
- China-Manila Steamship Co., 576.
- China Mutual Life Insurance Co., 554.
- China Navigation Co., 576.
- China Traders' Insurance Co., 546.
- Chinese language, newspapers and periodicals published in, 400-402.
- Chocolate and cocoa products, manufacturing statistics concerning, 476, 477, 480, 486, 496, 498, 504 (*note*), 506, 516.
- Chocolate-makers, wages of, 442.
- Churches, capacity of, 412, 414; denominations of, 412; total number and value of, 412-414.
- Cigarette-workers, wages of, 442.
- Cigars and cigarettes, manufacture of, 468, 469.
- Cigar-workers, wages of, 434, 438, 442.
- Clay and stone products, manufacturing statistics concerning, 482-484, 500.
- Cleaners, railroad, wages of, 444, 445.
- Clerks, wages of, 434, 438, 442, 444.
- Clothing industry, statistics concerning, 476, 477, 480, 486, 496, 498, 503 (*note*), 504, 506, 508 (*note*), 512, 518.
- Clothmaking industry, statistics concerning, 464, 465, 476-480, 486, 496, 498, 504, 510, 516.
- Coachmen, wages of, 434, 438, 442.
- Coastwise service, vessels used in, 583; employees of, 583-585.
- Cocoa. *See* Cacao.
- Cocanuts, commercial importance of, 53; uses of, 53, 54, 56, 58, 69; quantity and value of exports of, 54-56; cultivation of, 56, 57, 59-63, 214, 215; products of, 58, 65-73; enemies of, 63-65; estimates of cost and profit from cultivation of, 73-76.
- Coffee, commercial importance of, 76; introduction of, 77; exportation of, 77; market price of, 79, 82, 86; methods of cultivating, 79, 81, 84-86, 207; methods of harvesting and drying, 80; producing power of plants, 85; quantity of production of, 207, 208, 325.
- Cogon, grass, description and use of, 118.
- Comb industry, statistics concerning, 476-480, 486, 496, 500, 506, 518.
- Commerce, beginning and development of, 557-559, 565; establishment of custom-houses at insular ports, 558; tariff rates and regulations, 559-563; value of imports and exports, 564-574; shipping facilities, 575-578; interisland, growth of, 578.
- Commercial Union Assurance Co., 545.
- Compañía de las Transvias de Filipinas, character and length of track operated by, 595; passengers carried by, 595, 601; assets and liabilities of, 601; receipts and expenditures of, 601.
- Compañía Real de Filipinas, 559.
- Compañía Transatlántica, steamship company, 576.
- Compositors, wages of, 442.
- Comyn, Tomás de, extract from writings of, on manufactures, 461.
- Conant, Charles A., 542.
- Conductors, railroad, wages of, 444.
- Confectionery industry, statistics concerning, 470, 476, 477, 480, 486, 496, 498, 506, 509 (*note*), 518.
- Confectionery makers, wages of, 442.
- Consuls, foreign countries represented by, 575.
- Convent of San Andrés, hospital of, 409.
- Convent of San José, military hospital of, 409.
- Convicts, number and nativity of, 416, 417; employment of, 417; laws regarding pardoning of, 422.
- Cooks, wages of, 434, 438, 442.
- Copra, commercial value of, 54, 55, 57, 65, 72; exportation of, 54, 55, 67, 204, 214; methods of preparing, 57, 67; quantity of production of, 204, 327.
- Copra industry, statistics concerning, 476, 477, 480, 486, 496, 500, 506, 508, 510, 512, 518.
- Copyists, wages of, 434, 438.
- Cordage and twine industry, statistics concerning, 486.
- Corn, cultivation of, 117, 216, 217; acreage and production of crops of, 328.
- Cottabato, comandancia, total area of, 181; agricultural area of, 181, 250, 262, 281, 317; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 270, 281, 291, 317; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 270, 306; cultivated area in, 199, 250, 262, 281, 298, 317; production of copra in, 214; production of rice in, 219; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 255, 291, 298, 306; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; paupers in, 415; convicts in, 416; political prisoners in, 423; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457.
- Cotton, cultivation of, 120, 209; production of, 209, 326; tariff rates on, 561.
- Cotton goods industry, statistics concerning, 486.
- Couplers, railroad, wages of, 444.
- Crimes, causes of, 417; list of, 425.
- Criminals, methods of obtaining information concerning, 395, 416; comparison of number of, in Philippine Islands and United States, 417; penalties imposed upon, 418, 419.
- Crops, variations in, 205; acreage and production of, 325-328.
- Cunanan, M., article on cultivation of rice by, 96, 97.
- Currency (under Spanish rule), coins in circulation, 537, 538; monetary unit, 537; basis of exchange for Mexican silver, 538; (under American rule) coins in circulation, 537; rates of exchange between Philippine and United States, 539, 540.
- Custom-houses, establishment of, in insular ports, 558, 559; incorporation of, under treasury, 559.
- Customs duties, levying of, 559, 562; forms of payment of, 559, 560; merchandise subject to, 560; merchandise exempt from, 560, 561; specified fees and charges on vessels entering Philippine ports, 562.
- Cutlery and edge tool industry, statistics concerning, 478-480, 486, 496, 498, 504 (*note*), 506, 518.
- Cuyo, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 580.
- Dalupiri, island, ports of, 580.
- Dapitan, comandancia, total area of, 181; agricultural area of, 181, 250, 262, 281, 317; number of farms of, 184, 185; size of farms in, 184, 185, 192, 250, 262, 270, 281, 291, 317; forest and nonforest land in farms of, 187, 250; occupants of farms in, classified by color, 188, 255, 291, 298, 306; tenure of farms in, 190, 255, 262, 270, 306; cultivated area in, 199, 250, 262, 281, 298, 317; production of hemp in, 210; production of copra in, 214; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; paupers in, 415;

- Dapitan, comandancia—Continued.
convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; roads and bridges in, 588.
- Dávao, comandancia, total area of, 181; agricultural area of, 181, 250, 262, 281, 317; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 262, 270, 281, 291, 317; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 255, 262, 270, 306; cultivated area in, 199, 250, 262, 281, 298, 317; production of hemp in, 210; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 255, 291, 298, 306; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures in, 448-457.
- Davis, Turner Express Co., 619.
- Day laborers. *See* Laborers.
- De Morga, extract from description of Filipinos by, 460.
- Denmark, consulate established in the Philippines by, 575.
- Diario de Manila*, date of publication of, 398; extract from, 398-400.
- Diccionario de la Administración de Filipinas*, extract from, 399, 400.
- Dinagat, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
- Diseases, specified, distribution of, in public hospitals, 409.
- Distillery workmen, wages of, 442.
- Domestic animals. *See* Animals, domestic.
- Dominion Express Co., 619.
- Draftsmen, wages of, 434, 438, 442.
- Dressmakers, wages of, 434, 438, 442.
- Drivers, railroad, wages of, 444, 445.
- Ducks. *See* Poultry.
- Dumaguete, town, newspapers and periodicals published in, 401, 402.
- Dutch East Indies, value of merchandise imported into the Philippines by, 570; value of merchandise exported from the Philippines to, 573.
- Duties. *See* Customs duties.
- Dye plants. *See* Plants.
- Dyeing industry, relative importance of, 477-480, 486; statistics of establishments engaged in, 496, 500, 504 (*note*), 505, 518.
- Dyewoods, exportation of, 103, 104; varieties of, 103.
- Eastern and Australian Steamship Co., 576.
- Eastern Extension, Australasia and China Telegraph Co., 609.
- Eastern Extension Telegraph Co., destruction and rebuilding of lines of, 613; tariff of, per word, 613; breaking of cable of, 615.
- Ecuador, consulate established in the Philippines by, 575.
- Egg plant, production of, 202.
- Engineers, wages of, 429, 443.
- English language, newspapers and periodicals published in, 400-402; books published in, 407.
- Engraving industry, relative importance of, 478-480, 486; statistics of establishments engaged in, 496, 498, 506, 518.
- Essences or essential oils, plants from which obtained, 12.
- Establishments, manufacturing, average value of production of, in provinces and comandancias, 474, 475; number of, producing sugar, 488, 528-531; number of, whose products amounted to 1,000 pesos or over, 494-513.
- Estafa (trickery), imprisonment for, 425.
- Europe, exports of sugar to, 30; value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 572.
- Exports, values of, for specified years, 13, 563-565.
- Express, facilities for transmission of merchandise by, 619; local agencies of foreign countries, 619; volume of business transacted by, 620.
- Farmers, number and color of, and their tenures, 188-196.
- Farms, number and average size of, 183-186, 278-289; forest and nonforest area in, 187, 188; tenure of, classified by color of farmer, 188-198, 254-260, 289-314; cultivated areas in, 198-201, 250-254, 314-325; uncultivated areas in, 250-254.
- Farmers, wages of, 428.
- Federal Marine Insurance Co., 546.
- Fiber plants. *See* Plants.
- Filers, railroad, average number of, 444; hours and wages of, 444.
- Fire insurance. *See* Insurance.
- Fire Insurance Association of Manila, tariff of rates adopted by, 546.
- Firemen, wages of, 443, 444; number of, in coastwise service, 584.
- Fisheries, importance of industry, 533-536; interest of Moros in, 534; fish as principal flesh diet, 534; shark fishing, 534, 535; pearl fishing, 534, 535; report on, by Capt. H. R. Hickock, U. S. A., 534, 535; annual catch, 536; number of boats employed in industry, 536; tariff rates on salt fish, 561.
- Fishermen, wages of, 434, 438, 442.
- Fitters, railroad, wages of, 444.
- Food and kindred products, manufacturing statistics concerning, 478, 480, 482-484, 486, 496, 498, 506, 518.
- Fook On Assurance and Godown Co., 546.
- Foremen, wages of, 428, 442-445.
- Forest and nonforest land, 187, 188, 250-253.
- Fortuna General Insurance Co., 546.
- Foundry and machine shop products industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502, 504, 506, 509 (*note*), 518.
- Fowls. *See* Poultry.
- France, value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 572; consulate established in the Philippines by, 575.
- French East Indies, value of merchandise imported into the Philippines by, 570; value of merchandise exported from the Philippines to, 573.
- French language, number of books in public libraries published in, 407.
- Fruits, production of, 11, 12; introduction of, from United States, 124; descriptive list of, 124-126, 133-154; quantity of production of, 202, 203, 212-216; tariff rates on, 561.
- Furnishing goods industry, relative importance of, 486.
- Furniture and cabinetmaking industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502, 504, 506, 518.
- Furniture makers, bamboo and rattan, wages of, 442.
- Gabe, plant, cultivation and use of, 121; quantity of production of, 202, 221.
- Garcia, Regino, article on cultivation of rice by, 88.
- Garlic, quantity of production of, 202.
- Gas and electric light and power industry, establishments engaged in, 496, 500, 504 (*note*), 508 (*note*); relative importance of, 476-478, 480, 486.
- Gaugers, railroad, average number, hours of labor, and wages of, 445.
- Geese. *See* Poultry.
- German language, books published in, 407.
- Germany, firms established by, 568; value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 572; consulate established in the Philippines by, 575.
- Goats. *See* Animals, domestic.
- Gonzaga, Gov. G., article on cultivation of tobacco by, 35-53.
- Grains, varieties and uses of, 12, 117.
- Gramineous plants. *See* Plants.

- Grass, varieties and uses of, 12, 117, 118, 217, 218.
- Great Britain, sugar exports to, 30; consulate established in the Philippines by, 575.
- Greely, Brig. Gen. A. W., account of Signal Corps telegraph system by, 611-618.
- Guaranty Trust Co. of New York, 541.
- Guardian Assurance Co., Limited, 545.
- Guavas, quantity of production of, 202, 215.
- Guía Oficial de Filipinas*, statistics of domestic animals quoted from, 234.
- Guimará's island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, 340-350, 362-372, 384-394.
- Gum and resin bearing plants, 12.
- Gutta-percha, production and exportation of, 126, 127, 202.
- Hamburg Bremen Fire Insurance Co., 545.
- Hand sawyers, wages of, 442.
- Hang On Marine and Fire Insurance and Godown Co., 546.
- Hanseatische Feuer-Versicherungs-Gesellschaft, 545.
- Harnessmakers, wages of, 442.
- Hat and cap industry, statistics concerning, 467, 468, 476, 477, 480, 486, 496, 498, 506, 513 (*note*), 520.
- Hatmakers, wages of, 434, 438, 442.
- Hemp, Manila, quantity and value of exports of, 14-16, 203, 204; provinces producing, 16, 17, 209, 210, 326; method of cultivation of, 17, 18; preparation of fiber from, 18, 19; principal grades of, 19; uses of, 19, 20, 468; varieties of, 20; efforts to discover origin of, 21; wages paid to laborers in, 24; relative importance of industry, 476, 477, 480, 486; preparation of, for shipment, 490, 491; number of baling establishments for, 491, 492; statistics of establishments engaged in the manufacture of, 496, 498, 504 (*note*), 508, 513 (*note*), 520; tariff rates on, 561.
- Hickock, Capt. H. R., U. S. A., extract from report of, on Moro fishing, 534, 535.
- Hipon Insurance Co., 546.
- Homicide, imprisonment for, 425.
- Hongkong and Shanghai Banking Corporation, 541.
- Hongkong Fire Insurance Co., 545.
- Horse car lines, number and description of, in city of Manila, 601; replacement of, by electric railway, 602.
- Horses. See Live stock.
- Horseshoers, wages of, 434, 438, 443.
- Horticulture, tariff regulations concerning, 561.
- Hospitals, methods of obtaining information concerning, 395; attitude of Filipinos toward, 408; four principal institutions, 408, 409; number of patients treated in, 408-411; diseases most common in, 409-411.
- Houses, character of construction of, 119, 469.
- Hydraulic power, distribution of, in hemp baling establishments, 492.
- Ice, manufactured, location of industry of, 470; relative importance of industry of, 476, 477, 480, 486; statistics of establishments engaged in industry, 496, 500, 504 (*note*), 505 (*note*), 506 (*note*), 508 (*note*), 520.
- Igorot, tribe, agricultural methods of, 223; character of settlements of, in Nueva Ecija, 592.
- Ilang-ilang, description and use of, 127; quantity and value of exportations of, 127.
- Iloos Norte, province, production of sugar in, 29, 220; production of indigo in, 98; total area of, 181; agricultural area of, 181, 250, 263, 281, 317; number of farms in, 182, 183, 185; size of farms in, 182, 183, 185, 192, 250, 263, 271, 281, 291, 317; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 306; cultivated area in, 199, 250, 263, 281, 298, 317; production of tobacco in, 209; production of cotton in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 240, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 298, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 464, 465, 474, 488, 489, 490, 494, 504, 514, 516, 518, 520, 522 (*note*), 523 (*note*), 524, 525 (*note*), 528-530; industrial importance of, 485; roads and bridges in, 589; means of transportation in, 589, 590.
- Imperial Fire Office, united with Alliance Assurance Co., Limited, 545.
- Imperial Marine Transport and Fire Insurance Co., Limited, 546.
- Imports, tariff rates for, 560; exemption of, from customs duties, 561; value of, for specified years, 563-565; increase of, 565.
- India rubber, quantity of, 202.
- Indigo, quantity and value of exportations of, 97, Iloos Norte, province—Continued.
- 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 298, 306; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 474, 475, 490, 494, 504, 515 (*note*), 525 (*note*); industrial importance of, 485; roads and bridges in, 589; means of transportation in, 589.
- Iloos Sur, province, production of sugar in, 29, 220; production of indigo in, 98, 102; total area of, 181; agricultural area of, 181, 250, 263, 281, 317; number of farms in, 182, 183, 185; size of farms in, 182, 183, 185, 192, 250, 263, 271, 281, 291, 317; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 306; cultivated area in, 199, 250, 263, 281, 298, 317; production of cotton in, 209; production of hemp in, 210; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 298, 306; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; public libraries in, 407; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 474, 490, 494, 504, 514, 516, 520, 523, 526 (*note*); industrial importance of, 485; roads and bridges in, 589; means of transportation in, 589.
- Iloilo, city, sugar buying and exportation in, 28, 29, 32; newspapers and periodicals published in, 401, 402; banking facilities of, 544; establishment of custom-house in, 558; commercial center for foreign firms, 568; coastwise trade with, 583-585.
- Iloilo, province, sugar production in, 29, 220; total area of, 181; agricultural area of, 181, 250, 263, 282, 317; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 263, 271, 282, 291, 317; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 307; cultivated area in, 199, 250, 263, 282, 298, 317; use of burri in, 205; production of cocoa in, 207; production of tobacco in, 209; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of copra in, 214; production of mangoes in, 216; production of corn in, 217; production of grass in, 218; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 240, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 298, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 464, 465, 474, 488, 489, 490, 494, 504, 514, 516, 518, 520, 522 (*note*), 523 (*note*), 524, 525 (*note*), 528-530; industrial importance of, 485; roads and bridges in, 589; means of transportation in, 589, 590.
- Imperial Fire Office, united with Alliance Assurance Co., Limited, 545.
- Imperial Marine Transport and Fire Insurance Co., Limited, 546.
- Imports, tariff rates for, 560; exemption of, from customs duties, 561; value of, for specified years, 563-565; increase of, 565.
- India rubber, quantity of, 202.
- Indigo, quantity and value of exportations of, 97,

Indigo—Continued.

98; provinces producing, 98; origin of, 99; cause of depreciation in price of, 99; manufacture of dyestuff from, 99-102; cultivation of, 99-103; commercial importance of, 102; production of, 202.

Indo-China Steam Navigation Co., Limited, 576.

Indra Line, steamship company, 576.

Industries, relative importance of, 476-480, 483, 484, 486, 500; number of, 485; causes of lack of development of, 485; statistics concerning, 494-531; distribution of specified, 514-527; effect of early commercial conditions on, 557.

Inkmaking industry, relative importance of, 486.

Insects, devastations of, 64, 91, 222.

Inspectors, railroad, number, hours, and wages of, 444, 445.

Insular Bureau of Agriculture, experiments by, 83, 117.

Insular government, encouragement of trade and transportation by, 579; termini of land telegraph lines under control of, 607.

Insular marine cables. *See* Cables.

Insurance, fire and marine, list of companies engaged in, and kind of property each insures, 545-547; rates adopted for specified classes of buildings, 547, 548; number and amount of risks written by, in 1902, 550, 551; number of policies issued in 1902, 551; total premiums paid in 1902, 551; expenses and earnings of companies and losses by fire, 552; life, list of companies engaged in, 554; data regarding extent of, 554-555.

International Banking Corporation, 541.

International Express Co., 619.

Ironworkers, wages of, 443.

Isabela, province, total area of, 181; agricultural area of, 181, 250, 263, 282, 317; number of farms in, 183, 185; size of farms in, 184, 185, 192, 250, 263, 271, 282, 291, 318; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 307; cultivated area in, 199, 250, 263, 282, 299, 318; production of tobacco in, 209; production of bananas in, 212; production of corn in, 217; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 299, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 490, 495 (*note*), 513 (*note*), 520 (*note*); roads and bridges in, 590; means of transportation in, 590.

Italy, value of merchandise imported into the Philippines by, 568; consulate established in Philippines by, 575.

Janitors, wages of, 429.

Japan, exports of sugar to, 30; value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 573; consulate established in the Philippines by, 575.

Jaro, town, newspapers and periodicals of, 401, 402.

Joló, comandancia, total area of, 181; agricultural area of, 181, 250, 263, 282, 318; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 263, 271, 282, 291, 318; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 307; cultivated area in, 199, 250, 263, 282, 299, 318; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 291, 299, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 506, 522 (*note*); industrial importance of, 485.

Joló, town, reopening of custom-house in, 558; tariff regulations in, 561; coastwise trade with, 583-585.

Jusi cloth, description of, 465; exportation of, 467.

Kenyon, Maj. L. W. V., description of Benguet Electric Railway by, 598-600.

Kidnapping, imprisonment for, 425.

La Balaise Fire Insurance Co., 545, 546.

La Laguna, province, production of sugar in, 29, 220; production of coconuts in, 56-58; value of coconut producing lands in, 73; production of rice in, 93, 219; total area of, 181; agricultural area of, 181, 250, 263, 282, 318; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 263, 271, 282, 292, 318; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 271, 307; cultivated area in, 199, 250, 263, 282, 299, 318; production of cocoa in, 207; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of copra in, 214; production of lanzones in, 215; production of mangoes in, 216; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 292, 299, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; number and language of books published in, 407; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 474, 475, 488-490, 494, 506, 514, 518-524, 527 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 590; means of transportation in, 590.

La Torre, Don Carlos María, 418.

La Unión, province, total area of, 181; agricultural area of, 181, 250, 263, 282, 318; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 263, 272, 2-2, 292, 318; forest and nonforest land in farms of, 187, 250; occupants of farms in, classified by color, 188, 256, 292, 299, 307; tenure of farms in, 190, 256, 263, 272, 307; cultivated area in, 199, 250, 263, 282, 299, 318; production of tobacco in, 209; production of cotton in, 209; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 220, 488, 489; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 490, 495 (*note*), 513 (*note*), 528, 531 (*note*), 516 (*note*), 521 (*note*); roads and bridges in, 590; means of transportation in, 590.

Labor, methods of obtaining statistics of, 395; native, satisfactory results from employment of, 427, 431; skilled, difficulty of obtaining, 429; native, opinions in regard to, 430.

Laborers, efficiency of Filipinos as, 427, 430, 432; skilled, wages of, 428; unskilled, wages of, 428, 429, 446; hours of, 428; Chinese, 430, 431; day, wages of, 434, 438, 442; farm, wages of, 434, 438, 446; railroad, number, hours, and wages of, 444, 445.

Ladrones Islands, penal institutions in, 421, 423.

Ladrones, census work impeded by, 179.

Laguán, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.

Lallave, Señor Amelio A. y, article on cultivation of the indigo plant by, 99-103.

- Lampmen, railroad, number, hours, and wages of, 444.
- Lamson-Scribner, Prof. F., description of teosinte by, 117; chapter on fruits, vegetables, and fiber plants by, 132-176.
- Lancaster Insurance Co., 545.
- Lands, agricultural, 180-183; forest and nonforest, 187, 188, 250; cultivated in farms, 199-201, 303-324.
- Larceny, imprisonment for, 425.
- Lathemen, railroad, number, hours, and wages of, 444.
- Launderers, wages of, 434, 438, 443.
- Law Union and Crown Insurance Co., 545.
- Laws of war, imprisonment for violation of, 425.
- Leather and its products, manufacturing statistics regarding, 482, 483, 498; relative importance of industry, 484.
- Legaspi, city, establishment of custom-house in, 558.
- Lepanto-Bontoc, province, total area of, 181; agricultural area of, 181, 250, 263, 282, 318; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 263, 272, 282, 292, 318; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 272, 307; cultivated area in, 199, 250, 263, 282, 299, 318; production of coffee in, 207, 208; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 256, 292, 299, 307; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; means of transportation in, 590; roads in, 590, 591.
- Leyte, island, total area of, 182; agricultural area of, 182, 252, 267, 287, 323; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 276, 287, 295, 323; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 276, 312; cultivated area in, 200, 252, 267, 287, 302, 323; production of cocoa in, 207; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 213; production of copra in, 215; production of corn in, 217; production of rice in, 219; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 312; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.
- Leyte, province, total area of, 181; agricultural area of, 181, 250, 263, 283, 318; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 263, 272, 283, 292, 318; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 256, 263, 272, 308; cultivated area in, 199, 250, 263, 283, 299, 318; production of cocoa in, 207; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of copra in, 214; production of corn in, 217; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 256, 292, 299, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; public libraries in, 407; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488, 489, 490, 494, 506, 514, 516 (note), 518 (note), 519 (note), 520 (note), 521 (note), 522 (note), 525 (note), 528-530; industrial importance of, 485; hemp baling establishments of, 492; roads in, 591; means of transportation in, 591.
- Liberia, consulate established in Philippine Islands by, 575.
- Libraries, public, methods of obtaining information concerning, 395; number of, 407; advisability of establishing, 407; books in, 407.
- Life insurance. See Insurance.
- Lime industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 502, 504, 506, 510, 520.
- Linear measures. See Weights and measures.
- Linemen, railroad, number, hours, and wages of, 445.
- Lipa, town, coffee cultivation in, 78.
- Liquid measures. See Weights and measures.
- Liquor industry, plants used for the production of liquors, 12, 203, 204; relative importance of, 476, 477, 480, 484, 486; manufacturing statistics for, 482, 483, 496, 500, 502, 504, 506, 508, 510, 512, 520.
- Lithographing industry, wages paid in, 443; relative importance of, 476-478, 480, 486; statistics of establishments engaged in, 496, 498, 506, 520.
- Live stock, domestic and farm animals, 130-132; number and value of animals, and number which died and were slaughtered in 1902, 225-227, 329, 394; death rate of carabao, 228, 229; value of, not on farms and on farms, 231-234, 329-394; number of carabao, other neat cattle, and horses in archipelago in 1901 and 1903, 235; number of domestic animals of specified classes, per 100 of civilized population, 236, 237; distribution of, between rural and urban localities, 238; number of neat cattle of specified classes, 239, 240; number of horses of specified classes, 241, 242; number of swine, goats, and sheep, 243, 244; number of poultry of specified classes, 245, 246; number of animals owned by non-Christian tribes, 247, 248.
- Liverpool and London and Globe Insurance Co., 545.
- Loans, rates of interest on, 544; number of, by banks, during 1902, 544.
- London and Lancaster Fire Insurance Company, 545.
- London Assurance Corporation, 545.
- Loney & Co., commercial firm, 29, 32.
- Lubang, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
- Lumber industry, wages paid in, 434, 438; relative importance of, 476, 477, 480, 484, 486; manufacturing statistics for, 482, 483, 496, 498, 502 (note), 503 (note), 504 (note), 506, 510, 512 (note), 513 (note), 520.
- Luz, Hon. Simeon, article on cultivation of coffee by, 78-84.
- Luzon, island; production of tobacco in, 209; total area of, 182; agricultural area of, 182, 252, 267, 287, 323; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 277, 287, 295, 323; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 312; cultivated area in, 200, 252, 267, 287, 302, 323; production of burfi in, 206; production of tuba in, 206; production of cocoa in, 207; production of coffee in, 208; production of cotton in, 209; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 213; production of betel nuts in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of grass in, 218; production of rice in, 219; production of sugar in, 220, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 312; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; banking agencies in, 544; ports of, 579-581; destruction of telegraph lines in, 614; service of Signal Corps in establishing peace in, 616.
- Luzuriaga, Hon. José R. de, article on sugar culture by, 26-32.
- Lyon, W. S., article on the cultivation of coconut by, 59-76; article on the cultivation of cacao by, 105-113.

- MacArthur, Maj. Gen. Arthur, extract from report of, 430; establishment of comprehensive cable system urged by, 615.
- Machinists, wages of, 429, 434, 438, 443.
- Mactán, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 580.
- Magdeburg Fire Insurance Co., 545.
- Maize, cultivation of, 117, 216, 217.
- Malabang, daily and monthly wages paid in specified occupations in, 439, 441, 446.
- Man On Insurance Co., 546.
- Manchester Assurance Co., 545.
- Mangoes, quantity of production of, 202, 216; cultivation of, 215.
- Manila, city, total area of, 181; agricultural area of, 181, 250, 264, 283, 319; size of farms in, 183, 185, 192, 250, 264, 272, 283, 292, 319; forest and nonforest land in, farms of, 187, 250; tenure of farms in, 190, 257, 264, 272, 308; cultivated area in, 199, 250, 264, 283, 299, 319; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 240, 241, 243; poultry in, 245; occupants of farms in, classified by color, 257, 292, 299, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; newspapers and periodicals published in, 401, 402; property values and amount of taxes paid in, 404, 405; hospitals in, 408-410; churches in, 413, 414; paupers in, 415; criminals and prisoners in, 418-426; wages paid in specified occupations in, 442, 443; weights and measures used in, 448-457; statistics of manufactures for, 465, 470, 473, 474, 490, 492, 494, 506, 514, 516-527; industrial importance of, 485; fish markets of, 533; banking in, 544; custom-house in, 558; commercial importance of, 558; roads and bridges in, 591; means of transportation in, 591; horse-car lines in, 601, 602; telephone lines in, 611.
- Manila and Dagupan Railway Company, native labor employed by, 431; hours and wages of employees of, 444, 609; character and length of track operated by, 595, 596; construction and equipment of road of, 595; assets and liabilities of, 595; gross income and expenditures of, 595; traffic of, 595-597; additional lines under construction by, 597.
- Manila Electric Railroad and Light Company, 601-603.
- Manila-Hongkong cable, 613.
- Manslaughter, imprisonment for, 425.
- Manufacturers Life Insurance Co., Limited, 554.
- Manufactures, aptitude of natives for, 459; development and progress of, 459-492; articles annually exported, 462; list of principal articles, by provinces, 463; difficulty of obtaining information concerning, 464, 471, 472; number of establishments engaged in, 470, 474, 514-526; schedule used in collection of statistics of, 471; classification of statistics of, 472; value of products, 474, 475, 490, 494-527; industries in order of importance, 476-479; statistics of, for industrial groups, 482; relative importance of, in United States and Philippine Islands, 484; summary of statistics of, 494-501; cost of materials purchased, 494-527; capital of establishments, 494-531.
- Marble and stone work industry, relative importance of, 478-480, 486; statistics of establishments engaged in, 496, 500, 506, 522.
- Marinduque, island, production of hemp in, 17, 20, 210; total area of, 182; agricultural area of, 182, 252, 267, 287, 323; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 277, 287, 295, 323; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 312; cultivated area in, 200, 252, 267, 287, 302, 323; production of copra in, 215; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; weights and measures used in, 448-457; ports of, 579-581; condition of roads and bridges in, 591.
- Marine insurance. *See* Insurance.
- Maritime Insurance Co., Limited, 546.
- Masbate, island, production of hemp in, 17, 210; total area of, 182; agricultural area of, 182, 252, 267, 288, 323; size of farms in, 184, 186, 192, 262, 267, 277, 288, 295, 323; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 313; cultivated area in, 200, 252, 267, 288, 302, 323; production of copra in, 215; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.
- Masbate, province, production of hemp in, 20, 210; total area of, 181; agricultural area of, 181, 250, 264, 283, 319; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 264, 272, 283, 292, 319; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 272, 308; cultivated area in, 199, 250, 264, 283, 299, 319; production of copra in, 214; production of corn in, 217; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 257, 292, 299, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 410; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 438, 440, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 508, 514; industrial importance of, 485; roads and bridges in, 591; means of transportation in, 591.
- Masons, brick and stone, 434, 438, 443, 446.
- Matalóm, town, public libraries in, 407.
- Match industry, statistics concerning, 470, 486.
- Mats and matting industry, relative importance of, 486.
- Measures. *See* Weights and measures.
- Mercantile Fire Insurance Co., 545.
- Merchandise, tariff on, 559-561.
- Merrill, Elmer D., extract from report of, on rice, 223, 224.
- Metal products, statistics concerning, 482-484, 498.
- Metric system. *See* Weights and measures, 447.
- Mexican silver, substitution of, for gold, 537; standard of values under Spanish rule, 537; coins in use since American occupation, 537, 538.
- Mexico, termination of galleon trade with, 575; consulate established in the Philippines by, 575.
- Mindanao, island, production of hemp in, 17, 20, 210; production of cocoa in, 115, 207; total area of, 182; agricultural area of, 182, 252, 267, 288, 324; number of farms in, 184, 186, 192, 252, 267, 277, 287, 295, 324; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 313; cultivated area in, 200, 252, 267, 288, 302, 324; production of coffee in, 208; production of bananas in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; weaving industry in, 465; ports of, 579-581; telegraph and telephone lines in, 616.
- Mindoro, island, production of hemp in, 17, 210; production of rice in, 93; total area of, 182; agricultural area of, 182, 252, 267, 288, 324; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 277, 288, 295, 324; forest and nonforest

Mindoro, island—Continued.

land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 313; cultivated area in, 200, 252, 267, 288, 302, 324; production of cocoa in, 207; death rate of carabao in, 229; livestock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 295, 302, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.

Mindoro, province, production of hemp in, 20, 210; total area of, 181; agricultural area of, 181, 250, 264, 283, 319; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 264, 272, 283, 292, 319; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 272, 308; cultivated area in, 199, 250, 264, 283, 299, 319; death rate of carabao in, 228; livestock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 292, 299, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 411; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 490, 495 (*note*), 513 (*note*), 520 (*note*), 521 (*note*); roads and bridges in, 591; transportation in, 591.

Mineral and soda water industry, importance of, 476, 477, 480, 486; statistics concerning, 496, 500, 502 (*note*), 504, 506, 508, 510, 522.

Misamis, province, total area of, 181; agricultural area of, 181, 250, 264, 283, 319; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 264, 273, 283, 292, 319; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 308; cultivated area in, 199, 250, 264, 283, 300, 319; production of cocoa in, 207; production of hemp in, 210; production of bananas in, 212; production of copra in, 214; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 292, 300, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 411; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 485, 488-490, 492, 494, 508, 514, 518 (*note*), 525, 528-531; roads and bridges in, 591; transportation in, 591.

Molders, wages of, 429.

Monetary system. *See* Currency.

Monte de Piedad y Caja de Ahorros, bank, 541.

Moro tribe, raids of, 180; fishing industry of, 533, 534.

Mules. *See* Live stock.

Murder, imprisonment for, 425.

Musicians, band, wages of, 442.

National Assurance Co. of Ireland, 545.

National Union Society, Limited, 545.

Neat cattle. *See* Live stock.

Negros, island, total area of, 182; agricultural area of, 182, 252, 267, 288, 324; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 277, 288, 296, 324; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 277, 813; cultivated area in, 200, 252, 267, 288, 303, 324; production of cocoa in, 207; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of betel nuts in, 213; production of bananas in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sugar in, 220, 221; production of sweet potatoes in, 222; death

Negros, island—Continued.

rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 296, 305, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.

Negros Occidental, province, total area of, 181; agricultural area of, 181, 250, 264, 283, 319; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 264, 273, 283, 292, 319; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 308; cultivated area in, 199, 264, 283, 300, 319; production of tobacco in, 209; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of corn in, 217; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 292, 300, 308; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 411; churches in, 413, 414; paupers in, 415; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488-490, 494, 508, 514, 516, 518 (*note*), 520-523, 525 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 592; means of transportation in, 592.

Negros Oriental, province, total area of, 181; agricultural area of, 181, 250, 264, 284, 319; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 264, 273, 284, 293, 319; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 309; cultivated area in, 199, 250, 264, 284, 300, 319; production of tobacco in, 209; production of hemp in, 210; production of bananas in, 212; production of copra in, 214; production of mangoes in, 216; production of corn in, 217; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; hospitals in, 411; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488-490, 494, 508, 516 (*note*), 518, 520, 525 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 592, 593; means of transportation in, 592, 593.

Net and seine industry, importance of, 486.

Netherlands, value of merchandise imported into the Philippines by, 568; consulate established in the Philippines by, 575.

Netherlands Fire and Life Insurance Co., 545.

Netherlands India Sea and Fire Insurance Co., 546.

New York Life Insurance Co., 554.

New Zealand Insurance Co., 546.

Newspapers, methods of obtaining information concerning, 395; censorship of, 398; dates of earliest publications of, 398; number of, 395, 401, 402; royal order governing publication of, 399, 400; number and character of, in 1902, 400; language of, 400-402; place of publication of, 401, 402; circulation of, 401, 402; period of issue of, 402.

Nipa, description of, 119; uses of, 119, 206; quantity of production of, 202; provinces and islands reporting cultivation of, 206.

Nipa fabric industry, importance of, 486.

Nippon Yusen Kaisha, steamship company, 576.

Norddeutsche Feuer-Versicherungs-Gesellschaft, 546.

North America, value of merchandise imported into the Philippines by, 571; value of merchandise exported to, 574.

- North British and Mercantile Insurance Co., 546.
 North China Insurance Co., Limited, 546.
 North German Lloyd Steamship Co., 576.
 Northern Assurance Co., 546.
 Norwich Union Insurance Society, 546.
 Nueva Cáceres, town, newspapers and periodicals published in, 401, 402; public libraries in, 407.
 Nueva Ecija, province, production of sugar in, 29, 220; production of rice in, 92, 94, 219; total area of, 181; agricultural area of, 181, 250, 264, 284, 320; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 264, 273, 284, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 309; cultivated area in, 199, 250, 264, 284, 300, 320; cultivation of tobacco in, 209; production of mangoes in, 216; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488-490, 494, 508, 514, 517 (note), 521 (note), 522 (note), 524, 525 (note), 528-531; industrial importance of, 485; roads and bridges in, 593; means of transportation in, 592.
 Nueva Vizcaya, province, total area of, 181; agricultural area of, 181, 250, 264, 284, 320; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 264, 273, 284, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 309; cultivated area in, 199, 250, 264, 284, 300, 320; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 405; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 434, 436, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 490, 495 (note), 513 (note), 524 (note).
 Nutmegs, production of, 123.
 Nuts, production of, 11, 12.
- Ocampo, Hon. Pablo Tecson, article on production of cacao by, 115, 116.
 Occidental and Oriental Steamship Co., 576.
 Occupations, limited number of, 432; specified, wages paid in, 434-444.
 Oceania, value of merchandise imported into the Philippines by, 571; value of merchandise exported from the Philippines to, 574.
 Official Bulletin, date of establishment of, 399 (note).
 Oil, coconut, uses of, 214.
 Oil, olive, tariff rates on, 561.
 Oil industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 502 (note), 503 (note), 506, 508 (note), 510, 512, 522.
 Oilers, railroad, wages of, 444; average number and hours of, 444.
 Onions, quantity of production of, 202.
 Oranges, varieties of, 126; quantity of production of, 202; cultivation of, 215.
 Ordinances, city, imprisonment for violation of, 425.
 Ordinance department, Filipinos employed in, 429.
- Pacific Mail Steamship Co., Limited, 576.
 Pack, Hon. W. F., article on cultivation of coffee by, 84-86.
 Packers, wages of, 428.
 Paddy. See Rice.
 Pagsanjan, town, number of public libraries in, 407; number and language of books in public libraries of, 407.
 Painters, wages of, 428, 429, 434, 438, 442-446.
- Paints and colors industry, statistics concerning, 486.
 Palatine Insurance Co., 546.
 Pampanga, province, total area of, 181; agricultural area of, 181, 250, 264, 284, 320; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 264, 273, 284, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 257, 264, 273, 309; cultivated area in, 199, 250, 264, 284, 300, 320; production of nipa in, 206; production of tuba in, 206; production of bananas in, 212; production of mangoes in, 216; production of corn in, 217; production of sugar in, 220; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 257, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; convicts in, 416; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; industrial importance of, 485; statistics of manufactures for, 488-490, 494, 508, 514, 519 (note), 520-523, 524 (note), 525 (note), 528-530; roads and bridges in, 593; means of transportation in, 593.
 Pananón, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
 Panay, island, production of hemp in, 210; total area of, 182; agricultural area of, 182, 252, 267, 288, 324; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 278, 288, 296, 324; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 278, 313; cultivated area in, 200, 252, 267, 288, 303, 324; use of burf in, 205, 206; production of tuba in, 206; production of cocoa in, 207; production of tobacco in, 209; production of pineapples in, 211; production of bananas in, 213; production of copra in, 215; production of mangoes in, 216; production of corn in, 217; production of grass in, 218; production of rice in, 219; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; occupants of farms in, classified by color, 260, 296, 303, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.
 Pangasinan, province, production of sugar in, 29, 220; total area of, 181; agricultural area of, 181, 250, 265, 284, 320; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 265, 274, 284, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 309; cultivated area in, 199, 250, 265, 284, 300, 320; production of burf in, 206; production of tobacco in, 209; production of pineapples in, 211; production of bananas in, 212; production of betel nuts in, 213; production of mangoes in, 216; production of corn in, 217; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 463, 473, 474, 485, 488-490, 494, 508, 514, 516, 520-525, 528, 531 (note); establishing of custom-house in, 568; roads and bridges in, 593.
 Panglao, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.

- Paragua, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579-581.
- Paragua, province, total area of, 181; agricultural area of, 181, 250, 265, 284, 320; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 265, 274, 284, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 309; cultivated area in, 199, 250, 265, 284, 300, 320; production of pineapples in, 211; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 293, 300, 309; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; libraries in, 407; hospitals in, 411; churches in, 413, 414; convicts in, 417; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; roads and bridges in, 593; means of transportation in, 593.
- Paragua Sur, comandancia, total area of, 181; agricultural area of, 181, 250, 265, 285, 320; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 265, 274, 285, 293, 320; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 310; cultivated area in, 199, 250, 265, 285, 300, 320; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 293, 300, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; convicts in, 417; weights and measures used in, 448-457; statistics of manufactures for, 485, 490, 495 (*note*), 513 (*note*), 527 (*note*).
- Paricide, imprisonment for, 425.
- Pasijan, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
- Pateros, town, duck hatcheries in, 131; libraries in, 407; language of books in, 407.
- Patriotic Assurance Co., 546.
- Patrones, wages paid to, 428.
- Pauperism, method of obtaining information concerning, 395; small proportion of, 415, 416.
- Peanuts, uses of, 122; quantity of production of, 202.
- Pearl fisheries, account of, by Captain Hickock, 534; importance of, 534; annual production of, 535; instruments used in, 535; islands where industry is carried on, 536.
- Penal Code, penalties imposed by, 418-421.
- Penang Khean Guan Insurance Co., Limited, 546.
- Penitentiaries, principal ones, 421; regulations of, 421; uses of proceeds from work of inmates of, 421, 422.
- Pepper, black, production of, 123.
- Periodicals, method of obtaining information concerning, 395; censorship of, 398; number and character of, 400; language of, 400-402; circulation of, 401, 402; number of, 401, 402.
- Peso, annual value of, for specified years, 563.
- Phenix Insurance Co., 546.
- Philippine Islands, total area of, 181; agricultural area of, 181, 250, 254, 261, 268, 278, 289, 296, 303, 314; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 261, 268, 276, 278, 289, 295, 314; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 254, 261, 268, 303; cultivated area of, 199, 250, 261, 278, 296, 314; agricultural products of, 201-224; death rate of carabao in, 228; live stock in, 224-248; poultry in, 245, 246; occupants of farms in, classified by color, 254, 289, 296, 303; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-394; property values and amount of taxes paid in, 404-406; libraries in, 407; hospitals in, 408, 409; churches
- Philippine Islands—Continued.
in, 412-414; pauperism in, 415; criminals and prisons in, 416-426; labor and wages in, 427-446; systems of measurements in, 447-457; manufacturing in, 459-531; fisheries of, 533-536; currency and banking in, 537-544; insurance in, 545-556; commerce in, 557-586; value of imports and exports, 564, 565; roads and bridges in, 586; means of transportation in, 586, 604; telegraph lines in, 604-618.
- Phoenix Assurance Co., Limited, 546.
- Photography, statistics concerning, 476, 477, 480, 486, 496, 500, 506, 512 (*note*), 522.
- Piano industry, statistics concerning, 486.
- Pilots in coastwise service, number and wages of, 584.
- Pina cloth, description of, 465; quantity and value of, exported from the Philippines, 467.
- Pineapples, cultivation of, 120; description of, 126; quantity of production of, 202, 211.
- Planners, railroad, wages of, 444.
- Plants, gum and resin bearing, 12; saccharine, 12; starch producing, 12, 123; fiber or textile, 12, 154-176, 202, 203, 209-211, 326; dye, 12, 122, 202; aromatic, 12, 202, 206-209; oil producing, 12, 203; medicinal, 12, 203; alcoholic, 12, 205, 206; leguminous, 121; gramineous, 202, 203, 216-224.
- Po On Marine Insurance and Godown Co., Limited, 546.
- Polices, insurance, 556.
- Pontevedra, town, libraries in, 407.
- Poru, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
- Porters, railroad, average number, hours, and wages of, 444.
- Ports, dates of closing and reopening, 204; of entry, prior to and since American occupation, 558; list of, 579-581; supports under Spanish rule, and since American occupation, 579.
- Portugal, consulate established in the Philippines by, 575.
- Potatoes, sweet, production of, 121, 221, 222.
- Pottery and terra cotta products industry, statistics of, 470, 476, 477, 480, 486, 496, 500, 502 (*note*), 504, 508, 510, 522.
- Pottery, wages of, 434, 433, 443.
- Poultry, general remarks concerning, 131; number of, in archipelago, 225; on farms and not on farms, number and value of, 231-234, 238; number of, per 100 of civilized population, 236, 237; distribution of, in provinces and islands, 245, 246; number and value of, and number which died and were slaughtered in 1902, 338, 339, 349, 350, 360, 361, 371, 372, 382, 383, 393, 394.
- Power, hand and animal, establishments using, 487, 489, 492, 530; water, 470, 487, 489, 530; steam, 487-489, 492.
- Press, censorship of, 398-400. *See also* Newspapers and periodicals.
- Printers, wages of, 434, 438.
- Printing and allied industries, manufacturing statistics concerning, 476, 477, 480, 482-484, 486, 496, 498, 504 (*note*), 505, 506, 522.
- Prisoners, number in confinement, 416, 417; general nativity of, 416, 417; penalties imposed upon, 418; delays in trials of, 419; principal diseases among, 421; political, treatment of, 421, 423; military service rendered by, 422; number committed to Bilibid during 1902, 424; classification of, by length of sentence, 425; deaths among, 421, 425; number of, pardoned, 425; principal crimes of, 417, 425; principal occupations of, 417, 419, 426; classification of, by sex, age, race, and conjugal condition, 426; literacy of, 426.
- Prisons, system of collecting statistics of, 416; classes of persons confined in, 418; boards of, 419, 420. *See also* Penitentiaries.
- Products, agricultural, 117-130, 201-224; manufactured, 474, 475, 477, 479, 480, 482, 483, 486, 487, 488, 490, 528-531.
- Property, personal and real, value and taxes of, 395, 408-406.
- Quartermaster's Department, U. S. A., laborers employed by, 431.

- Railroads, steam, number and length of, 595-598; traffic of, 596, 597; branch lines to be constructed, 597, 598; subsidy granted to, 598.
- Railways, street, horse car lines, 600, 601; terms, of franchise to electric system, 602, 603.
- Rattan, general use of, 120.
- Real estate, value of, 403-406.
- Resin industry, relative importance of, 486.
- Reyes, Don Galeo, encouragement of coffee cultivation by, 78.
- Rice, abolishment of import duties on, 86; cultivation of, 86, 87, 96, 97; causes of decrease of cultivation of, 87; quantities and values of imports of, 87, 95; essentials in cultivation of, 88; varieties of, 88, 94, 96; lowland, method of cultivating, 89; methods of thrashing, 90; upland, methods of cultivating, 90; enemies to, 91; market price of, 91, 97; amount of crops of, 92; planting and harvesting of, 95-97; consumption of, in Great Britain, 95; preparation of ground for cultivating, 96, 97; yield of, 97; unhulled, production of, 218; cleaning industry, relative importance of, 476, 477, 480, 486; cleaning industry, statistics of establishments engaged in, 496, 498, 502, 504 (*note*), 506, 508, 510, 522, 524; tariff rates on, 561.
- Rice, Lieut. J. H., U. S. A., extract from report of, on labor question, 429.
- Rinderpest, effect of, on agriculture, 198, 200; ravages of, 226; destruction of carabao caused by, 222.
- Rizal, province, production of rice in, 93, 219; total area of, 181; agricultural area of, 181, 250, 265, 285, 321; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 265, 274, 285, 293, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 310; cultivated area in, 199, 250, 265, 285, 301, 321; production of mangoes in, 216; production of grass in, 217; production of sugar in, 220; death rate of carabao in, 228; live stock in, 231, 235, 236, 239-241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 293, 301, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; libraries in, 407; hospitals in, 411; churches in, 413, 414; convicts in, 417; wages paid in certain occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 474, 475, 488-490, 494, 510, 515 (*note*), 516, 518 (*note*), 519 (*note*), 520, 522, 524, 525 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 593; means of transportation in, 593.
- Roads, appropriations for repair and construction of, 586; condition of, 586; improvement of, by army, 586; insular, 586; provincial, 586-595.
- Robbery, highway, imprisonment for, 425.
- Robbery, imprisonment for, 425.
- Romblón, island, hemp produced in, 17; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 581.
- Romblón, province, total area of, 181; agricultural area of, 181, 250, 265, 285, 321; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 265, 274, 285, 293, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 310; cultivated area in, 199, 200, 250, 265, 285, 301, 321; production of tobacco in, 209; production of hemp in, 210; production of copra in, 214; production of rice in, 219; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 258, 293, 301, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; convicts in, 417; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 465, 474, 475, 488, 490, 494, 510, 515 (*note*), 516, 518 (*note*), 519 (*note*), 520, 522, 524, 525 (*note*), 528-531; industrial importance of, 485; hemp baling establishments of, 492; roads and bridges in, 593, 594; means of transportation in, 594.
- Samarang Sea and Fire Insurance Co., 546.
- San Juan de Dios Hospital, description of, 408.
- San Juan del Monte, number of public libraries in, 407.
- San Lazaro Hospital, description of, 408, 409.
- San Ramón, town, government farm in, 421.
- Sanchez, Domingo, 82.
- Santa María, number of public libraries in, 407.
- Schedule, form used, for agricultural statistics, 177, 178; for social statistics, 396, 397; for manufacturing statistics, 471.
- Scottish Union and National Insurance Co., 546.
- Sea worm industry, 534.
- Romblón, province—Continued.
- 448-457; statistics of manufactures for, 474, 475, 490, 494, 510, 516, 520, 527 (*note*); industrial importance of, 485; roads and bridges in, 593.
- Ropemakers, wages of, 443.
- Royal Exchange Assurance Corporation, 546.
- Royal Insurance Co., 546.
- Russell, Capt. Edgar, Signal Corps, construction of telegraph lines under direction of, 614.
- Russell and Sturgis, financial help for agriculture extended by, 29, 32.
- Russia, consulate established in the Philippines by, 575.
- Saddlers, wages of, 428, 429, 434, 438, 443.
- Saddlery and harness industry, 470; relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 506, 512 (*note*), 524.
- Sago, method of obtaining, 123; production of, 205, 206.
- Sailors, wages of, 428, 434, 438, 443.
- Salesmen, wages of, 436, 440, 443.
- Salt industry, extent of, 469; relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 502 (*note*), 503 (*note*), 504, 510, 512, 524.
- Samar, island, production of hemp in, 17, 210; total area of, 182; agricultural area of, 182, 252, 267, 288, 324; number of farms in, 184, 186; size of farms in, 184, 186, 192, 252, 267, 278, 288, 296, 324; forest and nonforest land in farms of, 188, 252; tenure of farms in, 191, 260, 267, 278, 313; cultivated area in, 200, 252, 267, 288, 303, 324; production of cocoa in, 207; production of pineapples in, 211; production of bananas in, 213; production of copra in, 215; production of rice in, 219; production of sugar in, 221; production of sweet potatoes in, 222; death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 245; occupants of farms in, classified by color, 260, 296, 303, 313; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; hemp baling establishments of, 491; ports of, 579-581; use of telegraph in suppressing insurrection in, 616.
- Samar, province, production of hemp in, 20, 210; production of bananas in, 124; total area of, 181; agricultural area of, 181, 250, 265, 285, 321; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 265, 274, 285, 294, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 274, 310; cultivated area in, 199, 250, 265, 285, 301, 321; production of pineapples in, 211; production of bananas in, 212; production of copra in, 214; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 294, 301, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; hospitals in, 411; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 510, 516 (*note*), 527 (*note*); industrial importance of, 485; hemp baling establishments of, 492; roads and bridges in, 593, 594; means of transportation in, 594.
- Samarang Sea and Fire Insurance Co., 546.
- San Juan de Dios Hospital, description of, 408.
- San Juan del Monte, number of public libraries in, 407.
- San Lazaro Hospital, description of, 408, 409.
- San Ramón, town, government farm in, 421.
- Sanchez, Domingo, 82.
- Santa María, number of public libraries in, 407.
- Schedule, form used, for agricultural statistics, 177, 178; for social statistics, 396, 397; for manufacturing statistics, 471.
- Scottish Union and National Insurance Co., 546.
- Sea worm industry, 534.

- Seamstresses, wages of, 436, 440, 443.
 Sedition, imprisonment for, 426.
 Servants, household, wages of, 434, 438, 443.
 Shark fisheries, 534.
 Sheep. *See* Live stock.
 Shipbuilding industry, construction of coastwise craft, 469; relative importance of, 476, 477, 480, 484, 486; statistics of establishments engaged in, 496, 500, 502 (*note*), 503 (*note*), 504, 506, 509 (*note*), 510, 512, 524.
 Ships, foreign, tonnage duties on, 558.
 Shirtmakers, wages of, 443.
 Shoemakers, wages of, 436, 440, 443.
 Shoes, tariff rates on, 561.
 Shrubs for horticulture, tariff regulations concerning, 561.
 Shunters, railroad, wages of, 444.
 Siargao, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394.
 Siassi, comandancia, total area of, 181; agricultural area of, 181, 250, 265, 285, 321; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 265, 275, 285, 294, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 275, 310; cultivated area in, 199, 250, 265, 285, 301, 321; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 294, 301, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; wages paid in specified occupations in, 439, 441, 446.
 Siassi, island, pearl fisheries of, 535; reopening of custom-house of, 558.
 Sibuyán, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 580.
 Sign painters. *See* Painters.
 Signal Corps telegraph system, description of, 611, 612; cost of, 612, 613; installation of, 613, 614; cable operations of, 614-616; commercial business of, 616, 617; operation, maintenance, and repairs of, 617; present value of lines of, 617, 618; transference of lines of, 618.
 Silk, tariff rates on, 561.
 Silver, tariff regulations concerning, 560, 561.
 Silversmithing industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 498, 502, 504, 506, 524.
 Silversmiths, wages of, 436, 440, 443.
 Sinamay, description of, 465; exportations of, 467.
 Siquijor, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 579.
 Soap industry, relative importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 502, 504, 506, 508, 512, 524.
 Soapmakers, wages of, 443.
 Social statistics. *See* Statistics.
 Soil, character of, 11.
 Sorghum, use of, 118.
 Sorsogón, province, production of hemp in, 17, 20, 210; total area of, 181; agricultural area of, 181, 250, 265, 285, 321; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 265, 275, 285, 294, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 275, 310; cultivated area in, 199, 250, 265, 285, 301, 321; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 294, 301, 310; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; hospitals in, 411; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 438, 440, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488, 489, 490, 494, 510, 515 (*note*), 516, 522 (*note*), 523 (*note*), 524 (*note*), 525 (*note*), 527 (*note*), 528-531; industrial importance of, 485; hemp baling establishments of, 492; roads in, 594; means of transportation in, 594.
 South British Fire and Marine Insurance Co. of New Zealand, 546.
 Spain, monopoly of sale of tobacco created by, 35; prison board established by, 419, 420; silver dollar sent to Philippines by, 537; Spanish-Filipino Bank established by, 541; opposition of, to trade with Philippines, 568; customs duties paid to royal treasury of, 559; tariff regulating trade with, 560, 561, 562; American continuation of customs duties established by, 562; value of merchandise imported into the Philippines by, 568; value of merchandise exported to, 572; consulate established in the Philippines by, 575.
 Spanish language, newspapers and periodicals published in, 400-402; public libraries in, 407.
 Spanish-Filipino Bank, 541.
 Spices, varieties of, 203.
 Spinners, wages of, 443.
 Standard Life Assurance Co., Limited, 554.
 Starch plants. *See* Plants.
 State Fire Insurance Co., Limited, 546.
 Statistics, social, subjects included in, 395; form of schedule used in collection of, 396, 397.
 Steam sawyers, wages of, 443.
 Steampower, establishments using, 487-489, 528; distribution of, in hemp baling establishments, 492.
 Steamships, commercial, arriving at Manila in 1902, 576, 577.
 Stevedores, wages of, 428.
 Stone masons. *See* Masons.
 Stonecutters, wages of, 436, 440.
 Storehouse assistants, wages of, 429.
 Street railways. *See* Railways, street.
 Strikers, railroad, wages of, 444, 445.
 Sual, town, establishment of custom-house in, 558.
 Sugar, classification of, as an agricultural product, 14; commercial importance of, 25, 26; quantity and value of exports of, 25; article on culture of, by José R. de Luguriga, 26-32; varieties of, 27; conditions regarding buying and selling of, 27, 28; production in 1893 of, 29; exportation of, classified by Philippine ports, 29; exportation of, to specified countries, 30; expenses in connection with cultivation of, 30, 31; acreage and production of, 328; statistics of establishments manufacturing, 487, 488, 489, 528, 531.
 Sugar cane, introduction of, 26; distribution of species of, 26; cultivation of, 27-30; production of, 219, 221; acreage of, 328.
 Sun Insurance Office, 546.
 Sun Life Insurance Co., 554.
 Superficial measures, 453, 454.
 Surigao, province, total area of, 181; agricultural area of, 181, 250, 265, 286, 321; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 265, 275, 286, 294, 321; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 258, 265, 275, 311; cultivated area in, 199, 250, 265, 286, 301, 321; production of cocoa in, 207; production of hemp in, 210; production of bananas in, 212; production of copra in, 214; production of mangoes in, 216; production of rice in, 219; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 258, 294, 301, 311; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; convicts in, 417; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457, statistics of manufactures for, 474, 475, 489, 494

Surigao, province—Continued.

510, 517 (*note*), 520; industrial importance of, 485; hemp baling establishments of, 492; roads and bridges in, 594; means of transportation in, 594.

Surra, prevalence of, among horses, 131; effect of, on agriculture, 200; destruction of carabao by, 222; ravages of, 226.

Sweden and Norway, consulate established in the Philippines by, 575.

Sweet potatoes. *See* Potatoes.

Swine. *See* Live stock.

Switchmen, railroad, wages of, 444, 445.

Switzerland, consulate established in the Philippines by, 575.

Tabacalera Company, coffee crop purchased by, 85.

Tablas, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 581.

Tacloban, town, establishment of custom-house in, 558.

Taft, Gov. William H., extract from address by, on labor question, 431.

Tagalog language, newspapers and periodicals published in, 400.

Taguig, town, libraries in, 407.

Tailors, wages of, 436, 440, 443.

Tanning industry, statistics concerning, 476, 477, 480, 486, 496, 498, 502, 504, 506, 512, 524.

Tariff, adoption of new system of, 559; rates on Asiatic merchandise, 559; rates for specified countries, 559, 560; rates on specified articles, 560-562; articles exempt from, 561; changes made in, 561, 562; charges and fees imposed on commerce, 562; revision of, by Philippine Commission, 562; published list of rates, 563.

Tariff board, duties levied by, 559, 560; appointment of, 560; regulations of, 560-563.

Tarlac, province, production of rice in, 92, 94, 219; total area of, 181; agricultural area of, 181, 250, 266, 286, 322; number of farms in, 184, 185; size of farms in, 184, 185, 192, 250, 266, 275, 286, 294, 322; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 259, 266, 275, 311; cultivated area in, 199, 250, 266, 286, 301, 322; production of coffee in, 208; production of pineapples in, 211; production of betel nuts in, 213; production of mangoes in, 216; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 259, 294, 301, 311; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; hospitals in, 411; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 488-490, 494, 510, 516, 520, 523 (*note*), 524 (*note*), 526 (*note*), 528-531; industrial importance of, 485; roads and bridges in, 594; means of transportation in, 594.

Tawi Tawi, comandancia, total area of, 181; agricultural area of, 181; number of domestic animals in, 247, 248; property values and amount of taxes paid in, 404, 406; wages paid in specified occupations in, 439, 441; fisheries in, 535.

Taxes, insular, provincial, municipal, city or town, and road, 403-406.

Tayabas, province, sugar crop of, for 1893, 29; coconut producing lands in, 73; total area of, 181; agricultural area of, 181, 250, 266, 286, 322; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 266, 275, 286, 294, 322; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 259, 266, 275, 311; cultivated area in, 199, 250, 266, 286, 301, 322; production of cocoa in, 207; production of hemp in, 210; production of pineapples in, 211; production of bananas in, 212; production of copra in, 214; production of guavas in, 215; production of mangoes in, 216; production of rice in, 219; production of sugar in,

Tayabas, province—Continued.

220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243; poultry in, 245; occupants of farms in, classified by color, 259, 294, 301, 311; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 510, 514-521, 523 (*note*), 524, 525 (*note*), 527 (*note*); industrial importance of, 485.

Teachers, salaries of, 436, 440, 443.

Teamsters, wages of, 428.

Telegraph lines, land and marine, description of, 608; free and paid messages transmitted by, 608; length of wire used in, 608; receipts from messages transmitted by, 608; estimated value of, 609; length of, operated by Signal Corps, 611; cost to Signal Corps of construction of, 612; cost to United States of maintenance, operation, and repair of, 612; cost of messages transmitted by Signal Corps, 612; installation of Signal Corps system, 613, 614; military lines, opening of, to commercial business, 616; value of, to commerce and trade, 616, 617; difficulties in repair and construction of, 617; number of employees engaged in operation, maintenance, and repair of, 617; present value of, 617, 618; appropriations by civil government for maintenance of, 618; transfer of, to Philippine civil government, 618.

Telephone lines, length of, operated by Signal Corps, 611; installation of system of, in Manila, 614; estimated value of, per mile, 618.

Tenure of farms, comparison of, in Philippine Islands with United States, 189, 190; forms of, 190-194, 254-278; proportion of total cultivated area by, 194. *See also* Farmer.

Teosinte, grass, description of, 117; cultivation of, 117, 118.

Textiles, manufacturing statistics concerning, 482-484, 498.

Theft, imprisonment for, 425.

Thompson, Lieut. Col. R. E., telegraphic construction under direction of, 611-613.

Ticao, island, death rate of carabao in, 229; live stock in, 233, 237, 240, 242, 244; poultry in, 246; number and value of animals in, and number which died and were slaughtered in 1902, 340-350, 362-372, 384-394; ports of, 581.

Tinners, wages of, 429.

Tinsmithing, statistics concerning, 476, 477, 480, 486, 496, 498, 506, 509 (*note*), 526.

Tinsmiths, wages of, 443, 444.

Tintarron, quantity and value of exports of, 98.

Tobacco, commercial importance of, 14, 32; cultivation of, 32-53; origin of, 33; quantity and value of exports of, 33; freedom of production and sale of, 34; government monopoly of production of, 34; varieties of, 34; implements used in cultivation of, 35; conditions favorable to cultivation of, 36; fertilizers used in cultivation of, 37; seed beds of, 37-39; variety and size of leaves of, 38; methods of transplanting, 39, 40; insect enemies of, 40, 41; cutting and curing leaves of, 41-44; expenses and profits from, 44-53; classifications of, 45; wages of laborers, 48; average yield of, 49; conditions unfavorable to cultivation of, 52; production of, 208, 209; acreage and production of, 325; tariff rates on, 560.

Tobacco industry, importance of, 476-480, 484, 486; manufacturing statistics concerning, 482, 483, 496, 500, 502, 504 (*note*), 505 (*note*), 506, 508 (*note*), 509 (*note*), 510, 526.

Tokio Marine Insurance Co., 546.

Tomatoes, quantity of production of, 202, 221.

Torres, Hon. Florentino, account of prisons and penitentiaries by, 418-426.

Tortoise shell, tariff rates on, 561.

Toyo Kisen Kaisha, steamship company, 576.

Trade, termination of, with Mexico, 557; foreign, Spanish opposition to, 568; gold value of, 565; increase in, 565. *See also* Commerce.

- Transportation, condition of roads, 586-595; means of, 586-595; vehicles used in, 586-595; steam railroads, 595-598; Benguet Electric Railway, 598-600; street railways, 600-603.
- Trimmers, wages of, 428.
- Triton Insurance Co., 546.
- Trunk industry, importance of, 476, 477, 480, 486; statistics of establishments engaged in, 496, 500, 508, 526.
- Trunkmakers, wages of, 443.
- Tuba, methods of obtaining, 53, 70, 71, 119; uses of, 70, 71, 119, 206; quantity of production of, 827.
- Turkeys. *See* Poultry.
- Umbrella industry, average wages paid to umbrellamakers, 443; relative importance of, 486.
- Union Assurance Society, 546.
- United Insurance Society of Canton, Limited, 546.
- United Kingdom, value of merchandise imported into the Philippines by, 568; value of merchandise exported from the Philippines to, 572.
- United States, exports of sugar to, 30; relative importance of manufactures in, 484; value of merchandise exported from the Philippines to, 574.
- United States Army, instructions to disbursing officers of, 538, 539.
- United States Express Co., 619.
- United States Philippine Commission, tax on Mexican money imposed by, 539.
- United States Signal Corps, cables of, 604; transference of telegraph and cable lines of, 605; termini and length of telegraph lines operated by, 606, 607; number and hours of employees of, 609; wages of, 609, 610; number of stations of, 610; condition of telegraph offices of, 610; causes of interruption in service of, 610.
- Uruguay, consulate established in the Philippines by, 575.
- Vegetables, cultivation of, 11, 12; variety of, 122, 203, 204; descriptive list of, 133-154; tariff rates on, 561.
- Vehicles for land transportation, 484.
- Venezuela, consulate established in the Philippines by, 575.
- Vessels, list of, arriving at Manila from United States and foreign countries, 576, 577; licensed, number and tonnage of, 578; difficulty of enumeration of, 582; statistics of, classified by customs districts, 582; statistics of, classified by kinds, 583.
- Visayan language, newspapers and periodicals published in, 400.
- Wage-earners, number and wages of, 482, 483, 494-513; number and wages of, in manufacturing establishments, 487, 514, 531.
- Wages, of skilled and unskilled laborers, 428; increase in, 432; daily and monthly, by specified occupations, 434-444; average, paid to Filipino workmen in specified occupations, 442, 443; of railroad employees, 444, 445; of employees on vessels, 583-585.
- Wagon and cart making, 469.
- Wai Hung Bank, 541.
- Wallace, Lieut. C. S., superintendent of constabulary lines, 618.
- Watch, clock, and jewelry repairing industry, wages of watch repairers, 443; relative importance of, 478-480, 486; statistics of establishments engaged in, 496, 498, 508, 526.
- Watchmen, railroad, wages of, 444, 445.
- Watermelons, quantity of production of, 202.
- Waterpower, abundance and distribution of, 470; establishments using, 487, 489, 530.
- Weavers, wages of, 443.
- Weights and measures, metric system legalized by Philippine Commission, 447; dry measures, 448-451, 456, 457; liquid measures, 451, 452, 457; linear measures, 452, 453; superficial measures, 453-455; cubic measures, 455.
- Western Assurance Co., 546.
- Weyler Governor-General, promulgation of new tariff by, 562.
- Wheelwrights, wages of, 442.
- Wine, distillation of nipa, 119; tariff rates on, 558, 560.
- Wood-carving industry, relative importance of, 476-480, 486; statistics of establishments engaged in, 496, 498, 508, 526.
- Wood sawyers, wages of, 436, 440, 443.
- Woven fabrics, description of, 466.
- Yan On Marine and Fire Insurance Co., Limited, 546.
- Yangtze Insurance Association Limited, 546.
- Yorkshire Fire and Life Insurance Co., 546.
- Yriarte, Hon. M. de, estimate of newspapers and periodicals by, 398; account of hospitals by 408.
- Zambales, province, production of rice in, 92-94, 219; total area of, 181; agricultural area of, 181, 250, 266, 286, 322; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 266, 275, 286, 294, 322; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 259, 266, 275, 311; cultivated area in, 199, 250, 266, 286, 301, 322; production of pineapples in, 211; production of mangoes in, 216; production of sugar in, 220; production of sweet potatoes in, 222; death rate of carabao in, 228; live stock in, 231, 235, 236, 239, 241, 243, 247, 248; poultry in, 246; occupants of farms in, classified by color, 259, 294, 301, 311; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; paupers in, 415; convicts in, 417; wages paid in specified occupations in, 435, 437, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 512, 516 (*note*), 521 (*note*); industrial importance of, 485; roads and bridges in, 594; means of transportation in, 594.
- Zamboanga, city, custom-house in, 558, 559; coast-wise trade with, 583-585.
- Zamboanga, comandancia, total area of, 181; agricultural area of, 181, 250, 266, 286, 322; number of farms in, 183, 185; size of farms in, 183, 185, 192, 250, 266, 276, 286, 294, 322; forest and nonforest land in farms of, 187, 250; tenure of farms in, 190, 259, 266, 276, 311; cultivated area in, 199, 250, 266, 286, 301, 322; production of sugar in, 220; death rate of carabao in, 228; live stock in, 232, 235, 236, 239, 241, 243, 247, 248; poultry in, 245; occupants of farms in, classified by color, 259, 294, 301, 311; acreage and production of crops in, 325-328; number and value of animals in, and number which died and were slaughtered in 1902, 329-339, 351-361, 373-383; property values and amount of taxes paid in, 404, 406; churches in, 413, 414; convicts in, 417; penitentiary in, 421; political prisoners in, 423; wages paid in specified occupations in, 439, 441, 446; weights and measures used in, 448-457; statistics of manufactures for, 474, 475, 490, 494, 512, 515 (*note*), 516-523, 525 (*note*); industrial importance of, 485; roads and bridges in, 594, 595; means of transportation in, 595.







**BUILDING
USE ONLY**

UNIVERSITY OF MICHIGAN



3 9015 03668 2428

Reviewed by Preservation

2002

**BUILDING
USE ONLY**

**BUILDING
USE ONLY**

