

# Philippine Geographical JOURNAL

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# PHILIPPINE GEOGRAPHICAL SOCIETY

Soil Conservation Building, Florida St.  
Manila, Philippines

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## PHILIPPINE GEOGRAPHICAL JOURNAL

Official Organ of the Philippine Geographical Society  
Soil Conservation Building, Florida St.  
Manila, Philippines

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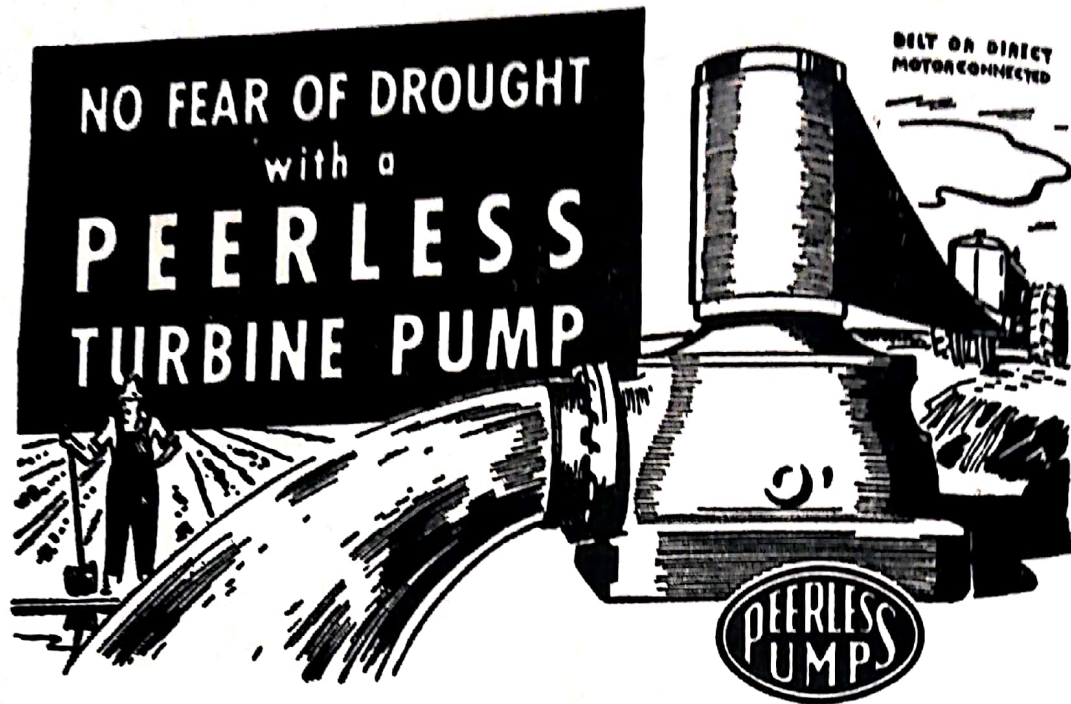
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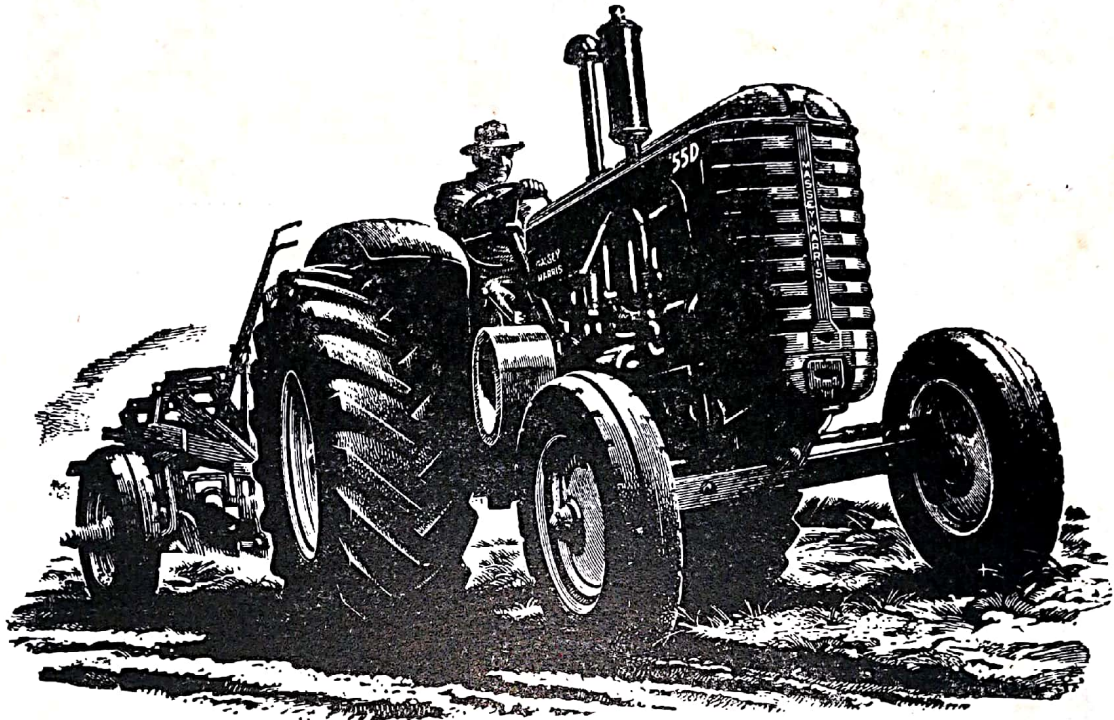
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# Philippine Geographical JOURNAL

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## EDITORIALS

### The First Philippine Forest Conservation and Reforestation Conference September 30 - October 1 1954

Upon the assumption of office of the new Administration of the Republic of the Philippines at the end of last year, newly-elected President Ramon Magsaysay appointed as Secretary of Agriculture and Natural Resources, Dr. Salvador Araneta. Secretary Araneta had participated in one or another of several governmental agencies charged with economic planning and at one time held the post of Economic Coordinator. Immediately after his new appointment, Secretary Araneta launched a vigorous program designed, among other things, to evaluate the state of economic development programs and the level of knowledge of Philippine natural resources.

One of the most serious problems the new Republic has had to face is that of dwindling forest reserves. In the past, this problem had received practically no official attention and personnel within the Bureau of Forestry had worked under a multitude of handicaps, not the least of which was lack of official support and a scarcity of funds with which to carry on the work charged to that Bureau.

In his travels throughout the country, Dr. Araneta soon had forcibly brought to his attention the dangers facing the forest cover of the Philippines and a general confusion as to what were forest lands and how these fit into the development programs of the government and what legal remedies existed to assure posterity of timber resources for future needs. He therefore, called a conference, to which were invited representatives of all entities within the Government participating in one way or another in utilization of forest reserves and private bodies including those organized by business interests connected with the extractive industries. Several days before the conference opened, Secretary Araneta called to his office various technical personnel of the Government and of United Nations technical agencies in the Philippines for preparatory work. As a result, when the conference opened the delegates were provided with complete copies of all speeches to be made during the con-

ference as well as a proposed program drawn up by the technical men with regard to what the Government and the people of the Philippines could and should do with regard to the pressing problem of forest conservation and utilization. This was in marked contrast to similar conferences held under the aegis of one organization or another in the past and indicated the deep seriousness of intent of the Secretary toward forest problems. Each delegate was provided with a folder containing the following: (1) Administrative Order No. 57, of President Magsaysay calling the Conference; (2) "Proposed Forest Conservation and Reforestation Program"; (3) "Necessary Balance of Forest Cover", Valentin Sajor; (4) "Logging System under Sustained Yield Management", Felipe R. Amos; (5) "Forest Exploitation in Relation to Forest Conservation", Carlos Sulit; (6) "Physical Protection of the Forest", Porfirio San Buenaventura; (7) "Reforestation with Public Funds", Jose Viado; (8) "Reforestation thru Private Initiative", Jose Mapa Gomez; (9) "Educational Campaign for Forest Conservation", Roberto Villanueva; (10) "Statistical Data on Philippine Forests", T. A. Santos and S. P. Fernandez.

The Conference opened promptly, after registration of delegates, at 10:00 A.M., Sept. 30, by Secretary Araneta who explained the reasons behind the Conference and what he hoped would be accomplished. Mr. Fred Ruiz Castro, Executive Secretary to the President, then delivered a few remarks from President Magsaysay who had planned to attend but who was prevented from meeting any session by state affairs. Mr. Valentin Sajor, Chief of the Division of Forest Investigation, read his paper which was followed by brisk discussion, directed by Secretary Araneta; wide areas of disagreement became apparent as regards the content of Mr. Sajor's paper, and discussion being protracted, the Secretary announced that further discussion would be postponed until the afternoon session. The afternoon session was opened by an address by General Florencio Selga, Chief of the Philippine Constabulary, who indicated the willingness and eagerness of the Constabulary to cooperate in any way with the Department of Agriculture and Natural Resources in its program for forest conservation, following which Director of Forestry Felipe R. Amos read his paper, which was again followed by brisk discussion. Mr. Jose Viado, General Inspector of Reforestation Projects read his paper, also followed by brisk discussion, with again wide areas of disagreement becoming apparent and heated remarks flying thick and fast across the auditorium. That such enthusiasm could be aroused was one of the most interesting and important aspects of the entire Conference and indicated the concern these men held toward their responsibilities. The following morning Under-Secretary Perfecto Laguio read the address of Secretary of Commerce and Industry Oscar Ledesma, following which the paper of Mr. Carlos Sulit was read and an open forum out of which came several suggested resolutions for adoption by the Conference during the afternoon session. This last session was opened by the paper of Mr. Roberto Villanueva, of the *Manila Chronicle*, which drew wide and pleased support from the assembled representatives of private and public agencies, and was followed by the paper of Mr. San Buenaventura, some discussion, and the adoption of resolutions presented by the Secretary as drawn up by a special committee he had appointed at the morning session. The evening was marked by a dinner offered jointly by the Philippine Lumber Producers' Association and the Philippine Chamber of Agriculture. It was addressed



by Senator Fernando Lopez, Congressman Guillermo R. Sanchez, Chairman of the Committee on Forests of the House of Representatives, and Col. Harry A. Brenn, Chief of FOA. The Conference came to an end the following morning with an excursion to the Forest Plantation of the Bureau of Forestry and the College of Forestry at Los Baños, Laguna province.

Because of the all-too-short duration of the Conference, which nevertheless accomplished a surprising amount of important matters, discussion of the disputed areas brought out by the various papers and the remarks which followed them, as well as by the resolutions and "Proposed Program" of the Department and its Bureau of Forestry, was too limited to allow an adequate presentation of ideas, objections, suggestions and the like by those assembled there. Many points were raised meriting further discussion and some observers came away with the fear that in their eagerness to get something accomplished those responsible for the conference might embark upon a program too-hastily drawn up and which might contain points operating against its ultimate success.

The Editor of this *Journal* was a delegate representing the Philippine Geographical Society, and was rather disturbed at the complete lack of representation at the Conference of those who were most vitally affected by the program that resulted: namely the people of the country. In addition, the program was too heavily weighted toward technical forestry matters, and problems of economics and geography, of demography and rural development were not discussed nor presented.

The resolutions adopted, embodying a proposed program for forest conservation and reforestation, were contained under 9 heads: (1) Necessary Balance of Forest Cover; (2) Logging System Under Sustained Yield; (3) Forest Utilization in Relation to Forest Conservation; (4) Physical Protection of the Forests; (5) Reforestation by the Government; (6) Reforestation Through Private Initiative; (7) Educational Campaign for Forest Conservation; (8) Policy on *Kaiñgeros*; and (9) Implementation of the Program. Number one is theoretical; number 2 is practical and practicable; number 3 received inadequate discussion and attention by the Conference and the proposed steps contained therein are those drawn up by the technical men of the Bureau of Forestry; number 4 was one of the most important papers of the Conference and received the least attention and discussion; number 5 was both theoretical and practical, with the practical not receiving enough attention; number 6 contained some interesting discussion points but the important and immediately practicable steps along this line discussed briefly at the Conference are not included in the resolutions; number 7 is generally sound but one or two points are unnecessarily vague and may prove incapable of implementation; number 8 includes recommendations much too harsh and unjust and not actually based upon a clear understanding of associated problems, and discussion on the point was closed out summarily; number 9 merely states: The Secretary of Agriculture shall exert every effort to secure from Congress adequate financial support to implement this program, and shall seek the cooperation of FOA (Foreign Operations Administration — U.S.).

In order to assess this suggested program adequately, the Editor has under preparation an article which we will publish in the next num-

ber of this *Journal*. In the meantime, if any of our readers desire more detailed information about the conference and the points raised in this brief discussion, the Editor will be happy to meet their requests.

(C.O.H.)

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### Geography in the Philippines

The readers of this *Journal* will note that the present issue is made up of rather dissimilar material from rather wide sources. The note on Sulu is welcomed as a brief, succinct description of that interesting political area. The geomorphological peculiarities of the interior of Bohol are indicated briefly, and we reprint an address on general economic problems and a prospectus-report on ramie in the Philippines. The other local contributor, a student of the Editor, discusses the municipality of Ballesteros, in the far north of Luzon. The article on the tobacco industry, is one of a series by the Editor on the industries of the Philippines during the Commonwealth and early Republic periods. Dr. Cutshall sends us a brief note on New Guinea from far-off Illinois and Mr. Akin an interesting study on dairying in Puerto Rico. The Editor has hoped for some time to print a similar article on the dairy industry in the Philippines but has been unsuccessful in his search for someone to write it. The point of this Editorial is that articles on the Philippines in relation to any of the inner disciplines of Geography are few and far between and it is necessary for us to stretch that important social science rather tenuously in order to have something to offer our readers. We still have hopes of securing more detailed articles on Philippine geographic features from the members of our Society, but this is made difficult by their travels out of the country from time to time on official matters for the Government or in connection with their individual enterprises. We have indicated before the general inattention in the Philippines to matters geographical and even apparently in foreign lands, despite the fact that this country offers the geographer a wide range for study, the preponderance of which is still to be approached by the geographer. We hope to print in the next issue a bibliography on Philippine geography, to indicate the richness of the field here for scholars of all persuasions.

The Editor has been pleased by a communication recently received that, in response to our editorial in the last issue, a new text on Philippine Geography for the public schools is now in preparation, the manuscript having been submitted to the Department of Education for evaluation. This is all the more welcome because of the possibility of its inspiring other local students to turn their attention to the long-neglected problems related to geographical studies in the Philippines.

(C.O.H.)

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### On Names

In our Editorial, "A Critical Situation," published in in our last issue (Vol. 1, Nos. 2-3, 1953), it was stated: "At a monthly meeting of the Society a resolution was approved requesting Malacañan to take under consideration the necessity of careful study of the problem of the change

of geographic names in the country.... That the change of names has been capricious, hasty and ill-advised may be seen readily by even a hasty perusal of acts passed...." The Society recommended "the creation of a board in Malacañan... to advise the President on bills presented for his signature containing changes of names in the Philippines...."

Recent events bear out the Society's estimate of this critical situation which threatens to become a national bugbear. Even the name of the official residence of the President of the Philippines — Malacañan — has been changed by the present Administration to *Malacañang* — which is no change at all, or if so, for the worse. The "ñ" is absent from old Tagalog orthographies. If it was desired to make a change to conform more to the recommended orthography of the Institute of National Language (not all of which this Editor agrees with), then it should have been changed to read: *Malakanyang*. This embodies all the sounds of Tagalog and uses only those letters of our alphabet agreeable to the Tagalog sounds. One local expert on Tagalog has long recommended the adoption of the final "ng", in those words where it is present, and the dropping of the Spanish "ñ" entirely, since the rule for Tagalog pronunciation-orthography is "one symbol, one sound".

The first Congress of the new administration has passed so far 182 Republic Acts (from number 973 to 1155 — as so far printed in the *Official Gazette*). Of these 182 acts, 25% (47) deal with changes of names in one fashion or another. This is truly a case of the mountain's labor producing a mouse — an active, nibbling mouse. The change of political units within a nation should always be done cautiously and with full consideration of all factors involved. The Executive Office itself has, thru 9 executive orders (2, 3, 6, 13, 14, 16, 20, 38, 56), converted, created, changed, merged and transferred 16 political units since January, 1954. This is, of course, within the powers of the Executive, and there may be good reasons for such activity. Yet unless a running index is kept of all these changes, the student of contemporary Philippine life is kept in a state of constant bewilderment and the chances for error and confusion are multiplied beyond all reason or the confines of good government.

The Congressional name-changing has now reached the proportions of a plague, and extends to even such affairs as school names and street names. Eleven Acts change the names of schools (nos. 985, 986, 1021, 1022, 1024, 1030, 1036, 1103, 1104, 1105, 1106); Act No. 1002, changes a street name; 13 change completely the names of political units (1005, 1029, 1032, 1033, 1034, 1035, 1040, 1107, 1108, 1110, 1111, 1116, 1140); many of them changing old Filipino descriptive or informative names in favor of personalities, religious belief, or personal prejudices not worthy of such attention by Congress; 3 Acts fix boundary lines (1008, 1038, 1102), none of which were established in accordance with ordinary practices in land demarcation; 1 Act (1023) names a public plaza; and the remainder convert sitios to barrios, barrios to municipalities, barrios to other barrios, municipalities to other municipalities, create new units — all without plan or purpose rhyme or reason.

This *Journal*, therefore, repeat its recommendation of last year: A Board, under the Office of the President, should be created, to be composed of one historian, one geographer, one zoologist, one representative

from the Weather Bureau, and one representative of the Philippine Geographical Society, to advise the President on bills presented for his signature containing changes of names in the Philippines.

(C.O.H.)

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*This Issue*

This number of the Journal is numbered Vol. 2, Nos. 1-2 (January-June, 1954). Because we have had such difficulty in securing material for publication it would be illogical to attempt to issue No. 4 of Vol. 1, one year late. Numbers 3 and 4, we hope, will be issued by the end of the year, or by January of 1955 — if we can encourage the members of the Society, and others who may have suitable material for publication, to submit the results of their labor to us as quickly as possible. We shall attempt, with our contributors' cooperation, to make our second issue for the year greater in bulk (to make up for the missing No. 4 of last year) and more comprehensive in scope.

(C.O.H.)

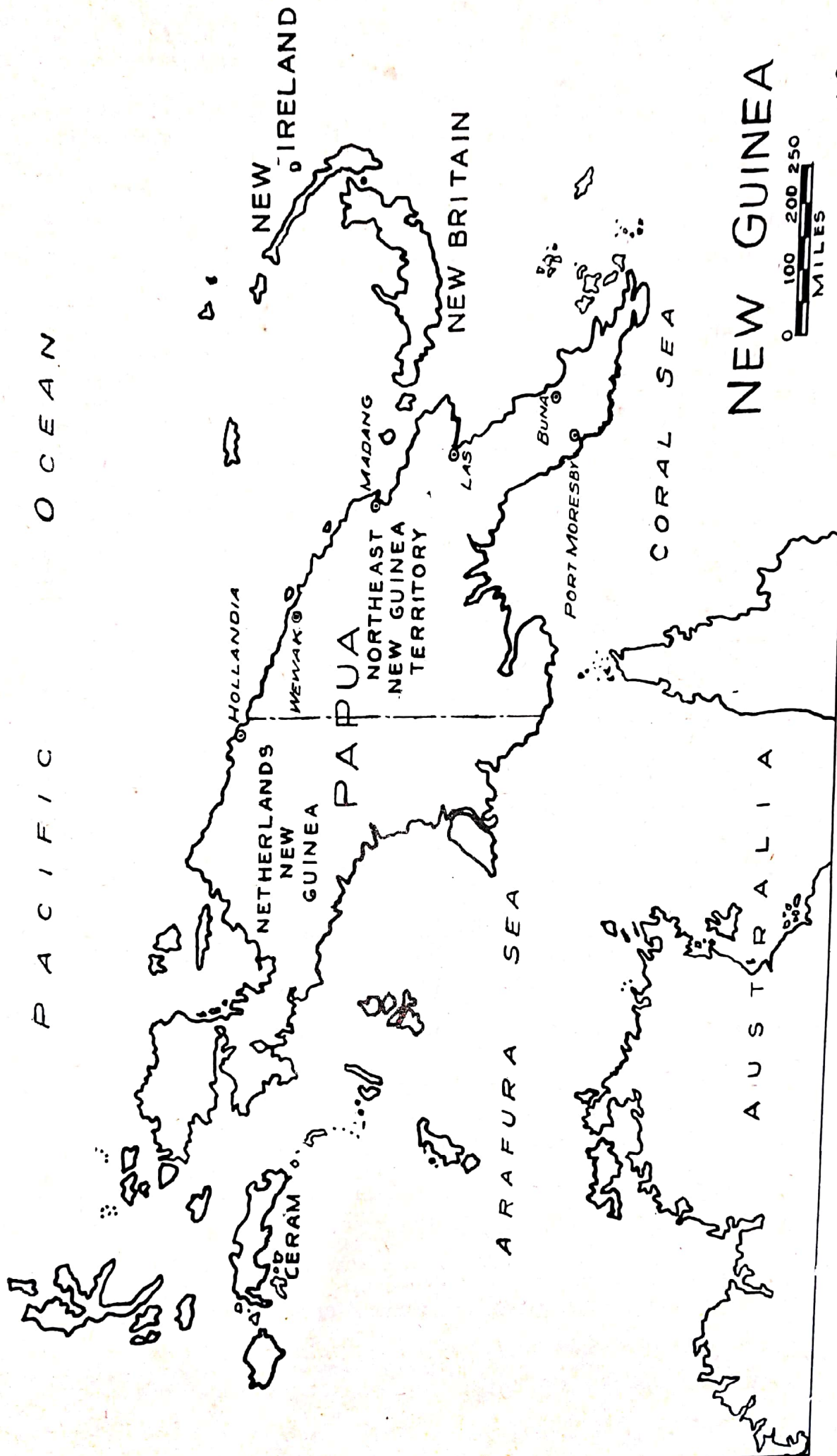


FIGURE 1. Map of New Guinea and Nearby Areas.  
 Because of the short distance between the two islands

## WESTERN NEW GUINEA: FOUNDATIONS AND PROSPECTS

Alden Cutshall \*

**T**HE political map of southeast Asia has changed markedly since World War II, largely with the emergence of pre-war colonies and dependencies as self-governing states. These changes of political status, for the most part, were the result of agreement between the former governing power and the colony. Indonesia is the most significant exception, and independence was recognized only after a prolonged struggle and repeated negotiation. Relations between Jakarta and The Hague were strained and, in some respects remain strained. One reason for this condition is the unsettled problem of Western New Guinea, called Irian in Indonesia, which was a part of the former Netherlands Indies but is not included in modern Indonesia.

### *Physical Setting*

New Guinea is the second largest island in the world. Its estimated 312,000<sup>1</sup> square miles is larger than the combined area of France and the United Kingdom or approximately two and one-half times as large as the land area of the Philippines. Its length, 1300 miles, corresponds to the distance from Manila to Singapore, or from New York City to Dallas. Its maximum width is about 500 miles. The central mountain system, one of the world's most impressive, consists of several more-or-less parallel ranges in the wider central part of the island, but narrows to a single range at each of the narrower ends. The highest peak (Mt. Carstensz) at 16,404 feet is higher than any mountain in Australia, Europe exclusive of the Caucasus border, or continental United States. Associated with the mountains are the dissected plateaus that lie within the interior and certain lesser plateaus on the western peninsulas. To both the north and south of the central upland core are extensive, oftentimes swampy lowlands. Those to the north are at slight elevations above sea level and are probably of tectonic origin. The southern lowlands are alluvial, largely deltaic deposits of the three principal rivers that drain the southern slope. Elsewhere smaller delta and coastal plains are interspersed among the low hills and coastal ranges that extend to the sea.

### *Earth Resources*

New Guinea lying totally within the moist tropics has lowland forests with a variety of valuable trees but, for the most part, these species are scattered and their utilization is uneconomical at this time. As roads are built away from the coast and as woods in competing timber areas become more scarce, the utilization of New Guinea's forests is most probable. Fish abound in the adjacent waters, but their use is restricted to that consumed in the coastal communities. Soils are probably deficient in one or more respects, as is true of most tropical soils. However, the extensive, alluvial lowlands are potential rice

\* University of Illinois.

<sup>1</sup>This is the area of New Guinea proper, with the lesser nearby islands politically associated with New Guinea the area is 342,000 square miles.

lands and are commercially accessible to the areas of rice deficiency in eastern Asia. Some of the uplands are probably comparable to the uplands used for coffee, tea or citrus fruits elsewhere within tropical realms. The extent of the mineral deposits remains largely unsurveyed, but gold ore is known to be present in large quantities, there are producing oil wells, coal has been picked up from river beds, and copper, zinc, lead and graphite have been mined commercially, though in limited amounts.

### *People and Customs*

The native population of New Guinea is diverse. As is true on many islands in this part of the world, tribes of primitive Negritos live in parts of the rugged interior. Surrounding the Negritos, particularly in southeastern New Guinea, are people of predominately Papuan stock who speak various local dialects. Their social and political organization is quite simple\*\* and they are not far advanced over the Negrito, except where influenced by the Melanesians. The Papuan dialects show little or no relationship among themselves, but some of them may be influenced by the languages of northern Australia. These people are hunters and agriculturists, rather than fishermen. Starch, from the trunk of the sago palm, is an important item in the diet of those who live in the lowlands. The peoples of northeastern New Guinea and adjacent islands are essentially Melanesian, and the lowland peoples of western New Guinea appear to be a mixture of Melanesian and Malay elements. Fish is more important in the diet on northern Guinea than in the southern part of the island, but in all parts of the island the people practice primitive shifting agriculture to a greater extent than hunting and fishing economy. The sweet potato (camote) is the main food staple in most parts of the island.

The prolonged Indonesian political disorders and strikes, caused severe losses to many Dutch planters in Indonesia and resulted in bankruptcy of some smaller companies. A number of the Dutch businessmen combined to start anew in western New Guinea. Probably this is one reason that the government at the Hague decided to maintain political control of this territory, notwithstanding the protests of Indonesian diplomats.

### *Transportation and Access*

With one significant exception, all the towns are on the coast and some of them are situated on good harbors, but distances between them are great. Port Moresby on the Gulf of Papua, Lae and Madang on the northeast coast and facing the Bismarck archipelago, and Hollandia on the north coast are illustrative. The larger rivers are on the southern side of the island and are navigable by steam launch, the Fly River for 500 miles above its mouth and the Sepik for over 300 miles.

### *Political Development and Control*

Politically, New Guinea, like ancient Gaul, is divided into three parts; the former Papua and Northeastern New Guinea are under Aus-

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\*\* A Social Anthropologist would dispute a portion of this statement. Cf. G. Landtman, R. Neuhauss, Thurnwald and F. E. Williams, 1923-1940, esp. his *Papuans of the Trans-Fly*, London, 1936.—*Ed.*

tralian jurisdiction and the western half of the island remains under the control of the Netherlands, although claimed by the Republic of Indonesia. Papua was given to Australia by the United Kingdom near the end of the nineteenth century. Northeast New Guinea and the Bismarck archipelago, formerly a German colony, was occupied by Australia in 1914 and became an Australian mandate according to the Treaty of Versailles in 1921. Since 1947 the two areas have been governed as a single political unit by Australia under a United Nations Trusteeship. Western New Guinea, or West Irian, officially designated as Netherlands New Guinea, was the major part of one of the outer provinces of the Netherlands Indies (The Great East) from 1938 until the creation of the present Indonesian Republic. The people of New Guinea took no part in the Indonesian revolution and have expressed no particular desire to become a part of political Indonesia, hence are not included in the new republic. Nonetheless, Indonesian political leaders, desirous of extending the geographical limits of their country and wishing to push the Dutch flag entirely from the southwest Pacific, have vociferously argued for its inclusion with the rest of the former Netherlands Indies. The United Nations has not yet seen fit to recognize the Indonesian claim.

### *International Implications*

The problem of Western New Guinea has further increased the tensions between Indonesia and the Netherlands and has brought on verbal conflict with Australia. Much of the antagonism has been instigated by the press, both in Indonesia and in the Netherlands, and this antagonism has endangered the Netherlands-Indonesian Union.<sup>2</sup>

All discussions between the two countries over the future of Western New Guinea have been unproductive. At one time Indonesia suggested the possibility of a temporary joint administration. This plan appears merely to postpone the issue, but even so, it merits serious consideration. Dutch claims are difficult to justify. At this date neither Indonesia nor the Netherlands can expend the resources necessary to cope with the immense social and economic problems of the area. Neither can undertake a thorough exploration of mineral resources or agrarian possibilities. The primitive and near-primitive Irians live in a disorganized economic framework. They are ineffective laborers, so any labor used in the development of the area would need to be imported from neighboring Indonesian islands. The Netherlands opposes the importation of Indonesians. Australia also opposes the importation of Indonesians for all New Guinea is considered as a desirable buffer against possible attack by or through Southeast Asia.<sup>3</sup> Australian leaders desire that Western New Guinea remain in politically-reliable Dutch hands; therefore oppose any suggestion or demand that Indonesia be given control of the area. Indonesia hints of eventual designs on eastern New Guinea have also worried Australian leaders, who have

<sup>2</sup> Proposals to abrogate the Union and replace it with a simple bilateral treaty have been made. There appears to be little opposition to this move and it is probable that the Union may be dissolved. The Irian problem may temporarily postpone this action, however.

<sup>3</sup> Australia also objects to Indonesian infiltration in any part of New Guinea and has established a military post near the border of Netherlands New Guinea, probably to better watch for the infiltration of Indonesians.



stated publicly that if and when the Dutch sovereignty of Western New Guinea is relinquished, Australia will move in.<sup>4</sup>

The most diplomatic and possibly the best solution to this complex problem appears to be a United Nations Trusteeship for western New Guinea. But who will administer the trusteeship? Indonesia; over Australian protests? The Netherlands; over Indonesian opposition? Australia; possibly incorporating this area into the existing trusteeship for eastern New Guinea? A joint Indonesian-Netherlands commission? Or some country that is not currently governing territory in the Southwest Pacific.

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<sup>4</sup>At the United Nations meeting in Paris, 1951.

THE PHILIPPINE TOBACCO INDUSTRY: 1934-1950

Charles O. Houston, Jr.

At one time, the Philippines produced the best cigars in the world. Authorities, such as the *Encyclopaedia Britannica*, claim that the Cuban leaf is unexcelled for aroma, which may be true, but to enthusiasts of Philippine cigars the flavor of the latter is considered far superior to any other leaf, especially when utilizing the fine wrappers produced in Java and Sumatra. While there is no disputing of tastes, it must be admitted that the Philippine cigars have found a world-wide reception and the large quantities of five cent cigars consumed in the United States were products of the Philippine market. Tobacco growing has an ancient and honorable history in the Philippines, Pigafetta giving the earliest account of its introduction by the Spanish from Central America as early as the last quarter of the 16th Century. Some believe that a variety of tobacco was already present in the Philippines since *N. suaveolens*, and related species, are native to Australia.<sup>1</sup> Whether this species was to be found in the Philippines, and whether it was utilized by the peoples there in any fashion is another question that remains lost in the misty shadows of the past.<sup>2</sup>

During the Spanish period, the production of tobacco was a state monopoly until the year 1882, after which many tobacco companies sprang up, the most prominent survivors today being the Compañía General de Tabacos de Filipinas (Tabacalera) and La Insular Cigar and Cigarette Company. These two companies still produce some of the finest cigars procurable anywhere in the world. The original production of tobacco was limited to the cigar-filler type but, in the years preceding the Commonwealth, the Government sponsored research and experimental work which led to the development of the wrapper and aromatic cigarette leaf tobacco industry. The production of the last two types, however, was unable to supply local demand, necessitating the importation from the United States of large quantities of this type of tobacco. The principal manufactures, in the order of their importance, based on yearly averages, 1925-1935, were: cigars (310,000,000 units), cigarettes (4,306,000,000 units), chewing and smoking tobaccos (650,000 kilos). Major exports were cigars, leaf and semi-manufactured tobacco in the form of stemmed leaf, cigar butts, cutting and scraps (yearly average, same period, 1,500,000 kilos).

Various sections of the country, with their varying climatic characteristics, produce the distinctive tobacco of each climatic region. Sun-grown wrapper types are produced in Mindanao, the Bicol, and southern portions of Laguna. Shade-grown wrapper types are produced in the Ilocos and the Tagaytay region of Batangas. Cigar-filler types are produced in the Cagayan Valley which is the greatest area of production in the Philippines, and the aromatic fillers are produced in the Central Luzon provinces.

The tobacco industry was the chief source of direct governmental revenues, nearly 50 per cent of taxes being collected from it alone. The

<sup>1</sup>*Encyclopaedia Britannica*, 1947 edition, Vol. 22, p. 260.

<sup>2</sup>Pipes have been found and tentatively dated at Ca. 1480 by H. Otley Beyer. These show such fine workmanship and are so sophisticated in design and detail as to suggest a considerable period of development. Whether they were used for tobacco or some other plant, such as hemp, is an intriguing question for further study and research.

average yearly collection, 1930-1935, was P8,858,689.20, which represented only direct collections from specific and sales taxes and did not include revenues indirectly derived, such as land and income taxes since these were difficult to determine.<sup>3</sup> Perhaps some 600,000 people were dependent upon the industry which had a capital investment of between P50 million and P60 million ranking third in capital investment in the country with its products exported to 44 foreign countries, more than any other export item (abaca went to 25, copra to 10 and sugar to 2).<sup>4</sup> While it represented but two per cent of the total cultivated area, it occupied the fifth place in the export list, it ranked first as employer of labor in the city of Manila, with about 50 per cent of the industrial laborers in the city being employed in the industry, and some 80,000 agricultural laborers in the provinces. It paid the highest average monthly wages of any industry in the Philippines despite high costs and taxes.

The production of cigar filler tobacco generally was a losing proposition with profitable enterprise dependent almost exclusively on the vagaries of the weather. When floods and typhoons reduced the crop, prices rose, but, normally, the selling price barely covered the cost of production. The relatively high prices of 1936, for example, only brought the producer a net income per hectare of P20.20, or barely a 4 per cent profit on investment. Cigar wrapper tobacco, in a favorable season, of either the shade-grown or open varieties, was more profitable, returning to the producer about P308.00, per hectare for the former and P148.25, per hectare for the latter. Aromatic cigarette filler production realized a normal profit of P29.60 per hectare, while *batek* tobacco was always profitable since the minimum price per picul of P20.00, provided a profit of some 10 per cent on investment, with the net income per hectare being P17.50.<sup>5</sup> The costs, from which these profits were derived, were very high. Filler tobacco production costs averaged P220.00, per hectare, sun-grown wrapper, P704.00, shade-grown wrapper, P200.00, aromatic cigarette filler, P174.50, sun-cured Virginia, P200.00, fluecured Virginia, P250.00, and miscellaneous types, P172.00.

These are pre-war costs and are considerably lower than post-war averages. These costs did *not* include interest on capital nor depreciation of equipment. The crop was generally sold at the farm, so baling and marketing expenses were nominally not borne by the farmer. In actual practice, however, these costs were included since the buyer added them to the price paid the farmer for his product. The gross value of P5,000,000, for the 1938 crop was considered by some government theorists and in other quarters as being a direct income for the planters. However, if the labor costs are taken into consideration, which was infrequently done, and translated into actual cash value, it becomes quite clear that the grower received barely enough to carry him through the year. Needless to say, the average farmer-producer made little if any profit. In the case of the cigar-filler growers, this is particularly true since the market quotations for this product were alarmingly low.<sup>6</sup>

<sup>3</sup>Domingo B. Paguirigan (ed.): "Philippine Tobacco Industry . . .", *The Commercial and Industrial Manual of the Philippines, 1937-1938*, p. 287.

<sup>4</sup>Department of Agriculture and Commerce, *The Tobacco Industry in the Philippines*, (Manila, 1939), pp. 3-11, *passim*; and, Manuel V. Gallego: *Economic Emancipation*, (Manila, 1939), p. 257; *op. cit.*, p. 288.

<sup>5</sup>Paguirigan, *op. cit.*, p. 289.

<sup>6</sup>See comment of Governor Fortunato M. Bulan of Isabela on this in *Ibid.*, pp. 338-339.

The Philippines ranked seventh in the world in production of tobacco, producing in 1935, 623,160 quintals from 61,600 hectares with a gross value of P5,000,000.<sup>7</sup> During the same year, the ranking provinces were: Isabela, Cagayan, Pangasinan, La Union, Cebu, Oriental Negros, Iloilo, Ilocos Norte, Occidental Negros, Leyte, Ilocos Sur, Nueva Ecija, Cotabato, Surigao, Abra, Nueva Vizcaya, and Occidental Misamis. Isabela and Cagayan alone produced in the same year around 300,000 quintals which was 42 per cent of the total. By 1935, the leaf tobacco production had dropped from 64,000,000 kilos in 1920, to but 28,665,360 kilos. It ranked sixth among crops in amount of area cultivated, following palay, corn, coconuts, abaca, and sugar.

In addition to the cigar filler, cigar wrapper and aromatic cigarette filler varieties produced, four other minor varieties were raised. However, they were important only locally, with the exception of the *Ilocano batek*, grown especially in La Union, which had risen to some importance because of the demand on the Japanese market.

The cigar filler was the most important product, especially the varieties *Marogue*, *Viscaya*, and *Repollo* from the Cagayan Valley. The product from the Cagayan valley was the best, being of the mild sub-type.

Growers habitually continued producing the same quantities of tobacco year in and year out, with the result that by the beginning of the Commonwealth there was a surplus of stock which accounted partly for the very low prices then current. Isabela alone produced some 233,500 quintals a year, which was just 45,000 too much. There was, in addition, in other areas, an over-production of some 94,000 kilos. "Over-production" here was precisely the case, since the market as then organized was in no position to absorb that much tobacco.

However, the production of cigar wrapper tobacco was still short by five or six thousand quintals of the demand. The Bureau of Plant Industry made attempts to encourage the further developments of this type in those areas where the filler was in over-production, but with little success through the Commonwealth period.

The best varieties for Philippine production were the *Sumatra* for "open culture", and the native *Viscaya* and *Marogue* for shade grown cultures. The latter was the most dependable since it was less influenced by the vagaries of the weather.

With respect to the production of aromatic cigarette filler tobacco, the picture was not good. Local factories had consumption requirements of over 25,000 quintals, but production barely reached 200 quintals—and this largely on an experimental basis.

Some 113,160 quintals were grown of the minor types, such as the *Sulcok* grown in the Ilocos regions, the *batek* (a spotted variety) grown in La Union, Pangasinan, and some Visayan regions, and the *Romero* from the Itawis district in southwestern Cagayan province. All these varieties were strong, dark and heavy and had only local importance.

The inception and gradual adoption of cellophane wrappers was a step forward in some ways in the progress of the industry, since they preserved the freshness of cigars for longer periods of time and insured the smoker a hygienic product. On the other hand, when cigars are stored for any length of time in cellophane they lose their flavor and fragrance since tobacco requires slow "ageing" with each cigar imparting and extracting flavor to and from all the others in the box. For this reason, cigar enthusiasts prefer the unwrapped cigar which because

<sup>7</sup>A quintal is 46 net kilos.

of the vagaries of fashion is usually obtainable also at a much lower price than the others.

Philippine cigarettes are produced in a great variety of shapes and sizes with both white and licorice paper, as well as certain varieties which are specially flavored for local demand. Smoking and chewing tobacco are completely different from American varieties since the smoking tobacco is the same cut tobacco used in manufacturing Spanish-style cigarettes, while the chewing tobacco is nothing more than a flattened cigar, using the coarser, and therefore the stronger leaves.

For the ten-year period 1925-1936, the United States took 84 per cent of the total production of cigars, 89 per cent of fillers and scrap, 10 per cent of cigarettes, less than one per cent of leaf tobacco and smoking tobacco, and 13 per cent of all others. Cigars, which constituted the vital item in the trade, were therefore largely dependent upon the American market. As a result of an increase in the importation of American tobacco products, particularly cigarettes, the value of Philippine tobacco exports declined steadily after 1927, from ₱18,000,000 to ₱10,500,000, in 1933. Since this was parallel to exports to the United States, the health of the trade was obviously dependent upon the American market. The value of this trade declined from ₱9,000,000 in 1927 to barely over ₱5,000,000, in 1936. Obviously, if the situation would not improve, it would be necessary for the country to increase its exports to some of the remaining 43 nations. Cigars were shipped, in addition to the United States, to China, France, the Straits Settlements, England and Spain; leaf tobacco to Spain, Korea, Japan, China, France and North Africa; scraps to Holland, China, Gibraltar and Belgium; cigarettes to China, Japan, the Canary Islands and France; and smoking tobacco to the Canary Islands, Gibraltar and China.

Despite the large production of tobacco, the Philippines was a heavy importer of tobacco products. The average yearly imports for the period 1927-1936 continually increased, with the United States supplying 85 per cent of leaf tobacco, worth ₱1,087,938, 74 per cent of cigars worth ₱976.00, 99.51 per cent of cigarettes worth ₱4,062,495, 99.99 per cent of chewing tobacco worth ₱739,495, 60 per cent of smoking tobacco worth ₱75,470, and 96 per cent of all other imports worth ₱2,340.00. A limited quantity (15 per cent) of leaf imports came from the East Indies. The value of these imports from the United States rose from ₱5,000,000 in 1927 to ₱7,400,000, in 1936.

The balance of trade had been in favor of the Philippines until 1935, when it shifted to the United States and remained there for the remainder of the Commonwealth period and the early years of the Republic. By 1936, the balance in favor of the United States amounted to ₱2,722,141 and with the usual invisible items included the figure would rise to ₱3,389,871. That the trade was more heavily weighted in favor of the United States than the figures indicated, can be seen from the fact that the United States in 1934 imported a total of 71,748,699 pounds of tobacco of which only 7 per cent came from the Philippines. With the imposition of the provisions of the Independence Act, those cigars which had been selling in the United States at two for five cents would be raised to about twelve cents a piece. Since costs were high, any additional burden imposed by duties and special imposts would automatically wipe out the Philippine trade.<sup>8</sup>

<sup>8</sup>See: M. V. Gallego: "The Paradox of the Tobacco Industry," *The Commercial and Industrial Manual of the Philippines, 1937-1938*, pp. 337-338.

In their appeal to the members of the Joint Preparatory Committee, the Representatives of the Philippine tobacco industry, cited these as well as numerous other facts to plead for consideration. They were convinced that the full application of the Independence Law provisions would mean the extinction of their industry which would reduce hectareage in the Philippines by 13 per cent, affecting 65,000 planters and their dependents, throwing out of work some 65 per cent of factory hands and 65,000 provincial laborers, and reduce by P4,000,000, the annual revenues of the Philippine Government. For these reasons, as well as the fact that the tobacco trade between the United States and the Philippines was "mutually advantageous" as well as the fact that the balance of trade had shifted definitely in favor of the United States by nearly three and a half million pesos yearly, the industry requested the maintenance of the *status quo*. They stated that there was actually no competition since "America supplied the Philippines with Virginia and wrapper leaf tobacco and aromatic cigarettes . . . while the Philippines supplies America with cigars and stripped filler which she must import anyway from other countries".<sup>9</sup>

Since the tobacco industry provided the Philippine Government with tax funds which amounted to almost 20 per cent of its annual expenditures, the possible extinction of the industry was a problem the Commonwealth had to solve quickly. The industry was faced with three major problems: over-production of cigar filler, excessive taxation of cigarettes, and inadequate knowledge with regard to the proper methods of treating cigarettes to prevent molds. There were also three possible ways in which the standards of the industry could be raised: limiting the area planted by individual farmers (under Spain each family was limited to planting 6,000 plants), strict enforcement of regulations with regard to classification, and, coordination of government activities with regard to promotion.<sup>10</sup>

The industry, then, faced in general almost the same problems which were approached in much the same way by the Government, as the other major export items.

A major problem was represented by the American attitude. The United States was the best customer as in other products and the imposition of the provisions of the Tydings-McDuffie Act, Tydings-Kocialkowski Act, various U.S. Revenue Acts, brought confusion and despair to the industry which, by 1941, was in such a precarious situation that the future was despaired of by even the most optimistic. The war decimated the industry. No other major export industry was so badly damaged. Of all the major export items, the tobacco industry, following the war, made the least progress and faces the most uncertain future.

The tobacco industry was also one of the most heavily taxed — the taxes on cigarettes amounting to actual discrimination. Each time a factory processed a hundred pounds of leaf tobacco it paid to the government at least P39.00. Since the price of leaf tobacco during most of the Commonwealth period was about P12.00 per hundred pounds,

<sup>9</sup>Paguirigan, *op. cit.*, p. 293.

<sup>10</sup>Jose C. Ramos: "Economic Aspect of the Tobacco Industry in the Philippines," *Ibid.*, pp. 293-299; Department of Agriculture and Commerce, *op. cit.*, p. 12; and, Gallego, (1939), *op. cit.*, p. 259. The present observer might also suggest the fact that a stable industry requires the extension of wider credit and marketing facilities, for smaller producers, a more definite classification of varieties, research into the development of better varieties, establishment of more practical classificatory and regulatory measures, and the utilization of more modern culture and curing methods.

the factory paid about one-third of the tax for its supply of tobacco. In addition, the specific tax was based on the selling classification of 1,000 cigarettes, which applied to all sizes, large and small. The income to a factory owner was P17.50 (or 30 per cent of the selling price of P56.50) per one thousand packages and P18.50 per 1,000 cigars (at the selling price of P20.80). While the cigarette producer made P0.33 (from his income of P17.50) per thousand, the Government earned P39.00, thus collecting for its efforts, sixty-seven times more profit than the manufacturer, who paid 70 per cent of the total cost of manufacturing in excise taxes. From cigars the Government received a specific tax of P2.30 per 1,000, and the manufacturer received 88 per cent of the selling price from his investment.

The following typical cases of cigarette and cigar costs of manufacture are illustrative of the uneasy position of the industry during the Commonwealth. The factory price for 1000 packs (30,000 cigarettes) was P56.00; expenses were as follows: specific tax of P1.30 per 1,000 cigarettes, P39.00; cost of leaf tobacco, P11.25; two rolls of paper, P2.20; machine and hand packer's labor, P2.02; cost of package paper, P0.05, and cost of lithographed pack, P1.15. The total expense, then, was P55.67, leaving P0.33, as a balance for overhead, interest, and profit. Class A cigars, selling in the United States at two for nineteen centavos, returned a balance of P2.70 for overhead, interest, and profit. Higher profits were returned from higher priced shapes or brands but the sale of these was not large.<sup>11</sup>

It was thus possible for foreign cigarettes, largely imported from the United States, to enter into serious competition with native Philippine brands which, being heavily discriminated against through taxation, could only be manufactured and sold clandestinely (*i.e.*, to avoid the high taxes).<sup>12</sup>

Critics of the Government tax scheme protested against the discrimination against Philippine cigarettes as well as the price differential between cigarettes and cigars. The Government responded by passing Commonwealth Acts 95 and 203. The first authorized the Philippine National Development Company and the Secretary of Agriculture to establish and maintain warehouses for tobacco and "other marketable products."<sup>13</sup> The second, increased the fixed tax on retail leaf tobacco dealers from twenty to thirty pesos per annum.<sup>14</sup> The first was to benefit the entire industry, the second was to lower the differential between cigarettes and cigars, and, at the same time, eliminate dishonest trading in the commodity. The Collector of Internal Revenue, in 1936, pointed to the fact that retail leaf tobacco dealers paid to the government P72,000.00 in taxes. At the rate of P20.00 per dealer, there were about 3,000 dealers who, if they handled a conservative estimate of 20 quintals of tobacco each, the total volume handled would amount to 60,000 quintals. Since the 170,000 quintals handled by licensed manufacturers netted the government P5,000,000 in revenue, the amount handled by the retail dealers would have brought in an additional P2,000,000. This represented both a discrimination against manufacturers and increased possibilities of illicit manufacture. This is not the entire picture since many cases went

<sup>11</sup>Manuel V. Gallego: "Problems of the Philippine Cigarette Industry," *The Philippine Journal of Commerce*, Vol. XIII, No. 1 (January, 1937), pp. 15-16, 20 (citation from p. 15); Ramos, *op. cit.*, p. 298; Paguirigan, *op. cit.*, p. 290.

<sup>12</sup>Gallego, *ibid.*

<sup>13</sup>*Messages of the President*, Vol. 2, Pt. 2, pp. 763-764.

<sup>14</sup>*Ibid.*, p. 1263.

unreported due to the lack of men in the field of the Bureau of Plant Industry and Internal Revenue, the latter, in many cases, being represented in the province by only one man. Thus, the manufacturer, with a restricted market, could ill afford to pay good prices for the product, with the result that the farmer suffered. In 1936, it was estimated that the tobacco industry paid 55.8 per cent of its earnings in taxes to the Government, while the sugar industry paid but 1.18 per cent.<sup>15</sup> The need for better legislation was evident to the critics who attacked the Government for its weak handling of the problem.

The critics also called for a new approach to the cigarette problem, one authority demanding uniform, equitable and lighter taxes; production of cheaper and better aromatic tobacco; protective legislation for cigarettes; higher standards for local brands, and effective propaganda for native cigarettes through Government intervention and finance.<sup>16</sup>

It was generally conceded that labor, in the tobacco industry, received fair wages, running near the one peso-a-day mark. Of course, this was really not sufficient upon which to live a good life, but it was considered high for the Commonwealth period. The main problem here seemed to be unemployment rather than low wages. The great and continuing importation of foreign cigarettes meant a continuing drop in employment which brought about dissatisfaction among labor in the industry. President Quezon believed that "the cigar-makers do not earn enough," but that if wages were to be increased, "there will be no money available for the purpose."<sup>17</sup> He suggested that they "wait for the ultimate solution of this matter by the Government" — hardly encouraging to workers face to face with unsatisfactory living conditions. He had no objection to the cigar-makers striking for better wages but wondered what they would get out of it. "Though you demand higher wages, if the employers cannot meet them financially, you will not get anywhere." The capitalist, he said, invested his money to make a profit and since he could not make the profit he wanted under the conditions in the city the manufacturers "send their tobacco to the provinces . . . because the wage scale there is low . . ." He suggested that, to solve the situation, the laborers migrate to Mindanao and work on Government roads there. If they did this, he promised to increase their wages, "because I have set aside ₱2,000,000 for such public works projects." He also suggested that a reason for the difficulty facing cigar-workers was the large number of women employed in the industry "and this is not easy to solve." He did not explain this rather ambiguous statement further, beyond saying that he had mentioned it because "I am in the habit of broaching only those questions which are capable of solution and not of being simply spoken about, or of making promises which I would not be able to keep."<sup>18</sup> One need not be a confirmed sceptic to raise eyebrows at this statement.

The basic problems facing the tobacco industry could not be solved in such a fashion. A more definite and energetic program was demanded.

<sup>15</sup>Isayas R. Salonga, *The Present Problems of the Tobacco Trade*, (Manila, 1938), p. 18, quoting from *The Tribune*, July 16, 1935.

<sup>16</sup>Gallego, *op. cit.*, p. 20.

<sup>17</sup>*Messages of the President*, Vol. 4, Pt. 1, pp. 22-23. Speech on Social Justice for the Laborers, delivered at a luncheon in honor of the representatives of labor under the leadership of Mr. Cresenciano Torres, Malacañan, Manila, February 17, 1938.

<sup>18</sup>*Ibid.*



ded, a program such as the sugar industry men planned.<sup>19</sup> This program was not forthcoming during the Commonwealth, despite the creation of the National Tobacco Administration, which had been sponsored by the Special Tobacco Committee of the National Assembly in 1938. It was sponsored by municipal councils, provincial boards, and *The Tribune* — and the cigar workers agreed to check a general strike pending the passage of the bill. There was a definite need for such legislation since the previous laws enacted to aid the industry had not brought the needed results. Observers pointed to the fact that the country produced a surplus of cigar filler leaf tobacco amounting to some five million kilos which was due to unrestricted production in some 10,000 hectares. The country imported annually some six million pesos' worth of Virginia and wrapper leaf tobacco used by local manufacturers. It was pointed out that, with the termination of the trade relations with the United States, the tobacco export trade in cigars, stripped filler and cigarettes the equivalent of four million kilos of leaf tobacco, was likely to disappear completely. Prices of leaf tobacco had dropped so low that the producers were unable to recover costs of production. The bill was introduced, by the committee, with the hope that its operation would promote, rehabilitate and regulate the industry as well as to promote President Quezon's social justice campaign insuring the well-being and economic security of the people engaged in the industry. It was hoped that the bill would foster the growth of only leaf tobacco of the best quality at a quantity insuring the equilibrium of prices and orderly, efficient trading.

In creating the National Tobacco Corporation<sup>20</sup> the former Tobacco Board, created by Act No. 2179, amending Act No. 2613, was abolished and its functions, duties and powers were transferred to the Corporation, for which seven million pesos, together with collections received from the activities of the Corporation, was provided. This was later modified so that a "Tobacco Industry Promotion Fund", with an initial appropriation of P2,000,000, with possible further appropriations to a maximum of P10,000,000, was to carry out the provisions of the act. The Corporation was to deal in leaf tobacco and its manufactures; operate transportation facilities, establish warehouses, purchase machinery and equipment for storage, handling, utilization and selling of manufactures; provide credit facilities to planters, and organize cooperatives supplying them with capital and assisting them in selling.<sup>21</sup>

This corporation suffered the same fate as others similarly created and the industry continued to decline to the point of stagnation although President Quezon said that "tobacco exporters are comparatively better off than our copra or sugar exporters,"<sup>22</sup> a statement which displeased the individuals referred to. Whether this was true or not, the tobacco planters' condition was deplorable, with no relief during the remainder of the Commonwealth period.

#### *The Post-War Period:—*

The war proved disastrous to the industry, planting in 1945 being 40 per cent below prewar production. The original P2,125,000 work-

<sup>19</sup>Domingo Paguirigan: "Problems and Adjustment in Philippine Tobacco Production," National Research Council, *Bulletin*, No. 17, (September, 1938), pp. 21-24.

<sup>20</sup>CA No. 519, 1940. The creation of this body had been recommended by the National Tobacco Administration.

<sup>21</sup>Andres V. Castillo: *Philippine Economics*, 1949, pp. 230-231.

<sup>22</sup>*Messages of the President*, Vol. 5, Pt. 1, p. 166, July 23, 1939, his speech on the "Benefits Derived from the Coconut Oil Excise Tax."

ing capital of the National Tobacco Corporation, was greatly depleted, causing it to adopt a wait-and-see policy. The Corporation made strenuous representations to the Government for aid, resulting in the passage of Republic Act No. 302, which provided the sum of ₱3,000,000 as additional capital. This enabled the corporation to resume its activities which, however, are still far from even the meagre goals established in 1948. It provided for more provincial branches and buying stations which, it was hoped, would be able to secure at least 20 per cent of the crop. Out of the total production, in 1947, of 17,654,800 kilos, it was able to secure only 1,146,805 kilos.<sup>23</sup>

*Conclusion:—*

The industry faces a definite crisis. This is due to many things: the conservatism of growers and capitalists; the fact that the bulk of leaf production is in the hands of small independent growers and tenants having little or no capital; persistent inequalities among various elements of the industry; its sole dependence upon cigar filler tobacco; lack of understanding of the changing trends and demands of the smoking public; enormous influx of American cigarettes worth ₱57,000,000 in 1948; unfavorable weather for the last three years reducing by one-third to one-half the normal production; and the desire of most growers to produce food crops to get cash (since tobacco is no longer a cash crop for them).<sup>24</sup> The prospect, says the Bureau of Plant Industry, for the industry during the next few years, "is gloomy."

The industry must produce more wrapper tobacco, more Virginia aromatic, must regulate more closely the growing of native tobacco, must introduce the manufacture of cigars by machinery to make cheaper cigars while retaining hand-manufacture for the better classes, and must receive more adequate aid from the government. The restriction of importation of American cigarettes is a vital necessity, both for the rehabilitation of the industry as well as a conservation measure for dollar reserves. The present import control laws are ineffective despite the restrictions placed upon dollar expenditures in December, 1949. The present (1950) result of the latter step has been to encourage a black market in American cigarettes and an enormous increase in their prices, without diminishing their consumption and without concomitant increase in the consumption of native brands. Much remains yet to be accomplished before the situation can be considered well in hand.

More funds should be allotted by the Government to the Bureau of Plant Industry for research in tobacco varieties and methods of production, and the National Tobacco Corporation must engage in a more active and energetic program of aid to growers and the elimination of the many inequalities existing in the industry. The Corporation should buy tobacco stocks from small planters directly and by classes, offering bonuses for the best classes and establishing a descending scale of prices for lesser grades. The Corporation should also engage in a well-integrated program of seeking more foreign markets and should encourage the production of Virginia cigarettes which could be sold at more reasonable prices throughout the sterling areas as well as to the United Kingdom. In addition, the various government agencies charged

<sup>23</sup>Vicente Formoso: "Tobacco: Its Rehabilitation," *Evening News Supplement*, Vol 140, No. 6 (September 30, 1949), pp. 4, 22.

<sup>24</sup>*Annual Report*, Bureau of Plant Industry, 1949, p. 31.

with activities in relation to the industry should be consolidated under the Tobacco Administration Office. The Tobacco Inspection Service and the Tobacco Agency in the United States, now under the Bureau of Internal Revenue, and the Tobacco Research Section of the Bureau of Plant Industry should all be administered by the Tobacco Administration Office. Tobacco promotion abroad should be handled, in cooperation with this office, by the foreign service, of the Republic. The special inspection fees collected for the promotion of the Industry, should be supplemented by a fund derived from five per cent of the collection of internal revenue and specific and privilege taxes. This should be allotted as an additional fund to support the Tobacco Administration Office.

If these, and other measures which have been proposed by various government agencies and observers, are carried out vigorously and with imagination, the industry may once again regain its important position in the Philippine economy.

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*Geographical Sketch*

**T**HE Municipality of Ballesteros lies 18° 25' latitude and 121° 30' longitude. It is located on the northern coast of the Province of Cagayan bordering the North China Sea between the Municipality of Aparri to the east and the Municipality of Abulug to the west. To the north is the Babuyan Channel. The Municipality of Allacapan is on the south. It comprises ten barrios and twenty-five sitios. The barrios of Palloc, Ammuboan, Santa Cruz, Centro, Cabuloan and Cabaritan align from east to west along the coast. Southward are the barrios of Payagan and Mabuttal nestling among rolling hills. Farther south is Zitanga. The barrio of Fugu is in the southeastern part of the municipality.

*Physical Features.* — A study of Ballesteros shows three terrain types: sandy beach, low wet fields, and grasslands and wooded hills.<sup>1</sup> Much of the estimated area of 13,200 hectares<sup>2</sup> consists of grassland and wooded areas. Bordering the beach of clean sand dunes is dry, flat land 20 feet above sea level and about 3,000 feet wide covered by scrubby secondary growth of little value in places near the shore. It is well suited for residences and is planted to coconut palms, fruit trees and bamboos. The central part is composed of broad, low-lying fields cultivated to rice. On the south is a large area of undulating terrain leading to foothills and broken only by narrow rice-fields; it is generally grown to dry crops and grass-covered where uncultivated. The hills rise 140 feet in the vicinity of Payagan, 5 miles to southeast; 150 feet at Camaragan, 6 or more miles to south; and 100 feet in Maburel, 2½ miles to southwest near the Abulug River.<sup>3</sup> Small to medium size trees cover the hills of Baran and Nanaboan, Zitanga and Pagga, 5 or more miles to the south and south east. The Communal Forests of the Municipality of Ballesteros are located at Nanaboan and Pagga and Kabayu. Wooded areas begin on lower hill slopes, and the higher slopes are heavily wooded. The low hills south of Ballesteros at Lanao contain sedimentary rocks, possibly sandstone and shale or limestone and conglomerate.<sup>4</sup>

There is a marshland often flooded in the eastern part of the municipality; another is a partly silted-up lagoon in the western part. Water is obtainable from small streams and the creeks traversing the ricefields and emptying into the *sanja*. For drinking purposes, water is available from deep wells made of clay. Rain water is rarely used by the people of Ballesteros.

As to climate, winds are variable during the months of April, May and June with south, southeast, and east winds predominating. The period of greatest rainfall is during September, October and November with the coming of the northeast monsoons; and the least during February, March and April. The lowest temperature is in the month of

<sup>1</sup> Table C, Potentialities of Terrain. *Terrain Evaluation 86 A, Aparri and Cagayan River Valley, North Coast Luzon, P.I.*, 10 May, 1945 Intelligence Section, Office of the Chief Engineer, Southwest Pacific Area, P. 6.

<sup>2</sup> Estimate by Municipal Mayor Marcelino G. Collado of Ballesteros, Cagayan.

<sup>3</sup> Table D-2, *Op. cit.* *Terrain Evaluation 86 A, Aparri and Cagayan River Valley, North Coast Luzon, P.I.*

<sup>4</sup> *Ibid.*

January and the highest in June; the average temperature range is about 10 degrees.

Accessibility to the town of Ballesteros is by land and water. The rural village of Zitanga along the Ilocos-Cagayan National Highway is 21 kilometers from Camalaniugan Ferry and about 8 kilometers from Lubban. From Zitanga, a road runs north to the town, a distance of 6 kilometers. A one-way 17 kilometer road, parallel to the beach, from the Port of Abulug, passes through the town to Linao Point at the mouth of the Cagayan River. The town of Ballesteros is 8 kilometers from Abulug and 9 kilometers from Linao. There was once a canal constructed by the National Government at the cost of P25,000.00 connecting the Linao River with the Abulug River.<sup>5</sup> At high tide this is now used for motorboat traffic between Aparri and Ballesteros; the water route to Abulug is very shallow. The offshore approaches to the coastline of Ballesteros, through the Babuyan Channel, are clear and exits are fair to good. The landing beach is 200 to 300 feet wide, hard-packed, and 1.9 miles in length. The 6-foot depth averages 150 feet from the shore, and the 12-foot depth averages 900 feet also from the shore of Ballesteros.

*Ballesteros' Place in Cagayan.* — The Municipality of Ballesteros which was organized in 1912, is a confederation of barrios and sitios formerly of Abulug and Aparri. It is named after Rev. Doctor Gregorio Ballesteros, a famous Filipino clergyman from the Province of Cagayan. A third-class municipality, it has a population of 14,000 of which almost 90 per cent derive their income directly from farming. As the place is exposed to the sea breezes, rice is the principal crop instead of tobacco as in the south. In spite of the fact that there is no irrigation and the farmers depend on the abundance of rain to give them good crops, there is enough rice for all.

Ballesteros is tranquil and peace-abiding in its modern and rustic ways. Families in the town manage *sari-sari* stores in addition to the regular backyard gardening. Farmers in the barrios ordinarily have a flock of chickens, a few hogs, two or more carabaos, and sometimes cattle, horses and goats. Besides tilling the friendly soil, fishing by the use of a big, long net called *daklis* is also an important industry. There is an atmosphere of contentment everywhere in the Municipality of Ballesteros.

As the truck deviates its course from the Ilocos-Cagayan National Highway to follow a six-kilometer fair road running northward, it passes rolling hills along rural villages, across ricefields extending to the east and west, and through a residential section bordered by coconut palms until the town in the north central part of the municipality is reached. At the junction of the road a monument to the war veterans of Ballesteros, showing a soldier burying his fallen comrade in arms, guards the entrance of the town and greets the visitors. Once inside the town the newcomer will notice a wide space north of the asphalted road. This is the town park. Just in front is a cemented kiosk. Against a background of palomaria trees stands the Municipal Hall defying the salty breezes from the sea for more than two decades. In the center of the park is the monument to Patriot-Hero Rizal, standing on a high

<sup>5</sup> "The Insular government has already spent P25,000 in the Abulug-Linao canal in Cagayan but the merchants for whom this project was really intended have not derived a single benefit from it." Editorial Notes. *The Ilocos Times*, Manila, Philippines, January 11, 1937, p. 8.

pedestal, being crowned with laurel by *Filipinas*. The town has the benefit of an emergency hospital and electric plant lighting the streets at night.

Ballesteros is an educational center. It boasts of a college and a commercial high school run by private concerns and recognized by the Government. The Northern Cagayan Colleges offers Liberal Arts, Education, Junior Normal, Academic High School, and Agricultural Courses. Its four-story building towers above coconut palms and overlooks the Babuyan Channel. The Quezon Academy offers commercial secondary courses as well as special courses in typewriting, bookkeeping and stenography. The Ballesteros Elementary School, Home Economics, and Industrial Arts buildings are among the best in the locality. Every well-populated barrio has its complete elementary school. Enrollment in public school pupils is largest. The office of the supervising teacher of the district, comprising Abulug, Ballesteros and Allacapan, is located at the town of Ballesteros it being midway between the two municipalities.

It is also a recreational center. There are two movie houses and three bowling pavilions with numerous alleys. A cemented court serves for tennis, volleyball and basketball. The town park is large enough for a softball playing field. During town fiestas the space between the monument to Rizal and the kiosk is converted into an open auditorium. The playground of the Ballesteros Elementary School is believed to be the largest and the best in northern Cagayan. There are first-class cockpits well patronized by professionals and the common *taos*. The clean beach of Ballesteros with its whitish sand invites those who come from regions far from the sea to have a dip in its blue salty water. When the weather is clear, the Camiguin Volcano crowned with smoke and the outline of the submarine Didicas Volcano can be seen far on the horizon about forty kilometers toward the northeast. During the fishing season, one will enjoy watching the men and women hauling ashore the hundreds-meters-long *daklis*, chanting lively songs to alleviate the tedium of the work and the *gakka*-shell fishers moving backward with their bamboo weirs, called *tako*, plowing the wet sand and straining it of the shells imbedded in the beach by the incoming tide.

The town of Ballesteros is becoming a business center. It has wholesale stores and drug stores which purchase their goods direct from Manila; lumber dealers; wholesale tobacco leaf dealers; furniture and carpentry shops; ice drop "factory"; modern and sanitary bakeries; numerous rice mills; a number of dressmaking and tailoring shops, and beauty parlors; photographic studios; gasoline stations; lines of transportation busses, pick-up trucks, calesas and caretelas. *Barangayans* plying the Cagayan River call at the little port of Ammuboan to bring corn, tobacco, peanuts, mongos, beans, mangoes, and other products. On their return trips the *barangayans* carry away rice, dried and salted fish, salt, lumber, and sometimes coconuts and bamboo. Ballesteros exports rice, salted fish, and lumber to the Ilocos. From Ammuboan the upstream products are loaded on trucks, caretelas and bulcarts for distribution to the retail stores in the town.

The people of Ballesteros are descendants of hospitable and industrious Iloko immigrants from the west coast. There are but few Ibanags, Pampangos, and Tagalogs. A German priest of the Roman Catholic Church and the Chinese merchants are the only aliens in the municipality. Most of the people belong to the Philippine Independent Church

popularly known as Aglipayans, and the rest are Roman Catholics, Protestants, and other minor faiths. The *Ilokanized*<sup>6</sup> Negritos are pagans.

If it is true that the size of population is chiefly determined by the land's ability to support its inhabitants, the Municipality of Ballesteros has substantially complied with that law of population. In 1903 when Ballesteros was just a confederation of thriving barrios, a census was taken for the first time under the American administration and its population was counted at 5,142.<sup>7</sup> In 1918, six years after Ballesteros was organized into a regular municipality, the population increased to 7,946.<sup>8</sup> The Census of 1939 showed that the population of the Municipality of Ballesteros that year was 10,863, distributed among the barrios as follows: Palloc, 273; Ammuboan, 1,300; Santa Cruz, 901; Centro, 2,312; Cabuloan, 1,866; Cabaritan, 1,778; Mabuttal, 1,010; Payagan, 1,221; Fugu, 446; and Zitanga, 436. The increase was made possible by the improvement in agriculture and better sanitary health conditions during the first four years of the Commonwealth. The population of Ballesteros in 1939 was classified as to races as follows: Brown, 10,595; Yellow, 34; White, 1; Black, 214; and Mixed, 19.<sup>9</sup>

#### BEGINNINGS

The history of the Municipality of Ballesteros begins with the coming of the adventurous Iloko immigrants to Cagayan shortly after the time when the greatest number of the pirates (*tirong*) raided the Ilokos region.<sup>10</sup> The reasons for immigration were political oppression and the greed of the rich landlords. Excessive tributes and forced labor were made unbearable to the peasants by the Spanish masters. With the harsh physical environment came the abuses of the rich landlords, who were called *baknang*, lending money to the poor at ruinous interest. These conditions continued until the peasants could no longer endure and sold their little farms. Such were the causes which forced the farming folks to abandon their old homes and to make a living out of raw nature.

Sturdy and industrious families from the different towns of the Ilokos region migrated to the Province of Cagayan.<sup>11</sup> They came in scattered bands and at different times by boats called *pontings*. After a long sea voyage some of the immigrants with their meagre worldly possessions landed at the mouth of the Abulug River. A number of the Iloko immigrants from Magsingal, Ilocos Sur, went to the barrio of Santa Filomena. This group was followed shortly by immigrants

<sup>6</sup> See: Yabes, Leopoldo Y. *A Brief Survey of Iloko Literature*, Manila, The Oriental Printing, 1936, p. 5.

<sup>7</sup> The barrios of Ammuboan, Palloc and Payagan were not included. See *Population of the Philippines, Census of March 2, 1903*, Bureau of Census, 1904, p. 40.

<sup>8</sup> See *Census of the Philippine Islands*, Vol. 1, Manila: Bureau of Printing, 1921.

<sup>9</sup> The writer was one of the Census Enumerators for Ballesteros in 1939. He took down notes of the result with the view of writing the history of Ballesteros.

<sup>10</sup> Don Julian Unite told the writer on February 19, 1938: "*Kalpasan ti iraraut dagiti adu a tirong idiay Kailokoan saan a nabayag immaydan ditoy Cagayan dagiti appomi.*" The year was 1836. Municipal documents show that Santiago, Santa Maria, Santo Domingo and Sinait were raided by pirates that year. See "*Dagiti Tirong*", *The Philippines*, Vol I, No. 1, Manila, August 1, 1936, p. 22.

<sup>11</sup> According to Fr. Francisco Rojano, famous historian of Cagayan, the name "Cagayan" was derived from the Iloko word "Carayan", (meaning river) by changing "r" into "g". Malumbres, Julian. *Historia de Cagayan*, Manila, Tip. Linotype de Sto. Tomas, 1918, p. 15.

from Santo Domingo who proceeded farther south to Pinaron which was then a prosperous village. These two places, Santa Filomena and Pinaron, both of the Municipality of Abulug, became important in connection with the founding of the original barrios of Ballesteros, serving as temporary stopping points for the Iloko immigrants. From here they wandered far and wide in search of land upon which to settle and to establish new homes. The ease of clearing the land and the fertility of the soil were the chief factors taken into consideration by the pioneers in the selection of sites. Although they suffered difficulties on the way and at their destination the abundance of land fully rewarded them. They had been many years in Cagayan before the town of Abulug was transferred from Dana-Ili (meaning "old town")<sup>12</sup> to the site destroyed by flood.<sup>13</sup>

What is now the Municipality of Ballesteros was in the early days an unknown place except perhaps to a few wandering Negritos. The land along the coast on the north was covered with prickly shrubs and dark thickets; low-lying land of *lidda*, a kind of common reed-grass, and trees with tangled undergrowth extended east and west and southward; and farther south were dense forests with valuable trees and giant rattans. Wild game abounded in the woodlands and the poorly-drained land swarmed with fresh-water fishes.

The Iloko pioneers went to the new land the hard way. From their stopping places they would start with axes, bolos and enough provisions to last them for days while they built shacks and worked in the wilderness. The immigrants sojourning at Santa Filomena moved eastward and those who stopped at Pinaron cut their way toward the coast. It took considerable courage and industry to go back to the virgin territory cutting down the tall reeds and matted underbrush, felling trees and establishing new farms. Besides the distance and the time consumed by the pioneers in going to and from the areas selected, they suffered hardships, struggled against diseases and various physical dangers in opening new land in places unknown to them. Only those immigrants who laid out farms had a permanent interest. The pioneering Iloko clans were determined to make this part of Cagayan their permanent home. Through courage, determination and constant work from dawn to twilight the once wild vegetation and pathless jungle became cleared land. From their stopping places, the land-loving pioneers moved to the new clearings in search of a better living, and finding agricultural possibilities encouraging, they planted crops and built villages. The history of the Municipality of Ballesteros is to a great extent really the histories of these barrios and sitios formerly of the Municipalities of Aparri and Abulug.

*Santa Cruz.*—It was settled by Iloko immigrants stopping at Santa Filomena and Pinaron, both of the Municipality of Abulug. The

<sup>12</sup> "Este Municipio fué trasladado en su actual asiento en 2 de Diciembre de 1852, viviendo de Dana-Ili". RELACION DE DATOS HISTORICOS DE ABULUG, CAGAYAN, I.R., FORMADO ACUERDO CON LA ORDEN EJECUTIVA DE HON. GOBERNADOR GENERAL No. 2, FECHA DE 26 DE ENERO 1911. (National Library, 1937.)

<sup>13</sup> "The town of Abulug, it is said, had been destroyed by flood, and was replaced by a new but very much smaller one." Ganaden, Mariano M. "The Abulug River", *Commonwealth*, Vol. 11, Nos. 13 and 14, Aparri, Cagayan, July 11 & 18, 1936, p. 5.



place was named after a big molave cross which marked the boundary line between the Municipality of Aparri and the Municipality of Abulug. It became an administrative unit under the territorial jurisdiction of the Municipality of Aparri in 1850.<sup>14</sup>

*Ammuboan.* — The Iloko immigrants from Pinaron of the Municipality of Abulug founded this place. It was inhabited by families from Santo Domingo and Magsingal, both of the Province of Ilocos Sur. The name was derived from *bubo*, a wicker basket for catching fish. In the northern part of this region was a swamp with many *lagdaw*, little white shrimps, and the *bubo* was used in catching them. The site was known as *pammuboan*, and eventually was corrupted into *Ammuboan*.<sup>15</sup> It became a barrio within the jurisdiction of the Municipality of Aparri in 1855.<sup>16</sup>

*Palloc.* — It was first inhabited by native Ibanags. There was a creek with an outlet into the Linao River which swarmed with freshwater fish; a lagoon developed from the creek, and during high tide the waves of the sea met the rising water of the lagoon. The early Ibanags believed that the place derived its name from the word *nai-palloc* meaning "swarmed".<sup>17</sup> The Iloko settlers said that the place was named after the "fight" between the sea water and fresh water, *pallo* meaning "cockfight" literally.<sup>18</sup> Palloc was already an administration unit of the Municipality of Aparri before the Iloko immigrants settled it about 1855.

*Cabaritan.* — It was settled by Iloko immigrants from Magsingal of the Province of Ilocos Sur who first sojourned at Santa Filomena of the Municipality of Abulug, and then moved eastward. The place was named after the red-colored variety of thorny rattan, that grew abundant in the western portions, called *barit* in Iloko; hence the name

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<sup>14</sup> See DATOS HISTORICOS DEL BARRIO DE SANTA CRUZ DEL MUNICIPIO DE BALLESTEROS, *Provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia 20 de Octubre de 1915.* p. 1. The document was signed/marked by Florencio Collado (Teniente del barrio), Roque Collado, Esteban Rabanal, Francisco Urbano, Alvaro Unite, Juan Cortes, Pedro Uberita, Guillermo Domingo, Valeriano Rional, Francisco Pascual, Agustin Onza, Pantaleon Cortes, Justo Tolentino, Juan Alvarez and Tomas Urani.

<sup>15</sup> According to Ex-Vice President Juan Luna as told to the writer on September 9, 1938. The information was related to him by Santiago Rante.

<sup>16</sup> *Datos historicos del barrio de Ammuboan del municipio de Ballesteros, provincia de Cagayan. I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia 21 de Octubre de 1915.* p. 1. The document was signed/marked by Santiago Rante (Teniente del barrio), Andres Rosario (Teniente del barrio), Rafael Pacleb, Aniceto Sosa, Leonardo Artates, Nicolas Bonifacio, Apolonio Pacnis, Mariano Matias, Angeles Ribada, Francisco Umbalin, Florencio Torida, Juan Trilles, Vicente Talosig, Ciriaco Villegas, Isabelo de la Cruz, Felix Florido, Leon Talaro, Leon Longayan, Julio Rosario, Hilario Oria, Felipe Rante, Fernando Rabang, Sabas Talosig, and Cipriano Collado.

<sup>17</sup> According to Sabino Fernandez in a personal statement to the writer on May 25, 1938. Information from Dionisio Gumarang.

<sup>18</sup> Version according to Bernardo Sosa as told to the writer on February 25, 1938. Sabino Villegas related the information to him.

*Kabaritan*, a place where *barit* grows.<sup>19</sup> It became a barrio of the Municipality of Abulug in 1855.<sup>20</sup>

*Cabuloan*. — It was founded by groups of Iloko immigrants from Magsingal, Province of Ilocos Sur, stopping at Santa Filomena of the Municipality of Abulug. In the early days there was a grove of the *bulo*, a thin variety of bamboo, which grew in the southern part of the place. The name *Kabuloan* denotes a place where *bulo* grew.<sup>21</sup> In 1855 it became a well-populated administrative unit of the Municipality of Abulug.<sup>22</sup>

*Santa Cruz*. — It was settled from Santa Filomena of the Municipality of Abulug by Iloko clans who came from the town of Magsingal, Province of Ilocos Sur. A wooden cross was erected near the seashore to serve as boundary marker between the Municipality of Aparri and the Municipality of Abulug.<sup>23</sup> So significant was the cross to the inhabitants that the territories east and west of the wooden cross were named Santa Cruz of Aparri and Santa Cruz of Abulug. The place west of the wooden cross became a barrio of the Municipality of Abulug in 1859.<sup>24</sup> The barrio was the center of town-making. There were unsuccessful attempts associated with names of Celedonio and Arzadon.<sup>25</sup> The plans were discovered by the *guardia civiles*, and those who took part were severely punished by whipping. With the organization of the Municipality of Ballesteros in 1912, the barrio of Santa Cruz of Abulug became a town and was renamed "Centro."

*Mabuttal*. — It was settled from the barrio of Cabaritan of the Municipality of Abulug. The early Iloko inhabitants believed that the name

<sup>19</sup> The version as told to the writer on September 10, 1938, by Marcos Pablo and Mariano Taala. See also *Datos Historicos del barrio de Cabaritan*. . . . . p. 1.

<sup>20</sup> *Datos historicos del barrio de Cabaritan del Municipio de Ballesteros, provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia de 19 de Octubre de 1915*, p. 1. The document was signed/marked by Crispino Umblas (Teniente del Barrio), Teodoro Salvador (Teniente del Barrio), Guillermo Olivas, Hermogenes Otayde, Cesario Aluraza, Valentin Urgel, Eladio Alverlito, Eusebio Urbi, Simeon Luta, Eugenio Talamayan, Mariano Taala I, Cuadrato Gimenes, Agapito Torno, Doroteo Miranda, Roman Bayani, Simeon Pascua, Eleno de la Cruz, Cristuto Alonzo, Estefanio Tamayo, Pablo Taneza, Carlos Hipolito, Julian Nicolas, Menchor Ogale, Lucio Regunayan and Donato Guillermo.

<sup>21</sup> The version according to Bernardo Sosa on February 23, 1938, and Pedro Umblas on September 10, 1938, as told the writer.

<sup>22</sup> *Datos historicos del barrio de Cabuloan del Municipio de Ballesteros, provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia 18 de Octubre de 1915*, p. 1. The document was signed/marked by Emeterio Agate (Teniente del barrio), Antonio Ariola, Justo Utrillo, Anatalio Alupani, Remigio Salazar, Mariano Alejo, Bernardo Sosa, Juan Ariniago, Jose Batacan, Hipolito Unciano, Nicolas Umblas and Cornelio Asebedo.

<sup>23</sup> Personal statement of Municipal Mayor Jacobo Alonzo to the writer in 1938.

<sup>24</sup> *Datos historicos del barrio de Centro de municipio de Ballesteros, provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio en una reunion celebrada el dia 17 de Octubre de 1915*, p. 1. The document was signed/marked by Ciriaco Alvarez (Teniente del Barrio), Honorio Molina, Mariano Alonzo, Pio Unite, Onofre Pascua, Onofre de los Santos, Ildefonso Unite, Vicente Miranda, Miguel Agbisit, Ildefonso Sosa, Jacinto Gascon, Lope Fernandez, Prudencio Alonso and Anacleto Pisca.

<sup>25</sup> According to Vice-Mayor Julian Unite as told to the writer on February 19, 1938. Vice-Mayor Unite also intimated to the writer that the family name of his grandfather was *Salvador* while in Magsingal, Ilocos Sur, and then changed into *Unite* in Cagayan. According to Don Julian Unite, he was born in Barrio Santa Cruz, Abulug, on October 20, 1850.

of the place was derived from *battal*.<sup>26</sup> The Negritos found fresh-water fish "scattered" in the environs of the place when they came to settle. The most favored derivation, however, is from the Ibanag word *buttal*, meaning "hill".<sup>27</sup> The hilly place became an administrative unit of the Municipality of Abulug in 1875.<sup>28</sup>

*Payagan*. — In 1875 Ibanag *colonos* established themselves in the eastern part of the place near the tributary of the Linao River.<sup>29</sup> Iloko immigrants from the barrio of Santa Cruz and Pinaron, both of the Municipality of Abulug, found the place in 1883.<sup>30</sup> The pioneers came from the towns of Narvacan, Santa Maria, Santo Domingo and Vigan, all of the Province of Ilocos Sur. The native Ibanags believed that the name of the place was derived from *payangan*, a place where there were many *payangs*, meaning "lobsters".<sup>31</sup> According to the Iloko pioneers the name was probably a linguistic corruption of the Iloko word *pamayagan*, a place for raising the late variety of rice.<sup>32</sup> It became an Iloko barrio under the administration and jurisdiction of the Municipality of Aparri in 1891.<sup>33</sup>

*Fugu*. — It was first settled by Iloko immigrants stopping at the barrio of Payagan of the Municipality of Aparri, and from the barrio of Cabuloan and Santa Cruz of the Municipality of Abulug. The isolated hill first inhabited by the Negritos and surrounded by low-lying land was called "Fugu." The name of the place was derived from the Negrito word *fugu*, meaning "island".<sup>34</sup> It became an administrative unit in 1909, within the territorial jurisdiction of the Municipality of Aparri.<sup>35</sup>

*Names and Derivations of Sitios*. — Baran, Tagawit and Maburel were the original sitios. The sitios later annexed were Catuguran, Buning, Wawwang, Guiguiputen, Pagga, Pulipol, Binalan, Naguilian, Lakung, Kallub, Ulonat' Kabayo, Nanaboan, Zitanga, Camaragan, Nararagan and Kabayu.<sup>36</sup>

*Baran* derived its name from the Iloko word *bara*, meaning "hot." It was a pasture ground during the dry season. The carabao herders usually took a bath, when heated from work, in its woodland creeks.

<sup>26</sup> According to Santiago Umblas as told to the writer on April 17, 1938.

<sup>27</sup> *Datos historicos del barrio de Mabuttal del municipio de Ballesteros, provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia 24 de Octubre de 1915*, p. 1. The document was signed/ marked by Nicolas Pablo (Teniente del barrio), Agustin Pablo, Nicolas Pascua, Candilario Tamayo, Esperidion Tamayo, Faustino Pablo, Miguel Simon, Mateo Simon, Antonio Tamayo, Marcelo Simon, Santiago Umblas and Alvaro Guillermo.

<sup>28</sup> *Ibid.*

<sup>29</sup> *Datos historicos del barrio de Payagan del Municipio de Ballesteros, provincia de Cagayan, I.F., recogidos de los ancianos de dicho barrio, en una reunion celebrada el dia 23 de Octubre de 1915*, p. 1. The document was signed/ marked by Mariano Molina (Teniente del barrio), Severino Calpito, Feliciano Oben, Lino Caliboso, Silverio Aleste, Apolonio Castillo, Maximo Baldon and Facundo Sumay.

<sup>30</sup> For complete history of Payagan see the writer's *Pakasaritaan ti Barrio Payagan*, Ballesteros, Cagayan, 1950. (MS)

<sup>31</sup> Version by Bartolome Aleste as told to the writer on May 23, 1938.

<sup>32</sup> Personal statement of Apolonio Castillo to the writer on February 19, 1938.

<sup>33</sup> *Datos historicos del barrio de Payagan . . . op. cit.*, p. 1.

<sup>34</sup> Version by Pedro Tolentino and Telesforo de la Cruz as told to the writer on May 25, 1938.

<sup>35</sup> According to Pedro Tolentino and Telesforo de la Cruz in personal statement to the writer. Fugu was settled during the administration of Governor Malom (sic).

<sup>36</sup> Nararagan and Kabayu were both claimed by Ballesteros and Allacapan.

The place became "too hot" for the *pastores* who became sick.<sup>37</sup> The first settlers were Candido Collado, Ventura Alejo, Guillermo Ojerio, Francisco Unciano, Andres Gimenes, Tomas Uriani, Mariano Alejo and Jacinto Gascon.

*Tagawit* was a corrupted abbreviation of the Iloko words "*taga gawid*", translated freely, meaning "it detains".<sup>38</sup> The first settlers were Esteban Viloría, Valentin Gabriel, Bartolome Pacleb and Juan Urgel.

*Maburel* derived its name from *burel*, Negrito word for "mud". *Maburel* means "muddy" in the dialect of the Negritos.<sup>39</sup> The first settlers were Candido de los Santos, Jacinto Versoza, Basilio Acosta, Mauricio de los Santos, Sotero de los Santos and Leoncio Tubon.

*Catuguran* was named after *taggu*, Ibanag word meaning "horn". It was the place where "horned deer" roamed in the early days.<sup>40</sup> The first settlers were Mariano Miranda, Clemente Miranda, Cresencio Miranda, Dionisio Tolentino, Alberto Tolentino, Antonio Rubino, Macario de la Cruz and Pedro Oandasan.

*Buneg* derived its name from a tree with edible fruit that grew in the place when it was first settled by Iloko immigrants.<sup>41</sup> The first settlers were Ponciano Diego, Fortunato Florido, Estefanio Onza, Adriano Gabutan, Saturnino Ponce, Jose Guillermo and Ambrosio Onza.

*Wawwang* was named after the physical feature of the hill suggesting steepness. *Wangwang* is an old Iloko word meaning "precipice".<sup>42</sup> The first settlers were Pedro Caliboso, Lino Caliboso, Domingo de la Cruz, Eustaquio Duyan, Epifanio Estoler and Andres Duyan.

*Guiguiputen* derived its name from the shape of the low and poorly-drained land at the foot of steep-sided hill.<sup>43</sup> The Negrito word *giguiputen*, translated freely, means "narrowing at the place." Apolinario Sumay was the first to settle the place.

*Pagga* was once a tangled jungle covered with giant rattan called *paggad* by the Negritos.<sup>44</sup> The name, however, was derived from the word *paga*, meaning payment.<sup>45</sup> The Negritos that originally inhabited

<sup>37</sup> In a personal interview on February 25, 1938, Bernardo Sosa narrated the histories of Baran, Tagawit and Maburel to the writer. He named the first settlers of Baran. The names were repeated by Luis Sosa and Ambrosio Oloraza to the writer on May 31, 1953.

<sup>38</sup> According to Bernardo Sosa. The names of first settlers were given. Luis Sosa and Ambrosio Oloraza repeated the same names to the writer.

<sup>39</sup> Version by Bernardo Sosa. On May 31, 1953, Luis Sosa and Ambrosio Oloraza gave the first settlers' names as given by the late Bernardo Sosa in 1938.

<sup>40</sup> According to Sabino Fernandez on May 25, 1938. It was settled in 1895 and gave the names of the first settlers. The same names were given by Clemente Miranda, Francisco Rubio and Dionisio Tolentino on May 29, 1953.

<sup>41</sup> Version by Andres Duyan. He said it was settled in 1905 and named the first settlers. Andres Duyan was interviewed on May 26, 1938.

<sup>42</sup> Version by Andres Duyan on May 26, 1938. According to him the place was settled by Iloko pioneers in 1894 and named them.

<sup>43</sup> According to Maximo Baldon, the first who made *kaingin* in the place interviewed on January 26, 1938, by the writer. He named Apolinario Sumay as the first to settle in the place.

<sup>44</sup> According to Policarpio Martinez interviewed on May 24, 1938.

<sup>45</sup> Version by Sabino Fernandez as told to the writer on May 25, 1938. He named the first settlers. The names were repeated by Basilio Ubarre on June 3, 1953 to the writer. According to Negrito Edot de la Cruz and Pablo Laguimon interviewed by the writer on June 3, 1953, the first Negrito settlers were Kinio de la Cruz, Malusing de la Cruz and Abbiro Laguimon and the first Iloko settlers were Santiago Umblas, Agustin Pablo, Hilario Umblas, Domingo Tamayo and Baltazar Ubarre.

the place were hostile; they threatened every Christian and demanded payment before they would allow anybody to gather rattan, fell trees or fish there. The first Iloko settlers were Baltazar Ubarre, Mariano Ubarre and Silverio Rivera.

*Pulipol* was the name given to the place after the narrow field winding around the base of the hill.<sup>46</sup> *Pulipol* is an Iloko word meaning "twine". The first settlers were Venancio Vidad, Nicolas Manuel, Gregorio Vidad, Felix Vidad, Arcadio Tolentino and Maximo Manuel.

*Binalan* derived its name from the Iloko word *bengal*, meaning "splitting wedge".<sup>47</sup> It was the place where *taraws*, a species of palm, were cut and split in the early days. The first inhabitants were Simeon Alfero and his wife Juana Soriano; Nicomedes Guzman and Petronila Repani, Diego Renol (formerly Reynon) and Ursula Rondero; Damaso Rellon and Maria Romero and Magno Romero. The place across the Binalan Creek was named "Villa Angela" by the late Valeriano Alambat.

*Naguilian* was once upon a time an "inhabited place" by Kalingas.<sup>48</sup> Pieces of porcelain plates and old jars called *wanggi* were unearthed in the place. The first settlers were Fernando Cabanglan, Pedro Aleste, Marcelino Martinez and Bartolome (Tango) Lizardo.

*Lakung* was a little valley surrounded by low hills. The name was derived from the Iloko word *lakon*, meaning "marooned". Without an outlet into the open field, water was deposited at the place.<sup>49</sup> The first settlers were Esteban Molina and Petrona Reynon. Leoncio Braceros settled it around 1912.

*Kallub*, located at a gap-like place, was probably named after *kalub*, the Iloko word for "cover".<sup>50</sup> The first Iloko settlers were Dalmacio Repaje; Matias Pentecostes and Cirila Arocan; Calixto Romano and Calixta Pando; and Venancio Vidad and Luisa Alfiero.

*Ulonat' Kabayo* was named after the resemblance of its hill to an animal shape. *Ulonati Kabayo* means, literally, "it is the head of a horse".<sup>51</sup> The first settlers were Juan Rompon, Mariano Binia, Puring Usigan, Pedro Antonio, Pedro Laurente and Mariano Tolentino.<sup>52</sup>

*Nanaboan* was named after the *annabo* trees, species of the abroma family, which grew in the place in the early days.<sup>53</sup> The first settlers were Emiterio Unite, Florentino Fronda, Miguel Fronda, Andres Nicolas, Nicolas Unciano and Jacinto Gascon.

<sup>46</sup> The version given by Monico Javier in 1937 as told by Venancio Vidad. The same version was repeated by Venancio Vidad to the writer on May 20, 1953. He said that Pulipol was settled in 1907 and named the first settlers.

<sup>47</sup> Etymology as told to the writer by Pedro Tolentino on May 25, 1938. Diego Renol, Nicomedes Guzman and Damaso Rellon reiterated the same version to the writer on May 19, 1953. They also gave the names of the first settlers.

<sup>48</sup> This was the version given by Bartolome Aleste on May 23, 1938. Marcelino Martinez told the writer the same derivation on May 25, 1938.

<sup>49</sup> The version according to Petrona Reynon as told to the writer on December 26, 1942. It is said that Lakung and Guiguiputen were settled in 1900.

<sup>50</sup> According to Venancio Vidad. The same version was repeated on May 20, 1953 in the presence of Barrio Lieutenant Roman Oganiza of Fugu.

<sup>51</sup> Etymology by Santiago Umblas as told to the writer on April 17, 1938.

<sup>52</sup> According to Santiago Umblas of Mabuttal in a personal statement to the writer in 1938 it was old Patti Pablo who gave the name *Ulonat' Kabayo* to the place. He gave the names of the first settlers. On May 31, 1953, Luis Sosa and Agaton Ulanimo repeated the names of the early settlers to the writer.

<sup>53</sup> According to Silvino Areola as told to the writer on May 25, 1938. He gave the version and the names of the first settlers. They were repeated by Luis Sosa and Ambrosio Aloraza on May 31, 1953, and by Eugenio O'rela on June 3.

*Zitanga* was originally a clearing wrought out from the jungle. It derived its name from the Negrito words *sita tangnga* which may mean "in the middle".<sup>54</sup> There was a clearing amidst the woodland southeast of Mabuttal. The Negritos in referring to the place called it "*Sita tangnga*". The words corrupted into *Zitanga*.<sup>55</sup> The first families or early settlers were Tomas Guillermo and Teresa Gonzales, Agaton Guillermo and Eusebia Patubo, Santiago Cardenas and Teodora Guillermo, Bernardo Tamayo and Paulina Uplos, Marcos Gonzales and Ides Cardenas, Francisco Alonzo I and Paula Simon, Tomas Guillermo II and Maria Simon, Celerino Areola and Dominga Gonzales, Rafael Cemiliano and Apolonia Padua, Gregorio Patubo and Paula Cardenas, Cristino Andres and Severina Gonzales, Miguel Simon and Marta Gonzales.

*Camaragan* derived its name from *kamara*, a plant the leaves and taste of which are similar to betel.<sup>56</sup> The first settlers were Simfros Tagoc and Manuel Simon.

*Nararagan* was named after a herb similar to *aragan* which grew abundant in the place.<sup>57</sup> In Iloko, *aragan* is a kind of seaweed. The first settlers were Hilario Alonzo, Rufo Salvador, Flaviano Rompon, Toribio Planas, Victorino Unite, Bruno Unite, Vicente Alonzo, Hilario Ulanimo and Rufino Umani.

*Kabayu* derived its name after the palm growing in the place which resembles the areca palm.<sup>58</sup> It is called *kabayu* by the Negritos. The first settlers were Teodoro Unciano, Emilio Alonzo, Miguel Fronda and Felipe Oandasan.

*Tolong* derived its name from the Negrito word *tulung*, meaning "to enter".<sup>59</sup>

*Silagan* was named after the buri palm growing in the place which the Negrito called *silag*.

*Cabaggaoan* is from the Negrito word *baggaw* which means "to wash".

<sup>54</sup> Version by Santiago Umblas of Mabuttal. He narrated the story to the writer on April 17, 1938. The first settlers of *Zitanga* came from Mabuttal according to him. This statement was confirmed by Agaton Guillermo to the writer.

<sup>55</sup> According to Silvino Areola in a personal interview with the writer on May 25, 1938, *Zitanga* was settled in 1908 or earlier. He also gave the names of the early settlers and the first families. On June 7, 1953, Agaton Guillermo repeated the same names to the writer. *Zitanga* was formerly under Abulug. On December 17, 1914, the inhabitants petitioned for annexation to the Municipality of Ballesteros. The Census of 1918 classified *Zitanga* as a barrio. During the census taking in 1939 it was also considered a barrio.

<sup>56</sup> The version according to Silvino Areola in a personal statement to the writer on May 25, 1938. He named the first settlers.

<sup>57</sup> This derivation was told to the writer by Victorino Unite in 1937. He said that *Nararagan* was settled from the barrio of Santa Cruz, Abulug, about 1910. Luis Sosa, Ambrosio Oloraza and Agaton Ulanimo gave the names of the first settlers to the writer on May 31, 1953.

<sup>58</sup> Etymology according to Municipal Mayor Jacobo Alonzo as told to the writer in 1938. The names of the first settlers were given by Luis Sosa, Ambrosio Oloraza and Agaton Ulanimo to the writer on May 31, 1953. The sitios of *Nararagan* and *Kabayu* were both claimed by the Municipality of Ballesteros and Municipal District of Allacapan. They were finally annexed to Ballesteros together with *Tolong*, *Silagan*, *Cabaggaoan*, *Lappiad* and *Batulín*, by virtue of the law converting Allacapan into a regular municipality.

<sup>59</sup> The etymologies of *Tolong*, *Silagan*, *Cabaggaoan*, *Lappiad* and *Batulín* were given by the son of Julian Laguimon, the first Negrito who settled in Kallub, as told to the writer on May 20, 1953 in the presence of Roman Organiza.

*Lappiad* perhaps got its name from *lappiak*, the Negrito word for "overflow."

*Batulin* derived its name from the Negrito word *mattuli*, meaning "to go back." The place was formerly an unpenetrable jungle.

#### ESTABLISHMENT OF THE MUNICIPALITY

*Name and Derivation.* — On April 19, 1911, the Provincial Board of Cagayan in a regular session presided over by Governor C. V. Masigan and attended by Provincial Treasurer G. P. Banner, Board Member H. Lasam and Provincial Secretary V. Donato, passed Resolution No. 623 making the barrio of Santa Cruz of the Municipality of Abulug the seat of government of a new municipality to be known as "BALLESTEROS".<sup>60</sup> By virtue of Executive Order No. 79 issued by Governor-General William Cameron Forbes on December 18, 1911, the Municipality of Ballesteros was established effective January 1, 1912. It was named in honor of the late Reverend Doctor Gregorio Ballesteros, the illustrious Filipino clergyman from Cagayan.<sup>61</sup> He was the son of Don Vicente Ballesteros of Abulug and Doña Vicenta de Santa Maria Littaua of Aparri.

*Historical Background.* — There was no immediate desire to found a new municipality. While the native Ibanags occupied the town and its outskirts, the Iloko immigrants lived in the barrios and in isolated farms far from the town. They were contented with rural life. Tribal prejudices and differences in tradition, customs and language, however, begot misunderstanding between the two peoples. The rural folk began to feel the uncivil attitude of the townsmen toward them. These were but local privileges and rights. Some opportunists took advantage of the situation for political agitation.

The self-appointed leaders feigned sympathy with the dissatisfied simple rural people and placed themselves at the head of a movement for a separate town. By assuming the role of persons responsible for negotiating the matter with the authorities in Manila, they won adherents and financial support. The unsuspecting people willingly raised the necessary funds for the cause. Unfortunately, the plan was discovered by the local authorities. The "leaders" were able to get away with the people's money; the followers were whipped by the *guardia civiles* to discourage them from the dangerous undertaking. Besides, the incident became the subject of long sermons of the *cura*, the parish priest of the town of Abulug. These foreign agitators were known only by their assumed names of Celedonio who did the trick in 1858, and again in 1862 by certain man with the family name Arzadon.<sup>62</sup>

The growing leaders of the rural communities had some ideas about how things could be improved. In the time of most oppressive local domination they dared all dangers — the wrath of the *cura*, the hatred of the *gobernadorcillo*, the ill-will of the *tribunal*, the cruelty of the *guardia civiles*, and the unfriendly attitude of the town *principalia*.

<sup>60</sup> On December 1, 1937, Don Bonifacio Cortes made available to the writer "some data about the organization of the Municipality of Ballesteros, the incorporation of the barrios of Mabuttal, Payagan and Fugu and some facts relative to said organization." Resolution No. 623 was one of them.

<sup>61</sup> See Fr. Julian Malumbres. *Historia de Cagayan*, por el R.P. Fr. Julian Malumbres, Manila, Tip. Linotype de Sto. Tomas, 1918, p. 441.

<sup>62</sup> These incidents were told to the writer by Don Julian Unite on Feb. 19, 1938.

The first serious attempt under purely local leadership to bring the Iloko barrios together was the movement among the barrios of Cabuloan and Santa Cruz of Abulug and Aparri in 1875.<sup>63</sup> The leaders were Miguel Unite, Pio Unite, Juan Pacleb, Candido Pio, Bartolome de la Cruz and Candido Alonzo.<sup>64</sup> The movement accomplished nothing of permanent result but it served to increase the idea of unity.

As the immediate relatives of the most influential early inhabitants began holding the positions of *cabezas de barangay*, they soon possessed a sort of political influence among the people. They were Arcadio Tacata (1880) of Cabaritan, Juan Alonzo (1885-1891) and Julian Unite (1892-1896) of Santa Cruz of Abulug;<sup>65</sup> Miguel Ruelos (1894-1895) and Valentin Ruelos (1892-1897) of Santa Cruz and Ammuboan of Aparri. They believed that the people would be better off if they had some share in the management of the town. On the objective they all agreed; but they differed on how it could be realized. It seemed that the leaders had individual interests. As Santa Cruz of Abulug and Santa Cruz of Aparri led such an important movement it was inferred the intention was for two separate towns.<sup>66</sup> For lack of definite plan the local authorities of Abulug and Aparri were not obliged to listen to the leaders and nothing was done about it.

Undaunted the people decided to carry the matter to the authorities in Manila, by sending Don Valentin Ruelos and Don Julian Unite of Santa Cruz of Aparri and Abulug, respectively, in 1894. The principal contributors for expenses were Jacinto Unite, Juan Alonzo, Pio Unite, Honorio Molina, Miguel Ruelos, Andres Cortes, Juliana Gascon and many others.<sup>67</sup> The result was that the higher authorities in Manila were acquainted with the desire of the people to establish a new municipality. Petitions were also sent to Malolos during the Revolutionary Government period.<sup>68</sup>

At about the end of the Spanish period the positions of the *cabezas de barangay* and later the office of the "*representante*" and "*delegado*" during the Revolutionary Government gave many of the leaders some experience in the management of their own affairs and forced them to learn to work for a common cause. In 1899 the "*representante de barrio*" were Valentin Ruelos for Santa Cruz and Ammuboan of Aparri; Julian Unite for Santa Cruz<sup>69</sup> and Bernardo Sosa for Cabuloan of Abulug. The "*delegados de barrio*" in 1900, were Valentin Ruelos for Santa Cruz and Ammuboan of Aparri; Julian Unite for Santa Cruz and Mabutal, and Bernardo Sosa for Cabuloan, of Abulug.

<sup>63</sup> The attempt happened when Don Julian Unite was twenty-five years old. In 1938 Don Julian gave October 20, 1858 as his date of birth but changed it to October 20, 1850, when reinterviewed on June 25, 1953.

<sup>64</sup> The names were given to the writer by Julian Unite and Bernardo Sosa on February 23, 1938.

<sup>65</sup> The length of service rendered by Don Juan Alonzo and Don Julian Unite based upon the joint statement of Don Julian Unite and Bernardo Sosa.

<sup>66</sup> This was the real cause of the failure according to Don Julian Unite.

<sup>67</sup> Don Julian Unite in a personal statement to the writer said that it was in 1894 when they went to Manila. The fare from Aparri to Manila by the S.S. *Filipinas* was only P4.50. This was confirmed by Mr. Victorino Ruelos, son of the late Don Valentin Ruelos. Mr. Ruelos gave the names of the principal contributors to the writer on July 3, 1953.

<sup>68</sup> After going over the correspondence of his father, Mr. Victorino Ruelos made the statement to the writer on July 3, 1953.

<sup>69</sup> Based from the joint statement of Don Julian Unite and Bernardo Sosa as told to the writer on February 23, 1938.



With the coming of the Americans, political ideas were given much expression. The leaders felt that they were capable of governing themselves. This belief was expressed in no less than four petitions.<sup>70</sup> Those addressed to "Al Honorable Sr. Presidente de la Comision de E.E.U.S. en Filipinas" on June 17, 1901, and on November 20, 1901, were signed by Valentin Ruelos, Valeriano Alambat, Florentino Unite, Dioscoro Blanco, Florencio Torida, Perfecto del Castillo, Miguel Ruelos, Ciriaco Florido (the signature in Spanish copy of the petition was not very legible), Pablo Alonzo, Juan Trilles, Domingo Unite, Nicolas Pascua, Esteban Rabanal, Bernardo Sosa, Gregorio Pio and Felipe Rante. The ones directed to "Sr. Gobernador Civil del Archipiélago Filipino" on April 19, 1902, and on September 24, 1902, were coursed through the Military Commander of the Province of Cagayan. They were signed by Valentin Ruelos, Dionisio Agcaoili, Valeriano Alambat, Vicente Ruelos, Florencio Torida, Felipe Rane, Bernardo Donato, Juan Trilles, Cipriano Collado, Telesforo Taala, Pedro Erejes, Andres Cortes, Feliciano Rabina, Bonifacio Cortes, Julian Unite, Florentino Unite, Perfecto del Castillo, Bruno Unite, Jacinto Unite, Dioscoro Blanco, Domingo Unite, Adon Ravelo, Pablo Alonzo, Pedro de la Cruz, Simeon Tancioco, Lorenzo Martin, Claro Bergama, Hilario Florido, Andres Rosario, Juan de la Cruz, Apolonio Tagui, Emiterio Pascua and Eulalio Pascua. All the answers to the petitions were addressed to Don Valentin Ruelos of Santa Cruz of Aparri. Although the movements were not successful, the motion in forming a new municipality was presented and the sentiment of union was born.

The petition of September 24, 1902, was interesting because it quoted the letter of the Military Commander of Cagayan dated at Aparri on August 30, 1901, and addressed to *Al Hon. Mr. Taft, Gobernador del Archipiélago Filipino, Manila, P.I.* It contained references with regards to the desire of the inhabitants of Santa Cruz of Aparri and Abulug to establish an independent municipality. It reads:

"Me querido Gobernador —

En nuestra agradable conversacion del 26 del corriente en este Pueblo y a suplicas de V. tengo el gusto de manifestarle, con respeto al asunto de la peticion de los ciudadanos de Sta. Cruz que son dos barrios entre Aparri y Abulug, como a quince millas al oeste de aqui, que son mis deseos que dichos barrios se incorporen en un pequeño publicito. Estos barrios estan inmediatamente contiguos ambos, dos con varios ranchos a siete u ocho millas de distancia formando el numero de dos a tres mil habitantes en conjunto. Tienen buena Escuela Publica e Iglesia y prometen construir las casas publicas que se necesitan para un pueblo. Yo tengo entendido que el Presidente de Abulug al oeste de aqui protesta en contra energicamente, hacia la separación de uno, de estos barrios en cuestion, pues como es natural que siendo asi desminuiran los habitantes de su pueblo. Yo no veo que haya otro inconveniente, que venga de estos habitantes de organizarse bajo el nuevo Codigo de leyes municipales. La conducta de estos en todos respectos son dignos y justos y la lealtad hacia nuestro gobierno ha sido non-plus-ultra indudablemente sin tacha ni cuestion alguna. Comoquiera que varias son las veces que han apelado a mi por este privilegio, tuviera mucho gusto de ver sus deseos concedidos. Tanto la instancia oficial de ellos fueron entregados a su Secretario a su llegada a este pueblo el 21 del corriente.

Soy de V. Gobernador con el mayor respeto, de sinceramente.

Chas. H. Wood".

<sup>70</sup> Copies of the petitions in Spanish were found among the correspondence of the late Don Valentin Ruelos. The writer with the help of Mr. Victorino Ruelos made evaluation of the documents purely for historical purposes.

The role of leadership was shifting from the old to the young generation. The leaders gradually won political influence and the barrio people gained recognition from the town people. They put aside their personal and local differences and enlarged their barrio loyalty. In 1905, the young and intelligent generation with the backing of the more matured and experienced minds openly voiced the desire for independent municipality. Valeriano Alambat was the most prominent leader.<sup>71</sup> The other leaders and sympathizers were Florentino Unite, Jacinto Unite, Valentin Ruelos, Bonifacio Cortes, Gregorio Unite, Felipe Arellano, Faustino Unite, Juan Pio, Domingo Unite, Serapio Acosta, Victorino Unite, Sabino Fernandez, Alvaro Unite, Lorenzo Martin, Bernardo Sosa, Julian Unite, Eustaquio Guillermo, Miguel Ruelos, Severino de los Santos and Agustin Onza.<sup>72</sup> Again the attempt failed. Nevertheless it prepared the way for the unification of the barrios and the establishment of the municipality.

Popular education greatly assisted in producing an intelligent body of citizens. Constant share in public affairs was giving the leaders valuable experience in the business of government for the welfare of all. Agapito Gimenez (1901) and Juan Garcia (1902-1903) of Santa Cruz and Florencio Torida (1911) of Ammuboan became councilors in the Municipality of Aparri. Perfecto del Castillo (1904), Sabino Fernandez (1906-1907) and Flaviano Acosta (1908-1909)<sup>73</sup> of Santa Cruz; Andres Pablo (1906-1908) and Pedro Oandasan (1909-1911) of Cabuloan; and Felipe Arellano (1908-1909) and Serapio Acosta (1910-1911) of Cabaritan, were elected councilors of the Municipal Council of Abulug. Don Julian Unite became councilor and then Vice President (1904-1907);<sup>74</sup> and Bonifacio Cortes was elected Municipal President of Abulug.

The Iloko barrios were brought together by common sympathy for the past unsuccessful attempts and by local pride of establishing an independent municipality. The united leaders were more determined and made another attempt in 1910.<sup>75</sup> Valeriano Alambat and Florentino Unite were the spokesmen of the movement. Their declaration for a new municipality set forth in writing was so convincing that it merited the attention of the authorities most concerned. The Provincial Board of Cagayan in a regular session held on April 19, 1911, passed Resolution No. 623, making the barrio of Santa Cruz of the Municipality of Abulug the seat of government of a new municipality to be known as "BALLESTEROS".

Without the cooperation and influence of President Bonifacio Cortes of Abulug who was one of the outstanding leaders of the Iloko barrios, it was doubtful if the other leaders could have established an independent municipality. Instead of "*protesta en contra energicamente*" as was done by past *capitanes* and *presidentes* of Abulug and Aparri, President Cortes caused the Municipal Council of Abulug to pass reso-

<sup>71</sup> According to Don Julian Unite in a personal statement to the writer on February 23, 1938, Valeriano Alambat was considered the most popular leader.

<sup>72</sup> They were named by Don Julian Unite, Bernardo Sosa and Eustaquio Guillermo to the writer on February 23, 1938.

<sup>73</sup> On July 4, 1953, the writer interviewed Alejandrino Acosta about his late father. He was shown the appointment of Councilor Flaviano Acosta signed by Provincial Governor Pablo Guzman Garcia on January 29, 1907.

<sup>74</sup> Based from the personal statement of Don Julian Unite to the writer on June 25, 1953.

<sup>75</sup> According to Ex-President Serapio Acosta in a personal statement to the writer in 1938, and reiterated on June 25, 1953, the leaders in 1910 were Valeriano

lutions indorsing favorably the act of the Provincial Board of Cagayan in creating the Municipality of Ballesteros.<sup>76</sup>

Fortunately on April 26, 1911, Governor-General William Cameron Forbes visited the barrio of Santa Cruz of the Municipality of Abulug.<sup>77</sup> The all-Iloko inhabitants of the said barrio and the barrios of Cabuloan and Cabaritan of the Municipality of Abulug; and the Iloko-populated barrios of Santa Cruz and Ammuboan and also the Ibanag-inhabited barrio of Palloc of the Municipality of Aparri, saw in the occasion an opportunity and submitted a written petition wherein they expressed anew their desire to have a separate municipality. It was signed by the young and intelligent leaders of the barrios representing a united stand behind the movement. The document was unique in that it embodied what the whole population expected, expressed adequately in a language peculiar to the Governor-General. The petition was written in English by Valeriano Alambat.<sup>78</sup> During the historic visit Mr. Victorino Ruelos, speaking in English, felicitously expounded the essence of the people's attitude and point of view.<sup>79</sup> He helped in driving home the contents of the petition submitted. After the speech, His Excellency, Governor-General Forbes called the attention of the speaker saying: "Mister Orator, your first petition is granted."<sup>80</sup> Thus the establishment of the Municipality of Ballesteros was assured by no less a person in authority than the Governor-General of the Philippine Islands.

The Governor-General was more than convinced of the desire of the people for an independent municipality. With the recommendations of the Provincial Board of Cagayan and the Representatives of Cagayan Province to the Philippine Assembly, Hon. Venancio Concepcion and Hon. Leoncio F. Fonacier, of the first and second district of Cagayan, respectively, His Excellency decided to issue Executive Order No. 79, on December 18, 1911, establishing the Municipality of Ballesteros to take effect on January 1, 1912.<sup>81</sup> The barrios of Santa Cruz, Cabuloan and Cabaritan were separated from the Municipality of Abulug; and the barrios of Santa Cruz, Ammuboan and Palloc were detached from the Municipality of Aparri. These were consolidated to form the six original barrios of the Municipality of Ballesteros.

Out of the barrios of the municipalities of Abulug and Aparri was created the new municipality of Ballesteros. Its transition from a confederation of barrios to an independent municipality was a long and interesting one. The establishment of the Municipality of Ballesteros was in a sense the culmination of dramatic political events which had

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Alambat and Florentino Unite.

<sup>76</sup> See Resolution No. 69 of May 2, 1911, and Resolution No. 200 on November 15, 1911, of the Municipal Council of Abulug.

<sup>77</sup> This was the exact date according to Mr. Victorino Ruelos in a personal statement to the writer on May 8, 1953.

<sup>78</sup> On May 8, 1953, Mr. Victorino Ruelos personally told the writer that the petition was written in English by the late Maestro Valeriano Alambat.

<sup>79</sup> The writer first got the information from Francisco Alonzo on December 31, 1952. He said: "Ni Victorino Ruelos isu ti umona a taga Ballesteros a nagbitla iti Ingles iti sangoanan ti Gobernador-General." On May 8, 1953, the writer interviewed Mr. Victorino Ruelos, son of the late Don Valentin Ruelos. After narrating the historical event to the writer, Mr. Ruelos modestly concluded: "Providence was with me that day."

<sup>80</sup> The other petition was about the construction of the Abulug-Linao Canal.

<sup>81</sup> One of the Spanish documents furnished the writer by Don Bonifacio Cortes about the organization of the Municipality of Ballesteros on December 1, 1937. The writer made rough notes in English of the Spanish Documents.

been going on since 1875. The then Governor-General William Cameron Forbes, the "builder", brought the dream to reality.<sup>82</sup>

*Inauguration of Ballesteros.* — The Municipality of Ballesteros was formally inaugurated on January 2, 1912, by virtue of the telegraphic order from the Executive Secretary of Malacañan.<sup>83</sup> The choice of the people manifested by oral vote in a stand-by-his-side election was confirmed by the Governor-General. The first appointed municipal officials took their oath of office before Provincial Governor Cresencio Vicente Masigan. They were Municipal President Jacinto Unite, Vice President Valentin Ruelos, and Municipal Councilors Dioscoro Blanco, Jacobo Alonzo, Ciriaco Florido, Severino de los Santos, Apolonio Culasig, Nicolas Trilles and Narciso Manuel. The substitute Vice President was Bruno Unite; and the substitute Municipal Councilors were Mariano Taala and Hilario Pascua, Quintin Umbalin and Sabino Fernandez. Ex-President Bonifacio Cortes of Abulug was the Municipal Secretary. Serapio Acosta was appointed the head of the Municipal Police Force. After the oath-taking, speeches in Spanish were delivered by Governor Masigan, President Unite and Vice President Ruelos. The simple ceremonies took place at the old nipa "presidencia" north of the present Municipal Building. The other officials were Justice of the Peace Lucas Gonzalo and Municipal Treasurer Buenaventura B. Gamag.<sup>84</sup>

It is interesting to know that the Municipality of Ballesteros was a political offspring of two old municipalities of Cagayan: Abulug founded on June 15, 1596;<sup>85</sup> and Aparri established on May 11, 1680.<sup>86</sup> It was named after Rev. Doctor Gregorio Ballesteros who was born in 1833 and died on November 4, 1893.<sup>87</sup> Strange as it may seem, the man who worked hard for the unification of the original barrios which constituted the Municipality of Ballesteros and wrote the declaration for an independent municipality in English was ignored for the most coveted position of First Municipal President. To make matters more embarrassing, he was twice repudiated at the polls for the office of the chief executive of the town. He was not as good as he was intelligent when it came to partisan politics. The fact was that he was a "stranger" and thus lacking the personal appeal of a native son who made good. Now that he is in the secure side of life, it is more pleasant for us to assert that he was a leader with the interests of the masses at his heart. The man was no other than the late Maestro Valeriano Alam-

<sup>82</sup> William Cameron Forbes was Secretary of Commerce and Police in the Philippines (1904-1908). He became Governor-General on November 11, 1909, and was known as a builder. He wrote a history of the Philippines entitled *The Philippine Islands*, Boston and New York, Houghton Mifflin Co., 1928, 2 vols.

<sup>83</sup> One of the Spanish documents furnished the writer by Don Bonifacio Cortes.

<sup>84</sup> According to Tomas Castillet in a personal statement to the writer on May 18, 1953, the first Sanitary Inspector of Ballesteros was Angel Victoria.

<sup>85</sup> The name "Abulug" was formerly "Tular". See *Historia de Cagayan* by Fr. Julian Malumbres, already cited, p. 362 and p. 445.

<sup>86</sup> Aparri derived its name, according to Don Pastor Macanaya, from the Vizcayan word "aparri" meaning "cenar", to sup. Fr. Julian Malumbres. *Historia de Cagayan*, *op. cit.*, p. 400, Footnote No. 1, and p. 448.

<sup>87</sup> Manuel Artigas y Cuerva. *Galeria de Filipinos Ilustres*, Imprenta de Gabino A. Pobre, 1918, p. 118.

bat. Local history, correctly interpreted and purified of prejudices, will vindicate his name.<sup>88</sup>

The Municipal Government of Ballesteros began to function officially immediately after its inauguration on January 2, 1912, until October 15, 1912, when the municipal officials were elected by secret ballot. Within such a brief period the administration of President Jacinto Unite with much enthusiasm and civic pride of the people was able to lay the foundation of the new municipality. The Municipal Council re-named the seat of the Municipal Government of Ballesteros into Centro, it being centrally located in the north central part of the municipality. It comprised the area formerly covered by Santa Cruz of Abulug and the western portion of the old Santa Cruz of Aparri. Resolution No. 2, passed on January 3, 1912, concerned the writing of the biography of Reverend Doctor Gregorio Ballesteros. One of the first acts of the Municipal Council was the naming of the original barrios after some of the heroes: Rizal for Cabuloan, Luna for Cabaritan East, Mabini for Cabaritan West, Burgos for Ammuboan, and Zamora for Palloc.<sup>89</sup> The proposition seemed a bit of patriotic flapdoodle but it was only the policy of conserving old names of historical places that hindered the idea from being realized.

The persons responsible for the establishment of the Municipality of Ballesteros like Governor-General Forbes, Speaker Osmeña, Governor Masigan, and Representatives Concepcion and Fonacier of Cagayan were honored by naming the principal streets of the town after them. Rizal, Luna, Mabini, Burgos, Gomez and Zamora were also remembered. Even Washington was not forgotten. Streets were also named *Nacionalista*, the political party then in power; *Junta Provincial*, the Provincial Board which gave name to the new municipality; and *Concejo*, the First Municipal Council of Ballesteros. The grateful people of Ballesteros, through the Municipal Council in its Resolution No. 53, approved on February 15, 1912, designated April 26 of every year as a day of festivity to commemorate the historical visit of Governor-General William Cameron Forbes to whom was submitted the last appeal for independent municipality.<sup>90</sup>

<sup>88</sup> On May 19, 1953, Messrs. Jose Alambat and Vicente Alambat made available to the writer the documents and papers of their late father. Valeriano Alambat was born on February 21, 1874, in San Vicente, Ilocos Sur, the son of Simon Alambat and Angela Rivera. He studied Spanish and Latin at the *Distrito Universitario de Manila* under the University of Santo Tomas and finished the course on June 20, 1890. Graduated from the *Escuela Normal de Maestros de Manila* on June 5, 1894, he was appointed "public teacher" in Narvacan, Ilocos Sur, in October, 1894. At the start of the Philippine Revolution he moved to Cagayan staying first at Centro, Aparri, and then transferred to Santa Cruz. He established a private school and taught Spanish, Latin and English. On August 2, 1902, he was appointed teacher at Centro, Aparri, by W. W. Rodwell, Division Superintendent of Schools for Cagayan and Isabela. Again in November 23, 1902, Acting General Superintendent of Education Frank B. White offered him the position as teacher in the Bureau of Education at monthly salary of \$25. in gold. Valeriano Alambat preferred the assignment as Insular teacher at Santa Cruz, Abulug, given him by Superintendent of Schools H. F. Bard, effective January 1, 1904.

<sup>89</sup> See Resolution No. 43, passed on February 1, 1912.

<sup>90</sup> *Datos Historicos del Municipio de Ballesteros, Provincia de Cagayan de Luzon, I.F., Requeridos por la Orden Ejecutiva No. 2, Serie de 1911, del Hon. Gobernador General, Reproducida por la Orden Ejecutiva No. 69, Serie de 1911, del Mismo. p. 2, 3.*

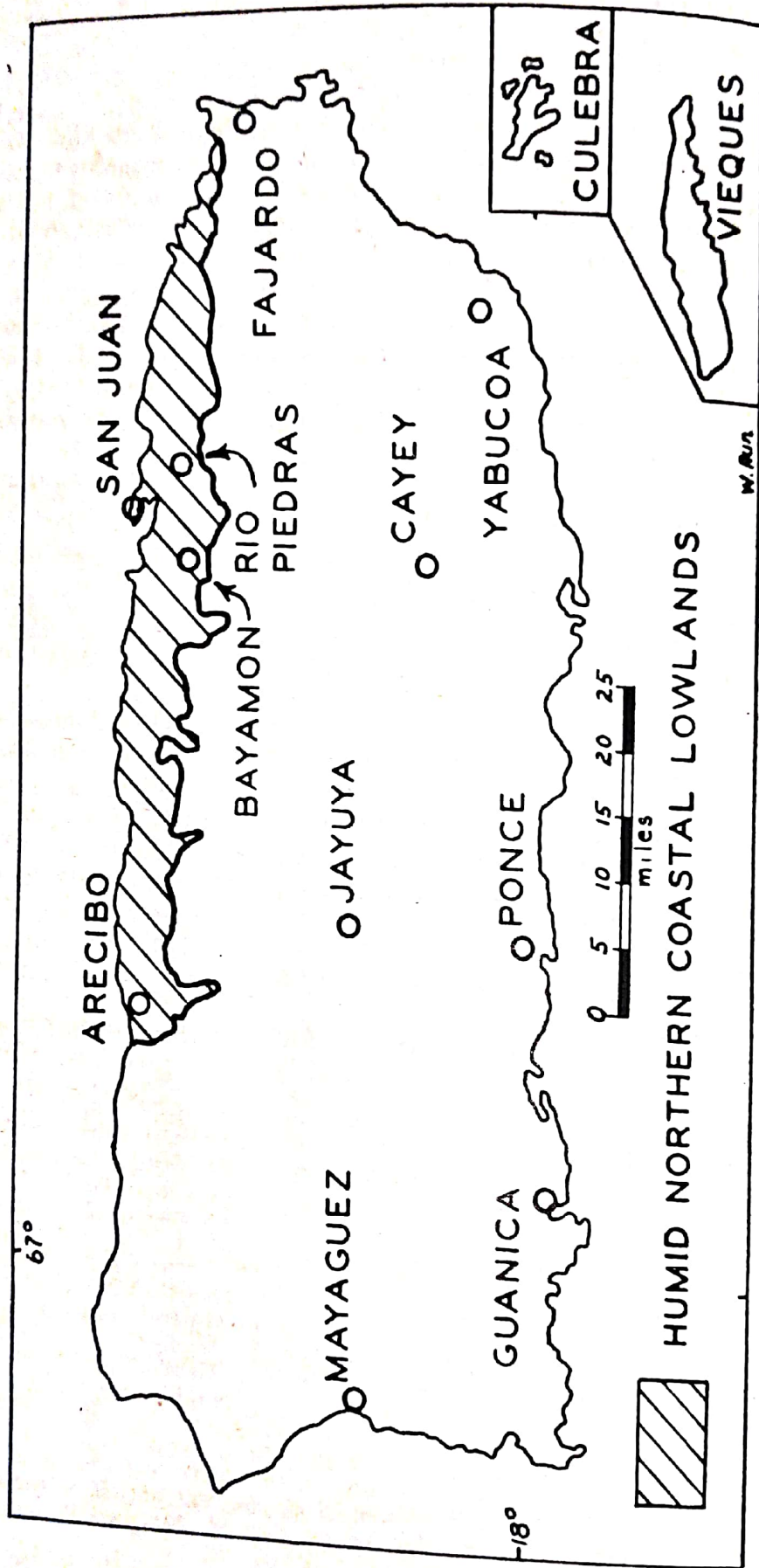


FIG. 1. Island of Puerto Rico showing location of the Humid Northern Coastal Lowlands. Based on Rafael Pico, "The Geographic Regions of Puerto Rico," University of Puerto Rico Press, Rio Piedras, 1950.

## CLIMATE AND DAIRYING IN THE SAN JUAN AREA OF PUERTO RICO

Wallace E. Akin<sup>1</sup>

THE dairy industry of the island of Puerto Rico is second only to sugar cane as a source of agricultural income. Successful operation of this traditionally middle latitude industry has necessitated some adjustment to the natural environment, primarily as a result of the direct and indirect aspects of climate.

The tropical climate usually is given as one of the major factors in accounting for the low milk production in Puerto Rico. However, the way in which climate influences milk production is seldom analyzed. Most investigators have merely referred to the detrimental effects of the "tropical" climate without recognizing that there are a number of climates associated with the tropical zones of the earth.<sup>2</sup>

In considering the relationship between the climatic environment and the dairy industry, the direct effect of the climate on the dairy cattle as milk producing organisms will be distinguished where possible from the indirect effect of the climate operating through other environmental ramifications. For this study, the humid north coast of Puerto Rico near the city of San Juan has been selected (Fig. 1). This is the major area of milk production in Puerto Rico.

Conclusions drawn here about the suitability of the Puerto Rican climate for the dairy industry should be applied with caution to other areas in the tropics. However, it is encouraging to find indications that dairying under some tropical conditions may be very successful. Also it should be recognized that many factors other than climate, both physical, cultural, and economic contribute to the success or failure of dairying within an area.

### *The Physical Environment*

Topographically, the north coastal lowlands are well suited to dairying. Much of the area within which the dairy farms are located is level to rolling. In several relatively broad river valleys which penetrate the northern belt of foot-hills, dairying is important. Near the urban area dairy farms may occupy the best sugar cane soils, but much of the pasture and forage land is located on areas subject to intermittent flooding during periods of heavy rainfall. Although these lowlying areas are not well suited to sugar cane, they are ideal for natural grass pastures.

Water supply is abundant and dependable. Many streams, crossing the area from the highlands to the south, supply adequate surface supplies

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<sup>1</sup>From January to June, 1951, the writer was employed as a field team chief in the Rural Land Classification Program for Puerto Rico. This program was under the direction of the Insular Department of Agriculture and Commerce and the Department of Geography, Northwestern University. During this period, a special study was made of the dairy industry of the San Juan area and this was the subject for the writer's Ph. D. dissertation at Northwestern University.

<sup>2</sup>The term "tropical" as here used is applied to all areas of the earth between the Tropics of Cancer and Capricorn. Some writers have applied the term "sub-tropical" to the climate of Puerto Rico, although this is not accepted by most geographers.

PREC. IN  
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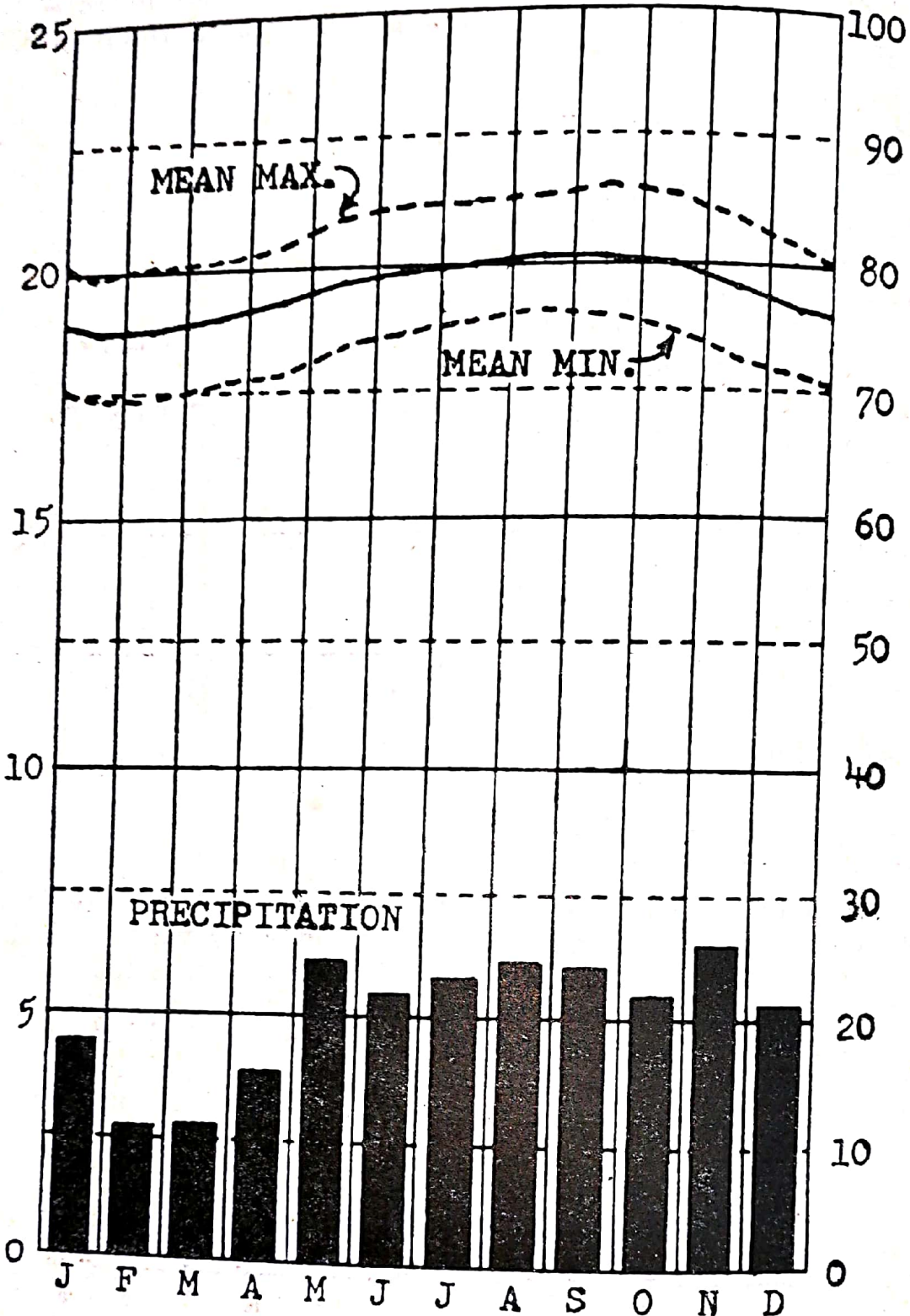


FIG. 2. Climatic chart for San Juan, Puerto Rico. Based on official records.



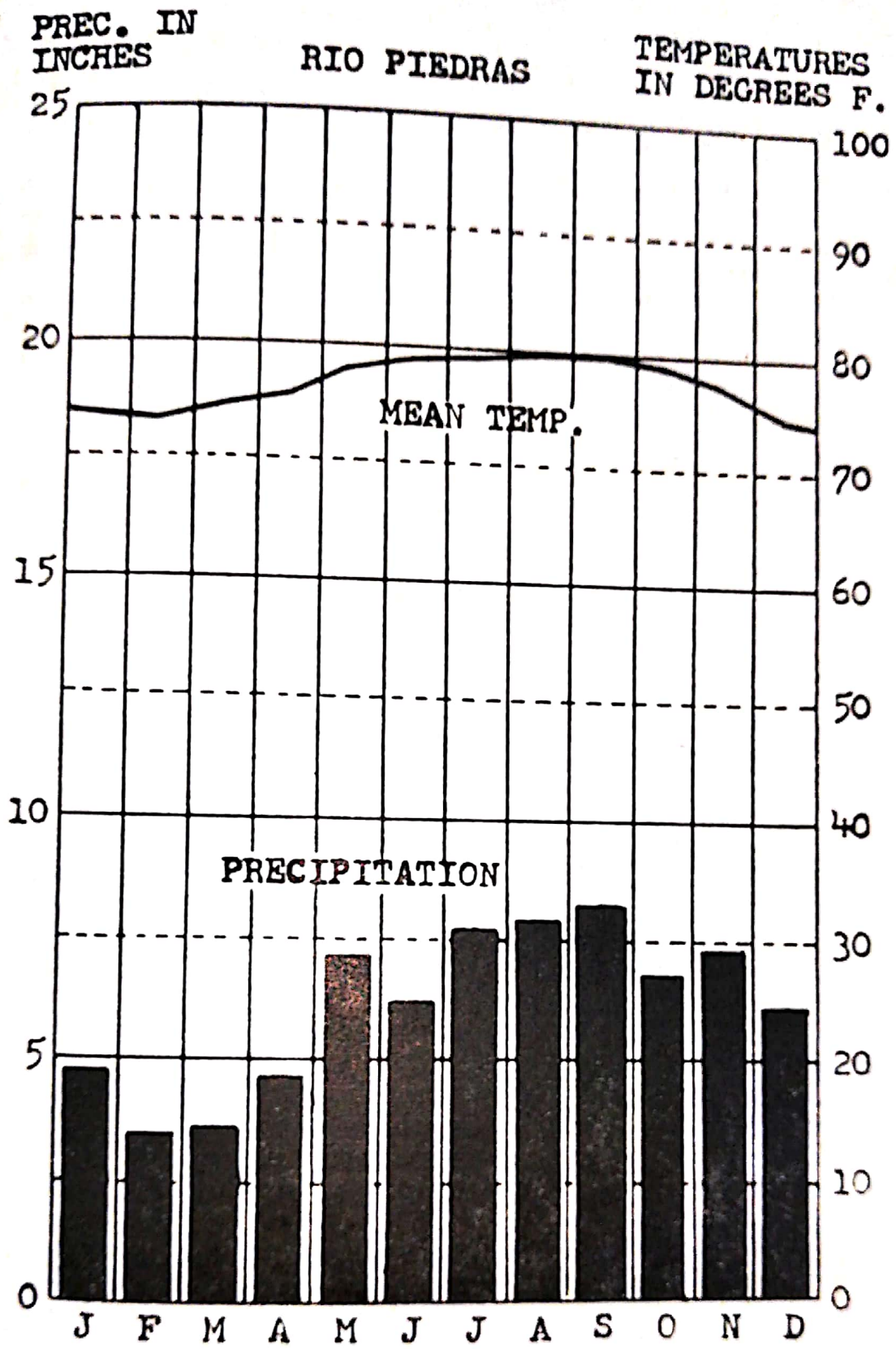


FIG. 3. Climatic chart for Rio Piedras, in the heart of the dairy area of the north coast of Puerto Rico. Based on official records.

of drinking water for many herds. Because of the high ground water table, wells are easily constructed and a constant supply of water is assured. Many farms near the urban areas make use of public water supplies which are piped from reservoirs to the south.

Although tropical temperatures prevail throughout the San Juan area, they are not excessively high. In general, temperatures average between 70 and 80 degrees Fahrenheit, and daily maxima seldom exceed 85 degrees except in the warmest months (Fig. 2 and 3).<sup>3</sup> The temperature effects are further minimized by the prevailing winds which blow throughout most of the year from the north, northeast and east. At San Juan these trade winds average from 11 to 13 m.p.h. for all months except September, October, and November when the velocity decreases to 9.5, 8.2 and 9.7 m.p.h. respectively.<sup>4</sup>

Rainfall is everywhere more than 60 inches in the San Juan area with no month being excessively dry. Rio Piedras, in the heart of the dairy area, has an annual mean of 77.1 inches; all months except January, February, March and April receive more than five inches of precipitation, and no month receives an average of less than three inches (Fig. 2 & 3).

Adequate, well distributed rainfall is favorable for dairying because it assures green pastures and forage crops throughout the year. The continued availability of green forage in all seasons is evidenced by the lack of silos or other means of storing feed. The drier season during the winter months does reduce the carrying capacity of natural and planted pastures but, in general, it does not greatly affect the harvested forage crops. Also, as the sugar cane cutting season coincides with the dry season, there is an abundant supply of cane tops (*cogollo de caña*) to supplement the pastures.

#### *Direct Climatic Effects*

In considering the direct effects of climate on the milk production and health of the insular dairy cattle, only high-grade herds have been selected. This is necessary since average milk production of Puerto Rican cattle is very low due to poor stock. If statistics for all the cattle of the island were compared with those for high grade cattle of the middle latitude dairy regions, the results would be misleading. Most of the statistics on which this study is based are from herds of the Dairy Herd Improvement Association of Puerto Rico, the Agricultural Experiment Stations at Rio Piedras and Mayaguez, the PRACO (Puerto Rico Agricultural Company) herd, and herds which were studied by the writer in 1951. The cattle comprising these herds are generally of fair to excellent quality and comparison with similar stock on the continent has some degree of validity.

*Findings in other Tropical Areas.* — Most investigators studying the adaptability of northern dairy breeds to the tropics have concluded that the climatic factors are of major importance in the reduction of quality in the breeds. Hammond, as reported by Howe<sup>5</sup>, suggests that northern

<sup>3</sup>Economic Development Administration, *Annual Book of Statistics of Puerto Rico* (San Juan: Gov't. of P. R., 1949-1950), Table 76, pp. 84-85.

<sup>4</sup>U. S. Weather Bureau, *Local Climatological Summary for San Juan, P. R. 1951* (Chattanooga, 1951).

<sup>5</sup>J. W. Howe, "Effects of Varying Amounts of Zebu Blood on the Adaptability of Dairy Cattle to Conditions in Jamaica", *Tropical Agriculture*, XXVI (1949), p. 33, citing J. Hammond, *Problems of Tropical Dairying*, Conference Papers, International Dairy Congress (9th), (Copenhagen, 1931)

breeds raised under tropical conditions in Jamaica undergo degenerative changes.

Howe is of the opinion that the high atmospheric temperatures combined with the high rainfall prevent northern breeds from thriving in Jamaica. He reports that calves born in the tropics show a lack of growth and development even on a high plain of nutrition.

*Milk Production in Puerto Rico.*—The findings in other tropical areas are not entirely paralleled by the records of the better herds of Puerto Rico. These herds are almost exclusively composed of northern breeds (Fig. 4). On 23 farms in the San Juan area with a total of 2,446 milk cows, 90 per cent were grade Holsteins, 6.1 per cent registered Holsteins, 3 per cent Guerneys, and .2 per cent Brown Swiss. From a total of 50 bulls, 84 per cent were thoroughbred Holsteins, 8 per cent were registered Guernseys, 2 per cent registered Brown Swiss, and 6 per cent grade Holsteins.<sup>6</sup>

During 1945, the average production per cow of the Dairy Herd Improvement Association of Puerto Rico was 5,900 pounds.<sup>7</sup> This compares favorably with 5,292 pounds per cow for the continental United States but is lower than the State of Wisconsin's average of 6,770 pounds per head.<sup>8</sup> Cows of the Dairy Herd Improvement Association of the continental United States averaged 8,296 pounds in 1944.<sup>9</sup>

Although the average for the better insular herds is exceeded by the better continental herds, several individual herds have excellent records. In 1945, one insular herd, composed of imported cows, produced 11,296 pounds of milk per head, another averaged 9,624 pounds, and one 7,323 pounds. None of the Association herds averaged less than 4,000 pounds per cow.<sup>10</sup>

Table 1 gives the breakdown of production for 637 cows of the insular Dairy Herd Improvement Association. These production records indicate that about 44 per cent of these selected insular cattle produced more than the continental average and 28 per cent bettered the Wisconsin average.

The production of well managed Puerto-Rican herds contrasts with herd records in other areas of the Caribbean. Harrison, reporting on a group of 12 purebred Holsteins in Trinidad, found the annual average per cow to be only 2,091 pounds.<sup>11</sup> The good production records of some of the well-managed Puerto Rican herds seem to indicate that the direct climatic effects on milk production, particularly on the north coast, have probably been overemphasized as a factor in low milk production.

<sup>6</sup>Farm interviews by the writer, June, 1951.

<sup>7</sup>Carlos Gastambide Arrillaga and Antonio Sifuentes, "Informe Anual de la Asociacion para el Mejoramiento de los Hatos Lecheros", (Mimeographed) Agosto de 1947, Rio Piedras, p. 1.

<sup>8</sup>Emery C. Wilcox, *Transportation of Wisconsin Milk—Farm to Market*, Wisconsin State Department of Agriculture, Bul. 308, July-August, 1951, p. 8.

<sup>9</sup>M. H. Fohrman, "Breeding Better Cows", *Science in Farming*, Year Book of Agriculture, 1943-47, p. 169.

<sup>10</sup>Gastambide A., *op. cit.*

<sup>11</sup>E. Harrison, "The Breeding and Artificial Insemination of Dairy Cows in Trinidad, B. W. I.", *Tropical Agriculture*, XXI (1944), pp. 3-7.

TABLE 1\*

*Annual Production of 637 Cows of the Puerto Rican D.H.I.A.*

<i>Annual Production in Pounds</i>	<i>Number of Cows</i>	<i>Percentage of Total</i>
2,000- 3,000 .....	3 .....	.4
3,000- 4,000 .....	68 .....	10.6
4,000- 5,000 .....	182 .....	29.0
5,000- 6,000 .....	128 .....	20.0
6,000- 7,000 .....	133 .....	21.0
7,000- 8,000 .....	57 .....	9.0
8,000- 9,000 .....	34 .....	5.0
9,000-10,000 .....	16 .....	2.5
10,000-11,000 .....	9 .....	1.5
11,000-12,000 .....	2 .....	.3
12,000-13,000 .....	3 .....	.4
13,000-15,000 .....	0 .....	0.0
Over 15,000 .....	2 .....	.3
<b>Total</b> .....	<b>637</b> .....	<b>100.0</b>

\*Source: C. Gastambide A. and A. Sifuentes, "Informe Anual de la Asociación para el Mejoramiento de los Hatos Lecheros", (Mimeographed) Agosto de 1947, Rio Piedras, p. 1.

*Climate and Physical Development of Dairy Cattle.* — The direct effect of climate on growth can also be studied in Puerto Rico. In general, insular calves of dairy stock do not grow as rapidly as calves of the same breed in the continental United States. Although this is often attributed to direct climatic effects, there is some indication that it may be due primarily to parasites and other infections, poor nutrition, lack of proper attention, and poor heredity.<sup>12</sup>

Growth records have been kept for several generations of Guernseys at the College of Agriculture and Mechanical Arts at Mayaguez. Although Mayaguez is located on the western end of the island and is not part of the humid north coast, climate is similar in many respects to that of the San Juan area.

The Guernsey herd at the College is carefully managed, the calves are protected as far as possible from infection, and nutrition is at a high level. Growth records for this herd in the period 1936-49 show an increase in the average weight and height of subsequent generations, until in the fifth generation there was no significant difference between the averages for insular and continental animals at two years of age (Table 2). This increase, according to Basherov, is probably the result of heredity rather than natural selection or adjustment to the climate.

Again, the indication is that with proper management under these environmental conditions, the growth of insular calves should not differ markedly from that of the same breed in middle latitudes. The variation from the norm of the third, fourth and fifth generations at the College are too small to be significant.

The records of the College herd also indicate that with proper management the length of life and productivity, calf mortality, and fertility

<sup>12</sup>S. Basherov, "Adaptación y Mejoramiento del Ganado en Puerto Rico," *Revista de Agricultura de Puerto Rico*, Vol. XLI (1950), p. 64.

of insular herds should compare favorably with continental herds. Although certain adjustments must be made and precautions must be taken to protect the calves from infections, especially parasites, there is little to indicate that the climate of the more humid parts of the island is in itself detrimental to the animals.

TABLE 2\*

The Size of Successive Generations of Guernseys at the Age of Two Years Compared with the Normal for the Continental United States

Native Generation	Number of Calves	Average Weight Pounds	Per Cent of Normal	Average Height Inches	Per Cent of Normal
1st	4	684	83.6		
2nd	13	678	82.9	47.0	97.9
3rd	22	759	92.8	47.1	98.1
4th	28	753	92.1	48.4	100.8
5th	10	813	99.4	49.0	102.1
				49.8	103.8

\*Source: S. Basherov, "Adaptación y Mejoramiento del Ganado en Puerto Rico," *Revista de Agricultura de Puerto Rico*, Vol. XLI (1950), p. 64.

### The Indirect Effects of Climate

Besides the direct effect of high temperatures, rainfall and humidity, climate may affect dairy cattle less directly through disease, soils, forage crops and pasture grasses which may be closely associated with climatic conditions. Climate is also an important factor in the cost of shelter for the cattle, seasonal fluctuation in milk production, and marketing of milk. Generally, only the detrimental aspects of the tropical environment have been considered by some investigators. However, as will be shown here, some aspects of the climate are actually favorable to the dairy industry.

*Disease.*—The most prevalent diseases of cattle that are encountered in the order of importance are intestinal parasites, Brucellosis, mastites and foot-rot. Brucellosis and mastites are prevalent in the continental dairy areas where the rate of infection for Brucellosis is usually higher than in insular herds. Intestinal parasites are particularly harmful to the calves, and are prevalent in the humid sections of the island in the rainy season. Infection by intestinal parasites can usually be controlled by keeping the calves in clean feeding pens and by maintaining a high level of sanitation in the dairy establishment.<sup>13</sup> Foot-rot results from grazing on poorly drained pastures during the wet season and can be controlled by keeping the cattle in well drained pastures and feeding pens.

Two other diseases which are confined to warm climates are *piroplasmiasis* or Texas Fever and *anaplasmosis*. These diseases are transmitted by ticks and their control necessitates a continuous program of livestock dipping. Such a program is operative in Puerto Rico and the incidence of these diseases is now very small. However, the dairymen complain that dipping results in decreased milk production because of the emotional effect on the cattle.

*Forage Crops.*—The forage crops that can be successfully grown in Puerto Rico are limited by climatic and soil conditions. Although numerous species of native and exotic grasses and forage plants are grown on the island, unfortunately their nutritional value is low when

<sup>13</sup> César Clavell, "La Protección de los Vacunos Lecheros contra los Parasitos y Enfermedades," *Revista de Agricultura de Puerto Rico*, Vol. XLI (1950), p. 151.

compared to forage grasses and plants of the mid-latitude dairy regions (Fig. 5 & 6). The most important grasses on the north coast are Merker (*Pennisetum purpureum*, var. Merkeri), Malojillo (*Panicum purpuracens*) and Malojilla (*Eriochloa polystachya*). Merker is cut and fed green after chopping, while Malojillo and Malojilla are grazed or cut.

Particularly detrimental has been the lack of a good pasture legume for the island. Most of the native legumes are trees and shrubs and are not suited for pastures. Imported plants have not prospered and, as a result, the forage crops have been low in protein.

The recent introduction of tropical kudzu (*Pueraria phaseoloides*) and its subsequent success under island conditions seems to be an answer to the need for a legume. This exotic plant is well adapted to the 60 to 100-inch rainfall belt of the island where it does well in the acid soils. In combination with molasses grass (*Melinis minutiflora*) it has been able to support one cow per acre on eroded, reddish clay upland soils.<sup>14</sup>

As a result of the generally low nutritional value of insular forage crops, large quantities of expensive concentrates must be imported. This factor makes the cost of milk production high and places the price of fresh milk beyond the reach of a majority of Puerto Ricans.

*Seasonal Fluctuation of Milk Supply.*—Seasonal fluctuation of milk supply on the island is largely the result of fluctuations in rainfall. During the winter period, when the pastures are dry and forage is limited, milk production reaches its lowest point. Very marked in the drier parts of the island, this fluctuation is much less on the north coast where the dry season is not severe.

In the San Juan area the lack of a completely dry season assures green forage throughout most years and if sufficient supplies of concentrates are available, production can be maintained at a high level. The lack of a severe season permits the even spacing of calves to assure a maximum number of cows in production at all times. On well managed farms the production should vary only 2 to 3 per cent from month to month as indicated by the record of a wellmanaged farm on the north coast (Table 3).

TABLE 3\*  
Milk Production on a Well Managed Dairy Farm  
in the San Juan Area  
1950

Month	Daily Production in Quarts
January	1,024
February	1,081
March	1,093
April	1,013
May	1,092
June	1,144
July	1,068
August	1,021
September	1,057
October	1,039
November	1,020
December	1,092

\* Source: Farm interview schedule, June, 1951

<sup>14</sup> R. M. Smith and J. V. Chandler, "Tropical Kudzu Moves into Puerto Rico," *Crops and Soils*, Vol. III (1951), reprint.

*The Dairy Farmstead.*—The functional units of a Puerto Rican dairy farm are also adapted to the climate of the area. In contrast to the large, high-roofed barn of the northern United States with its silos and hayloft, the Puerto Rican dairy barn is a simple structure. It consists of a roof of sheet iron supported by wooden or concrete posts over a concrete floor provided with adequate drains to permit easy cleaning. (Fig. 7 & 8.) The mild climate permits the barn to be completely open on the sides, thus assuring good cross ventilation. Although silos are seldom found at present on the north coast dairy farms, experiments have indicated that they may be desirable even though green forage is always available. It has been demonstrated that the nutritional value of the grass quickly declines after the peak is reached. Silos would permit the cutting and storing of the grass at the peak of its nutritional content.

*Carrying Capacity of the Land.*—The year-round production of forage crops combined with the productive soils of the coastal lowlands results in a highly intensified dairy industry. For all the farms on which interviews were taken, the ratio of cattle to the total land in dairy farms is .8 head per acre, or 1.2 acres of land per head of dairy cattle. In comparison, the most intensive portion of the Wisconsin dairy area in the southeastern part of the state averages about 7 acres per cow of total land in dairy farms.<sup>15</sup> However, this comparison is very rough at best since there is more diversification on the Wisconsin farms and the total productivity of the land is less directly oriented to the maintenance of the herds.

Some of the small farms in the vicinity of the San Juan urban area where land values are high show a much greater intensity of land use. One farm in the *barrio* of Monacillo, Rio Piedras, has 78 head of cattle on 14 acres. Of the 14 acres, 4 are in buildings and exercise yards and the remainder is in Merker grass. By heavy fertilization of the harvested forage grass, liberal feeding of concentrates, and supplemental feeding of cane tops during the dry season, the owner is able to support more than 5 head per acre. His herd consists of 60 milk cows, 10 heifers, 1 bull, 4 oxen and 3 calves.

*Climate and the Marketing of Milk.*—The handling of milk at the farms, in the pasteurizing plants, and in the retail establishments presents no more of a problem than is encountered in the continental United States in the summer. Modern refrigeration at the farm and in trucks and milk stands make possible the delivery of milk to the customer in excellent condition.

On the other hand, many of the potential customers do not have refrigerators, especially in the rural areas, small towns, and in the poorer districts of the cities. Because of the difficulty of keeping fresh milk in many homes, imported powdered milk is widely used. Studies are now being carried out to determine the feasibility of establishing a plant to supply part of the demand for milk products, now almost all imported. It is realized that if present plans to expand the insular production of milk are to be successful, a market must be assured to absorb the increase in production.

#### *Development of a Specialized Dairy Breed for the Tropics*

The recent development of the Santa Gertrudis beef cattle in a short period of only 22 years from the original Zebu-shorthorn cross has given

<sup>15</sup> Wilcox, *op. cit.*, p. 8.

hope to tropical dairymen that a tropical dairy breed might be developed in a comparable time. Although, with proper management the northern breeds seem to do well in the more favorable parts of Puerto Rico, great areas of poorer pastures in the highlands and on the dry south coast would benefit greatly.

Cross-breeding of northern with Indian and creole stock is not new to Puerto Rico, but systematic attempts to derive a special breed for the island are of recent origin. The Agricultural Experiment Station at Rio Piedras is experimenting with Holstein-native crosses and with native-Brown Swiss crosses. The Puerto Rican Agricultural Company farm, near Bayamon, has embarked on a program of Brown Swiss-Brahma crossing. The animals that have resulted from the first cross are excellent in appearance, resistant to foot infections during wet weather, and some have good production records. However, the cross shows some undesirable qualities in that they tend to be high-strung and nervous and some individuals have a very short lactation period. These are traits of the Brahma breed and it is expected that they will be less noticeable in future generations as the proportion of Brown Swiss blood is increased.<sup>16</sup>

Although the development of new milk breeds, well adapted to even the more severe tropical climates, seems to hold promise for the future, it is at best a long range plan. The immediate future can probably best be served by the up-grading of the present creole and northern dairy stock. The large milk producers have been doing this systematically for a long time by the use of high-quality imported sires, but the cost prevents the small commercial producer and the subsistence producer from similar practice. Artificial insemination is one answer to this problem and the Insular Government has taken the initial steps to establish a program on the island. The improvement and increase in the number of subsistence herds coupled with an increase in carrying capacity of the poor upland pastures would be a major step toward an improvement in the dietary levels of the rural population.

#### *Conclusions*

Climatic influences on the dairy industry of the humid north coast of Puerto Rico may be both favorable and detrimental. Favorable factors include; (1) year-round production of green forage; (2) even spacing of the calves to assure a remarkably even production of milk in well managed herds; and (3) simplification of barn construction with the elimination of large storage space for hay and ensilage, and minimum protection from weather. Unfavorable factors include (1) diseases such as anaplasmosis and piroplasmosis; intestinal parasites and foot-rot which are prevalent under tropical conditions; and (2) the low nutritional value of most forage crops which are suited to the environment.

The direct effect of climate is still uncertain in the San Juan area of Puerto Rico, but it seems probable that it is less than has been supposed. Records of some insular herds indicate that with good stock and proper management, milk production comparable to the best continental herds may be achieved. However, it should not be assumed that the same conclusions would necessarily apply to areas of the tropics where climatic conditions are more severe. Careful studies are needed to determine the actual effect of temperature and humidity on the functions of the dairy animals and to determine their critical values in order to establish what areas of the tropics might lend themselves to the development of a dairy industry.

<sup>16</sup> Interview with Mr. S. Usera, PRACO Farm, Bayamon, P.R., May 3, 1951.





FIG. 4. *Grade Holstein dairy herd on natural grass pastures in the coastal lowlands of the north coast of Puerto Rico. Near Rio Piedras.*



FIG. 5. *A load of Merker grass being taken to the dairy barn on a farm in Sabana Llana, Rio Piedras.*



FIG. 6. Extensive pastures on poorly drained alluvial soils east of Rio Piedras. The grass is Para and Carib. Note the bamboo clusters that furnish excellent shade for the dairy cattle.

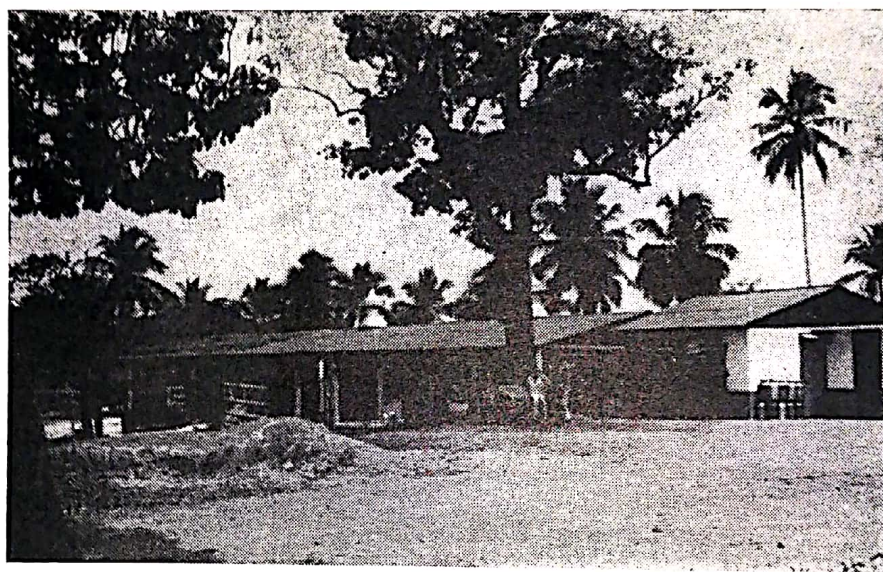


FIG. 7. A modern dairy establishment near Rio Piedras. Note the long, low dairy barn and milk house which is equipped with refrigeration.



FIG. 8. Interior of a clean, well kept dairy barn near Rio Piedras. This is the barn in Fig. 7.

## NOTES ON SULU ARCHIPELAGO, PARTICULARLY JOLO ISLAND

Juan A. Mariano  
*Soil Technologist, Bureau of Soil Conservation*

THE Sulu Archipelago includes a host of small islands extending from Borneo to Mindanao, which are said to be situated upon the summit of a submarine bank. The largest islands in the group are Jolo and Tawitawi with areas of 82,688 and 56,576 hectares, respectively. The island of Jolo was formerly called *Sooloo* while the town of Jolo, the present capital of the province, was originally called *Suug*.<sup>1</sup> Jolo town lies on the northern side of the island. Behind it the *Tu-mantangis* (which means "crying") mountain rises to a height of 2,700 feet; before it lies a calm sea studded here and there by numerous small islands that appear like pointed peaks of submerged mountains. Probably no other town in the country has a more interesting history than Jolo. When Zamboanga was a mere convict colony, and Cebu, Iloilo, and Manila were mere settlements, Jolo was already one of the most important cities in the Far East, the seat of the government of a powerful sultan.

The Papuans were said to be its first inhabitants, but they were driven off into the mountains by the Bandjarmasin Sumatrans.

At one time Jolo was the Mecca of the Far East. This happened after the death of Sayed Ali, a famous Sultan of Sulu, for whom a tomb was built, which became the object of pilgrimage among the Mohammedan faithful, which continued until the Spaniards destroyed it.

Jolo Island is one of the thickly populated islands in the Philippines, with the Moro tribes called Joloanos, Samals, and Bajaus predominating. It is probably among the Moros of this region where one can find pure specimens of the old Malayan blood.

The Joloanos are mostly found in the Jolo and Siasi groups of islands. They are more powerful than the other two tribes and are known locally as *Tausug*, or people of *Suug*, the ancient name of Jolo. The great majority of the Joloanos are farmers, although a big number of them are engaged in fishing.

The Samals are a sea-faring tribe, much more so than the Joloanos. They are rarely found in the interior part of the island but instead they live in small settlements along the sea. Their houses are supported by high posts standing upright above the water giving the visitor the impression that they are nestling precariously on stilts. They were the latest to immigrate into the country, arriving in their *vintas*, which, to many Samal families, are still their homes. At present they numerically predominate in many places, especially in Zamboanga and Tawitawi. They are also found in large number in Tapul and Siasi Islands. Some of them have reached as far as Davao Province, where Samal Island obviously has been so named because of their presence. They are great fishermen and excellent divers, and are being employed as such in the pearl-shell fishing of Sulu. They are said to be skillful builders of *vintas*.

The Bajaus are a subtribe of Samals, and are oftentimes called Samals. Their culture, however, is inferior to that of the Samals. They often change their place of abode depending upon the prevailing winds. When the southwest monsoon is blowing they move away from the

<sup>1</sup> C. C. Golez, *Southern Mindanao and Sulu*. Iloilo: Imprenta La Defensa, 1937.

rough portion of the sea and do the same thing when the northeast monsoon comes. They are expert fishermen. The pearl-shells, trepang, and shark fins which they gather are sold in the local market or bartered for cassava roots, rice, and clothes.

*Physiography and Geology.* Jolo Island presents a peculiar and pleasing topography with "its long, gentle slopes and beautiful curves". The mountains are low for the most part, the highest having an elevation of only 2,700 feet.<sup>2</sup> There are many of these more or less isolated cones of worn-down stocks "having the shapes of saucers turned bottom up with a decided sag in the bottom."

One of the most prominent of these hills (hill may be more appropriate than mountain) is Bud-Datu near Jolo, which is also the most interesting from the historical standpoint. This small mount was the burial place of the famous datus in the past. From the summit of this mount one can see around him the vista of Jolo's finest scenery.

All of these hills are partially wooded, which is an unmistakable sign of previous thorough deforestation. The greater part of the island has long stretches of cogonals, with cleared patches here and there cultivated by the Moro. Some areas have *parang* forest with *binayuyo* and teak trees.

A few of the islets are atolls, most of which have only small shallow depressions in the center, due either to elevation or to filling of the basins, or to both. An atoll, by the way, is a coral island, consisting of a belt of coral reef surrounding a central lagoon. Atolls are not common in the Philippines.

*Climate.* The climate of Jolo Island, and the whole Sulu Archipelago for that matter, is very pleasant. The mean annual rainfall of 1,967 millimeters (77.4 inches) is evenly distributed throughout the year. At Jolo the mean annual temperature is 79.8° F (26.6° C.), which is lower than in most places in the Philippines. Typhoons pass far north of the Archipelago. Because of this distribution of rainfall the island is rich in verdure all the year round.

*Agriculture.* Sulu Province has a total area of 280,238 hectares, of which 203,440 have been declared agricultural.<sup>3</sup> It has been estimated that over 50 per cent of the agricultural lands has been under some sort of cultivation. This is very much higher than in any of the Mindanao provinces from the standpoint of the ratio of the cultivated area to the total agricultural land. One of the reasons for this large area of cultivated land is the abundance of roads in Jolo Island and the large population of the Province, which has 86 persons per square kilometer. Jolo Island has 139 persons per square kilometer. Jolo Island is crisscrossed with roads making all the agricultural areas accessible.

Abaca, rice, coconut, corn, root crops, fruits, and vegetables comprise the agricultural crops. Tobacco, cacao, and coffee are also produced. The most important money crops are abaca, coconut, and rice. The people of Jolo claim that their abaca (locally known as *Lanut puti*) is more durable than those of Davao or Cotabato hence the buyers are willing to pay higher prices for Jolo abaca.

The root crops consist of cassava, sweet potatoes, peanuts, gabi, and ubi. Cassava is widely grown and is usually made into *poi* (cassava dough), which is used for food. One often finds in the market *poi* wrapped in banana leaves in cubes of 6 to 7 inches square and about

<sup>2</sup> Elevation was obtained from Coast and Geodetic Survey topographic maps.

<sup>3</sup> *Ibid.*

2 inches thick. Before the war, starch used to be manufactured from cassava in Jolo Island.

Fruits of many and interesting varieties are found in Jolo. Lango, nangka, juani, bauno, marang, durian, rambutan, chico, and mangoes, are the most extensively cultivated and have the highest money value. The most interesting fruit found in Jolo is the delicious and highly-prized mangosteen. Jolo Island is the only source of this fruit in the Philippines, and according to the Moros in Jolo, it takes nearly a generation for a mangosteen tree to come into bearing. The durian tree produces fruit after 11 to 12 years. This is the fruit with a peculiar odor but which is a great favorite of the natives and even of newcomers. Durian fruits are produced abundantly in Jolo and always command a high price in the local market.

The soils of Jolo Island appear similar to the volcanic soils of the Bukidnon Plateau, which are also adapted for the growing of a variety of crops. Besides, the island is endowed with an agreeable climate. These two factors — inherently fertile soils and favorable climate — give Jolo Island her great possibilities for agricultural development.

Farm cultivation in Jolo is at best done in narrow patches, seldom extending beyond the nearby surroundings of a farmer's dwelling place. And not far beyond the cultivated patches are wide open areas lying idle. Should abaca and coffee, two important money crops, be planted extensively, the writer believes that Jolo Island would become a vastly more progressive and richer community. Unfortunately, it seems that agriculture does not suit very well the Joloanos and Samals whose natural aptitude is for the pursuit of the more romantic life of the sea.

*Fishery Resources.* The real mine of Sulu Archipelago is the sea, the products of which have made these islands famous for several centuries. Some authorities state that the history of the Sulu fisheries dates back to the early fourteenth century.

For pearl shells, the fisheries of the Sulu Archipelago, favored by natural conditions, are the most prolific and extensive in the Philippines and, for that matter, in the Far East. Mr. Florentino Talavera of the former Bureau of Science said that "pearl-oyster reefs exist from Basilan Strait to Sibutu Passage and cover an area of about 15,000 square miles; and in the most favorable localities throughout this archipelago pearl-oyster thrive abundantly in water ranging from 5 to 30 fathoms. In the deeper waters there are oyster beds that serve as natural nurseries from which millions of tiny pearl oysters are produced and scattered by the swift currents to the surrounding banks where they settle and grow very rapidly. The fertility of the Sulu pearl shell fisheries is unusual and can hardly be surpassed."<sup>4</sup>

The pearl-shell industry of Sulu should be an attractive field for investment. The chief attraction in this industry are the pearls. The shells are also highly priced, being currently sold in Jolo on the average of ₱135.00 per gross picul. The pearlers always hope to pick from the sea bottom the precious gems. Pearls obtained by pearlers, however, are not reported by them so there is no way of knowing how many pearls are collected for a certain period.

Several varieties of shells are picked from the shell beds of Sulu; namely, the gold-lip pearl shell, the black-lip pearl shell, the trocha

<sup>4</sup> Quoted in *Ibid.*

shells of the rough variety, the trocha shells of the smooth variety, and the green snail shells. Tortoise shells are also gathered from the turtle fisheries.

The submarine wealth of Sulu does not consist only of the shell fisheries. Sponge beds of untold value also abound. There are fishing grounds where abundant fish are caught during favorable seasons. The most important of these grounds are located near Sitankai on the southern part of Sulu, around the islands of Jolo and Siasi, and along the reef in the vicinity of Cagayan de Sulu. Sitankai is the most important source of fish supply in this region. Dried fish, shark fins, and trepang are the principal articles in the fish trade of Sulu.

*Industries.* A little brass work is still done in Jolo, a mere carry-over of what was several hundred years ago a highly developed metal industry. Sharp cutting bolos and krisses are made in a few blacksmith shops. The weaving of Moro cloth is also carried on in a limited scale as is also mat weaving. A few of the woven cloths of Moro patterns which are characteristic find their way to Zamboanga, but the supply is most irregular and cannot be depended upon.

There is no lumber industry and the province is dependent on outside sources for lumber.

Mining is likewise nil, although the presence of manganese in Tawitawi has been reported.

*Commerce.* The Sulu Archipelago enjoyed a flourishing commerce in the past, very much more so than at present. When the Indian Ocean and later on the China Sea were the principal centers of the old world's overseas trade, Suug (which is now Jolo) was an important commercial center. The Hindu and Arabian traders enjoyed profitable business relationships with the merchants of Suug. It is said that before the coming of the Spaniards, Chinese junks, numbering from four to five hundred, arrived yearly from Cambodia to trade with Sulu.

Sulu still carries on a trade with the old ports of Sandakan and Singapore, although quite limited.

The greater part of the volume of trade transacted by the port of Jolo since the American occupation until the present has been absorbed by the coastwise trade of the Philippines. The Sulu fruits are traded mostly with Zamboanga, while copra and hemp are shipped mostly to Cebu, Davao, and Manila.

*Conclusion.* In recapitulation it may be stated that certain great possibilities for substantial improvements in agriculture, fishery, and commerce exist in Sulu Province. If the present customs, traits, prejudices, superstitions, and fanaticism, which drive the greater part of the 240,826 Moro inhabitants of the Sulu Archipelago to live in a separate world of their own, could be modified and their unwitting influence upon the susceptibilities of this people reduced to the minimum, the general economic life of this province would undoubtedly have better chances of improving.

## ON THE "HAYCOCK"<sup>1</sup> HILLS OF BOHOL: AN INTERESTING GEOMORPHOLOGIC FEATURE

Juan S. Teves

### *Introduction*

THE *haycock* hills of Bohol which have aroused great interest to the casual observer present a unique physiographic feature. Unique in that this type of land form is not found elsewhere in the Philippines, and may be not in any other part of the world. They are altogether different from the *haystack*, or *pepino* hills of Porto Rico.<sup>2</sup>

The unusual and attractive shape of the hills invites the attention of every newcomer or visitor and an explanation of its possible cause invariably intrigues the mind. They are almost perfect domes characterized by smooth outlines which give a very pleasing appearance to the landscape.

Faustino<sup>3</sup> described and discussed the formation of these hills, and Dickerson<sup>4</sup> also gave his views on them, but with due respect to both, the writer presents in this paper a differing opinion.

### *Important Observations*

The hills were seen in the course of one of the field trips made by the writer in June, 1937. A few of the salient points recognized should give a clear picture of the surface configuration under discussion.

The *haycock* hills which are located in the east central part of the island of Bohol cover a very extensive area. It is estimated that the area observed is more than 50 square kilometers, but from information, it is believed that it may cover even twice as much. They form a distinct physiographic unit in the island.

The hills are generally dome shaped but some are slightly conical. There are instances when two hills appear to have been joined together assuming a saddle shape. These may better be called *compound* hills.

Another seemingly incongruous land form is the practically level plain on which the hills rest. This is about 150 meters above sea level. It is its association with the hills that appear to be out of place, but after careful analysis, there is nothing as natural as its presence.

It has also been noted that there are three sets of summit elevations; the first about 40 meters high, the second, 80, the third, 120, thus making the elevations range from 40 meters to about 120 meters or more above the plain, or from about 190 meters to 270 meters above sea level.<sup>5</sup>

No definite areal pattern, or orientation in distribution, was observed, although portions of oblique aerial photographs appear to suggest some possible definite scheme. It is regretted that there are no accurate topographic maps of the island available.

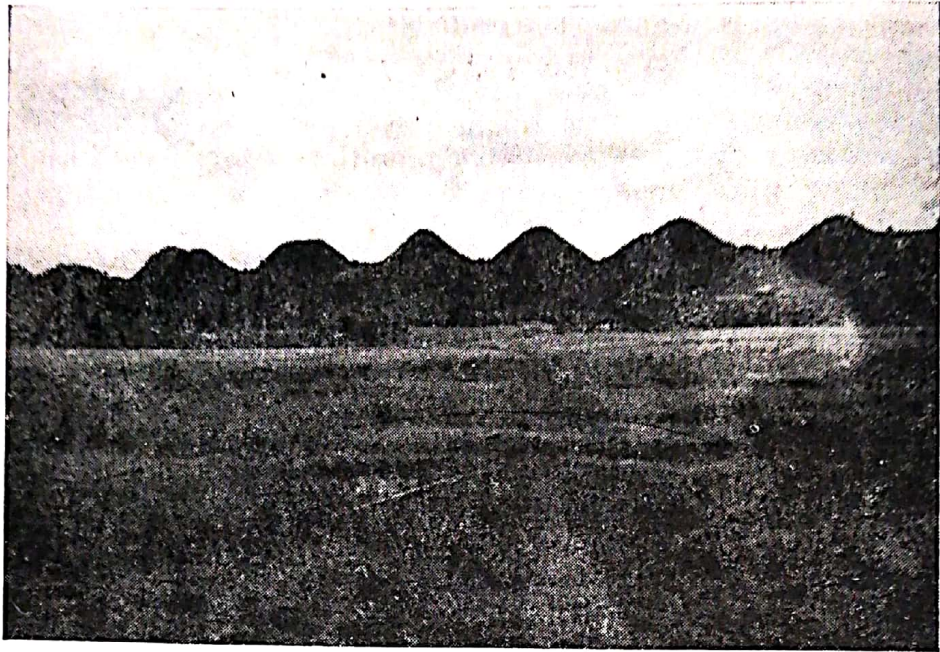
<sup>1</sup> Warren D. Smith so named them: *Geology and Mineral Resources of the P. I.*, Bu. Sci. Publ. 19 (1925) 195.

<sup>2</sup> A. K. Lobeck — *Geomorphology*. McGraw-Hill Book Co., Inc., (1939) 133 & 141.

<sup>3</sup> L. A. Faustino — The development of karst topography in the P. I. *Phil. Journ. Sci.*, 49, 2 (1932).

<sup>4</sup> Roy E. Dickerson — Tertiary paleogeography of the Philippines. *Phil. Journ. Sci.*, 25 (1924) 49. Explanatory note plate I, fig. 2

<sup>5</sup> Cf. Faustino, *op. cit.*, p. 204, gives the elevation as 400 meters above sea level.





The hills are of limestone usually stratified or bedded, although there are some in which the limestone shows no discernible stratification. However, bedding does not seem to have any particular influence on their shape.

Solution cavities common in limestone formations are relatively absent in these. A few andesite boulders were seen on the flank of one of the hills.

With regard to vegetation, it may be said that some hills are forested while the majority are grassy.

### *Development of the Hills*

It is believed that the development of these hills depended on the following essential points: a rolling topography to start with; elevation of the country, or, if already elevated, maintenance of the elevation for some time; and a moderate uninterrupted erosion at a uniform rate. Rock type may possibly have some influence as, taking everything equal, igneous rocks seem to be less susceptible to the formation of this feature because of certain structural characteristics inherent in them.

Of the relatively flat plain on which the hills lie, it may be said that it is the result of stream erosion to its base level-stage, leaving the hills as clusters, or in rare cases, as a string of monadnocks.

To better illustrate this, it may be said, that if the present rolling topography of north central Bohol is of limestone, then it may be considered as an area of *haycock* hills in the making, provided that the present work and rate of erosion continues undisturbed.

In limestone regions, particularly those of abundant precipitation, *needles* of limestone stand out against the sky as those found around Baguio, Sagada, and other places in the Philippines, or a very rough country, the *karst* topography of some authorities, may result due to the formation of caves, sink holes, and other features attributed mainly to its composition in conjunction with the work of underground water. This is very common and may be considered almost typical of any limestone country.

It is noteworthy that the above limestone which may in all probability possess identical texture and structure as that of Bohol do not develop the *haycock* hill characteristic. The joints in the tilted layers of limestone in the *haycock* hills area, which no doubt are also present in other limestones in the country, may favor their formation. But if true this will make difficult of explanation the confinement or restriction of the land form under discussion solely to those of the island of Bohol.

The part played by composition, texture, or structure in the shaping of these hills is uncertain. That these may have acted in their development jointly or otherwise as favorable factors, is possible. It is expected that in the future detailed studies of this feature, their mechanics and relationships may be revealed.

There are those who believe that structure is responsible for this feature, but up to now no attempt has been made to explain it. It

may be mentioned here that whatever influence structure may have on these hills, it seems to be mainly on the control of their areal distribution.

Summarizing what is believed to have taken place in the area of the *haycock* hills, it can be said that the country must have been uplifted at least three times forming a plateau which is terraced in some places. During the early stage of its elevation, subaerial erosion must have developed a rolling topography that gave the initial shape of the hills, much the same as the one in north central Bohol. As elevation proceeded slowly, and as erosion continued actively and simultaneously with it, the surface still retaining the initial form, was further modified acquiring a feature beyond that of the early stage, a very extremely advanced rolling topography, if we may call it that, characterized by domed hills on a relatively flat plain, now widely known as *haycock* hills, or as Faustino calls them, "Carmen Thousand Hills".

This rare combination of processes and factors produced this very rare land form, not duplicated anywhere.

## THE STORY OF RAMIE IN THE PHILIPPINES

Vicente A. Araneta  
President, and Gen. Mgr., Ramie Corporation of the Phil.

### Introduction

**T**EXTILES are consistently the Philippines' heaviest import item. Our average import volume for the past three years was P167 millions: P200,791,000 in 1951, P155,525,000 in 1952 and P147,824,000 in 1953. If for this reason alone, a comprehensive study of the ramie industry in the Philippines not only deserves serious attention, but priority in both private and government financing considerations.

### The Plant

The plant is a perennial weed attaining an average height of about six feet. Although grown today in China, Japan and South America, it is believed to have originated in Egypt — the name presumed to have its genesis in the famous line of pharaohs Rameses.\* Indeed, mummies up to 6,000 years old have been found to be dressed in ramie bandages.

Hardy, it thrives on overhead irrigation although its water needs are far from demanding. The most successful method of propagation is through its rootstocks. It sprouts readily, requires two cuttings close to the ground before commercial harvesting and has been known to remain productive up to 10 or more years. Its foliage, high in protein content, has been successfully used as feed for livestock. It is practically disease and insect proof. Rodents abhor ramie plantations.

### The Fibre

Perhaps the most eloquent advocates of ramie are its qualities as tested by the U.S. Department of Commerce Laboratory and the U.S. Bureau of Standards:

1. Tensile strength exceeding 80,000 pounds: 8 times cotton & silk.
2. Flex over one million cycles, 10 times as great as cotton, twice that of flax and almost eight times that of silk.
3. Elasticity equals cotton, 50% better than flax, one-third greater than hemp, contains better than 98% alpha cellulose.
4. Attains lengths from 8 to 20 inches.
5. The strongest natural fibre grown, 50% stronger when wet.

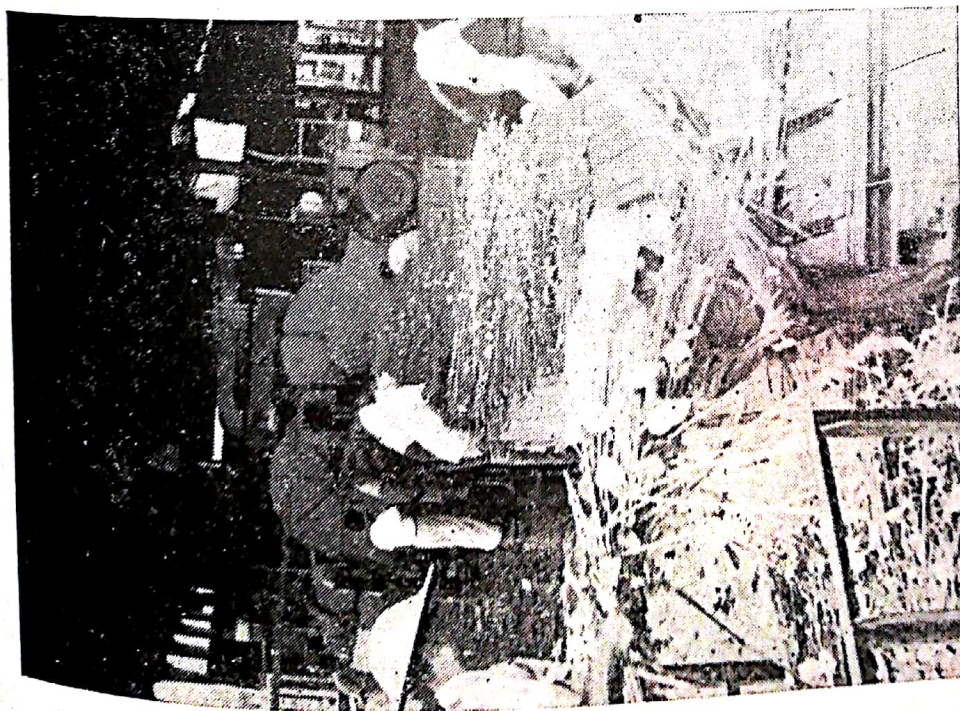
### The Fabric

Woven into 100% ramie fabrics of unlimited varieties comparable to their cotton, woolen, linen and other counterparts, its tested qualities show:

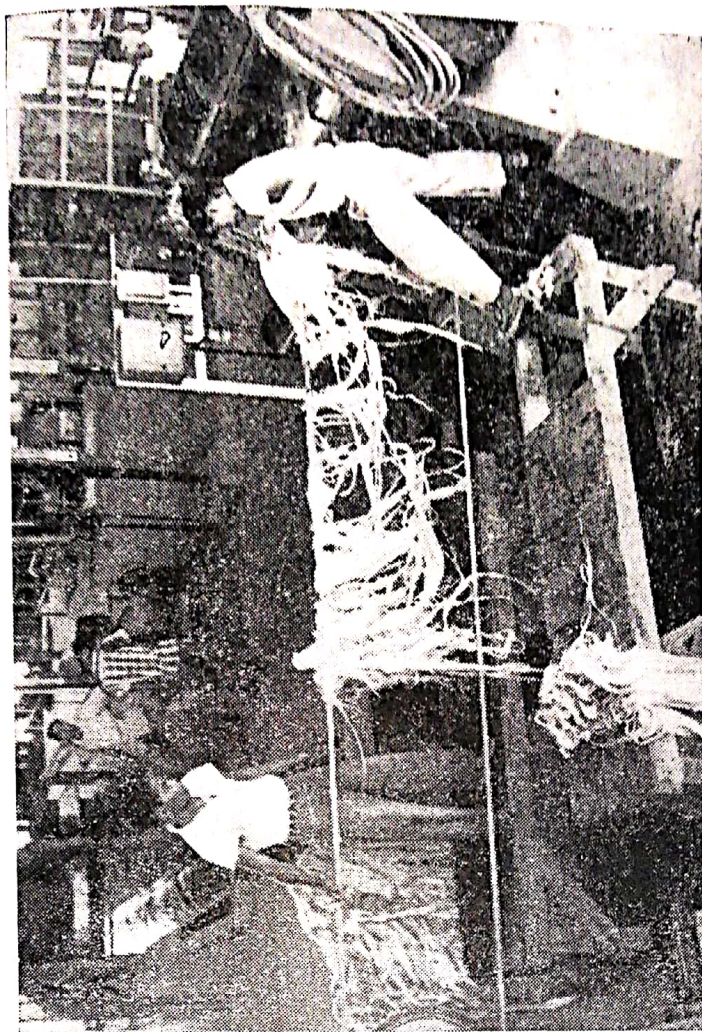
\* This supposition is incorrect. The word "ramie" is of Malay origin and is believed to have been used originally to designate *Boehmeria nivea tenacissima*, a tropical form of thin leaves which are green on both surfaces. The plant belongs to the genus *Boehmeria*, and the family *Urticaceae*. "Ramie" is used by English-speaking people to designate *B. nivea*, whose leaves are white on the under surface, as well as to designate the fiber itself. "China-grass" is the hand-cleaned not degummed fibre.—Ed.



CUTTING MATURE RAMIE STALKS FOR DECORTICATION



**WONDROUS WEED.**—Fresh from the fields by rail, the defoliated stalks are loaded from the railcars onto the conveyor belt of the Ramie Central's decorticating plant. A hardy perennial weed which requires more drainage than irrigation, it has been known to stand for 10 years without replanting, yields increasing with age. This plant is operating at only half capacity, but Mindanao's ramie production will exceed Japan's capacity to absorb and process by January 1955.



**FABULOUS FIBRE.**—Crushed, washed and pressed, ramie fibres then proceed to the drier and thence to the baling presses. Eight times stronger than cotton and silk, the finished textile can be woven to a quality substitute equal or superior to cotton, linen and other weaves. It is 50% stronger when wet, yet dries faster than flax. Cool to wear, it also provides warmth for chilly days. Promises a dollar-earning Philippine industry.

(Photo by Benjamin C. Osias)

1. Unbelievable resistance to bending (bending tests were abandoned after 1 million bends without visible effects).
2. Dyes very readily with characteristics similar to wool.
3. Produces a textile of high strength, low elongation and balanced crimp that withstands repeated launderings better than most fabrics.
4. Outwears either wool or mohair in point of abrasion resistance.
5. Resists mildew and has high resistance to deterioration from salt water and continuous moisture.
6. More heat resistant than cotton, hemp or flax, yet cooler than cotton.
7. In tension: eight times cotton and natural silk, four times flax and over 2½ times Mediterranean hemp (Cañamo).
8. It is 2.5% more absorbent than cotton, yet dries faster than flax.
9. Takes to desizing, scouring and bleaching with characteristics very similar to cotton and linen.

In an article entitled "Ramie", C. H. Williams of the Swift Manufacturing Company, described ramie as "stronger than cotton, softer than linen and a sheen that makes it look like silk, having warm weather coolness, yet with warmth for chilly days." These qualities make ramie the most versatile fibre in existence, demanded for combination with mixed textiles to fill in deficiencies of other fibres. Treated for crease resistance and dyed to fast color, ramie fabrics can match the finest of linens, the heaviest of ducks, the most common cottons. Those who have worn 100% Philippine Ramie fabrics, many varieties of which are now sold in the local market, have attested to its durability, fashionability and remarkable coolness — making it highly suitable to Philippine tropical conditions.

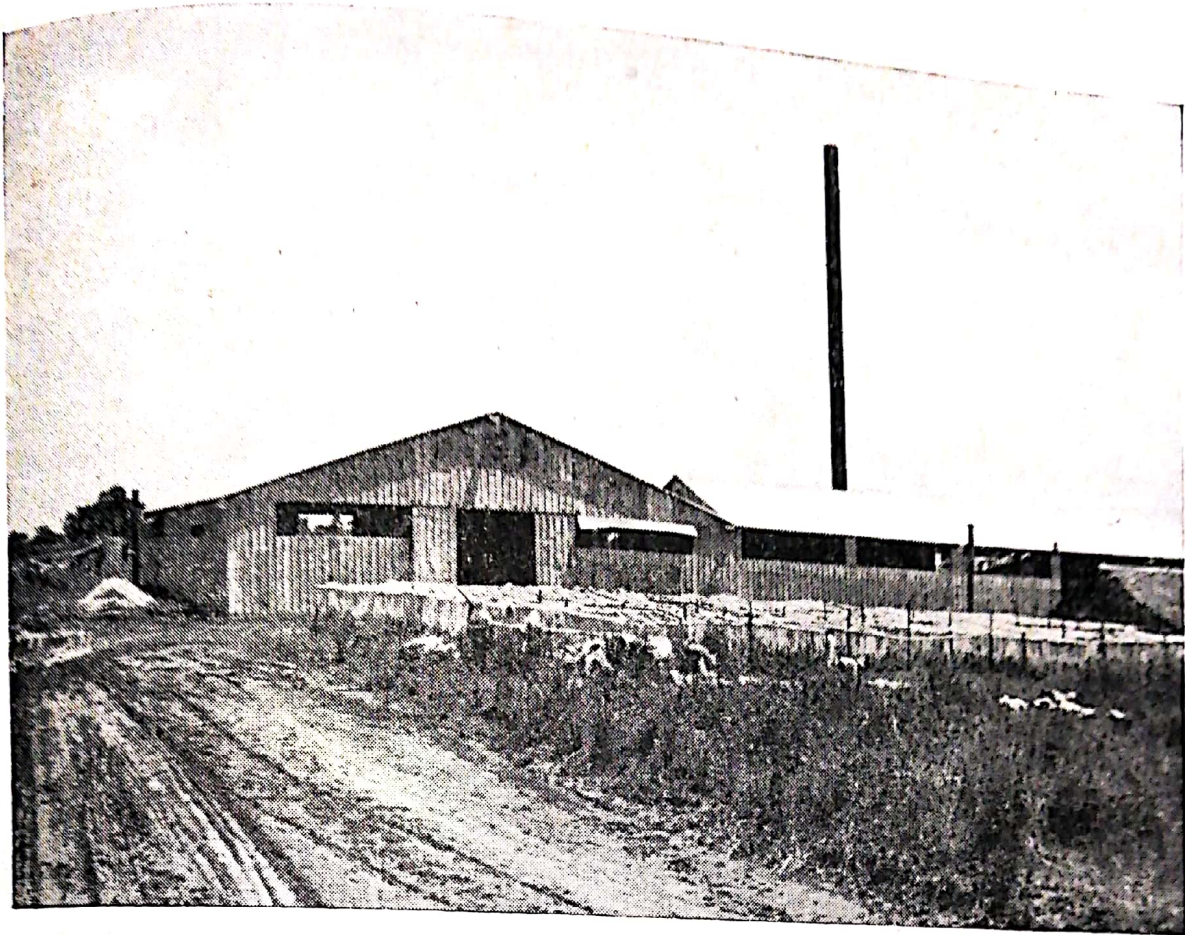
#### *Status of the Industry*

The Ramie Industry in the Philippines today stands at the crossroads. Weaned as a feverish and sickly infant, it has survived repeated threats to infant mortality. Having thus survived, it has in the past few years made a strong come-back. And yet, the very strength of its revival now threatens its own undoing.

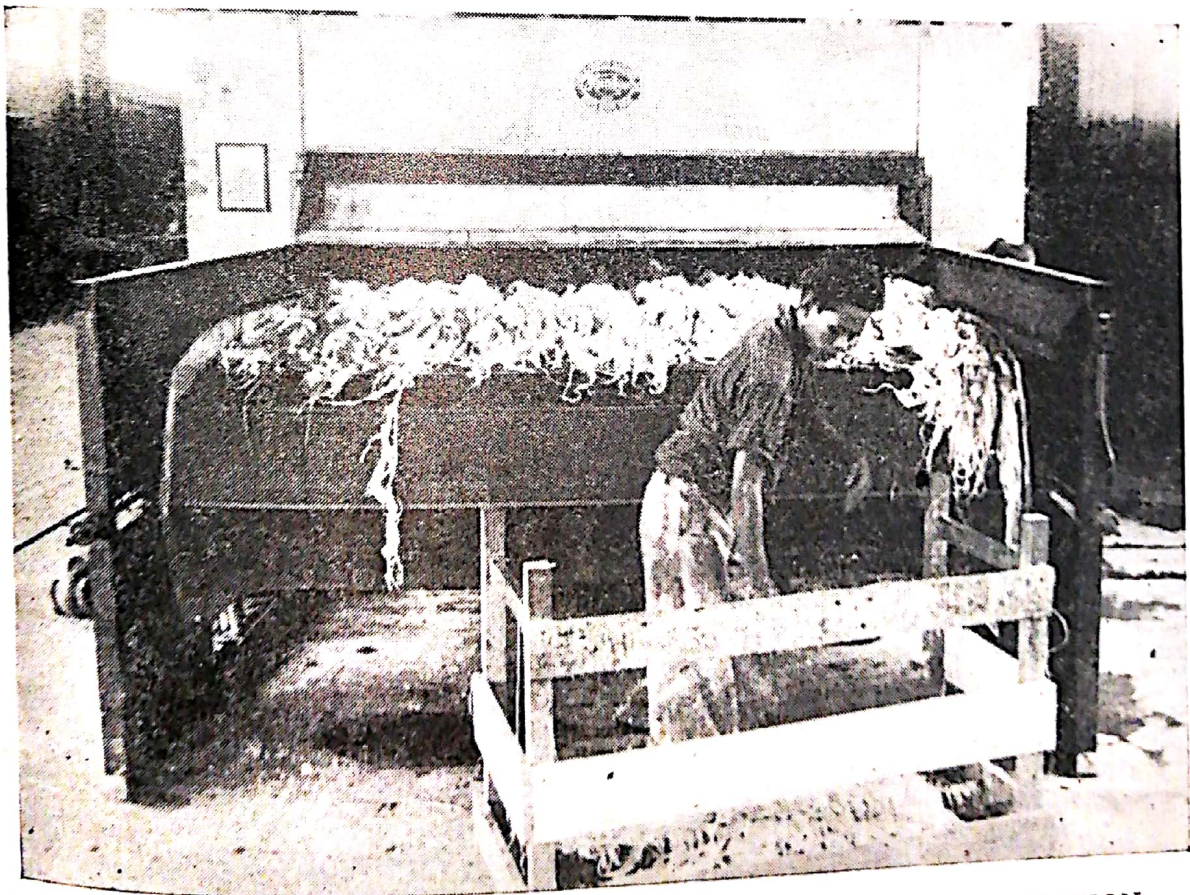
#### *The Past*

Ramie, indeed, started from scratch. Graphed, its existence began from Zero in 1939. With German and French Q.M.C. officers using ramie heavily for combat fatigues, the pre-war demand gave it an impetus darkened by the clouds of war. When the clouds burst in 1941, the infant industry all but died. Plantations and installations were obliterated by the ravages of war. It fell to a point microscopically higher than flat Zero. Post-war efforts to revive the industry began from all that was left; a few stray weeds and dormant rootstocks. Barely revived, it suffered its second serious setback failing to meet U.S. quality standards, Philippine ramie lost its market. Some investors were reduced to penury. Others lost more than just their shirts.

It was at this stage of bankruptcy that the author first took an interest in the ramie industry and formed the Ramie Development Cor-



RAMIE CENTRAL BUILDING OF THE RAMIE CORPORATION OF THE PHILIPPINES LOCATED AT PANDAG, BULUAN, COTABATO



DRYING DECORTICATED RAMIE FIBER IN A HUNTER 15-SECTION STEAM HEATED DRYER



FEEDING RAMIE STALKS INTO THE FEED CONVEYOR OF THE  
MOHEGAN NEWPORT TYPE CORONA RAMIE DECORTICATOR



poration and succeeded in late 1947 to get Toyo Sen-I Co. Ltd. (Japan's leading ramie textile company) to buy up the unsold stockpiles. But the market came too late. Disillusioned ramie farmers had stopped planting their fields to ramie.

This set-back caused by the shortage of production which followed as a result of the second failure due to shortage of finances was so complete it took two years before the third start began to shape up in 1949. The author joined his friends in taking up the challenge of skeptics: "It can't be done." The Ramie Corporation of the Philippines came into being. A ramie central was planned to absorb the production from its plantations. Plantings, however, were delayed in expansion due to drainage difficulties. The year 1950 might be called the year of research, development and promotion. The process took two years, efforts paying off in 1953 with the operation of two ramie centrals in Cotabato, both located within thirty minutes drive of each other, and the realization by abaca producers of Davao who, faced with destruction by the uncontrolled mosaic disease and a lowering price of abaca, felt the necessity of a new start with ramie.

### *The Present*

1954 has been a good year to the Philippines' struggling ramie industry. In Cotabato, two ramie centrals are decorticating the production of barely 1,000 hectares of ramie. This, however, to date occupies only half of their total productive capacities. Together, the present monthly production is 1,500 piculs of RDA ramie worth about P135,000. In Davao, the fibre cooperative marketing association reported that its members produced 2,000 piculs in June of RD2 ramie which is worth another P160,000. At present, a contract promoted by the author with Toyo Sen-I insures ramie grown in the Philippines of a sure market for a volume of ramie worth the value of finished ramie textiles that can be brought back into the Philippines. In simpler terms, we can at present export only as much raw ramie fibre as we can buy back its equivalent value in 100% Philippine ramie products! The limitation is no longer our productive capacity. It depends now on our capacity to absorb finished ramie textiles.

### *A Two-Faced Future*

Ramie in the Philippines today faces a two-faced future. We are in a position to boost a new industry with unlimited possibilities of success — or to fall back upon a third and most disastrous failure.

### *Production Possibilities*

Ramie can be produced at a lower cost than cotton. The average annual yield of raw fibre per hectare is 40 piculs or some 2,530 kilos. Cotton's average production is only 711 kilos per hectare. Converted into yarn, these fibre yields produce 1,265 kilos of ramie yarn as against only 516 kilos of cotton yarn! Translated into percentages, ramie has a 145% fibre production advantage over cotton per hectare. Computed on this basis alone, it becomes possible to produce ramie at half the cost of cotton and still leave a 45% leeway to offset ramie degumming expenses. Exact figures on processing costs are as yet unavailable. Yet, it is safe to state that the huge advantage will make it possible, when the volume of ramie production increases and the need

arises, to sell ramie for the price of cotton and still give the ramie farmer double the income of the cotton farmer.

Add to the fact that ramie gives 145% more fibre than cotton per hectare, the additional fact that while cotton must be replanted yearly, ramie is a hardy perennial that produces 10 or more years without replanting. Then, add the final fact: ramie harvests increase with the age of the plant. Compound to the foregoing the additional fact that rodent-ravaged Mindanao farmers are expanding ramie production and that the two ramie centrals in Cotabato will be producing 5,000 piculs by January 1955 and 8,000 piculs by July 1955, while Davao ramie growers will be producing 10,000 piculs by January 1955 and 16,000 piculs by July 1955 — not counting the thousands of cooperative farmers converting rat-infested rice and corn farms to rat-immune ramie crops! The production possibilities, indeed, indicate a two-faced future. To look into the future dimly the better to determine where it can lead, let us proceed to take stock of the facts we can predetermine.

*Summary of Expansion*

To summarize our actual monthly production and its forecast for the near future, the figures reveal:

	<i>Present</i>		<i>January 1955</i>		<i>July 1955</i>	
	<i>Piculs</i>	<i>Value</i>	<i>Piculs</i>	<i>Value</i>	<i>Piculs</i>	<i>Value</i>
Cotabato . . . .	1,500	₱135,000	5,000	₱ 425,000	8,000	₱ 640,000
Davao . . . . .	3,000	240,000	10,000	800,000	16,000	1,200,000
Total . . . . .	4,500	₱375,000	15,000	₱1,225,000	24,000	₱1,840,000

Published information on the ramie spinning capacity of Toyo Sen-I Ltd. with whom the author has a processing contract reports an Annual Ramie Spinning capacity of 7,200,000 lbs. This is equivalent to 600,000 lbs. per month or about 1,200,000 lbs. of decorticated fiber. The capacity of the other ramie spinning plants, accepting Toyo Sen-I's claim of 60% of Japan's total capacity, would place Japan's total capacity at 2,000,000 lbs. per month. A sizeable portion of Japan's importation of decorticated fiber comes from the Philippines.

Comparing these figures with our monthly production and the forecast based on reports from Filipino planters, we can determine to what extent Japan's capacity can absorb our production as we expand our plantings.

	<i>Philippine Pro- duction</i>		<i>Excess over Toyo Sen-I's capacity</i>	<i>Excess over Japan's total cap.</i>
	<i>Piculs</i>	<i>Pounds</i>	<i>1,200,000 lbs.</i>	<i>2,000,000 lbs.</i>
Present . . . . .	4,500	625,500	(574,500)	(1374,500)
By January 1955 . . . . .	15,000	2,085,000	885,000	85,000
By July 1955 . . . . .	24,000	3,340,000	2,140,000	1340,000

Toyo Sen-I's capacity, fixed at 1,200,000 lbs. of decorticated fiber indicates that about \$500,000.00 worth of Ramie fiber could be exported from the country monthly provided we in turn could absorb this same

value of ramie goods. The summary points up the possibilities of prosperity and penury. The ultimate fate of the Philippine ramie industry hinges on our capacity and to find practicable solutions to a number of problems.

### Patent Problems

The two major problems posed by the situation are:

1. Can the Philippines buy \$500,000 worth of finished ramie fabrics monthly to protect the export market for \$500,000 worth of Philippine ramie fibre?
2. Where will Filipino ramie farmers process and market their production in excess of Japan's total capacity to absorb ramie fibre?

Further condensed, the two-fold problem is one of protecting the present foreign market and producing a market for the future excess. Thus pin-pointed, the problems can be studied in sharper focus to detect positive avenues open to solution.

### Proposed Solutions

To solve the first problem, we must consider the lesser problems. In order to absorb an increasing volume of goods produced from Philippine ramie, we must study the local market. In marketing, the price becomes the root difficulty since the product is in every way acceptable. Ramie is today woven into an unbelievable variety of materials equal or superior to their counter-parts in cotton, linen and others.

Yet, ironically, 100% Philippine ramie fabrics stand at a grave disadvantage to American cotton goods which are protected by free trade.\* Not only is the landed cost of Philippine ramie goods brought back from processing in Japan 20% higher than cotton goods but it must suffer the added imposition of an *advalorem* duty of about 30%.

Protection of the export market by protecting the local market calls for direct government intervention. Rather than a direct subsidy, it appears the better part of discretion:

1. To lift the customs import duty on grounds that the item is a Philippine agricultural product merely processed abroad; and,
2. To exempt it from the 17% exchange tax since no dollars are actually exported from the country and the practice is actually a barter of goods in exchange for processing services.

On the resultant lower price level, 100% Philippine ramie goods could compete favorably in the market to protect the export market for ramie fibre.

The second problem involves the excess in the future production of ramie. Rather than to be perpetually harried by conditions not always within our power to control as is the case with a foreign market, it appears more progressive, practicable and patriotic to seek a solution close

\* This is not completely accurate. American cotton goods are subject to special internal revenue and excise taxes to as high as 120% of landed cost. In addition, cotton yarn is restricted. The fact that imported cottons can absorb these and still compete with ramie, poses a greater problem than indicated.—Ed.

to home. Private and government financing can and should take the initiative to promote a local industry with a future and exhaust all resources to forestall an impending disaster that is within their ken and capability to avert. It would work boundless benefits to establish in the Philippines degumming, spinning and weaving facilities not only to absorb local ramie production in excess of our exportable production but create a local supply of a prime commodity that today heads the list of our imports and even develop an export market.

A Degumming and Spinning plant of 10,200 spindles will use 3,600 lbs. per 7 hours or 10,800 lbs. in a 3 shift day. Taking 30 days as a regular working month (including Sundays), we therefore have a total capacity to process 324,000 lbs. of decorticated fibre per month. On this basis, it is most essential that a 40,800 spindle (1,296,000 lbs. monthly capacity) plant be established as our monthly excess production over Toyo Sen-I's capacity will be 885,000 lbs. by January and already 2,140,000 lbs. by July 1955.

Another very important reason for establishing the degumming, spinning, weaving and a well balanced finishing and printing plant is that it would safeguard our farmers against total loss in case a war should cut off the exportation of decorticated fiber due to shortage of bottoms and at the same time insure our people a supply of textiles. To establish a working basis, let us consider the capital requirements of a project. Tabulated, the capital requirements of the processing plant follows:

	<i>Machinery Installation Building</i>			<i>Total</i>
Degumming & 40,800 Spindle Spinning Plant	P14,400,000	P1,440,000	P1,440,000	P16,280,000
1,500 Loom-Weaving Plant	7,100,000	710,000	1,200,000	9,010,000
Finishing & Printing Plant	1,000,000	100,000	280,000	1,380,000
				<hr/>
Total Value of Processing Improvements	.....			P26,670,000
Add to these figures:				
Twenty (20) hectares of land at P2,000 per hectare				40,000
Working Capital requirements for operations per year				3,500,000
				<hr/>
Grand Total Capital Requirements	.....			P30,210,000

The above plant can process monthly 1,296,000 lbs. of decorticated ramie fiber which is the production from only 2,400 hectares of ramie plantings. As production increases however, the facilities can be expanded. By fixing a price of only P0.50 per lb. of fiber, the farmers would have a sure monthly income of P648,000.00 from this plant alone.

To run such a plant at full capacity, the manpower requirements would reach 3,275 persons with a total monthly income of P457,200.00 without including salaries for administrative and clerical jobs. This is distributed as follows:

<i>Operation</i>	<i>Men/Day</i>	<i>Daily Wages</i>
Degumming & Spinning	1,776	P 8,852
Weaving	1,380	5,748
Finishing	119	639
	<hr/>	<hr/>
	3,275 men	P15,240 daily payroll
		x 30 days
		<hr/>
		457,200 monthly payroll

This industry should be established either in Cotabato or Davao, adjacent to a hydro-electric site in which the National Power Corporation will be able to construct a plant to supply cheap power (P0.03 per kw.)\* Total kilowatt requirements of the whole installation will be 2,800 Kw. It is estimated that the maximum appropriation needed by the National Power Corporation to generate electricity would be P3,920,000 at its allowed rate of P1,400 per kilowatt.

### *The Beginning?*

Protection of Philippine agricultural products is a major step toward nationalization. [?-Ed.] Protection of Philippine ramie goods works to the benefit of desperate Mindanao farmers finding it the only safe answer to mosaic disease and rodent threat and to our international trade balance. Placed on a competitive basis with cotton, our ramie industry can offset a greater portion of our cotton imports which for 1953 exceeded P6 million. Local production of ramie textiles brings unlimited additional benefits:

- \* Increased employment, better farm wages, higher rural living standards
- \* Stimulated Philippine industry, reduction of textile imports and ultimately, an important source of dollar revenues
- \* Solution to Mindanao's rat infestation, stabilization of farm economy
- \* Permanent insurance against a loss of market for our ramie production.

Together, both measures would mean an auspicious beginning to greater things: increased local production, cooperative stimulus, expanded agricultural industrialization, balancing of trade, increased employment opportunities, more currency in circulation, increased purchasing power, stabilization of economy and nationalization on a basis of independent self-help.

### *The End?*

Failure on our part today, on the other hand, spells dangers from "too little, too late" that would be "too much, too soon" for our infant ramie industry to bear. Filipino ramie farmers face a future that is fast mounting to emergency proportions. Figures available prove beyond doubt that ramie production is expanding at a rate that by January will exceed the total capacity of Japan's ramie spinning and weaving mills to absorb. Add to these the thousands of small cooperative and independent farmers unreported who are fast developing new ramie plantations in Takurong, Marbel and throughout Davao, and recently the Bicol and in the areas embraced by the Ilocano weaving industry. Expansion means investment — investments in money, efforts, hope and lives. Without proper protection, private investments, loans of the RFC, ACCFA and other private banking institutions run the gauntlet.

Ramie, as an industry, has led a merry chase. Its biography is an eloquent history of hopeful false starts, recurrent disaster and the noble

\* Computing annual wage costs, purchase of fiber, and electricity, annual capital requirements total P13,331,800.—Ed.

resiliency of the Filipino farmer. Its life is vitally linked to the lives of at least 20 thousand Filipinos, the economic existence of a nation. Today, they stand together at the crest of a flood that can carry them to the shores of success, stability and prosperity — or crush them on the rocks of disastrous failure, economic chaos and social disorder.

Such is the story and the situation of the infant Philippine ramie industry. How it will end is a question that lies within the power of this nation's economic statesmen to write. To such men does the industry look for deliverance.

## PLANNING FOR INCREASED PRODUCTION AND MORE JOBS\*

Filemon C. Rodriguez<sup>1</sup>

Our President, in his state of the nation message to Congress, made the following statement:

"What we need above all is a coordinated plan, theoretically sound and practically feasible, to increase the national production and provide opportunities for more jobs and higher incomes for our people, particularly in the rural areas. In the past, such programs have not made adequate progress because of ineffective implementation and insufficient support."

This is a simple, frank, and clear cut expression of the great need for a new program of economic development that we can implement boldly and carry out effectively. While economic programs have been prepared and adopted in the past, we have not done enough to develop the national economy to such a point as to fully correct its deficiencies and maladjustments and ensure our people the standard of living that they deserve.

There is nothing new in the yearnings of our people. The same longing for the better things of life, for the opportunities for the employment of individual capacity and initiative to achieve a better future for one's self and his children, exists today as it did in all the years past. With one big difference, there is now a note of greater urgency, not because the people are getting less than what they got before, but because they expect more and want more than what they are getting now. Every man feels keenly that he should have more income to enable him to adequately support himself and his family. There is still a large portion of the population who are deprived of the opportunity to earn a decent livelihood. Many parts of the country still remain untouched by the progress that has visited the more fortunate communities. This general situation certainly emphasizes the increasingly serious demands upon the leadership of the nation for greater acceleration of the pace of economic development and the more efficient use of the productive facilities to expand rapidly our volume of production.

With the assumption of the reins of government by the new administration, it is to be expected that new ideas and new vigor will be injected into the economic planning phase of the nation's activity. Fresh from their contacts with the mass of the people, fired by a determination to make their stewardship of the nation's interest a success, the present government leaders are in a position to contribute a great deal towards evolving an economic plan fully attuned to the philosophy of democratic governments more responsive to the people's needs, and more intimately geared to the national welfare.

A close observation of the actual state of our economy discloses in bold relief, not only its low level of adequacy, but also the innumerable problems confronting it. The first of these problems is insufficient production and income. According to statistics, for instance, the national income for the year 1952 was ₱7,034 million which, divided among the population of 20.6 million, gives a per capita income of ₱341.45 which is too small to support a healthy, adequate, modern living and leaves no margin for saving. Inability to save means inadequate capital to build up the economic structure.

Our second problem is our great dependence on foreign markets. We are suppliers of raw materials and consumers of the finished manufactured articles of other nations. More than 75 percent of the people draw sustenance from the land, the yield of which is low, resulting in poverty and unemployment. Agriculture which employed 71.3 percent of the labor force in 1952 contributed only 42.8 percent of the national income. Industry has not developed sufficiently to relieve the pressure on agriculture and increase individual income. It employed in 1952 only 6.6 percent of the labor force and produced only 13.5 percent of the national income.

Our third problem is the neglected state of our rural areas. In spite of the fact that by far the greater portion of our people live in these areas, the amenities of modern civilization are almost totally non-existent in many of these areas. Many communities are still inaccessible except by the most primitive methods of locomotion. Available statistics indicate that safe water supplies and sanitary sewage disposal have yet to be made available to over half of our total population. There are very limited educational and recreational facilities. In the rudiments of rural health services, there are only 530 maternity and charity clinics and 819 puericulture centers to minister to the needs of 1,071 municipalities and 173 municipal districts. School health

\* Delivered before the Manila Rotary Club, Feb. 4, 1954.  
<sup>1</sup> Chairman, National Economic Council and Coordinator, Philippine Council for United States Aid.

conditions are deplorable as evidenced by the fact that 60 to 90 percent of school children are reportedly afflicted with intestinal parasites, not to mention other afflictions. Land-tenure practices are still highly antiquated.

The next problem is the relatively high increase in population and the resulting grave unemployment problem. The population and the labor force increase by about 1.91 percent every year. Yet, in 1952 the number of unemployed was about 20 percent of the labor force, or approximately 6 percent of the total population, or about 1.2 million people. This does not include the under-employed who are even greater in number, and the unemployed that failed to be recorded in the census figures.

Last but not least, is the unbalanced price and income structure of the country which results in the uneven distribution of the fruits of production and of the national income among the different sectors of the population. This condition has been brought about largely by the alien control of trade and channels of distribution.\* Filipino participation in economic activity, especially in commerce and trade, is too small to guarantee a healthy economy. Transportation remains a major bottleneck in the efficient distribution of goods necessary to the development of the domestic market.

It is now our concern to formulate a program that will continue the attack on these age-old problems and advance our drive towards our objectives. Following the wishes of the President, the staff of the National Economic Council is presently drafting the general aspects and structural elements of a program of economic development covering the next five years. This program will indicate the magnitude of investment in the major economic fields designed in their totality to achieve, as fast as our capabilities will permit, the objective of economic freedom from world market fluctuations and a rising level of production, employment, and living standard of the people. It is intended to be a continuing program to be revised and brought up-to-date every year by dropping off the year just past, revising the program for the ensuing four years, and adding another year at the end of the period to complete the next five-year program.

The proposed program will necessitate the preparation of a national income budget which will set forth in detail the income, production and investment goals for both the public and private sectors. This will include manpower and employment estimates in the various sectors of the economy as well as a five-year tax program to support the development plan during this period.

In the formulation of the development program, the following basic principles will continue to serve as our guide:

(1) *Greater emphasis on industrialization.* — This country has always been economically dependent upon the United States and other countries. Under the present situation, when there are imposed limits on the exports to the United States, and where there are immediate prospects of further limitations on those exports beginning next year, and consequently there are imposed limits on our capacity to import, there is a need for a positive program of exploitation of the indigenous resources and processing them for local use to replace imports and thus provide for the expanding demands for food and other necessities of the growing population. This calls for increased emphasis on industrialization and advancement of the industrial structure for greater self-sufficiency.

(2) *Emphasis on the proper role of private enterprise.* — Under the program, the government's resources should be devoted mainly to agriculture, public works, irrigation and power, the social services, and a few basic industries which are vital to the economy but unattractive to private capital. Private enterprise should be relied upon to expand its activities in industry and commerce and in production and distribution, with the government giving assistance and encouragement as well as direction.

(3) *Closer balance between production and employment.* — To really stabilize the national economy, certain balance between production and employment will have to be achieved. It is, therefore, necessary to place emphasis upon rationalization of employment distribution in line with increase in labor productivity and the advancement of the industrial structure.

(4) *Balance between consumption and investment.* — The program should contemplate a healthy balance between consumption and investment. While increased consumption is a concomitant of an increased standard of living, it is necessary at the present stage to place emphasis on greater increases in capital accumulation to promote rapid growth of production facilities. Accordingly, with the increase in la-

\*This statement is unsupported by facts, and reports of the Bureau of Census & Statistics completely belie it. Cf. second preceding paragraph.—Ed.



bor productivity, and of production and trade, the increased wealth should be distributed fairly among the people.

(5) *Modernization of productive facilities.* — Considering the generally low quality and high cost of locally produced materials, equipment, and other goods, as well as the discriminating taste of the people, and taking into account the need to meet international competition even in the home market, the program should provide for modernization of many existing facilities. Every effort should be made to provide quality equipment for new installations. This, of course, should be carried out in proper balance with capital availabilities, giving priority to such activities in which quality production is an essential need.

(6) *Development of progressive rural communities.* — To improve the national economy from the grass roots, it is necessary to start with the rural communities in which 75 percent of the people live. More emphasis should, therefore, be given to the reorganization and revitalization of the rural economy. Among the measures needed in this direction are reorganization of the system of land ownership, increase of size of land holdings, improvement of farming techniques for more economic farming, provisions of roads, communications, and health facilities, expansion of agricultural credit, organization of cooperatives and home industries, and dispersion of large industries among the rural communities.

Naturally the part of the program of immediate interest to all is the initial year, fiscal year 1955, for which we are now budgeting income and expenditures. For this year, the staff of the National Economic Council estimates an overall capital investment program for the whole country requiring a total outlay of approximately ₱631.2 million. This will consist of ₱335.6 million investment contemplated for the private sector and ₱295.6 million to finance the major projects and permanent improvements to be undertaken by the government. The private investment program is broken down into five major categories of investment projects as follows:

(1) Agricultural development, including food, export and industrial crops, animal and fisheries development, and forest products utilization .....	₱108.5 million
(2) Mining, including development of gold and silver, base metals and essential non-metallic minerals .....	24.9 "
(3) Manufacturing, including textiles, power and fuels, iron and steel, non-ferrous metals, paper and pulp, machinery, chemicals, food processing, etc. ....	58.0 "
(4) Transportation and communication, including motor transportation, shipping, telephone, radio and television facilities	36.8 "
(5) Construction, including industrial and commercial buildings, residential housing, etc. ....	₱107.4 million
Total .....	₱335.6 million

In the case of the public sector, the investment program consists of major projects of the various departments and agencies of the government, capital expenditures in public administration, projects of the government-owned corporations, and development projects that may be approved by the President upon the recommendation of the different departments and agencies of the government and the National Economic Council. These major categories of public investment involving a total outlay of ₱295.6 million may be enumerated as follows:

(1) Major projects of the various departments, including roads and bridges, gravity irrigation and major public works projects, irrigation pumps, rural health units, vocational, industrial and agricultural schools and normal schools, etc. ....	₱167.3 million
(2) Investment in public administration, including work and breeding animals, warehouses, shops, school buildings and other buildings, laboratory and field equipment, etc. ....	5.0 "
(3) Projects of government-owned corporations, including cement and paper, gas, water service, power, fertilizer and other chemicals, steel, housing, research, cottage industries, textile and food processing, etc. ....	73.3 "

(4) Other development projects to be approved by the President upon the recommendation of the National Economic Council	50.0 million
Total .....	P295.6 million

The public investment program, the main outlines of which I have just enumerated will be financed by funds to be provided by congressional appropriations, by the earnings of government-owned corporations and by public borrowing. The National Economic Council staff estimates that about P64.8 million will be financed out of special funds and budgetary outlays, P11.9 million by earnings of government-owned corporations, about P29.4 million by foreign aid grants in terms of machinery and equipment, and about P179.5 million by public borrowing either through bond issues or through loans from local banks. The private investment program will be financed largely by individual or corporate savings and by bank credits.

The total investment estimate of P631.2 million which I have previously indicated is considered practical and realistic, especially when compared with actual investments of the nation during the past three years which averaged P521.3 million a year. The contemplated increase of P110 million is considered modest taking into account the quickened tempo of development especially the rural areas contemplated by the present administration.

Compared with the previous levels of annual investment in each industrial sector, this initial investment goal represents an increase of 8.6 percent for agriculture, 11.6 percent for mining, 111.0 percent for industry, 7.54 percent for public works, 62.1 percent for transportation and communications. These percentage increases are easily within the capacity of the economy to attain provided both the government and the people lend their full support. The greatest increase contemplated is in the manufacturing industries involving a jump from P84.5 million to P178.3 million in one year. It is our belief that the time is ripe for such a stepped-up industrial development particularly by private enterprise in view of the great and increasing interest manifested by the public and by investors in this field.

Even greater increases are of course necessary if we intend to solve as soon as it is at all possible to do so, the pressing problem of unemployment. However, great as our courage and determination may be to make a bolder stroke, it is, nevertheless, not practicable nor realistic at this time to push up drastically or too abruptly the pace of development. We are, therefore, constrained by practical considerations to limit the initial year's goals to the level of the past few years, plus a judicious increase. Depending upon the experience of the initial year, we can plan a more accelerated pace of investment for the succeeding years.

We naturally have to remember that the national economy is an integrated whole. Its parts and pieces are intertwined and connected to one another in a complicated and yet closely knit pattern. Any plan for the development of the economy should be overall in scope in order to produce the most wholesome result and avoid undesirable dislocations. Piece-meal plans, intended to change certain specific and limited aspects of the economy, may produce unexpected and unwelcome effects on other sectors of the economy.

We must also bear in mind that the resources of the country are limited and their use in such manner as to produce maximum returns in terms of the welfare of the largest number should be the main desideratum. The development of any specific part of the economy cannot be overemphasized to the detriment of any other part.

I have given above the general picture of the investment program now being thought out by the staff of the National Economic Council even as it is still being analyzed and studied further, in order to invite participation of as wide a section of our people as possible in the drafting and formulation of the national economic development program. Nobody better than we realizes the magnitude, complexity, and importance of this work.

The Manila Rotary Club composed of leaders in the varied fields of our national life can help greatly in the common task now before us. Rich in the experience of years of actual contact with the various fields of economic activity, its members are in the best position to contribute ideas, plans, suggestions which may be properly considered and used in the formulation of the program. I should like to appeal to you, gentlemen, to give us the benefit of your experience and competence by responding generously to our invitation for assistance. This program is not that of any single individual or entity. It is a country-wide program, your program, every Filipino's program, and the more of us participate in its formulation, the closer will it be to the common ideal of our people, and the readier, we hope, every sector of our population will help in its speedy implementation.

## Book Reviews

**Soil Survey of Cebu Province, Philippines.** *Reconnaissance Soil Survey* by Alfredo Barrera (Chief of party) and Isaac J. Aristorenas; *Soil Erosion Survey* by Silvino C. Hernandez (Chief of party) and Laureano R. Lucas, *Soil Report No. 17*, Department of Agriculture and Natural Resources, Bureau of Soil Conservation. Published with MSA-PHILCUSA Aid. Manila: Bureau of Printing, 1954, 134pp. Outline map of Philippines. 12 text figures; 23 plates; Soil map and Erosion Map of Cebu in cover pocket.

The Bureau of Soil Conservation continues its excellent work as indicated by this most useful publication. Many observers, not soil specialists, have believed that economic development programs in the Philippines could not advance very far until more adequate and reliable information was presented on soil groups and characteristics in the various provinces of the Philippines. It is hoped that the publication of this survey of Cebu (and the two following on Leyte and Ilocos Sur) will mark the beginning of an intensified effort along this line and that the work so well begun will be carried on without let thru the understanding cooperation of the Philippine Council for United States Aid which, in the past, too frequently has concerned itself with activities directed toward symptoms rather than causes.

This publication is well organized: Part I concerns the Reconnaissance Soil Survey and is composed of 11 sections: a summary, introduction, description of area, climate, agriculture, soil survey methods and definitions, soils of the province, genesis and morphology of the soils, mechanical analysis of soils, fertilizer and lime requirements, productivity ratings of soils. Part II concerns the "Soil Erosion Survey," and is composed of 11 sections: introduction, methods used in survey, extent of erosion, factors affecting erosion, soil erosion in different soil areas, erosion control measures now in use, suggested methods for control, acknowledgment, glossary of common economic plants in Cebu, and bibliography, of 42 entries. There is no index, and the table of contents is located inconveniently on back of front cover (since cover is insecurely attached, its loss will mean loss of table of contents). Printing quality is higher than usual, reproduction in general is quite good, altho those illustrations dealing with photos of soils are weak in detail and some are washed out, possibly due to quality of original photographs. The text maps are not too informative, being drawn exceedingly small and appear rather artificial. The original survey was carried on in 1947 under the direction of Dominador Z. Rosell (Secretary of the Philippine Geographical Society) and the maps representing soils and erosion patterns are drawn to the scale of 1:200,000, which permits easy reading. The color choices could have been happier. A review article of this and the following two publications will be published in the next issue of this *Journal* so this reviewer will indicate only the major conclusion of the study: "The adoption of sound program of soil conservation farming is primarily needed in the island of Cebu. Cebu... is a critical problem area... insofar as soil erosion is involved. It is believed that the greatest single factor which may ultimately pave the way towards solving the menace of soil erosion is to change the attitude of the farmers in their methods of present farming." (p. 13.) This reviewer is not in complete agreement with this point of view, but discussion must be postponed until a later date.

**Soil Survey of Leyte Province, Philippines.** by Alfredo Barrera, Isaac Aristorenas and Jorge A. Tingzon (area originally inspected by D. Z. Rosell), *Soil Report No. 18*, Department of Agriculture and Natural Resources, Bureau of Soil Conservation. Published with MSA-PHILCUSA Aid. Manila Bureau of Printing, 1954, v, 103 pp. Outline map of Philippines. 8 text figures; 14 plates; Soil Map of Leyte in cover pocket. Glossary of common economic plants in Leyte. This report is printed on better paper than the foregoing and the result is 'in general more pleasing, with better reproduction of text figures and Maps. The same limitations expressed above with regard to maps apply equally to those in this report. There is no index, and table of contents is still printed on inside cover. Large soil map is drawn to same scale (1:200,000). Bibliography contains 11 entries. Report suffers from absence of soil erosion report as contained in *Report No. 17*. There is no "recommendations" section.

**Soil Survey of Ilocos Sur Province, Philippines.** by Juan A. Mariano (Chief of party), Isidoro A. Romero and Jorge A. Tingzon (area inspected by D. Z. Rosell), *Soil Report No. 19*, Department of Agriculture and Natural Resources, Bureau of Soil Conservation. Published with MSA-PHILCUAA Aid. Manila Bureau of Printing, v, 50 pp. Outline map of Philippines. 3 text figures; 6 plates; Soil Map of Ilocos Sur in cover pocket. Paper quality is of same improved stock; photo reproduction can stand improvement; sketch map in text is too small with poor detail. There is no index. Glossary of common economic plants included. Bibliography contains 14 entries. Recommendations are included, but a detailed survey of erosion is missing.

Students everywhere will welcome the continued publication of these informative and interesting reports.

(C.O.H.)

## Publications Received

Rudolf Aniol: "Über starke Niederschläge im Gebiet Taunus-Odenwald," *Ber. d. Deut. Wett.*, No. 11, Bad Kissengen, 1954, 16pp. Maps. Tables. Graphs.

*Berichte des Deutschen Wetterdienstes* (Reports of the German Weather Services), Bad Kissengen, nos. 1-12, 1953-1954 (no. 8: 1954).

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on the result of this expedition. A short summary is given of the outstanding geological peculiarities of Timor, and the development is reviewed of the geological knowledge of the island. The object of the expedition, the localities visited and the followed route are further defined." (II) "This paper deals with the age of the orogenic main phase in Timor, in which the overthrust tectonics was formed. In the Lalan Asu region in the middle-west of Timor conclusive evidence was found for a post-Lower Miocene age of the main tectonic phase, such in contrast with the conclusion of former investigations. The present conclusion is based upon (1) the close structural relation of the Lower Miocene strata with the underlying tectonic unit, known as the Schist—Paleo (-Tertiary) complex, and (2) the superposition of a higher tectonic unit which has been overthrust over the Lower Miocene beds...."

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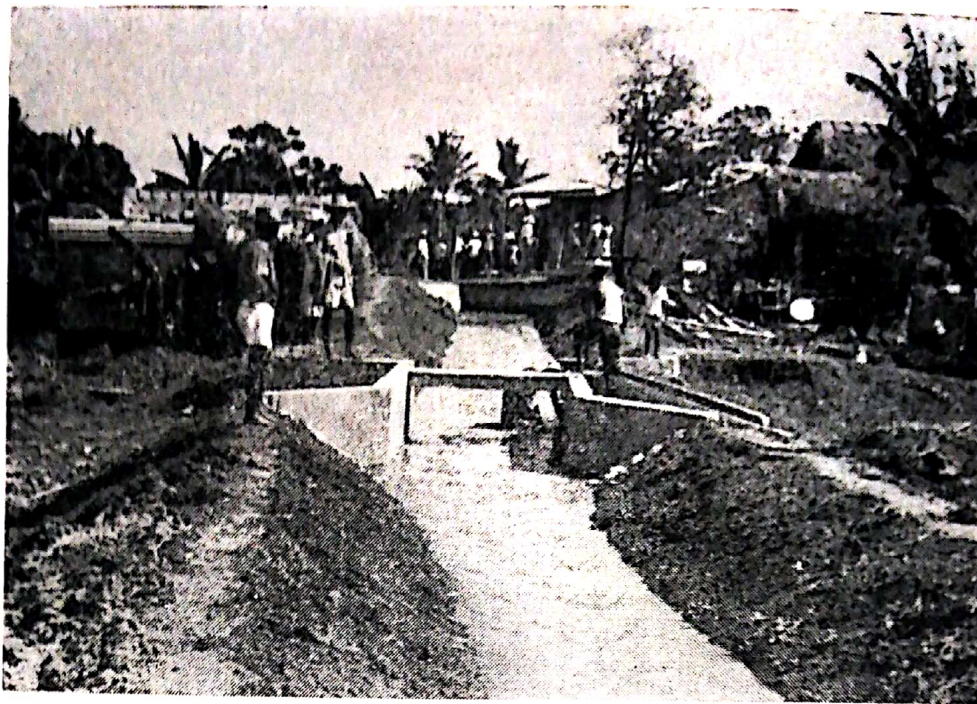
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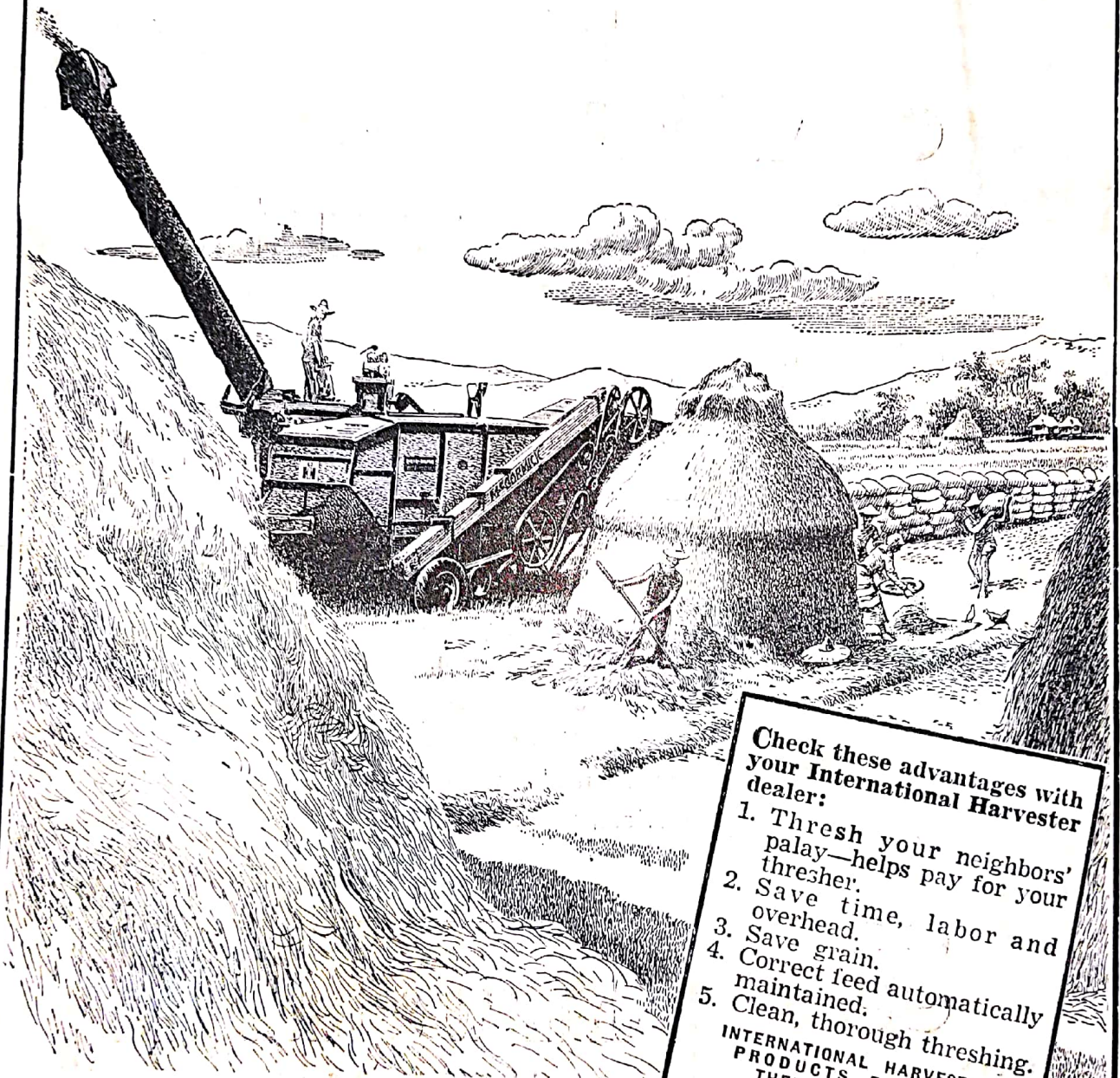
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