THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN CITY PLANNING

PLANNING FROM THE ASHES OF TONDO MANILA, PHILIPPINES

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LETTER OF TRANSMITTAL

Department of City Planning and Housing
Massachusetts Institute of Technology
Cambridge, Massachusetts
September 10, 1942

Dean Walter R. MacCornack
School of Architecture
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Sir:

I respectfully submit herewith this thesis, PLANNING FROM THE ASHES OF TONDO, MANILA, PHILIPPINES, in partial fulfilment of the requirements for the degree of Master in City Planning.

Respectfully yours,

ANTONIO C. KAYANAN

INTRODUCTION

This thesis is an attempt to show how planning may be adapted to a people - my people.

"It is an ill wind that blows no one any good." On May 3, 1941, a comprehensive conflagration razed one of the worst slums of Manila - in the old district of Tondo - an area covering about 55.6 hectares or 137.5 acres. More than 3000 homes were reduced to ashes. Approximately 20,000 people were left without shelter. Fatalities, however, were not high: 4 people died, and 20 were injured. Damage was estimated at P5,000,000.

Vice-President Sergio Osmena, in a memorandum to the President of the Philippines 2 weeks after the holocaust, pointed out: "It is evident that the danger from fire cannot be avoided if the congested condition of the houses, the types of inflammable materials used, and the system of narrow streets and alleys which existed before the fire occurred, continue. For the proper reconstruction of the burned area, it will be necessary to apply the principles of city planning which have been tried and tested. . ."

Hon. Manuel L. Quezon, President of the Philippines, accordingly issued, a few days later, Executive Order No. 348 creating a committee

to formulate a comprehensive plan for the rebuilding of the Tondo burned area, "in such a manner as to reduce the fire hazard, improve the layout of the streets, and better the living conditions of the people residing therein. . ."

The committee submitted on June 19, 1941, its recommendations to the President who, on July 2, approved them. Although commendable in some details, the recommendations and the accompanying plan were, unfortunately, bad. The plan was of such a nature as to produce conditions which cumulatively will defeat the objectives of good planning; it proposed to recreate, in bigger proportion, conditions similar to, if not worse than, those it intended to eradicate. This plan has not been executed, due to the treacherous Japanese invasion of the Islands. Perhaps other fires have occurred since then. . . other homes, destroyed. . .

It is believed that a better plan for the Tondo burned area - or any other area in the Philippines similarly destroyed - could be arrived at by a conscientious study of the existing conditions of the city, by a critical and analytical evaluation of the distinctive characteristics of the people, and by the application of sound planning principles modified to suit the site and the people.

This thesis, therefore, will strive to show how planning may be done for a people - my people. The planner, if he may be called one, will be a part of this people so that the planned community resulting therefrom will be, as a great American said of the American government, "of the people, by the people, and for the people. . ."

The kind of community that these people will have depends on what they are and the way of life they wish to follow. In planning for them, there must be not only a consciousness of and a sympathy for the way they live, work and play, but also a basic confidence, a kind of abiding faith, in their potential goodness, decency, and dignity as human beings. It must be realized, and admitted, that when it comes to the realistic determination of living standards for a people as individuals, families, or communities, human beings are concerned - equal the whole world over - regardless of race, economic status, or creed.

The Filipinos regard the family as a social institution of the first importance - so that planning must start from the Filipino home as a structural basis. Although nature is lavish in her blessings to the natives, they still have to work to live - so that planning must consider their activities in relation to their homes. And, finally, the Filipinos are gregarious creatures - so that planning must strive to provide a pleasant community, a coordinated homey neighborhood (not just a group of houses), which will furnish them with the work by means of which they live and the family life for which they work. . . and fight for, if need be. The plan, or the graphic expression of these concepts, will differ, of course, from others representing different conditions, but only insofar as technical and aesthetic considerations are concerned.

In the course of this thesis, the facts will be presented as they were known before the war, and the peculiar problems of the people will be pictured, even if inadequately, for closer understanding.

The facts will be presented first - what they are. Later they will be analyzed - what they mean. Then the objectives will be set - where to aim. And knowing where to start and where to end, planning will do the rest. If my people could not have the best, then the best will be made of what they have.

Others may find it easier, at least on paper, to plunge into an "ideal" plan and then look for various systems which will fit that plan - changing, if need be, existing customs, habits, and structural set-ups which do not conform with the "ideal" plan. First they conceive of the community; then, the details of that community: streets, residential areas, shopping districts, etc; then, the house groupings, the houses, and the rooms; and then, finally, the people. If the people happen to fit into that design, well and good; if not, other designs are tried until the "conformity" is achieved. This thesis, however, takes a different route: inside - out; not outside - in. It starts from the parts and ends with the whole; not from the whole to the parts. It starts with the people and the physical, social, cultural, and economic life which surrounds them. From there, it proceeds to the rooms which will fit them; to the house which will fit the rooms; to the grouping which will fit the houses; to the neighborhood which will fit the groupings; and finally to the community itself which will fit everything downwards, and which will fit into the city as a whole, of which it is a cell.

It must not be thought even for a moment, however, that because this thesis is taking this route, the planning will be enslaved by the facts. Rather, these facts will be weighed and taken for what they

are worth - as they are and as they relate to other facts. Habits, for example, may be merely protective adaptations against undesirable conditions. On the other hand, they may be deep-rooted, significant, fundamental.

Nor must it be thought that because this thesis treats the community and the city last, it will not be aware of the community and the city until the last moment. The aim will be fixed at the very beginning, so that the details will be treated insofar as they contribute to the structure of the community and the city; it will look upon the inter-related details as integral units which make up a whole. It is only hoped that the attempt, even if it has numerous short-comings, will not be futile. . .

ACKNOWLEDGMENTS

Grateful acknowledgments are due these friends who have helped in my studies in the United States and in the preparation of this thesis: Their Excellencies, the President and Vice-President of the Philippines, and other government officials - for being responsible in designating me as a government pensionado to study city planning in the United States; the Resident Commissioner of the Philippines and his staff in Washington, D. C. - for looking after my needs while I have been in this country; Dean Walter R. MacCornack, Prof. Frederick J. Adams, and other members of the faculty and staff of the School of Architecture, Massachusetts Institute of Technology - for their guidance and pleasant company; Messrs. Ernest J. Bohn and John T. Howard, Director and City Planner, respectively, of the Regional Association of Cleveland - for their support and advice; Messrs. Jose Gil and Conrado V. Pedroche of the Office of the President, Manila, and Mr. Conrado S. Ramirez, Technical Assistant of the Department of Public Works, Philippines - for sending me some of the materials of this thesis; Lt. R.S. Wray, Photographic Officer, U.S. Army Air Corps, Nichols Field - for the excellent aerial pictures of the site during and after the Tondo fire; Mr. Percy Warner Tinan, Cartographer, Cleveland - for lending me John Bach's map of the City of Manila; Misses Florence Stiles and Katherine McNamara,

Librarians of Massachusetts Institute of Technology and Harvard University respectively - for furnishing me reference materials; Mrs. Helen Simmergren, Miss Hilda James, Mr. John Peterson, and others - for typing the text; and Messrs. Howard Cain, Marrett Curtis, Jose Canchela, and others who have helped me assemble the parts of this thesis. To all of them, I say, "Thanks".

And to my mother and my people whom I left in the Islands and who have been uppermost in my mind during the preparation of this thesis, I say, native fashion, "Dacal a salamat".

/

ANTONIO C. KAYANAN
Massachusetts Institute of Technology
September, 1942.

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The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA.

CALOOCAN
4 Km.
3 Km.
2 Km.
1 Km.
THE SITE
MANILA BAY
MAKATI
PASAY
JUAN LUNA

NEPOMUCENO
MALVAR
LALLANA
KAPULONG
GENARO
EMILIO JACINTO ELEMENTARY SCH.
INOCENCIO
ESTERO DE VITAS
AETA
TOCO
HERBOSA
FRANCISCO
YANGCO
TONDO MARKET
R. PADILLA PARK
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
BAKUSAY
ESGUERRA
DANDAN
CORCUERA
MUELLE DE LA REINA
ESTERO DE PRUDENCIA
ENDAYA
DINALUPIHAN
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
SIAGU
DAGUPAN
MANILA BAY
VELASQUEZ
PANDAPIRA
AMARLANHAGUI
FRANCO
PEÑALOSA
TELLO
PACHECO
NICODEMUS
CORAL
PILAPIL
PERLA
MEJORADA
SANDE
JUAN LUNA
FAJARDO
Y REYES
PAVIA
AGUILA
STA. MARIA
QUESADA
RICAFORT
CONCHA
MORIONES
CORTADA
TONDO PRIMARY SCHOOL
TONDO INT. SCH. BRANCH
PLAZA JACINTO
CVDE VERA
MORGA
TONDO ELEM. SCHOOL
PLAZA DEL ROSARIO
LORENZO CHACON
M. CANO
JOSE PALMA
TONDO CATHOLIC CHURCH
HERRERA
PLAZA LEON XIII
ANDULA
PANGA
RAXA MATANDA
ALBUQUERQUE
PLAZA LIGA FILIPINA
FOLGUERAS
C.P. AGUIRRE
PADRE RADA
YLAYA
BILBAO
MARIA PAYO
MANILA R.R. STA.
AZCARRAGA
SOLER

A
B
C
D
E
F

N

SCALE in METERS
0 20 40 60 80 100 120 140

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

KEY MAP FOR AERIAL PHOTOS

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:

LETTER OF IDENTIFICATION

FIELD OF VISION

DIRECTION

SOURCE OF DATA: U.S. ARMY AIR CORPS.

AERIAL VIEW OF THE FIRE FROM THE SOUTH-WEST

NOTE DIRECTION OF WIND AND THE GATHERING OF PEOPLE AT OPEN SPACES.

U.S. Army Photo

AERIAL VIEW OF THE SITE AFTER THE FIRE.....
THE LARGE BUILDING ON THE LOWER RIGHT HAND CORNER IS THE TONDO CATHOLIC CHURCH.

13

U.S. Army Photo

AERIAL VIEW OF THE FIRE FROM THE SOUTH-EAST

THE FIRE STARTED NEAR THE LUMBER YARD IN THE FOREGROUND... NOTE PEOPLE ON THE BRIDGES. MANILA BAY IS IN THE BACKGROUND

C

U.S. Army Photo

AERIAL VIEW OF THE FIRE DIRECTLY ABOVE THE SITE

THE L-SHAPED BUILDING ON THE LOWER RIGHT HAND CORNER IS TONDO INTERMEDIATE SCHOOL....

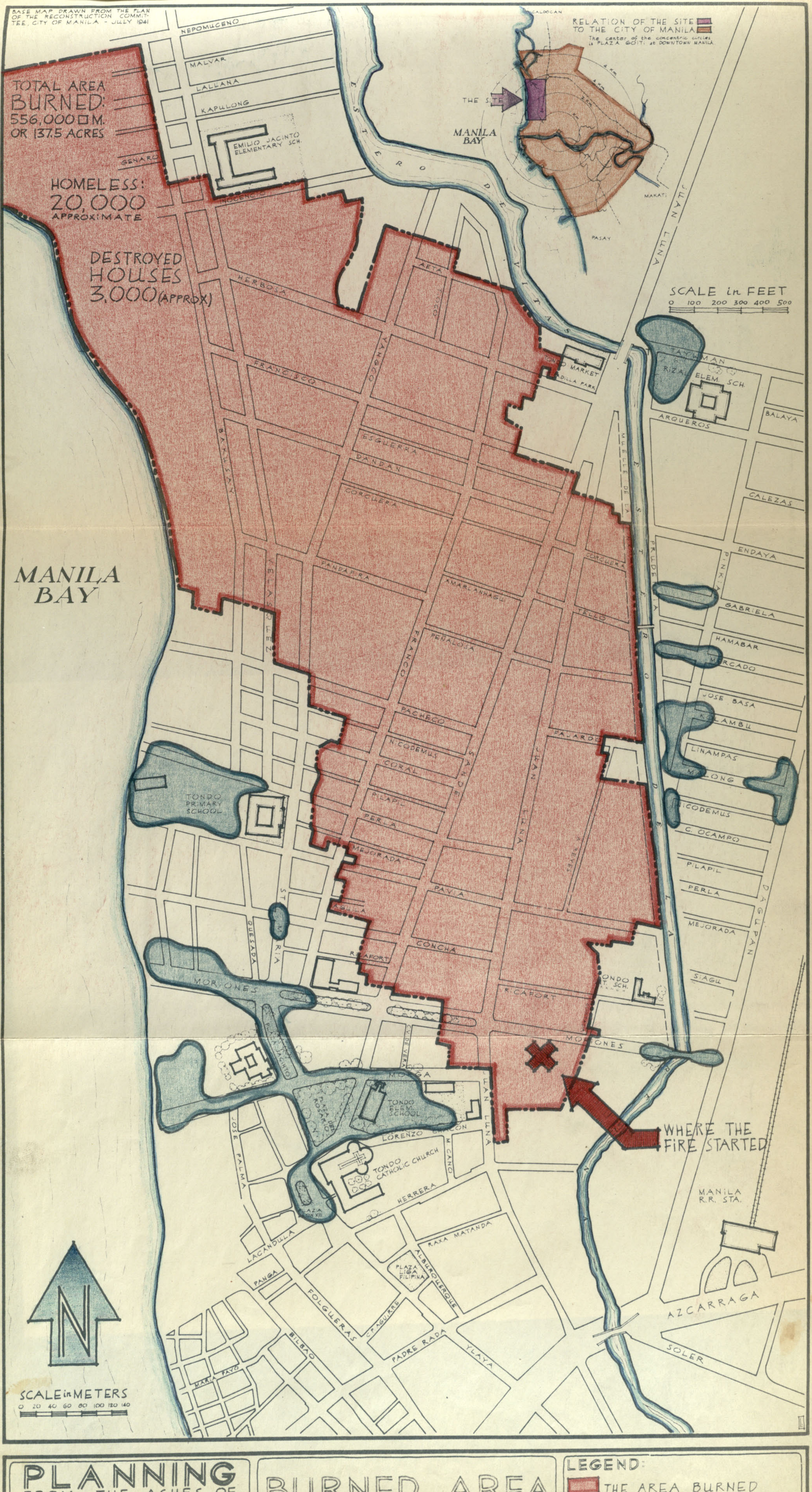
ID

U.S. Army Photo

AERIAL VIEW OF THE FIRE FROM THE EAST.....
THE ESTERO DE LA REINA SERVED AS AN EFFECTIVE FIREBREAK

E

U.S. Army Photo


BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941
TOTAL AREA BURNED: 556,000 □ M. OR 137.5 ACRES
HOMELESS: 20,000 APPROXIMATE
DESTROYED HOUSES 3,000 (APPROX)
RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA
THE SITE
MANILA BAY
CALOOCAN
MAKATI
PASAY
SCALE in FEET
0 100 200 300 400 500
MANILA BAY
NEPOMUCENO
MALVAR
LALLANA
KAPULONG
GENARO
EMILIO JACINTO ELEMENTARY SCH.
ESTERO DE VITAS
JUAN LUNA
HERBOSA
AETA
FRANCISCO
YANGCO
TONDO MARKET
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
BAKUSAY
ESGUERRA
DANDAN
CORCUERA
MUELLE DE LA
CALEZAS
ENDAYA
PRUDENCIA
PINKIA
PANDAPIRA
AMARLANHAGU
GABRIELA
VELASQUEZ
TELLO
PEÑALOSA
FRANCO
HAMABAR
MERCADO
JOSE BASA
KALAMBU
PACHECO
LINAMPAS
N. CODEMUS
CORAL
SANDE
FAJARDO
PILAPIL
PERLA
TONDO PRIMARY SCHOOL
NICODEMUS
C. OCAMPO
MEJORADA
PAVIA
PILAPIL
PERLA
ST. MARIA
QUESADA
MEJORADA
RICAFORT
CONCHA
TONDO INT. SCH.
SIAGU
DAGUPAN
MORIONES
PLAZA JACINTO
CV. DE VERA
MORIONES
MORGA
PLAZA DEL ROSARIO
TONDO ELEM. SCHOOL
JUAN LUNA
LORENZO
CHACON
M. CANO
TONDO CATHOLIC CHURCH
JOSE PALMA
PLAZA LEON XIII
HERRERA
WHERE THE FIRE STARTED
MANILA R.R. STA.
RAXA MATANDA
LACANDULA
PANGA
ALBURQUERQUE
PLAZA LIGA FILIPINA
AZCARRAGA
FOLGUERAS
C.P. AGUIRRE
BILBAO
PADRE RADA
YLAYA
SOLER
MARIA PAYO
SCALE in METERS
0 20 40 60 80 100 120 140
N

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

BURNED AREA
THE TONDO FIRE OF MAY 3, 1941
A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

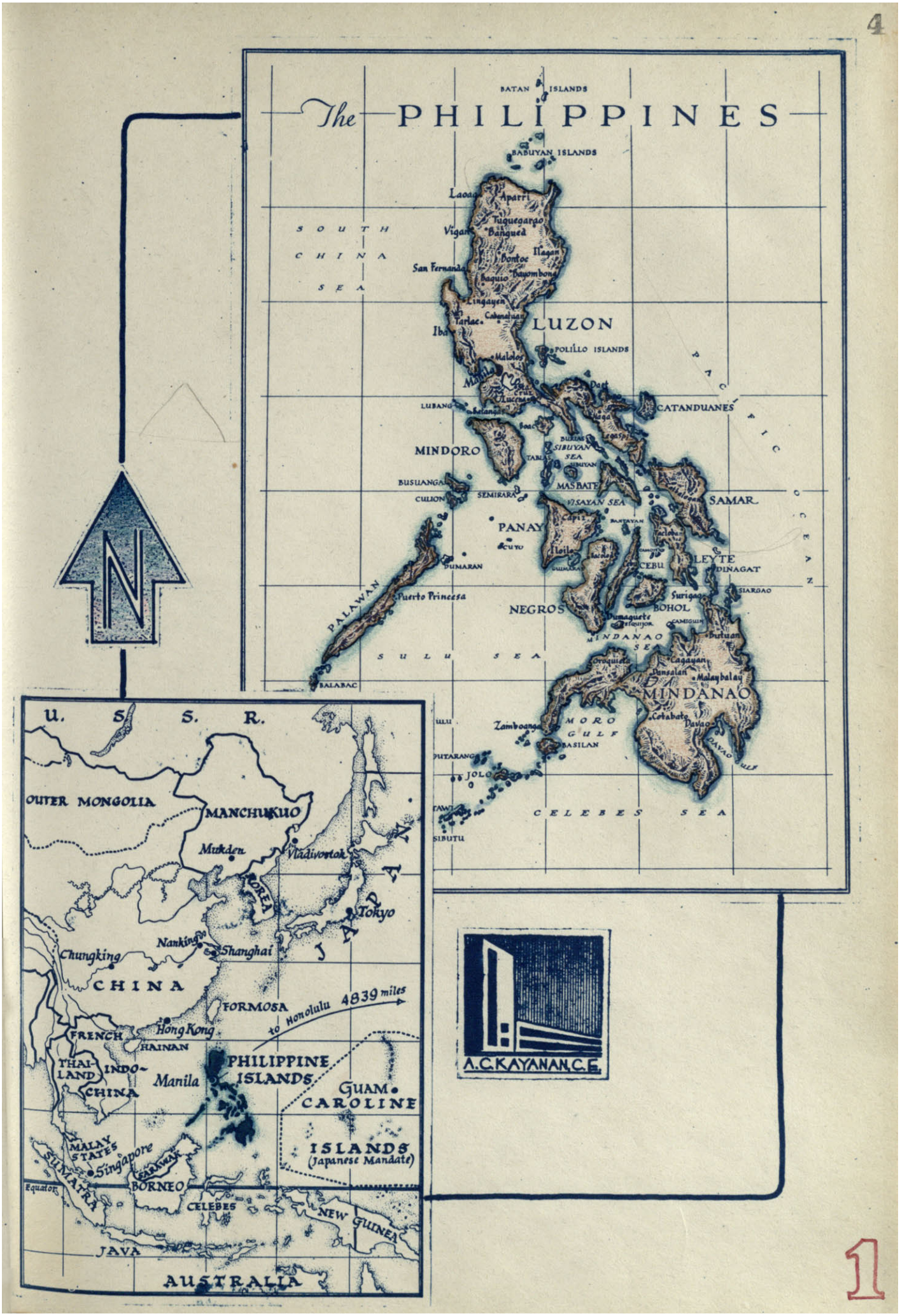
LEGEND:
THE AREA BURNED
WHERE THE PEOPLE FLED
SOURCE OF DATA: U. S. ARMY PHOTOGRAPHS

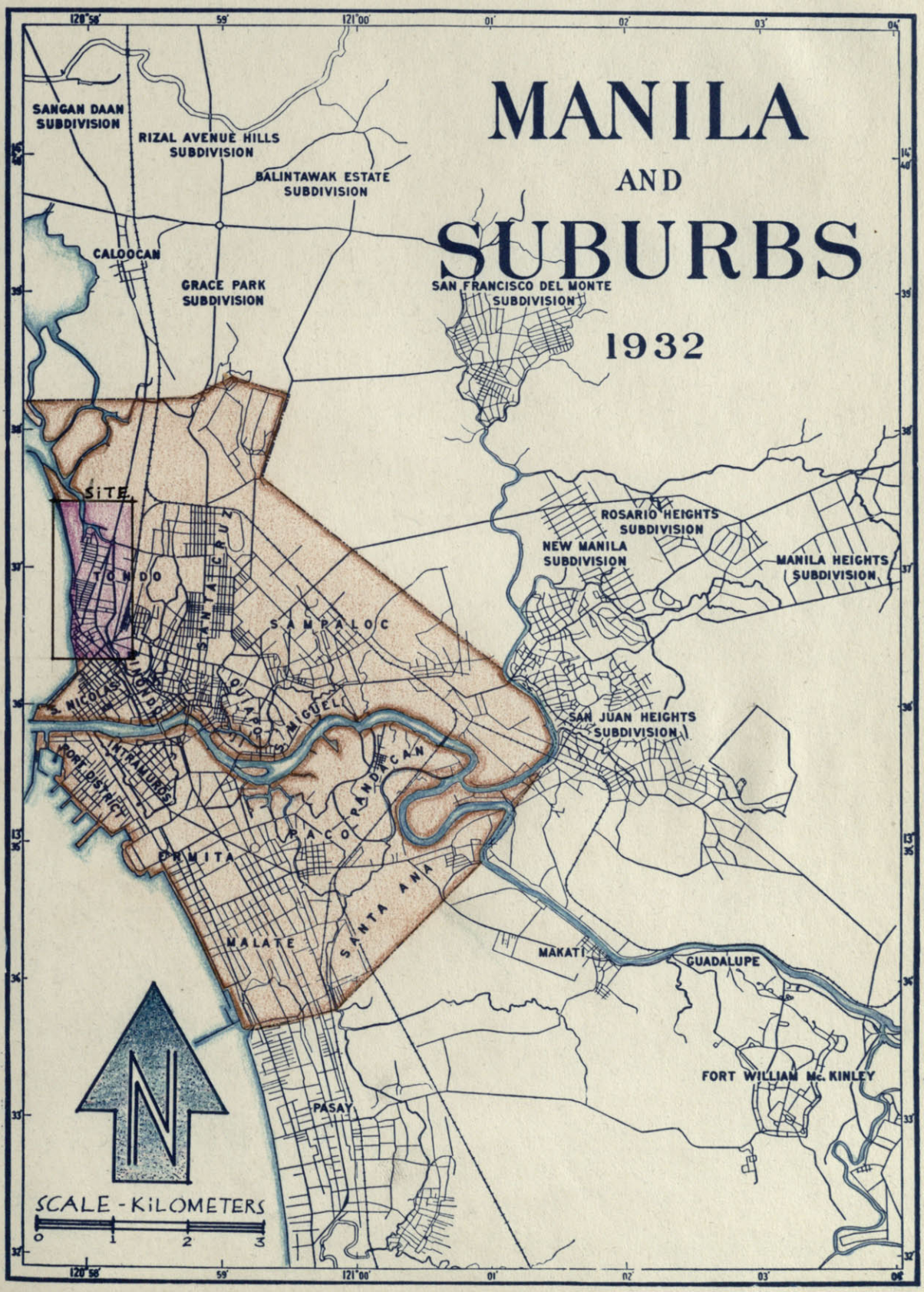
GEOGRAPHY, HISTORY, AND GENERAL DESCRIPTION

Geography and Statistics The Philippines lies to the southeast of the great continent of Asia, north of the island of Borneo, and south of the island of Formosa. According to geologists it was once a part of the mainland of Asia. Now it consists of 7,083 islands extending in the form of a huge triangle 1,152 statute miles from north to south and 688 statute miles from east to west. The total land area of the country is about 115,000 square miles. Luzon, the largest island in the group and where Manila is located, alone is as large as Denmark, Belgium, and Holland combined. See Fig. 1

Spanish Regime The Philippines was discovered on March 16, 1521, by Ferdinand Magellan who claimed it for Spain. Magellan was killed in battle when he tried to conquer the Filipinos, who had already a culture of their own. Spain, however, was determined to have the entire archipelago. Colonization work began in 1565, but Manila, the capital, was not occupied until 1570. The Spaniards governed the Philippines, against the Filipinos' wish, until 1898 - covering a period of 370 years. In 1896 the Filipinos rose in revolt and, for a time, ruled their own country!

American Occupation In 1898, shortly after the outbreak of the Spanish - American War, the United States fleet


The PHILIPPINES
BATAN ISLANDS
BABUYAN ISLANDS
SOUTH CHINA SEA
LUZON
Laoag
Aparri
Tuguegarao
Vigan
Bangued
Ilagan
Bontoc
San Fernando
Baguio
Dagupan
Lingayen
Tarlac
Cabanatuan
Iba
POLILLO ISLANDS
Malolos
Manila
Olongapo
Batangas
LUBANG
CATANDUANES
MINDORO
SIBUYAN SEA
MASBATE
BUSUANGA
CULION
SEMIRARA
VISAYAN SEA
SAMAR
PANAY
Capiz
Iloilo
CEBU
LEYTE
DINAGAT
SIARGAO
PUMARAN
PALAWAN
Puerto Princesa
NEGROS
Surigao
BOHOL
Dumaguete
CAMIGUIN
MINDANAO SEA
Butuan
SULU SEA
Cagayan
Oroquieta
Dansalan
Malaybalay
BALABAC
MINDANAO
Cotabato
Davao
Zamboanga
MORO GULF
BASILAN
DAVAO GULF
JOLO
CELEBES SEA
SIBUTU
N
U. S. S. R.
OUTER MONGOLIA
MANCHUKUO
Mukden
Vladivostok
KOREA
JAPAN
Tokyo
Nanking
Shanghai
Chungking
CHINA
FORMOSA
4839 miles
to Honolulu
Hong Kong
FRENCH
HAINAN
THAI-LAND
INDO-CHINA
PHILIPPINE ISLANDS
Manila
GUAM
CAROLINE
ISLANDS
(Japanese Mandate)
MALAY STATES
Singapore
SARAWAK
SUMATRA
BORNEO
Equator
CELEBES
NEW GUINEA
JAVA
AUSTRALIA
A.C.KAYANAN.C.E


MANILA
AND
SUBURBS
1932
SANGAN DAAN SUBDIVISION
RIZAL AVENUE HILLS SUBDIVISION
BALINTAWAK ESTATE SUBDIVISION
CALOOCAN
GRACE PARK SUBDIVISION
SAN FRANCISCO DEL MONTE SUBDIVISION
SITE
TONDO
SANTA CRUZ
SAMPALOC
QUIAPO
SAN MIGUEL
NICOLAS
BINONDO
INTRAMUROS
PORT DISTRICT
PAKO
PACO
PANDACAN
SANTA ANA
MALATE
ROSARIO HEIGHTS SUBDIVISION
NEW MANILA SUBDIVISION
MANILA HEIGHTS SUBDIVISION
SAN JUAN HEIGHTS SUBDIVISION
MAKATI
GUADALUPE
FORT WILLIAM Mc. KINLEY
PASAY
N
SCALE - KILOMETERS
0 1 2 3
120°58' 59' 121°00' 01' 02' 03' 04'

SECTION OF TONDO

under Admiral Dewey sailed for the Philippines and won a decisive victory over the Spanish naval forces in the battle of Manila Bay. Shortly afterwards the entire country passed under the control of the United States by virtue of the Treaty of Paris. But the Filipinos wanted freedom - so they fought a war of liberation which lasted for over 2 years. Superior forces, however, compelled the liberty-loving Filipinos to accept the sovereingty of the United States.

Filipino Self-rule

Civil government was established in 1901, and political autonomy was gradually extended to the Filipinos who showed a remarkable capacity for self-government. By act of the Congress of the United States, the Philippine Commonwealth Government was established on November 15, 1935, with provision for complete political independence on July 4, 1946.

The War with Japan

But before that goal was realized, Japan treacherously attacked the United States - the Philippines, included. The Philippines, however small she may be, has a large stake in this war. If we win this war, and we will, the independence of the Philippines shall not only be obtained but it shall also be insured against any future aggression. It is to this period of peace that we wish this thesis of some use.

Philippine Climate

Lying within the tropics, the Philippines has a truly tropical climate - warm days and usually cool nights. The most delightful months are November, December, January, February, and March. The days are clear, sunny, and dry. The mean average temperature is 78 degrees F. (25.5 degrees C.) with the minimum

Temperature early in the morning being about 17 degrees F. (9.5 degrees C.) lower than the maximum in the afternoon. Even as late as April and May, many parts of the country, especially Manila, enjoy cool breezes during some hours of the day. The rest of the year is rainy. The country lies within the tropics, all right, and may be warm, but it is never too hot!

Philippine Population

The population of the Philippines, which is unevenly distributed, was 16,000,301 according to the census of January, 1939. The density ranges from 168.2 people per hectare (68.2 people per acre) in the city of Manila to 0.054 people per hectare (0.022 people per acre) in the province of Nueva Vizcaya. The Filipinos have settled chiefly in areas along the seacoasts rather than in the fertile valleys of the interior. From 7,635,426 in 1903 the population increased to 10,314,310 in 1918 at the rate of 1.9 per 100 persons per year. With better sanitation, lower infant mortality, and higher standard of living this rate of increase jumped to 2.2 per 100 persons per year during the period from 1918 to 1939. At this rate of increase the population will about double in 32 years.

Religions among the Malays

The major portion of the population in the Philippines consists of Malayans. On the basis of their religious belief, the Filipinos of Malay stock may be divided into 3 groups - pagans, Mohammedans, and Christians. Several pagan tribes, numbering about 200,000 inhabit the mountainous regions of northern Luzon. The Moros, or Mohammedan Malays, are concentrated chiefly in Mindanao and in the Sulu Archipelago. They are estimated to number

around 650,000. The Filipinos of Malay extraction who are adherents of the Christian religion constitute over 93% of the total population. They are the dominant people in the Philippines, and from their number are derived most of the agricultural and industrial laborers, the business and professional men, the educators, and the social and political leaders of the country.

Foreign Population

The 1939 census showed the foreign population to include 115,147 (0.72%) Chinese, 29,006 (0.18%) Japanese, 8,642 (0.05%) Americans, 4,527 (0.03%) Spaniards, and several English, Germans, Hindus, etc.

Philippine Languages

English is spoken by more than 26% of the Filipinos besides Spanish and one or more of the many native dialects. Tagalog, which is spoken by about 25% of the entire population has been adopted as the national language of the Philippines. Official papers may be written in English, Tagalog, or Spanish. English is the medium of instruction in the public schools.

Commonwealth Government

The Government of the Philippines is republican in form based on the principle of the separation of powers which, under the Constitution, are the executive, legislative, and judicial. The executive power is vested in a president elected by the direct vote of the people for a term of 4 years; the legislative, in a Congress which is bicameral - a Senate with senators elected at large by direct vote of the people for a term of 6 years and a House of Representatives with representatives elected by districts for a term of 2 years; and the judicial, in a Supreme Court, Court of Appeals,

Courts of First Instance, Justice of the Peace Courts, and City Courts - all the justices and judges being appointed by the President with the consent of the Commission on Appointments.

Political Subdivisions

The Philippines is divided into provinces and each province is subdivided into towns or municipalities. The governing body of the province is the Provincial Board composed of a provincial governor and 2 board members. A Municipal Council governs each town and consists of a municipal mayor, vice-mayor, and councilors. All these officials are elected by direct vote of the people in the political subdivisions concerned. Aside from the provincial and municipal governments, there are also chartered cities, the governing body of each being a Municipal Board composed of councilors and a city mayor. The councilors are elected by city voters while the mayor is appointed by the President of the Commonwealth.

FILIPINO PHILOSOPHY AND NATIVE TRAITS

The Filipino Way of Life

The Filipinos have a pluralized philosophy. Their dialects reveal this philosophy. The pronoun "we", for example, has in almost all the dialects 3 variations which mean: "we two" - direct; "we three or more and nobody else" - exclusive; and "we all" - inclusive. This is a peculiarity which has more than simply a linguistic significance. It reflects the Filipino way of life. Quoting Mr. Camilo Osias, eminent Filipino educator: "The pluralized philosophy cherishes the idea of rebirth - regeneration. It consecrates itself to fostering tolerance, intelligence, unity. Its hope is that there may be a continuing expansion of life - that life may constantly become

richer and more abundant, to the end that there may be a more genuine and more widespread enjoyment of the blessings of efficiency, freedom, and happiness."

Friendly if Unmolested; Furious if Angered

To know adequately the Filipinos and truly understand them, one has to live among them. Inhabiting a fertile tropical country blessed with the lavish gifts of nature, the natives are naturally contented, meek, and humble. They are peace-loving, polite, and friendly; but, if angered, they are capable of fury at once heroic and reckless. At critical and almost hopeless moments, they are wont to say "Bahala na" - an expression which does not mean "I don't care", but which may be interpreted as "Let Fate take care" - stoic, fatal, determined...

Hospitality: a Virtue and a Vice

Hospitality is a Filipino trait which has been an object of commendation by many impartial observers. "Hospitality", writes Mr. Stuntz, "is a strong point in the native character... Every one who comes to the city stops with 'parientes' or relatives; with 'amigos' or friends. Nothing else is thought of as a possibility." While this quality is in itself a virtue, it may turn into a vice if unwisely over-emphasized, because it encourages indolence and dependence on the part of habitual guests.

Love of Parties; Its Bases

Closely related to hospitality is the Filipinos' love of parties. They have more parties per capita than any people that I know. This love of parties has more than just a social basis. It is partly rooted in religion and superstition - what with baptismal and wedding celebrations, "fiestas" for the numerous patron

saints, and repeated commemorations in honor of the dead!

Misunderstood Trait: Modesty

The Filipinos are, by nature, modest - if I be immodest enough to say it. Before I got accustomed to the frank American ways, it sounded rather strange hearing superlatives: a donor refers to his gift, and truly too, as "the best that money can buy"! The Filipinos, on the other hand, tend towards the diminutives - a character which some foreigners misunderstand as a recognition, tacit or implicit, of native inferiority. A native, for example, would have offered the same gift thus: "Please accept this worthless gift. You deserve better things."

Devotion to Family Ties

Family ties among the Filipinos are tight. Even after the passage of the divorce law, very few took advantage of it. Perhaps this is due to the many unwritten and unspoken laws among the natives. And being unwritten and unspoken, these laws are strong and binding. Or perhaps the religion has much to say about marriage and the family life. Anyway, the family goes on and on. Support-the family is an investment of a kind. For altho the children are maintained for a long time, they are in turn expected to maintain their parents when old. Relatives cluster together around their elders as in a clan. Outside urbanized Manila, houses for the aged are unknown, and poorhouses are not needed because the poorest is always somebody's relative.

Inherent Love of Home

One fundamental Filipino trait which is significantly important in the field of city planning and housing is the native's devoted love of home. History recorded un-

intentionally this innate quality. Pigafetta, the historian in Magellan's company, wrote early in the 16th century: "... Magellan sent some men to burn the natives' houses in order to terrify them. When they saw their houses burning, they were roused to greater fury. Two of our men were killed near the houses, while we burned 20 or 30 houses. So many of them charged down upon us that they shot the captain thru the right leg with a poisoned arrow..." Thus ended the life of the first circumnavigator of the earth. And thus was manifested this love of home - this trait that recently led Filipinos to fight desperately in the foxholes of Bataan. It was not for glory...

THE FILIPINO HOME AND THE FAMILY

The Home and Several Interpretations The English looks upon his home as his castle - his stronghold against enemies; the American regards his home as his investment - a business venture for future security; but the Filipino considers his home as his haven - a port where he finds refuge (physical and spiritual) at all times. It is thru an understanding of this differentiation that I hope to make this thesis clear, and it is because of this interpretation of the Filipino home that I am including in this thesis a considerable space for the social aspect of planning.

Character and Evolution of the Filipino House The Filipino house is open and exposed - almost all doors and windows. This is due partly to climatic conditions and partly to the native trait which bespeaks of trust and friendship. As a provision against the copious rains and the intense sunshine, the overhanging eaves of the roof are wide - giving the entire house a definite "protective" feeling as of a hen with outspread wings

calling to its brood. The old houses had very few rooms - in some just 1 large room which served as a "living" room and where everybody was welcomed - a distinct influence of the Orient. The many intricate decorative details were also oriental. Then the house took on a religious aspect due to the influence of the Spanish churches. Religious pictures were hung all over the walls. And because there were parties that were given to celebrate the many religious fiestas, the kitchen had to be built large enough to accommodate neighbors and friends who came to help during such occasions. With the coming of western civilization and the urbanization of cities, convenience, comfort, and efficiency had to be considered in the house designs. Modern sanitary facilities, mechanized gadgets, and functional details were incorporated to take the place of out-dated items. Thus the present Filipino house - an evolved and still evolving creation!

Marriage, Monogamy, and the Family Unit

For years and years, marriage in the Islands has always been and always will be a sacred institution. Marriage, as it is now under the accepted influence of custom, the church, and the state, is at once a heritage, a sacrament, and a civil trust. Christian Filipinos are monogamous and they regard the family as the basic social unit where the husband is the head not only because he wants to be, but also because the wife expects him to be. W. Gifford Palgrave, and Englishman who traveled in the Philippines, observed of the Filipino husband: "His family . . . is a pleasing sight: much subordination and little constraint, unity in gradation, liberty not license. Orderly children, respected parents, women subject but not suppressed, men ruling but not despotic, reverence with kindness, obedience in affections . . . "

The Role of Each Member of the Family

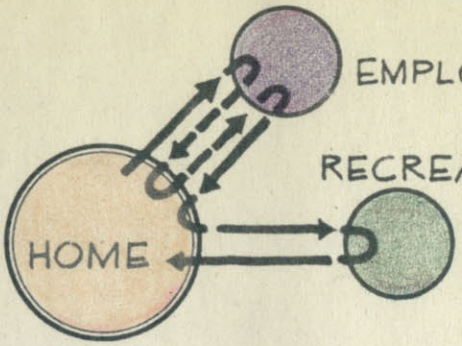
In the Filipino household, the man does the hard work; the woman, most of the work. The man earns the family rice and protects and maintains his children. If still able, he provides for their education even when they are already old enough to earn for themselves. The wife is the hostess of the home, in the true sense of the word, and acts as the custodian of the keys and the family funds. She raises the children and looks after their education. She guards and exemplifies the family morals. The children help in the household work as soon as they are old enough to do so, obey, and behave.

A Day with a Filipino Family

Spending a day with a Filipino family will illustrate the smooth inter-relation of these roles. Figs. 4 and 5 have been prepared to illustrate graphically the sequence of daily activities. It is one of those week days. The mother wakes up earliest - about 5:00 A.M. She prepares the breakfast and then either joins her husband at the table or attends to her children and has breakfast with them later. The father leaves for work at 7:00 and returns home at noon for lunch. At times, he takes his lunch to his work. Anyway, in either case he usually takes,after lunch, a short nap ("siesta") which is very refreshing during warm weather. But let us return to the mother. After she has prepared her children for school and has fed the young, she goes about her household chores. At 9:00 she goes to market and buys enough provision for a day; refrigeration is still a luxury in the Islands. She cooks the lunch and when the children come home from school at 11:00, they help her in the household work. Usually all the members of the family eat together except the very young ones who are fed first. After playing with the little ones, the mother takes a short siesta with them, and then returns to her work - a duty which she loves

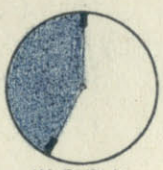
FILIPINO PARENTS' ACTIVITIES...

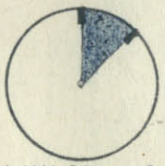
FATHER

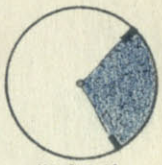



WAKE UP


WASH, ETC. BREAKFAST


WORK

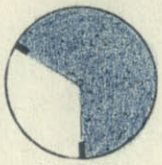

LUNCH & SIESTA...


WORK

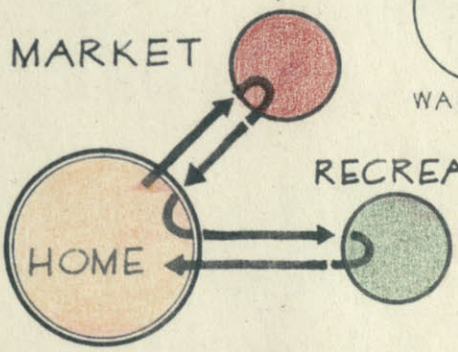

MERIENDA & HOUSEHOLD

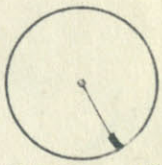

DINNER


RECREATION


SLEEP

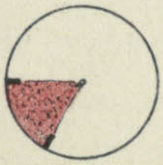
MOTHER

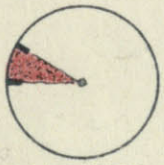


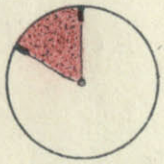

WAKE UP


COOK, ETC.

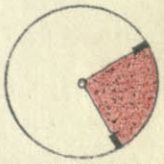

BREAKFAST & CHILDREN


HOUSEHOLD


MARKET


COOK ETC.

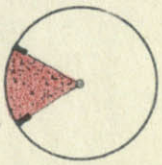

LUNCH & SIESTA...


HOUSEHOLD


MERIENDA & CHILDREN


COOK, ETC.

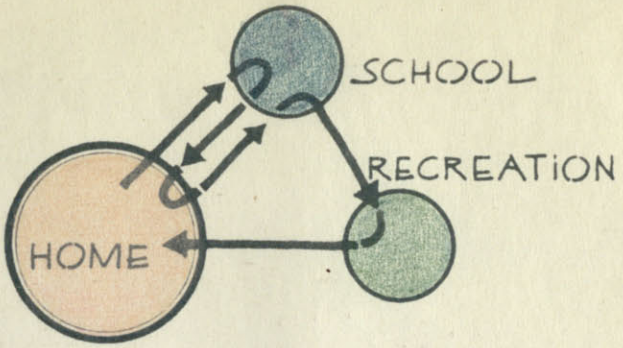

DINNER

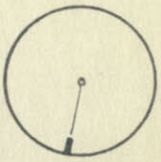

RECREATION


SLEEP

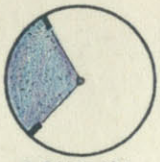
FILIPINO CHILDREN'S ACTIVITIES

7-18 YRS.

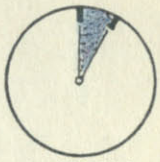





WASH, ETC. BREAKFAST


SCHOOL


HOUSEHOLD


LUNCH


SCHOOL


RECREATION

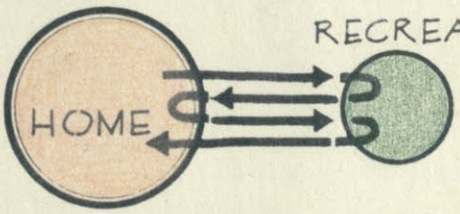

MERIENDA & HOUSEHOLD

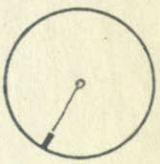

DINNER


STUDY

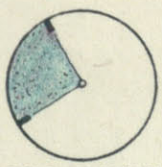

SLEEP

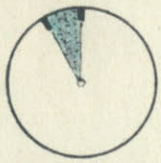
2-6 YRS

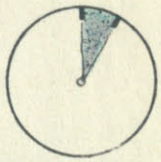


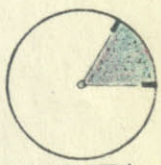

WAKE UP

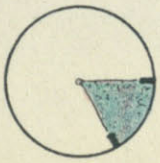

WASH, ETC. BREAKFAST


RECREATION & HOUSEHOLD


LUNCH

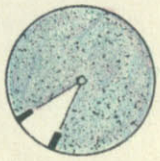

HOUSE GAMES


SIESTA


RECREATION


MERIENDA & EDUCATION


DINNER


SLEEP

because she has been taught to. She indulges in the traditional woman's art of preparing native cakes and pastries, and when the father and children come home, all partake of the "merienda" - a sort of a heavy tea. She and the older girls cook the dinner, or just heat the food, while the father and the older boys attend to the harder household jobs: chopping wood, repair work, etc. Dinner together, and while the older children study their lessons and the younger ones go to bed, the father and mother take time out and have recreation for themselves: visiting friends, movies, etc.

Neighborliness and Fences between Houses

The relation and dealings of a family to its neighbors are in almost all instances friendly - more in the spirit of "give" than "take". It is not uncommon that when a certain family has a special kind of food it makes it a point to prepare more than what is necessary for its own needs so that the neighbors may be given and therefore share also in the enjoyment of the delicacy. Fences between the smaller houses are seldom built, but the more substantial ones have dividing fences made of wood, adobe stones, or even wrought iron grilles of elaborate designs.

GEOGRAPHY

Location of the City of Manila

Manila, the capital of the Philippines, is situated on the west central coast of the Island of Luzon - at the eastern inner shore of Manila Bay, or precisely on longitude 120 degrees and 58 minutes East and latitude 14 degrees and 37 minutes North. It has been built athwart the mouth of the Pasig River which meanders thru it and farther still to Laguna de Bay, the river's source, about 32 kilometers (20 miles) in the interior.

Area and Topography of the City

The city has an area of about 37 square kilometers (14.3 square miles). It's widest W-E dimension is about 6½ kilometers (4 miles); N-S, about 8½ kilometers (5¼ miles). It lies almost entirely on flat terrain, the surface of which being only a few feet above mean high tide. To the east and the north, however, are the low hills of Santa Mesa and, beyond, those of San Juan del Monte and of newly built Quezon City. The lowlands are mostly of alluvial formation: sand and clay and loam - soft and yielding. The hills, however, are of harder materials: clay and adobe limestone. See Fig. 2.

Districts and Suburbs of Manila

Manila is divided into 14 districts: Tondo, San Nicolas, Binondo, Santa Cruz, Quiapo, Sampaloc, and San Miguel on the north side of the Pasig River; and the Port Area, Intramuros (or Walled City), Ermita, Paco, Pandacan, Malate, and Santa

Ana on the south side. Manila is surrounded by residential suburbs: Caloocan, Quezon City, San Juan del Monte, Makati, Guadalupe, Pasay, and Parañaque.

HISTORY

The First Spanish Expedition

Soon after Miguel Lopez de Legaspi, the first Spanish governor of the Philippines, completed his conquest of the Visayan Islands in 1565, he heard about a growing settlement called "Maynila" in Luzon Island. He sent an expedition under his field marshal, Martin de Goiti, to explore the prosperous settlement. Manila then was ruled by Rajah Soliman and was protected by a heavy bamboo palisade manned by many armed native warriors, And small native cannons stood guard at the gates! At first the relations between the Spaniards and the natives were friendly, but soon the Spaniards attacked and captured Manila against the resistance of the Filipino warriors.

The Second Expedition and Legaspi

Evidently the place had not yet been fully conquered until Legaspi himself commanded a second expedition a few months later at which time he met another Filipino chief named Lacandola, the King of Tondo. As in the first expedition, the Filipino ruler met the Spaniards in a friendly manner. Legaspi, however, launched a methodical attack which, to his surprise, was met with much stronger resistance by the Filipinos. In that unequal struggle, the native defenders were finally subjugated and Manila was for the second time occupied. It was at this juncture when Legaspi began to improve the settlement by laying out streets, building houses, establishing a convent and a church, and reconstructing the old fort. It took

him about 6 years to accomplish some of his major projects, and on June 3, 1571, he proclaimed Manila a city.

Other Events and the Fall of Spain

After suffering various vicissitudes, including insurrections and attacks by Chinese pirates, the city of Manila undertook, in 1590, extensive fortifications, of which parts are still in existence. An attack by the Dutch in 1602 was successfully beaten off, but the city finally succumbed in 1762 to the English who occupied the place until the treaty of 1764, by terms of which the city was returned to Spain. From that date to 1896 the history of Manila was uneventful. Then the Filipinos rose in revolt to free themselves from Spain. This revolt was still raging when Admiral Dewey ended the Spanish sovereignty over the islands.

American Rule and D. H. Burnham

The American occupation was a progressive period in the development of Manila. The Filipinos, who were taught to run their own local government, made use of their opportunities in improving their city. As early as 1905, David H. Burnham and Pierce Anderson were engaged to submit a plan of proposed improvements for the city. The aim of the plan was to provide:

1. Development of water front and location of parks and parkways so as to give proper means of recreation to every quarter of the city.
2. The street system securing direct and easy communication from every part of the city to every other part.
3. Location of building sites for various activities.
4. Development of waterways for transportation, and
5. Summer resorts.

This plan was followed partly as far as local physical conditions allowed, for it has to be noted that Messrs. Burnham and Anderson prepared the

THE SITE

M A N I L A B A Y

MANILA P.I.

PLAN OF PROPOSED IMPROVEMENTS

THIS PLAN ACCOMPANIES REPORT TO HON. WILLIAM H. TAFT SECY. OF WAR.

NOTE:-
FOR CONVENIENT NUMBERING OF BLOCKS THE CITY IS DIVIDED INTO TWO SECTIONS, NORTH AND SOUTH SEPARATED FROM ONE ANOTHER BY THE PASIG RIVER.
INDICATES PRESENT BUILDINGS.
INDICATES FUTURE BUILDING SITES.

APPROVED JUNE 28. 1905
D. H. Burnham
Chas. Moore

6

plan "in the absence of contour maps and detailed information regarding real estate conditions" in and around the city. See Fig. 6.

CULTURES

Manila and Its 3 Distinct Cultures

Manila, as I knew it, stood out vividly among the cities of the Far East. It was a city of many interesting and picturesque contrasts ranging all the way from flimsy nipa huts, medieval Spanish churches, quaint carabao carts, and gauzy native dresses to tall concrete edifices, smart cars, gay night clubs and theatres, busy stock exchanges, and hot swing music. In Manila the old tolerated the new, the white blended with the brown, and the East met the West in a delightful, scintillating kaleidoscope not to be found elsewhere and which had an irresistable appeal best described as Filipino. For Manila exhibited 3 distinct types of culture and development: the ancient oriental, the medieval, and the modern.

Tondo's Ancient Oriental Culture

Tondo, representing the ancient oriental, was the oldest district of the city. In it were still discernible the vestiges of native life as they were before the coming of the Spaniards. This was the most populous part of Manila and the home of a large part of the poor and the laboring class. Flimsy, combustible shacks of bamboo and nipa predominated in the area.

Intramuros and Its Medieval Culture

The medieval was represented by Intramuros, or "The Walled City", the historic capital of Islas Filipinas under the Spanish rule. It was a truly medieval city splendidly preserved - a city of narrow streets, thick stone walls, arched gates, and a moat; of convents and churches; and of tile-roofed houses, patios,

and balconies which had witnessed the intrigues of several romantic and glamorous centuries.

Manila and Its Modern Culture

Modern Manila - Malate, Ermita, and the downtown areas - boasted of all the conveniences, the amenities, and the attendant evils of western culture. It had its acacia bordered boulevards, broad asphalted avenues, street cars, billboards and traffic jams, imposing residential structures, bustling factories with their accompanying din and dust, fine universities and schools, and parks. All these combined to make Manila as I knew it. I expect to find it still there when I go home.

CLIMATE

The Influence of Climate on a People

In giving you a description of the Philippines in general, a short and sketchy statement of the climate of the entire archipelago was included. At this juncture it may be appropriate to talk again "about the weather", this time about that of Manila in particular in so far as it affected its urban social structure and influenced the activities of its people. As we all know the climatic conditions of a place have much to contribute in molding the form and the character of a people. One may even say truthfully that the climate is reflected in the very nature and philosophy of that people.The climate determines how the people may live fully and charts for them the course to follow and the destination to aim for. The rains, the temperature, the sunshine, and the winds have their own parts to play separately and together; so I am presenting them here in tables and diagrams as a background for that social play, so to speak, acted

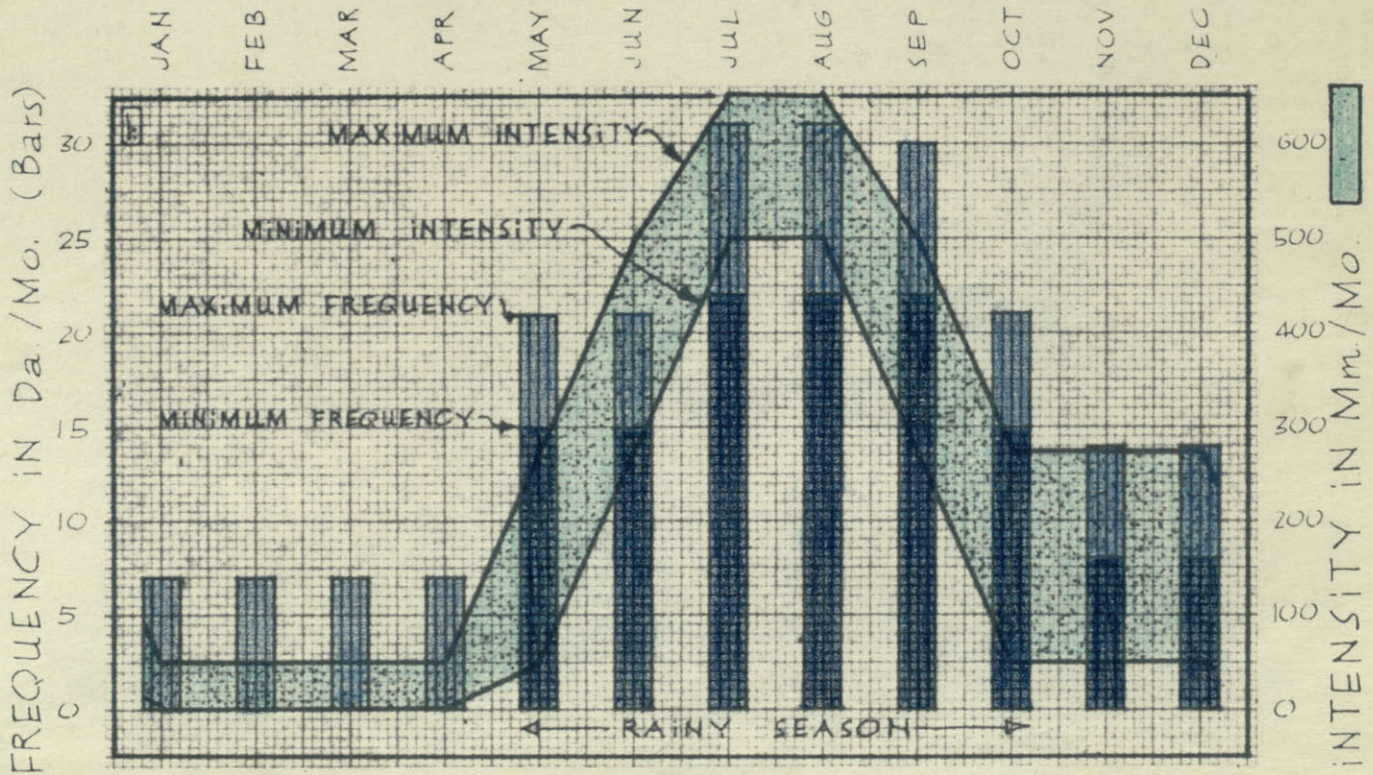
day in and day out by actual people. To establish a common basis among all of us, I am including data about Boston, Massachusetts, so that by direct comparison, the peculiar conditions in Manila may be more comprehensible and, therefore, better understood.

The 2 Seasons and Manila's Rains

Manila has only 2 seasons: the wet and the dry. Unlike America, my country does not have distinct springs, summers, autumns, and winters. And Manila is no exception. It reckons the time of the year by the amount of rain that falls. And when it rains in Manila, it pours. The wet (or rainy) season begins from May and lasts up to October, with July and August being the wettest months of all. The normal rainfall intensity for July and August files up to 17 and $16\frac{1}{2}$ inches respectively. During these 2 months it may rain anywhere from 22 to 31 days a month. Boston, for comparison, has only about $3\frac{1}{2}$ inches of rain during July and during August, and such an intensity is about the highest in the almost uniform distribution of rainfall for this New England city. From November to April, Manila is practically dry, altho during November and December it may rain occasionally - 8 to 14 days a month. Normally, there are about 146 rainy days per year in Manila with a total average rainfall of 82.09 inches as compared to Boston's 40.14 inches per year. See Table 2 and Figs. 7 and 8.

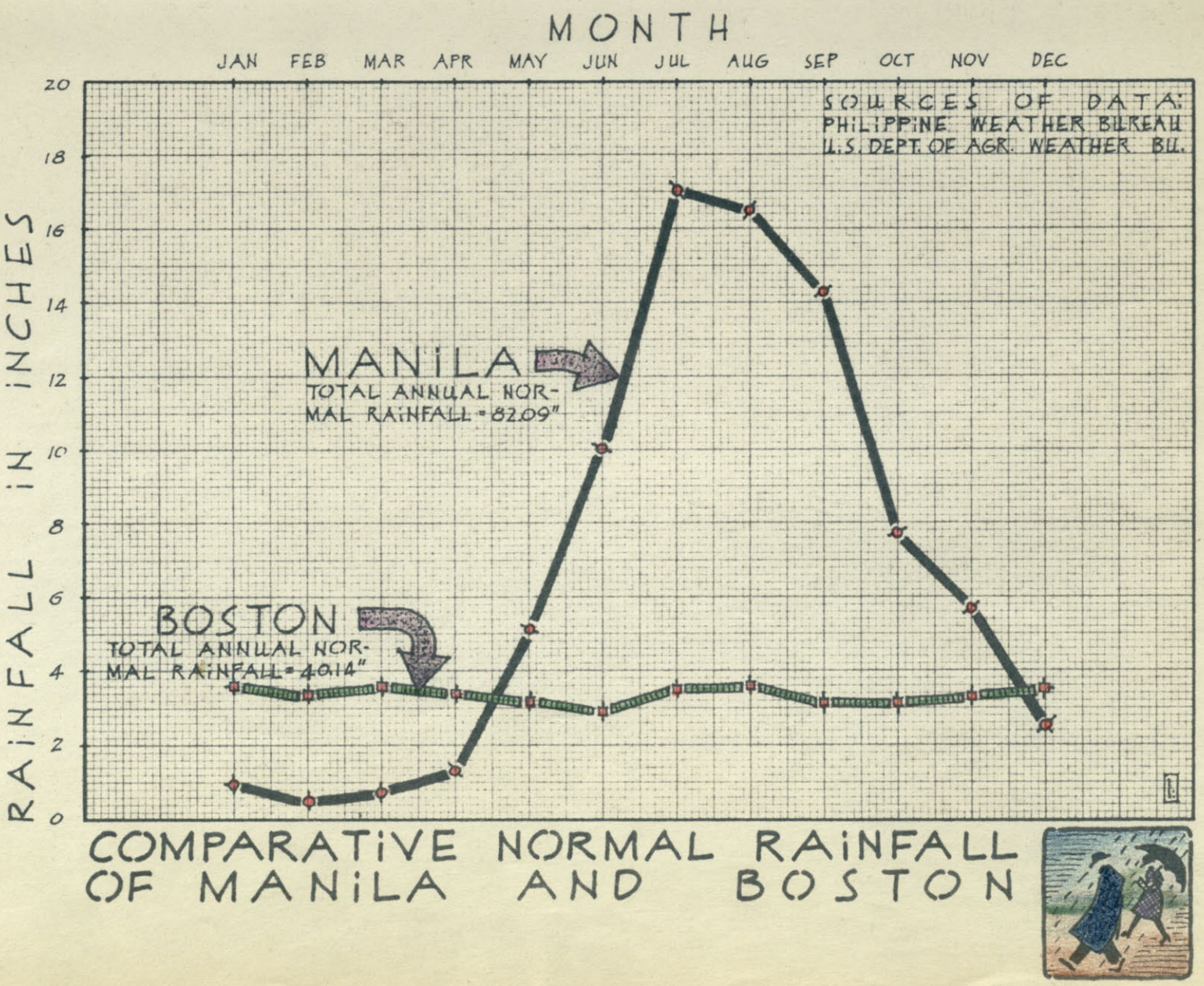
Manila and Its Temperature

Even tho Manila may have an average normal temperature of about 83 degrees F. (mean maximum day temperature of 94 degrees F. and mean minimum night temperature of 75 degrees F.) in the hottest months of April and May, sunstroke is practically unknown in the city. The temperature varies only slightly during the entire year. December, January, and February have many delight-



VARIATION OF RAINFALL IN MANILA

SOURCE OF DATA - PHILIPPINE CENSUS 1939

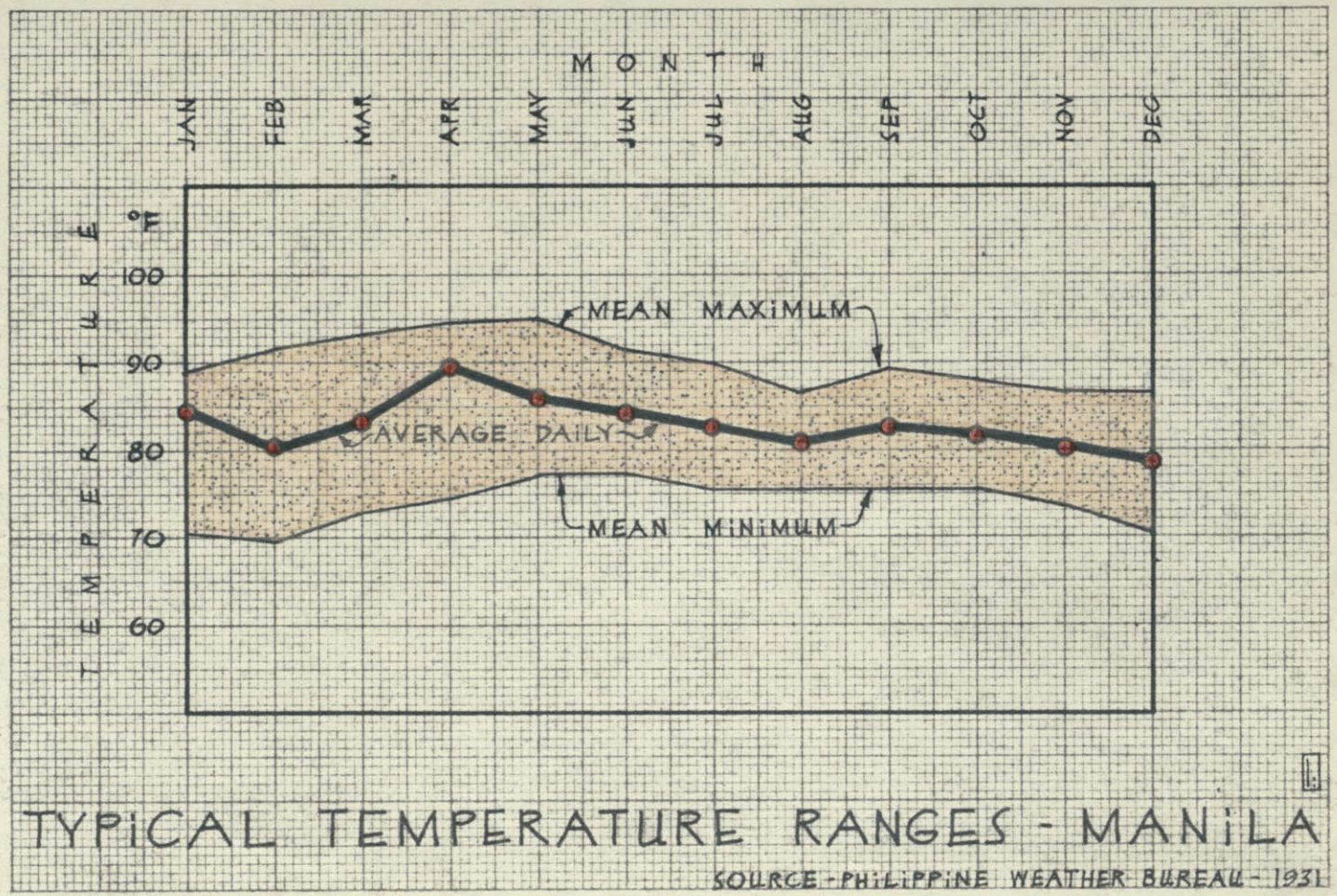


COMPARATIVE NORMAL RAINFALL OF MANILA AND BOSTON

fully cool nights. During these months the thermometer goes to as low as 70 degrees F., and that is already "cold". Boston's average normal temperature curve may be below that of Manila for the entire year, but one does not feel the heat so much in the Islands because of the very light clothes worn and the lack of hurry in the daily physical activities and also because one learns to be accustomed and familiar to the ever present heat. One cannot help being familiar! See Table 1 and Figs. 9 and 10.

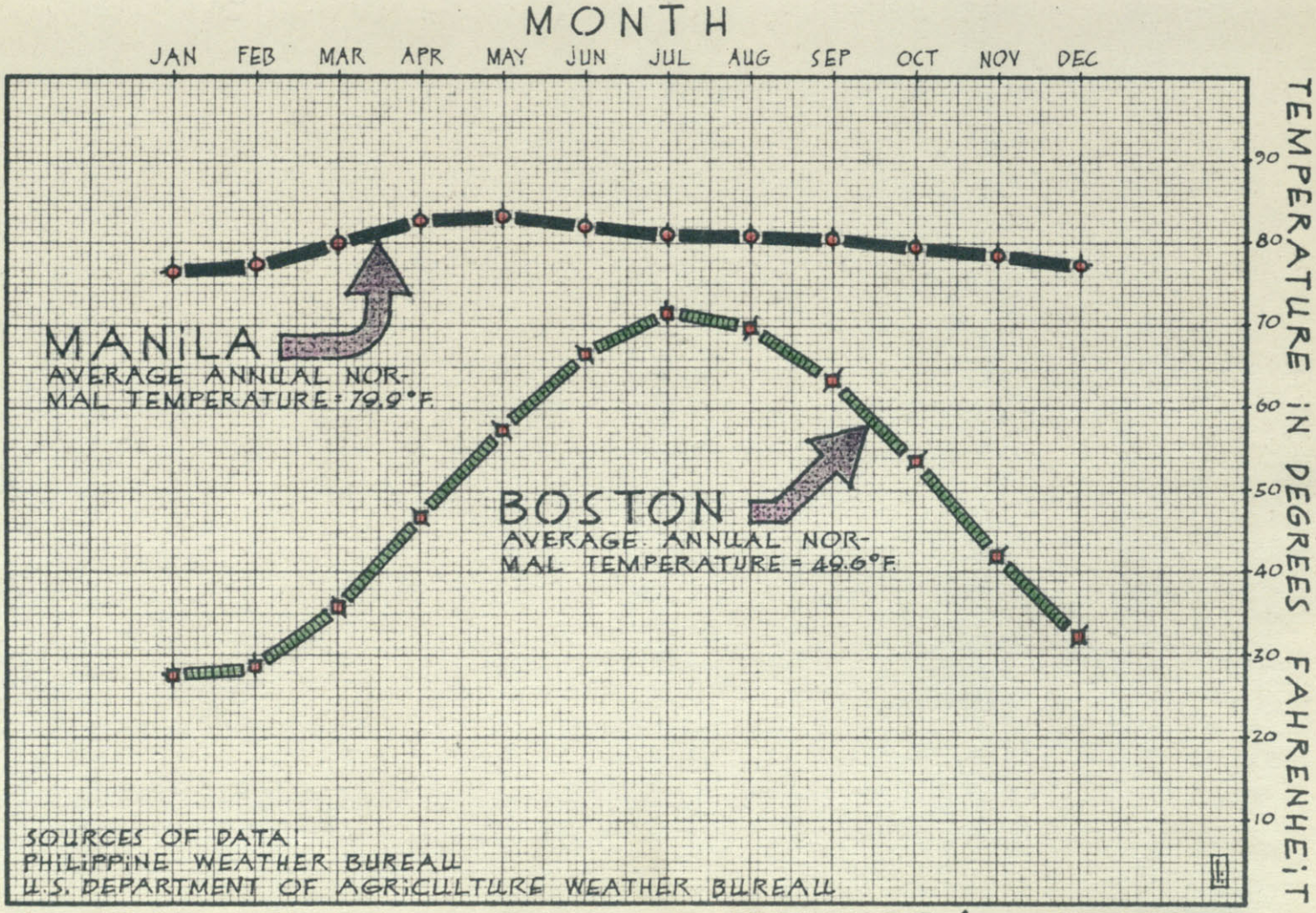
Sunshine of Manila - Intense but Short

Manila is a city of intense sunshine and short sunlight duration: beautiful early mornings, bright noons, pleasant late afternoons, and magnificent sunsets that hurry with their gorgeous display of changing colors. It must be remembered that sunshine has 2 elements: intensity and duration. The latter designating the time the sun effectively shines above the horizon. Both affects health and disposition. Fig. 11 exhibits the relation of the mean insolation to the maximum possible sunshine and to the length of the day in Manila, based on observations of the Philippine Weather Bureau from 1890 to 1927. "A" represents the actual effective insolation; "B", the maximum number of hours of sunshine under a perfectly clear sky; and "C", the length of the months. Between "A" and the axis of the abscissae is the proportionate space representing bright sunshine; between "A" and "B", shady sunshine or sunlight thru clouds; and between "B" and "C", the duration of the night. These 3 spaces reveal: 1. the relation of day and night during the year, 2. the proportion of clear and cloudy sky, and 3. the relation of the possible and the actual number of sunshine hours. If the orbital motion of the



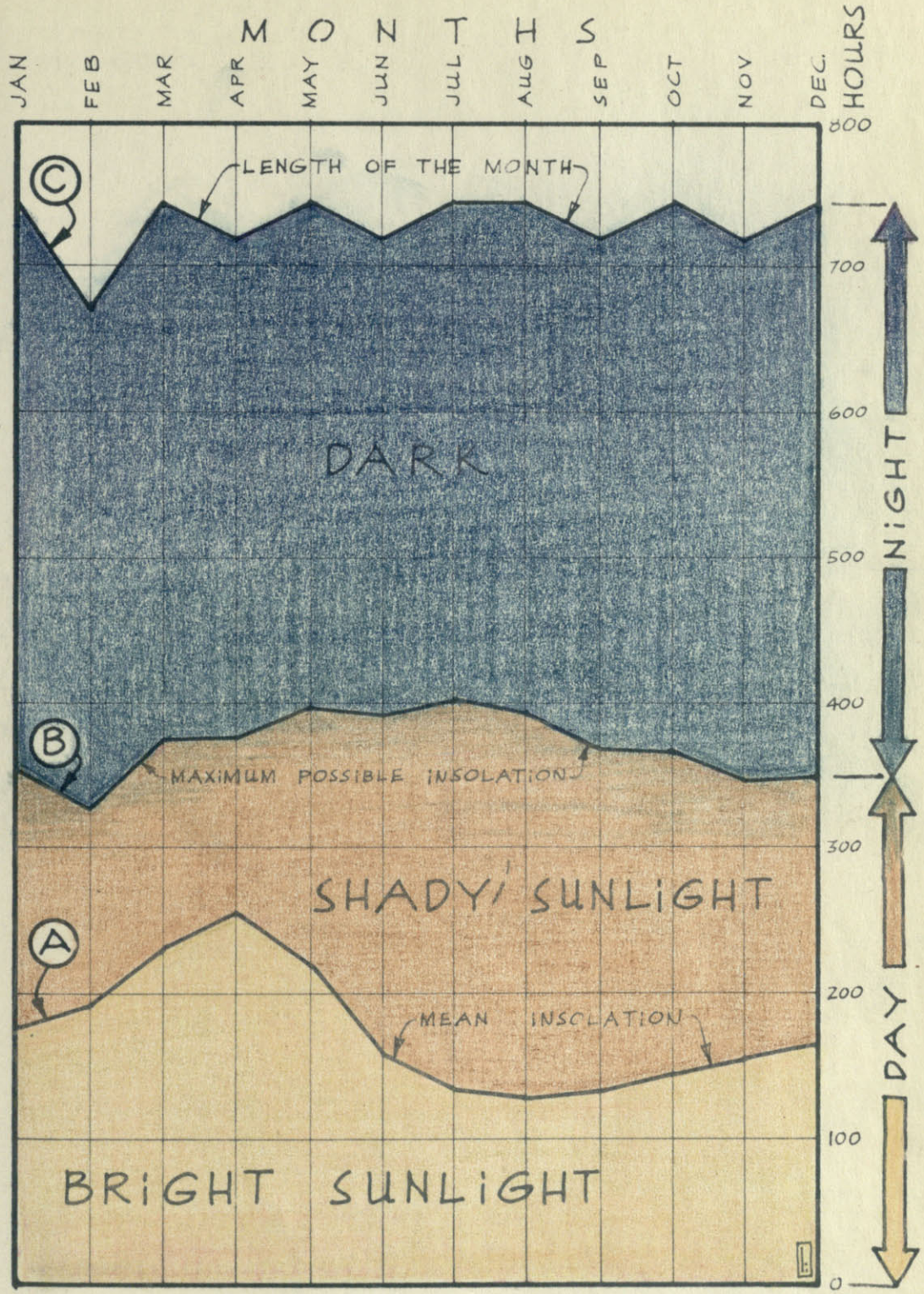
TYPICAL TEMPERATURE RANGES - MANILA

SOURCE - PHILIPPINE WEATHER BUREAU - 1931



COMPARATIVE NORMAL TEMPERATURE OF MANILA AND BOSTON.

10



MANILA SUNLIGHT

MEAN OF OBSERVATIONS FROM 1890-1927

SOURCE OF DATA - WEATHER BUREAU - 1928

earth were the only determining factor, the maximum insolation should occur around the summer solstice when the sun attains its maximum declination and remains longest above the horizon. Yet the observations showed that the maximum insolation occurs not in the solstitial month of June, but in April. Fig. 12 compares the normal insolation of Manila and Boston: while the former may have a shorter duration of sunlight than the latter, it has more intense sunshine. For detailed figures on mean duration of sunlight, see Table 3.

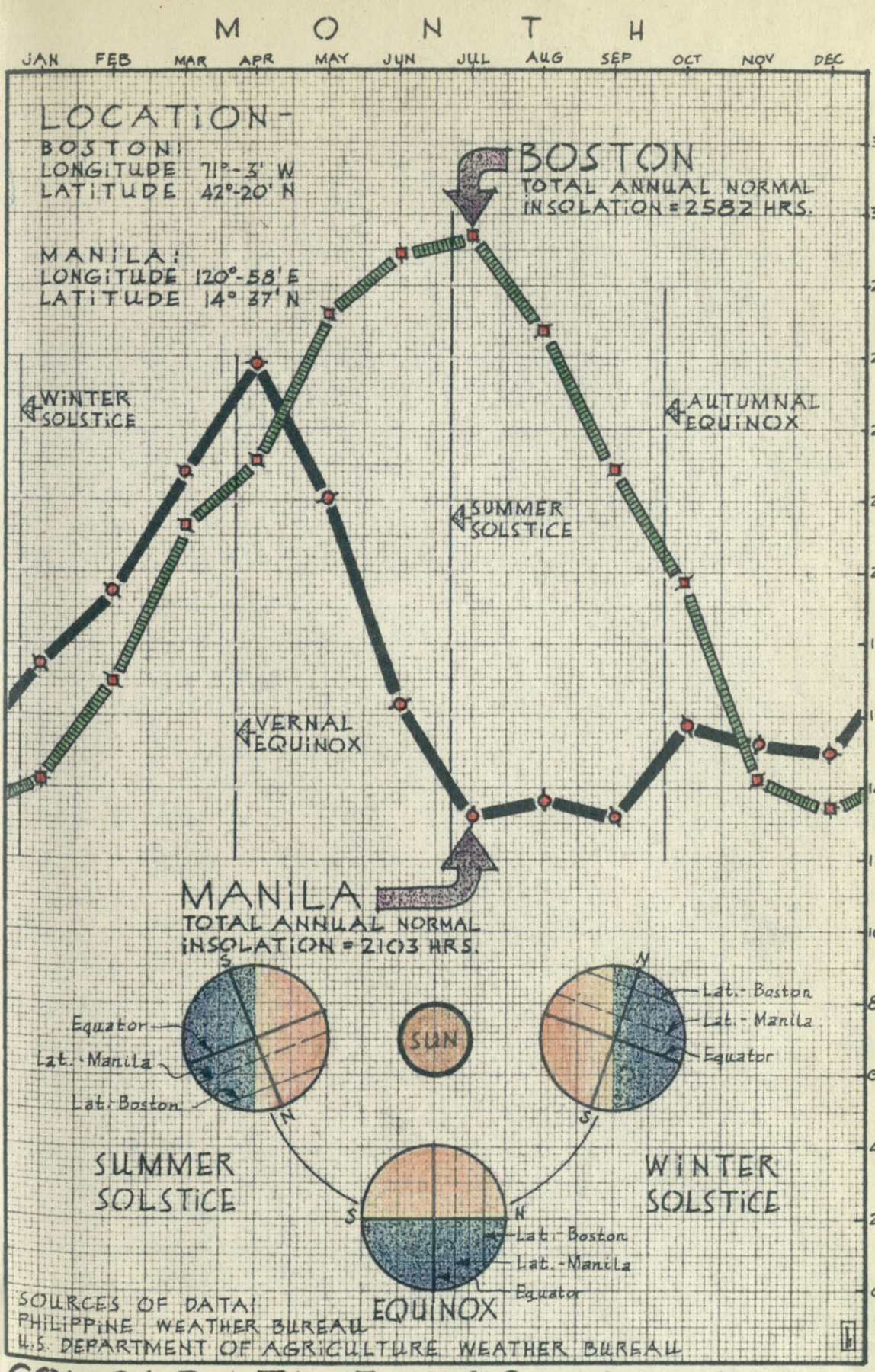
Manila's Many and Variable Winds

The winds of Manila are many and variable, but the most prevalent are the E and SE from February to June, the SW from June to October, and the NE from November to January. From these directions, it is apparent that most of the winds come from inland between November and June, and from the bay between June and October. Those of Boston seem to be less fickle. In Manila, however, there may be typhoons every now and then, but the maximum velocity of the wind varies only between 17 and 26 miles per hour - which is quite constant as compared to that of Boston which varies considerably between 25 and 48 miles an hour. See Table 3 and Fig. 13.

PHYSICAL FEATURES OF THE SITE

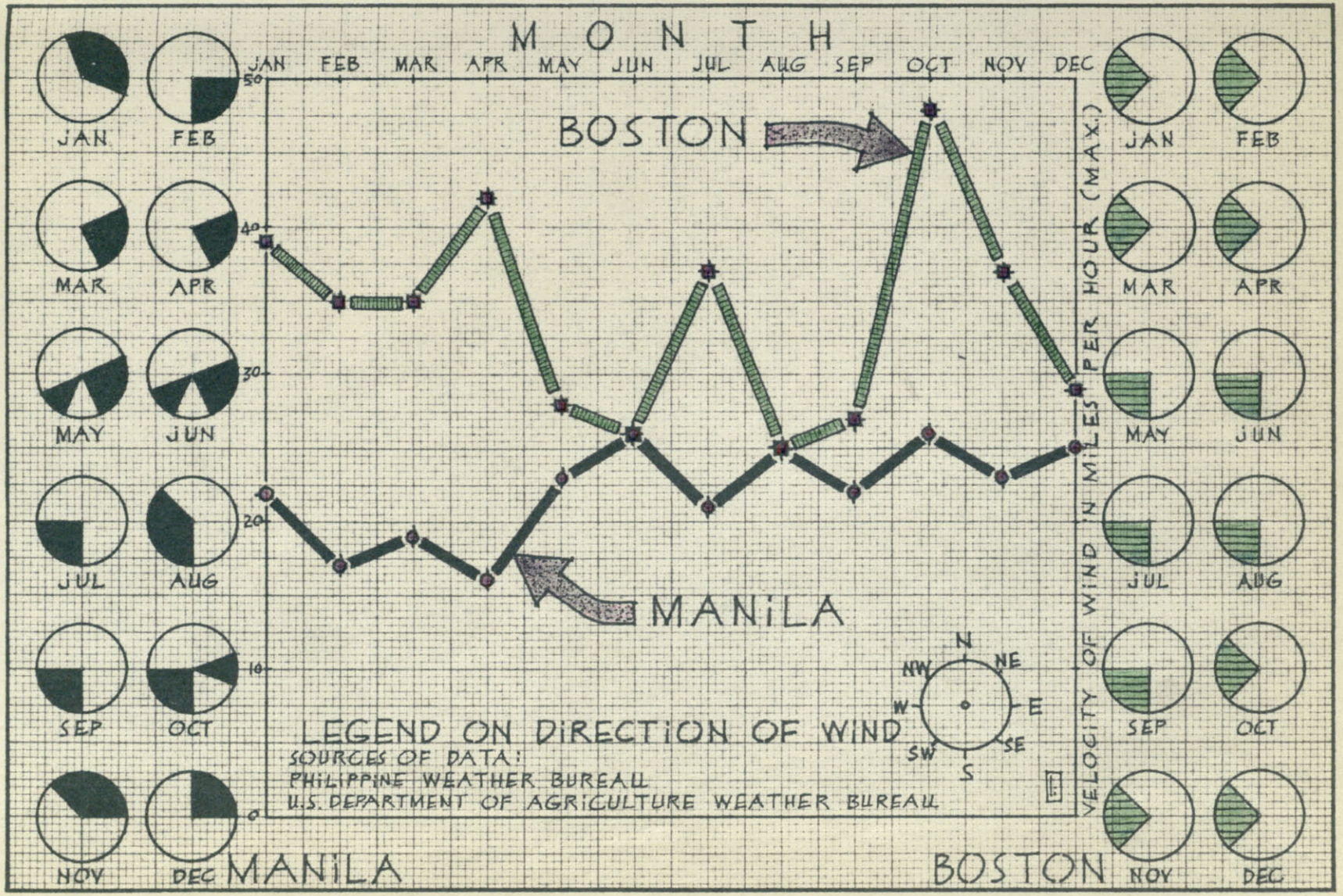
Location, Boundaries, and Area of the Site

From the climate of the city, the attention will be focused on the physical characteristics of the site in Tondo - the northwest and the oldest district of Manila. This site embraces a section of the district which was razed by the fire of May 3, 1941, eliminating (shall we say fortunately) one of the worst slums of the city. Unfortunately, however, approximately 20,000 residents



COMPARATIVE NORMAL INSOLATION OF MANILA & BOSTON

12



COMPARATIVE WIND DIRECTION AND VELOCITY IN MANILA AND BOSTON

were rendered homeless, 3,000 humble homes destroyed in an area covering well nigh 556,000 square meters or 137.5 acres. The site to be planned will include more than this burned area, however. The site will be bounded by natural barriers: the proposed railroad extension and Estero de Vitas on the north, the Estero de la Reina on the east, Moriones Street on the south, and Manila Bay on the west. It will have an area of about 830,000 square meters (83 hectares) or 336 acres, more or less.

Topography and Description of the Soil — The site has a flat uninteresting topography, the average elevation being only a few feet above the mean high tide level so that during torrential rains the narrow canals, often referred to as "esteros" overflow their banks especially at high tide flooding the many low places and making some of the unpaved streets extremely muddy. The beach on the west - that is if it could be called a beach - has been advancing slowly outwards to the bay due to the deposit of silt and debris carried by the run-off and by the waters of the Pasig and the esteros. The soil is of alluvial formation like most of the soil along Manila Bay. It is soft and its capacity to bear heavy loads is very low. The site has very few trees and most of these are along Moriones Street and the small "plazas", or parks, south of it.

Manila Esteros and Water Transportation — The esteros ramifying thruout Manila, with their sluggish and muddy waters, have been used by the natives since pre-Spanish time to transport their goods to market by means of small boats, called "bancas" hewn out from solid logs, and large flat boats called "cascos". Some of these esteros have been widened, dredged to a practical depth, and provided with masonry banks. Others, however, like Estero de Vitas and part of Estero de la Reina

which are located in the site being considered, are still undeveloped and in need of immediate improvement for practical and aesthetic purposes. Nipa shacks have been built close together and immediately adjacent to these esteros so that the banks can not be used for the loading and unloading of frieght on the boats. During certain parts of the year these esteros are laden with ill-smelling algae and clogged with hyacinth which become more of liabilities than assets when they reproduce to such great quantities.

The Existing Street Pattern

The street system at the site indicates a haphazard pattern altho there seems to have been a decided attempt at the gridiron layout especially among the more recent streets. The principal traffic arteries which run approximately in the N-S direction must have just grown out of necessity and chance rather than laid out in advance in accordance with a plan. At the time (1905) when Mr. Burnham submitted his proposed plan for Manila, these streets were already in existence and were simply incorporated in that plan. Most probably these streets started as trails for the still existing carabao-drawn carts and horse-drawn vehicles, called "caromatas" or "calesas", and later were widened slightly and paved for the use of automobiles and street cars. The cross streets running approximately in the W-E direction are, however, more or less parallel to each other. "Calles", or regular streets about 12 meters (40 feet) wide, alternate with "callejones" or alleys about 6 meters (20 feet) wide. Houses front on both the streets and the alleys, for the latter are not intended for service access at all. Existing streets in the site, which are not all paved, amount to almost 21% of the total area of the site. See Map A.

The Various Sizes of Tondo Blocks

At first glance, the above percentage of street area to the total area may seem well within the recommended standards for well-planned American cities. But a study of the present streets on the attached maps and aerial photographs will indicate a peculiar feature of the site which is quite characteristic of the greater portion of Tondo: some parts of the district have an excessive number of streets resulting in short and narrow blocks, while other parts are so deficient in streets that one has to follow mere foot-paths between congested houses in order to reach other congested houses in the interior of the blocks. For lack of data and because these numerous foot-paths are not public property, they were not included in the computed total street area. The predominant block, however, has a width of about 30 meters (100 feet) and a length of about 140 meters (460 feet), altho the length of some blocks may be anywhere from 30 meters to 200 meters, or more.

The Assessed Land Values in 1941

Deduced and computed from an estimate by the Office of the City Engineer of Manila of expropriated areas for the proposed widening and construction of streets in the site, it was found that the 1941 assessed land values in this area ranged from about P5.00 per square meter ($0.25 per square foot), or less, on the greater part of the site along the shore of Manila Bay to as high as P18.60 per square meter ($0.93 per square foot) on Moriones Street near Juan Luna Street. Land along Juan Luna Street and partly along Sande Street was assessed at about P10.00 per square meter ($0.50 per square foot), while that along Herbosa Street near the Tondo Market was marked at P11.65 per square meter ($0.58 per square foot). From

these sections the assessed land values decreased towards the bay and towards the esteros as indicated graphically by the gradation of colors on the map showing the 1941 assessed land values. See Map C.

Land Use Pattern and Distribution

From this general picture of the variation in the assessed values of land and referring to the present land use, Map D , it is interesting to note that the more expensive areas had been used extensively for business or commercial purposes; the medium-priced, for multi-family residences and light business; and the cheapest, for single-family shacks and for stables. The better single-family houses and the industrial concerns were in the areas assessed between P7.00 and P9.00 per square meter ($0.35 and $0.45 per square foot). The land uses on Map D for the vicinity immediately adjacent to the burned area may not be absolutely accurate, but they give a general idea of the distribution of uses at the time of the fire. Having been familiar with the site since 1932 while doing field survey for the Metropolitan Water District of Manila and having been furnished aerial photographs taken by the U.S. Army during the conflagration, I prepared the land use map in order to establish a relationship between the site being studied and its immediate surrounding.

Light and Heavy Industrial Uses

The industries, both light and heavy, were grouped around the Tutuban Railroad Station - along the east end of Moriones Street, on Dagupan Street up to Perla, and on Azcarraga and Soler Streets. The light industries were mostly warehouses for the storage of rice, copra, and sugar, shirt and garment factories, and soft drink bottling establishments. Heavy industries included foundries, saw mills, and lumber yards.

BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941

RELATION OF THE SITE TO THE CITY OF MANILA

The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

NOTE ON UNIT VALUES:
P10.00 PER □ M.
=$.50 PER □ FT.

SCALE in FEET
0 100 200 300 400 500

SCALE in METERS
0 20 40 60 80 100 120 140

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

1941 ASSESSED LAND VALUES
A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
- BELOW P6.00/□ M
- P 6.00 - P6.99
- P 7.00 - P7.99
- P8.00 - P8.99
- P9.00 & OVER

SOURCE OF DATA: COMPUTED APPROXIMATELY FROM LIST OF PROPOSED IMPROVEMENTS

BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941

RELATION OF THE SITE TO THE CITY OF MANILA

The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

CALOOCAN

THE SITE

MANILA BAY

MAKATI

PASAY

4 Km

3 Km

2 Km

1 Km

NEPOMUCENO

MALVAR

LALLANA

KATIPUNAN

EMILIO JACINTO ELEMENTARY SCH

GENARO

INOCENCIO

ESTERO DE VITAS

BOUNDARY OF BURNED AREA

JUAN LUNA

TORRES HIGH SCHOOL

SCALE in FEET

0 100 200 300 400 500

AETA

TIOCO

HERBOSA

VAZQUEZ

TONDO MARKET

FRANCISCO

TAYUMAN

RIZAL ELEM. SCH.

ARQUEROS

BALAYA

BAKLASAN

ESGUERRA

DANDAN

CORCUERA

CALEZAS

ESTERO DE LA REINA

PRUDENCIA

PINKIANZ

ENDAYA

GABRIELA

HAMABAR

MERCADO

JOSE BASA

KOLAMBU

LAMPAS

MALONG

NICODEMUS

C. OCAMPO

PILAPIL

PERLA

MEJORADA

DAGUPAN

SIAGU

MANILA

VELASQUEZ

PANDAPIRA

AMARLANHAGUI

FRANCO

PEÑALOSA

TELLO

PACHECO

NICODEMUS

CORAL

PILAPIL

PERLA

MEJORADA

SANDE

FAJARDO

A. REYES

PAVIA

AGUILA

CONCHA

RICAFORT

STA. MARIA

QUESADA

TONDO PRIMARY SCHOOL

MORIONES

MARY JOHNSTON HOSPITAL

MORGA

TONDO ELEM. SCHOOL

LORENZO CHACON

M. CANO

JOSE PALMA

TONDO CATHOLIC CHURCH

HERRERA

PLAZA LEON XIII

TONDO FIRE STA

LACANDULA

RAXA MATANDA

PLAZA LIGA FILIPINA

ALBUQUERQUE

PANGA

FOLGUERAS

C. PAGUIRE

PADRE RADA

YLAYA

BILBAO

MARIA PAYO

TEMPLO DE SOLOMON

PRESBYTARIAN CHURCH

AZCARRAGA

SOLER

QUINGCO MARKET

MANILA RR STA

MANILA BAY

N

SCALE in METERS

0 20 40 60 80 100 120 140

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

LAND USE IN AND AROUND THE SITE

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:

- SINGLE FAMILY
- MULTI-FAMILY
- STABLES
- BUSINESS
- PARKS AND SCHOOLS
- CHURCHES
- HOSPITALS, ETC.
- LIGHT INDUSTRY
- HEAVY INDUSTRY

SOURCE OF DATA: PICTURES AND MEMORY

Business and Commercial Concerns

Business and commercial concerns, which included general stores, restaurants, garages and service stations, beauty parlors and various shops, lined most of the principal streets. A public market on the corner of Herbosa and Sande Streets served the district. Strategic street corners, even in the interior blocks, were occupied by small retail stores, called "sari-sari", mostly run by Chinese. Here one might buy a little of anything for the household - from firewood to safety pins - and even school supplies and wine! These stores - usually noisy and often dark, because of too many shelves and hanging goods - occupied the first floor, the second floor being utilized for living purposes.

Multi-Family Residences and "Accesorias"

Row houses, locally called "accesorias", constituted most of the structures in the blocks designated as multi-family residential areas. They were located predominantly south of the burned area. Row houses were also intermixed with single-family huts thruout the site, coming in rows of 3 to 6 units. Two-story flats seemed to be out of favor (altho there were a few of them) because of the inconveniences caused by children. Nearly all these accesorias were 2 stories high. The first story had a floor of concrete (sometimes covered with tiles) and the second, a floor of wood. The structure had a wood framework on concrete or adobe stone foundation. The wainscot on the first floor was usually of adobe masonry. Above that was mostly wood. The roof which overhung the windows was of galvanized iron (or clay tiles as was the case in the old structures). On account of intense sunshine and heavy rains, many of the window openings had permanent hoods. Translucent shells, called "capiz", set in small mesh grilles made good

substitute for the glass panes of sliding windows. On the first floor behind the kitchen was an adobe-stone-walled enclosure which served at once as the "patio" and the "azotea". These accesorias were almost of the same design which, unfortunately, was a poor design. For want of a better one, the tenants did not seem to care. . . much.

Single-Family Residences and Nipa Huts

The most picturesque houses, but unfortunately the least desirable and least practical for an urban community like Manila, were the single-family nipa huts - truly dwellings on stilts, especially along the Tondo beach and the banks of the esteros. These huts were built on wood or bamboo posts with flooring a meter (3.28 feet) or more above the ground surface. The framing was a combination of lumber and bamboo, and the roof was often of "nipa" or palm leaves, or of "cogon" or grass - materials which were very cheap and abundant but extremely inflammable. A few - the more "substantial" ones - had galvanized iron sheets or flattened tin cans for roofing. These huts had been built "so close to each other that a bowl of soup could be handed from one house to another" - as one local newspaper described them. In the area under consideration were scattered a number of better-built single-family houses of sturdier and more durable materials. But while these were constructed fronting the streets, nipa houses and other tinder-boxes, all veritable fire hazards, were built in secluded alleys and back lots.

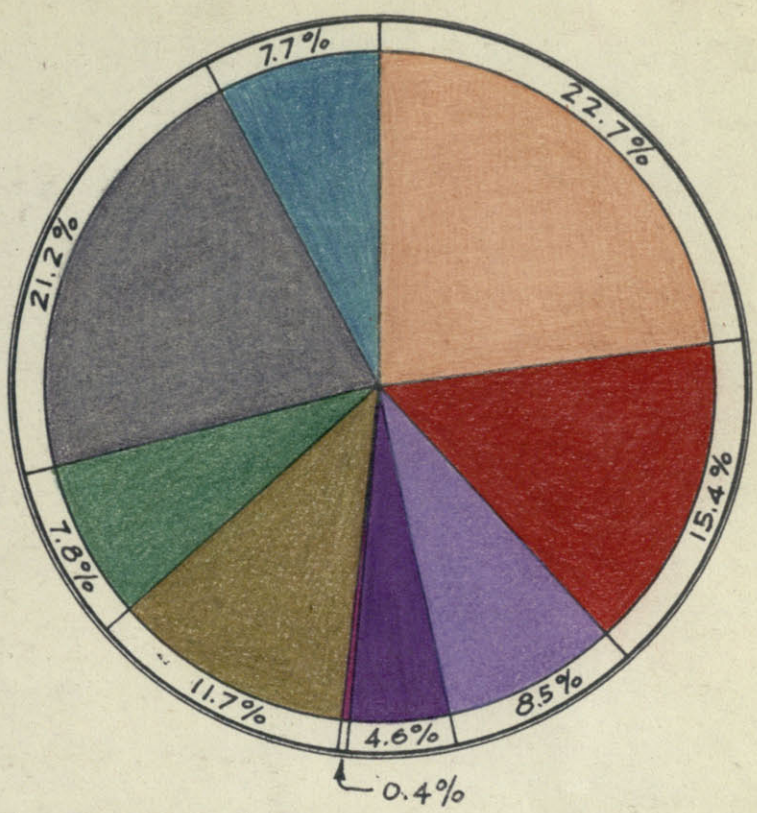
The Stables and City Politics

The stables were a sore in more ways than one. Proposals for their ultimate elimination had been made often, but none had been ever found effective, much less carried out. The lower- and middle-incomed Manila residents still depended a

great deal on the horse and calesa for local transportation in spite of the presence of more modern facilities, so that many found maintaining a stable with perhaps a couple of rigs quite a lucrative, altho noxious, business. So it was not uncommon that a family, particularly in Tondo, added a shed to its house to shelter a horse - odor and filth and flies included. There were so many of these sheds sandwiched between the houses, and also as many stable-keepers, that a "calesa" group began to manifest a strong influence in city politics - especially immediately before and during elections. Sec. 9 of the revised Zoning Ordinance (see Appendix), for example, was made to read: "Persons who conducted stables which were burned during the Tondo fire on May 3, 1941, are hereby allowed to re-establish their business at their former places." The owners of burned stables were even allowed, if they preferred, "to conduct their business in another place within the Tondo Fire Area".

Present Zoning of the Site

Some of the zones into which the site had been divided were unfair, somehow ill-proportioned, and rather mixed in an undesirable fashion. The Zoning Ordinance of Manila, which was approved on September 23, 1941, unfortunately came at a time when politics had much to say not only in its approval but also in its drafting. Even a casual glance at the zoning of the site, Map E and at the ordinance would indicate much that could be desired. Private property near the beach had been zoned, following a proposed and still uncarried improvement plan, for a public use - a practice involving an unfair encroachment on individual rights. More than 15% of the site had been set aside for business, involving about 1/5 of the total available street frontage. Actual measurements showed that about 5.5 kilometers



LEGEND:

CLASSIFICATION	AREA
RESIDENCE "B"	18.65 HE.
COMMERCIAL	12.70 "
LIGHT INDUSTRY	7.00 "
HEAVY INDUSTRY	3.80 "
OFFENSIVE	.34 "
STABLES	9.64 "
PARKS, ETC.	6.40 "
STREETS	17.40 "
WATER	6.37 "
TOTAL	82.30 HE.

DISTRIBUTION OF 1941 ZONING AREAS

BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

PRESENT ZONING

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:

- RESIDENTIAL "B"
- COMMERCIAL
- PARKS
- L. INDUSTRIAL
- H. INDUSTRIAL
- OFFENSIVE
- STABLES

SOURCE OF DATA: ZONING MAP OF MANILA, 1941

RELATION OF THE SITE TO THE CITY OF MANILA

The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA.

SCALE in FEET 0 100 200 300 400 500

SCALE in METERS 0 20 40 60 80 100 120 140

N

(3.4 miles) out of the total 29 kilometers (18 miles) of street frontage at the site were zoned for business or commercial uses. This amount gave around 24.3 meters (80 feet) of business frontage for every 100 residents. The stables were permitted in an area about 1/8 of the whole site and in a location almost entirely surrounded by Residential "B" zones which were intended for residences but where light business establishments were also unwisely permitted. The east section of the site was zoned, with adequate transition, for the light and heavy industries; while the north tip (away from prevailing winds) was set aside for the "offensive" uses. Fig. 14 shows, with its accompanying table, the actual distribution of zones.

Materials of Construction

Having already a general idea of land use pattern and distribution, it will be appropriate to turn our attention next to pertinent data about materials with which the houses were constructed. Tables and illustrations for both Tondo and the entire city of Manila have been included in this thesis in order to show directly and comparatively the actual situation - the tables for accuracy and the illustrations for graphic drama. The Philippine Census of 1939 gave 4 classifications for building materials: concrete, strong, light, and mixed. Of these classifications the "strong" and the "light" may need some explanation. We quote from the census: "Buildings reported as constructed of strong materials include buildings made of stone, brick, and wood. Buildings reported as constructed of light materials include those made of nipa, bamboo, sawale, cogon, etc. It should be noted that the data on materials of which the building, where the family lives, is constructed, relate to the number of families living in it and not the number of houses, as several families may live in the same house."

F CONGESTION OF HOUSES - SW OF SITE. LARGE BUILDING AT UPPER LEFT-HAND CORNER IS A SCHOOL

U.S. Army Photo

According to this census, Manila as a whole had better buildings than Tondo. Whereas Manila had a greater proportion made of concrete and strong materials, Tondo had more of the light- and mixed-material houses. See Table 5 and Fig. 15.

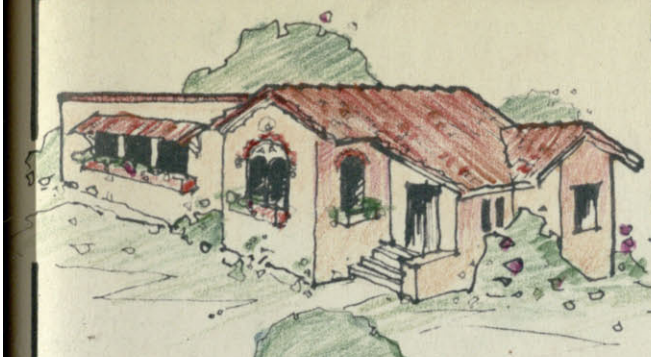
Ownership of House and Land

As to the ownership of these houses and the land on which they were built, the same census revealed that there were a greater proportion of families in the entire city of Manila than in Tondo which owned both the house and the land where they live, but there was a greater proportion in Tondo, however, which owned house only and rented the land. Regarding those who owned neither house nor land, Manila has a greater proportion than Tondo. See Table 4 and Fig. 16.

UTILITIES

Water Supply

Altho Manila in 1939 was supplied with filtered water by the Metropolitan Water District, a semi-government corporation, not all the residents had running water in their houses. Table 7 shows that 96.5% of Manila families and 95.7% of Tondo families reported that their source of water was the water pipe system. Water mains in Tondo were so small (mostly 4" in diameter) that they were inadequate in furnishing effective pressure for fire protection. The maximum pressure obtained during emergencies seldom exceeded 5 pounds per square inch. About 3% used artesian well water, and a few (about 0.2%) still used the often unsanitary surface well water. Some families with no plumbing in their homes obtained their household water from public faucets installed all over the poorer sections of the city. This



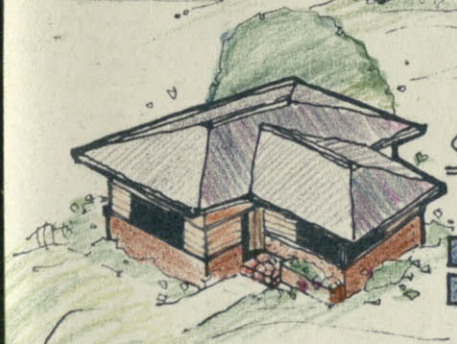
LEGEND

Each ■ represents 1% of total families.

CONCRETE

TONDO 0.6% ■

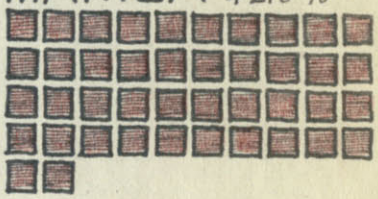
MANILA 1.8% ■■



STRONG MATERIALS

27.1% TONDO

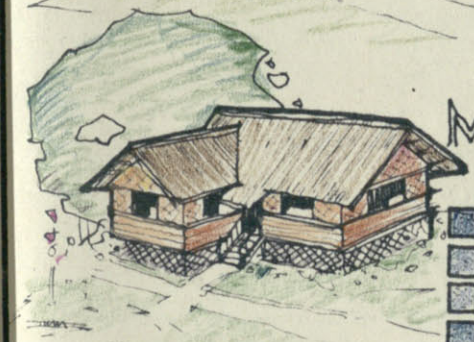
MANILA 42.0%



LIGHT MATERIALS

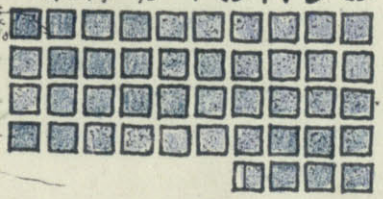
28.1% TONDO

MANILA 20.9%



MIXED MATERIALS

43.7% TONDO



MANILA 34.8%

SOURCE OF DATA
PHILIPPINE CENSUS-1939

NOT REPORTED

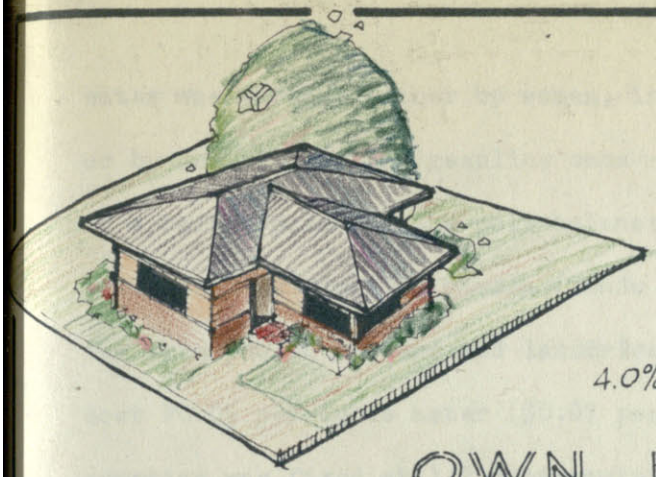
0.5% TONDO ■

MANILA 0.5% ■

FAMILIES CLASSIFIED ACCORDING TO MATERIALS OF HOUSE

LEGEND:

Each ▮ represents 1% of total families.

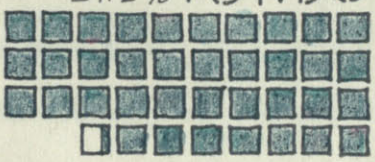


4.0% TONDO ▮▮▮▮

MANILA 6.8% ▮▮▮▮▮▮▮

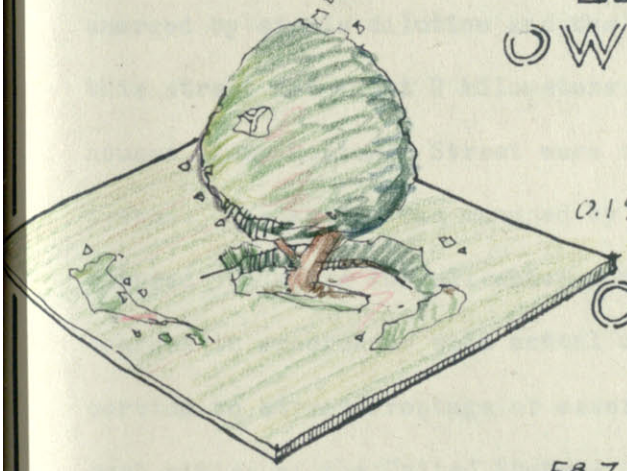
OWN HOUSE & LAND

37.2% TONDO



MANILA 23.4%

OWN HOUSE ONLY



0.1% TONDO ▮

MANILA 0.1% ▮

OWN LAND ONLY

58.7% TONDO

MANILA 69.7%

OWN NO HOUSE & NO LAND

SOURCE OF DATA:
PHILIPPINE CENSUS-1939

FAMILIES CLASSIFIED ACCORDING TO OWNERSHIP OF HOUSE AND LAND.

16

water was carried either by women, in clay jars balanced on their heads or by men, in emptied gasoline cans - 2 cans being hung from the ends of a bamboo pole and the pole balanced on the shoulders. In the underprivileged sections of Manila (Tondo being one of them) there were a few free public showers and laundries maintained by the city. Water cost P0.05 per cubic meter ($0.07 per 100 cubic feet). Minimum consumption was fixed at 1/2 cubic meter per day.

Sewerage System

Unfortunately the greater part of Tondo was not served (as of 1939) by the sanitary sewerage system of the city even if the main trunk line of the system ran along Azcarraga Street - the south boundary of the district. Sewage was discharged by simple dilution and the outfall was located at the end of this street and about 2 kilometers out to the bay. Only a few of the houses along Moriones Street were connected with the sanitary sewerage system. The system was managed by the Metropolitan Water District which charged 50% extra for all water going into the sewers - making sewerage charges in accordance with actual use of the system rather than in proportion to street frontage or assessment value as is the practice in most cities of the United States. Altho not served by the sewerage, some of the better houses in Tondo had sanitary plumbing facilities, but these were connected to individual private septic tanks. The rest of the residents used the pail system - another public service which was free in the case of the public latrines under the Department of Health.

Electricity and Other Lighting

Even if the Meralco, a private company, were able to supply all the electricity which Manila

residents needed, only about 4/5 of the families in the entire city and a mere 2/3 of those in Tondo used electric lighting in 1939. Petroleum users made up the rest. A few even used oil for their light. Cost of domestic electric fluid was about Po.30 ($0.15) per kilowatt hour. For exact percentages, please turn to Table 6.

Gas and Fuel

Gas was furnished by the Manila Gas Company, but most of the Tondo residents used wood or charcoal for cooking. Wood was burned in clay stoves which were open in construction. Recently some local private factories put out several varieties of concrete-and-iron ranges which made use of wood, sawdust, or charcoal. A hot-water attachment (a luxury) was furnished with each range. Galvanized iron hoods and chimneys directed the smoke and the soot away to prevent the blackening of the interiors.

SERVICES

Police Protection

The North Police District, to which Tondo belonged, maintained a sizable force especially in and around the slum areas - and the site was one of them. The police station was located south of the site being considered as may be seen on Map F . The other station for the whole city was located south of the Pasig River and it served as the headquarters of the Chief of Police.

Garbage Collection

Garbage collection was a city service. Garbage was collected every night by trucks and then dumped into the swamps and other low places after it had been treated with some chemicals. Sand was spread over the garbage after every dumping so that in due time the depressions so treated became filled.

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
- PRINCIPAL STREETS
- SECONDARY STREETS
- OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG R.

SAN JUAN

RADIUS OF CIRCLES = 1 KILOMETER = 5/8 MILE

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

N

SCALE:

IN KILOMETERS

0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES

0 1/4 1/2 1

LEGEND:

- POLICE STATIONS
- FIRE STATIONS
- AREAS NOT ADEQUATELY SERVED BY FIRE STATIONS

SOURCE OF DATA: JOHN BACH'S MAP - 1932 CITY ENGINEER AND

PLANNING FROM THE ASHES OF MANILA, PHILIPPINES

PUBLIC SERVICE

A.C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

Odors were the chief objections to this practice.

Small Fire-Fighting Personnel — Manila's fire protection personnel was at the time of the Tondo fire very small. The hazards of the city were too much for a mere handful of 187 firemen. In 1935, when peace still reigned over now war-torn Europe, Berlin had 38 firemen for every 10,000 people; London, 36; Paris, 29; but Manila, where nipa huts covered whole blocks, the city government counted on only 6 firemen to protect the lives and properties of every 10,000 city dwellers!

Obsolete Fire-Fighting Engines — At the time of that fire, the equipment of the Manila Fire Department was notoriously obsolete; most of its engines should have been replaced 16 years ago - or earlier. One of these engines, a "runabout" used by the assistant chief of the department, cracked down in 4 parts on May 4, 1940, at Plaza Lawton after colliding with a midget car, a bantam taxi!

Inadequate Fire-Fighting Equipment — Outstanding failures of the department can be traced to inadequate equipment. In the 1933 fire on Taft Avenue, where 11 girls were burned to death, the engines had to tap water from a hydrant 450 meters (1500 feet) away from the burning building, and the engines then were equipped with only 150 meters (500 feet) of hose. The Ateneo conflagration in 1934 would not have razed several millions worth of property had there been adequate pumping engines and sufficiently high aerial ladders!

Present and Proposed Fire-Protection — Manila had, in 1941, 8 fire stations: Santa Cruz, Intramuros, San Nicolas, Santa Mesa, Tondo, and Tanduay. The Tondo Fire Station was in the site and was located within

1 kilometer from most sections of that site except the area above Herbosa Street as indicated on Map F . "For maximum efficiency, the city needed from 5 to 7 more stations, 54 more alarm boxes, to supplement the 187 in place, more personnel and fire-fighting equipment, and cooperation from the Metropolitan Water District and the people themselves" - so requested the City Fire Chief.

SOCIAL STRUCTURE

Population and Density in 1939

Manila had in 1939 a population of 623, 492 according to the Philippine Census - a population distributed at an average density of 168.5 people, or 30 families, per gross hectare (68.2 people, or 12.2 families, per gross acre), i.e. , in an area which included streets and land utilized for uses other than residential. Of this population Tondo had 160,958 in an area of 5.9 square kilometers (2.3 square miles) - giving a density of 272.5 people, or 50.8 families, per gross hectare (110.3 people, or 20.5 families, per gross acre). In other words, Tondo had 25.8% of the population of Manila in an area 16% of that of the city - resulting in a density 62% more than the average density for the entire city.

Growth of Population of Manila

From 219,928 in 1903, the population of Manila increased to 285,306 in 1918 at the rate of 1.7 per 100 persons per year - which was 0.2% lower than that for the entire country. Between 1918 and 1939, however, the rate of increase soared up to 4.0%. If this rate of net increase were kept constant and the boundaries of the city are not changed, the city population would be doubled in about 18 years. Due to immigration, decentralization,

changing birth and death rates, war, etc. - such a rate of net increase may not be kept constant. See Table 8 and Fig. 17.

Growth of Population of Tondo

Unlike Manila, however, the district of Tondo showed a constant rate of increase: about 4 per 100 persons per year from 1903 to 1939. In 1903, it had a population of 39,043; in 1918, a population of 71,905. Between 1903 and 1918, therefore, it had a rate of increase of 3.9 per 100 persons per year; between 1918 and 1939, this was slightly improved to 4.1 per 100 persons per year. Using the same reasoning for Tondo as for Manila, the population of Tondo would double its population as fast as the city. Most probably, faster - for the families of Tondo have more children per family than those of Manila.

Racial Composition

Tondo being the oldest district of Manila, it is not surprising to note that, in 1939, the Philippine Census showed 96.1% of its population were of the brown race (the original race) as compared to 89.2% for the entire city. The yellow race, represented mostly by Chinese and a few Japanese, constituted only 3.1% in Tondo and 8.2% in Manila. There were a few whites and mixed races as may be seen from Table 11 and Fig. 18.

Religions of the Residents

The residents of the entire city were, in 1939, predominantly Roman Catholics - the proportion being 85.7% for Tondo and 82.7% for Manila. The predominance of this religion in the Philippines, the only Christian country in the Far East, is due to the fact that priests who accompanied the Spanish military forces converted the natives into Catholicism which spread rapidly. Many churches built in Manila (many of them in the Wall City) and in

POPULATION GRAPHS

OF THE PHILIPPINES, MANILA, AND TONDO

SOURCE OF DATA: PHILIPPINE CENSUS OF MAR. 1903, DEC. 1918, & JAN. 1939

NOTE: R. of I. means rate of increase of population.

POPULATION

PHILIPPINES

R. of I. = 1.9% Per Yr.

R. of I. = 2.2% Per Year

10,000,000

MANILA

R. of I. = 1.7% Per Yr.

R. of I. = 4.0% Per Year

1,000,000

TONDO

R. of I. = 3.9% Per Yr.

R. of I. = 4.1% Per Year

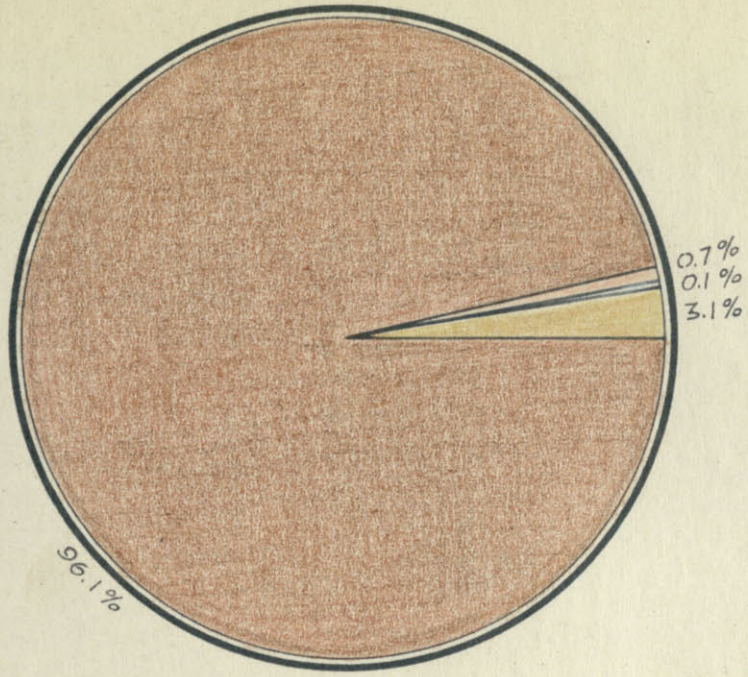
100,000

POPULATION

YEAR

1900 1905 1910 1915 1920 1925 1930 1935 1940

17



TONDO

LEGEND

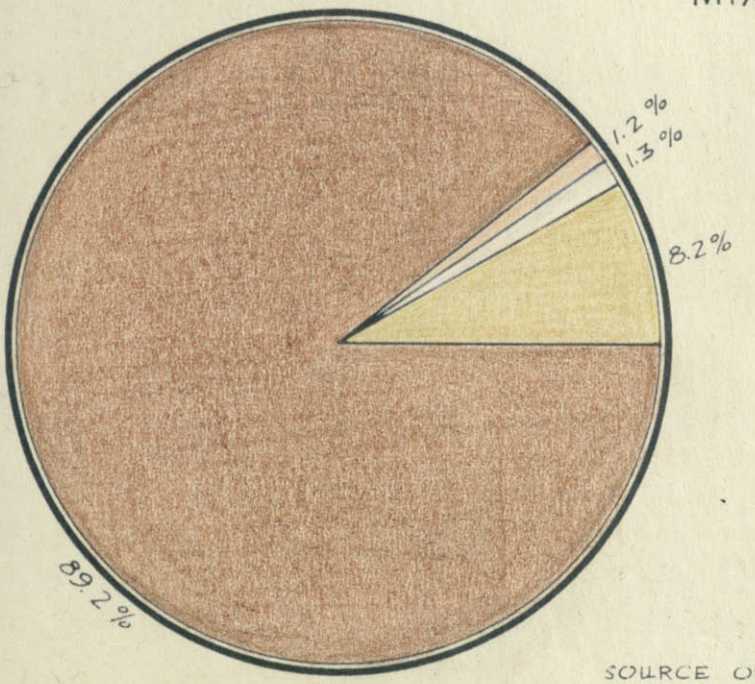
BROWN

YELLOW

WHITE

MIXED

MANILA



SOURCE OF DATA:
PHILIPPINE CENSUS - 1939

POPULATION OF TONDO AND MANILA BY RACE

18

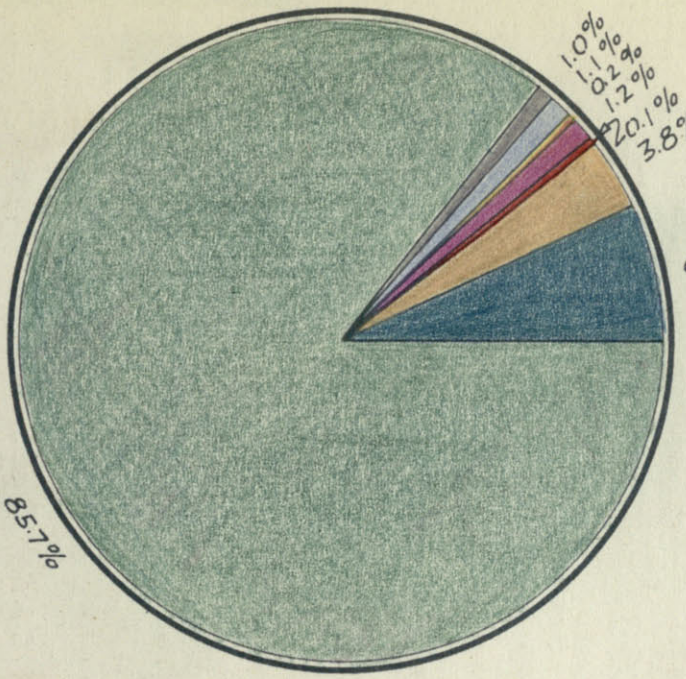
the provinces are impressive structures of massive masonry, some of which are famous for their architecture and interior decorations. The site being considered has one of these churches - one of the oldest. There were about the same proportion (more than 6%) of Aglipayans in Tondo as in the whole city. In 1901 the Aglipayan, or Philippine Independent Church, was established by Mons. Gregorio Aglipay, a Filipino priest who seceded from the Roman Catholic Church but retained most of its beliefs and forms of worship. Protestantism, followed by a little more than 3% of the residents, was introduced into the Philippines after the Americans came. The rest of the population (mostly foreigners) were Buddhists, Shintoists, etc. See Table 12 and Fig. 19.

Civil Status of Tondo Population

In 1939 the census showed that the Tondo residents over 10 years in age were evenly distributed between the single (45.4%) and the married (47.7%). Only 6.8% were widowed and a mere 0.1% were divorced or of unknown civil status. Most of the married residents were in the 25-34 years bracket. A few (29) between 10-14 years in age were married. See Table 13.

Ability to Speak Languages

Manila residents speak more than one language besides their native dialect of which there are at least 10 distinct ones in Manila alone. Tagalog, or the dialect adopted as the Philippine National language, predominates - being spoken, according to the 1939 census by 98.0% of the Tondo population and 93.6% of that of the city. English, the medium of instruction in the schools, was spoken by about $\frac{1}{2}$ of the residents. It is interesting to note from Fig. 20 the following facts: 1. Tondo had a relatively larger number of Pampangos that the entire city. The Pampangos, by the way,

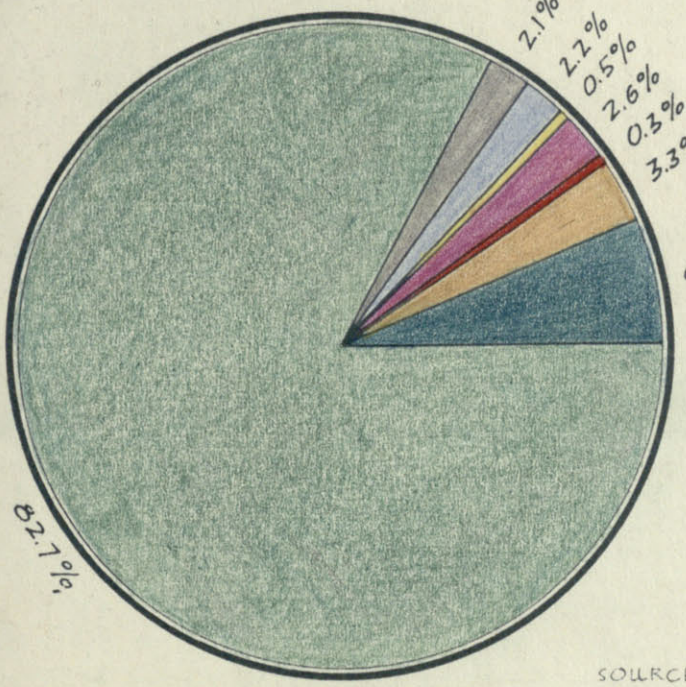


TONDO

LEGEND

- R. CATHOLICS
- AGLIPAYANS
- PROTESTANTS
- MOHAMMEDANS
- BUDDHISTS
- SHINTOISTS
- OTHERS
- NOT BELONGING TO ANY

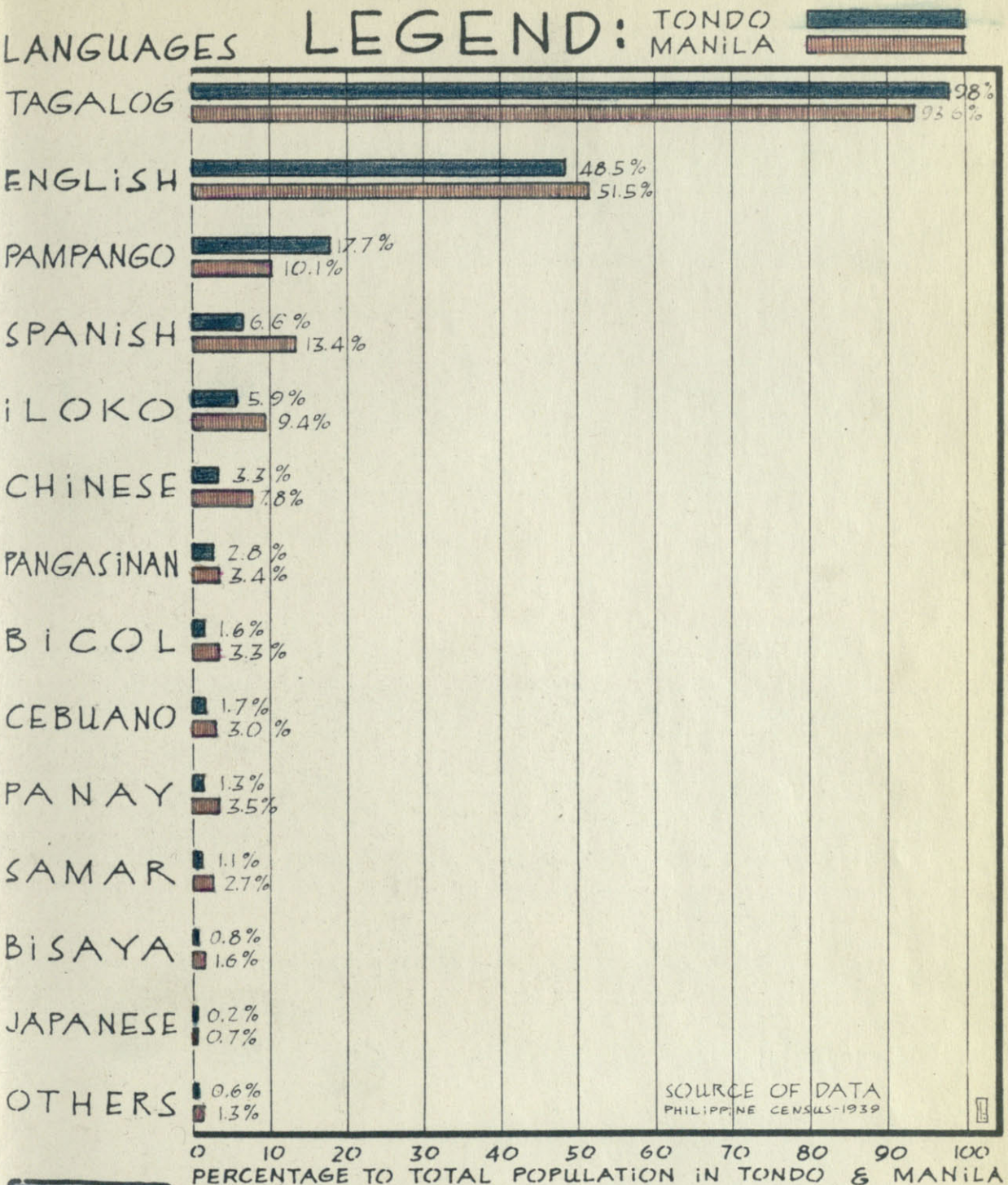
MANILA



SOURCE OF DATA
PHILIPPINE CENSUS - 1939

POPULATION OF TONDO AND MANILA BY RELIGION

19



POPULATION OF TONDO & MANILA BY ABILITY TO SPEAK LANGUAGES

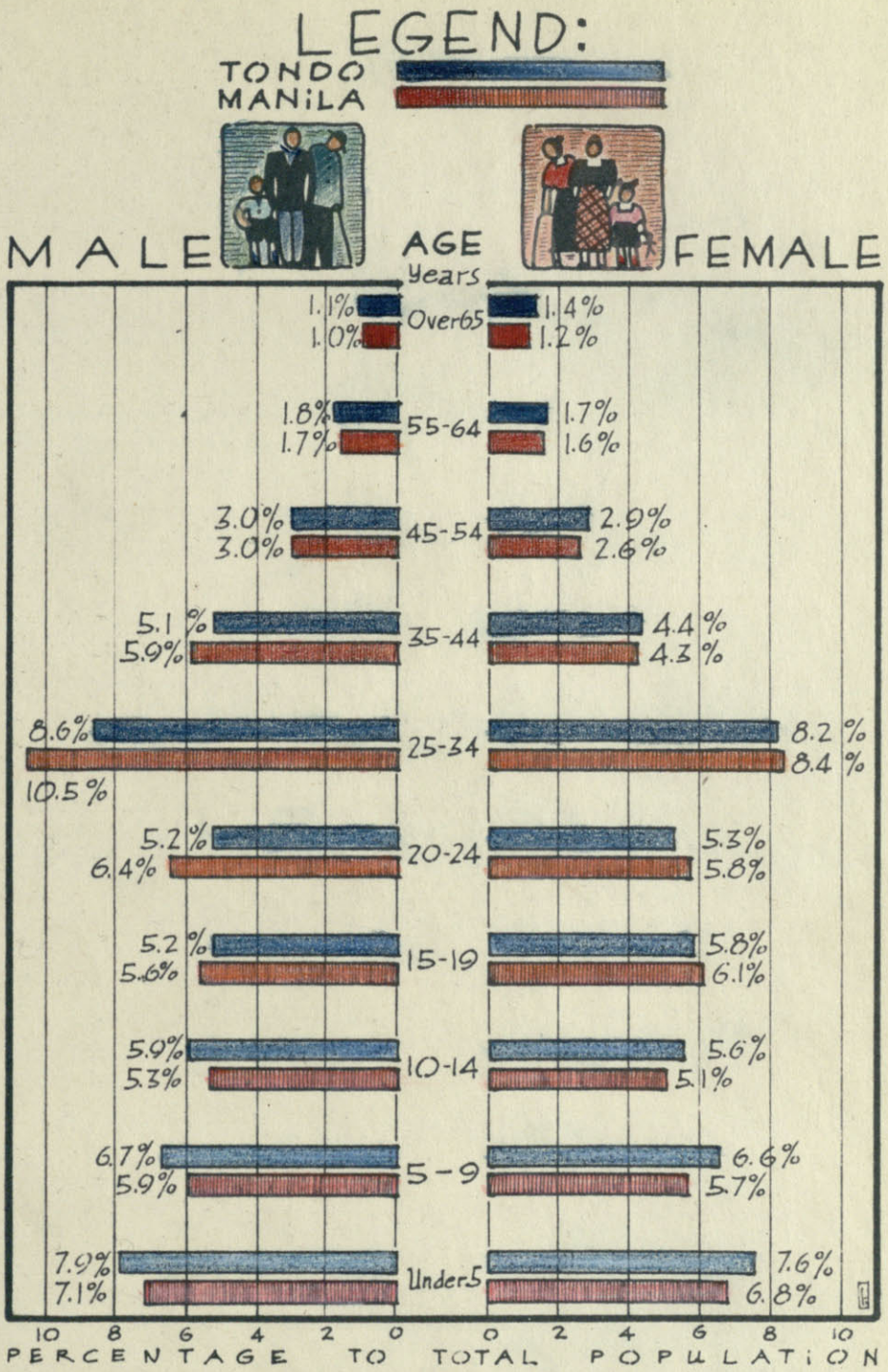
are a gregarious group and have a tendency to be clannish. I knew an entire neighborhood in this district composed almost entirely of Pampangos. One could readily recognize them by the unbelievable number of noisy children. 2. Tondo had only 3.3% Chinese-speaking residents while Manila had more than twice that proportion - 7.8%. 3. Tondo had a less proportion of Spanish-speaking residents as compared to the entire city, for Spanish, a "social" language, is somehow associated to the upper social third. For Statistics, refer to Table 15.

Age and Sex Distribution

The men in both Tondo and Manila slightly outnumbered the women in 1939 - more so in the latter than in the former. There were a greater proportion of those aged 15-44 years in Manila than in Tondo, but the reverse is true of the young (below 15 years) and of the old (above 44 years). Age distribution for both sexes were similar, altho in both Tondo and Manila there were more women than men above 65 years old. Tondo had 15.5% below 5 years (preschool), while Manila had only 13.9%. Children 5-14 years of age (kindergarten and elementary school) constitute 24.8% of Tondo's population and only 22.0% of Manila's. Those 15-19 years (high school) form 11% of the population of Tondo, but 11.7% of that of Manila. Fig. 21. and Tables 9 and 10 illustrate these interesting facts.

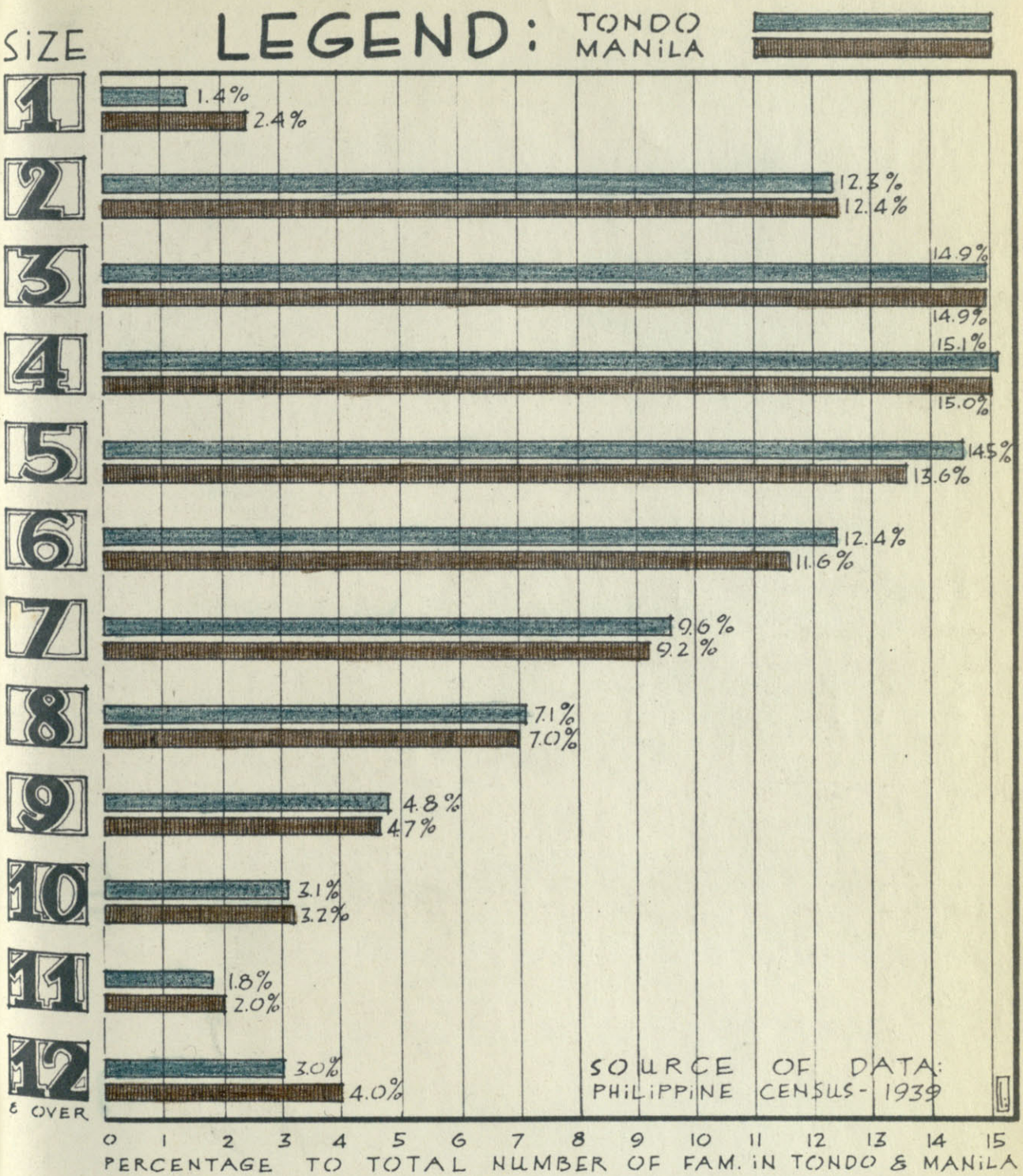
Size of Families

The 1939 Philippine Census gave the average size of the family for Tondo as 5.37 persons and for Manila as 5.60 persons, altho there were a greater proportion of Tondo's families having from 4 to 9 members. The average size happened to be larger for Manila than for Tondo, because there were less large quasi-families in Tondo than in the entire city. See Table 16 and Fig. 22.



AGE & SEX COMPOSITION OF THE 1939 POPULATION OF TONDO AND MANILA

SOURCE OF DATA: PHILIPPINE CENSUS-1939



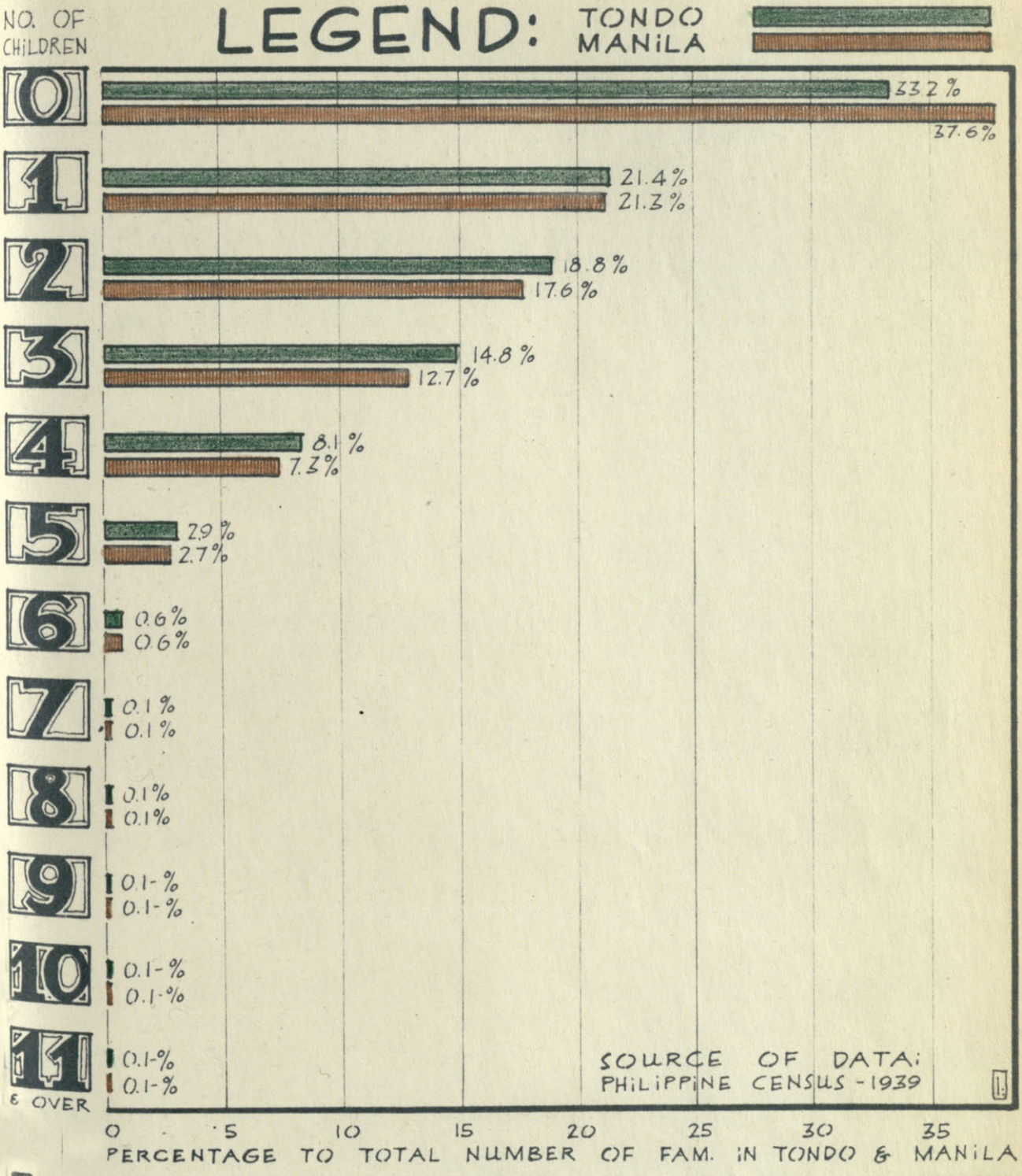
SIZE OF FAMILIES IN TONDO AND MANILA

Number of Young Children — As to the number of children below 10 years of age, Tondo excelled Manila in all brackets except for those with 6 or more children where they just broke even. The entire city, on the other hand, had a greater proportion of families with no children under 10 years of age. See Table 17 and Fig. 23.

FINANCIAL STATUS

Occupations of Manila Residents — In 1939, according to the Philippine Census, more than 2/3 of Manila residents, 10 years and over in age, were gainfully employed. Almost $\frac{1}{2}$ of these gainfully employed residents were doing domestic and personal service. The rest were, in their order of quantity, in: manufacturing and mechanical industry, trade, transportation and communication, professional service, clerical work, public service, etc. The other 1/3 of Manila residents - who were engaged in non-gainful occupations - were divided as follows: more than $\frac{1}{2}$ were students; more than 1/3 were dependents; the rest were retired. See Fig. 24 for comparison.

Families According to No. of Gainful Workers — Classifying families according to the number of gainful workers, the 1939 census indicated that Tondo, compared to Manila, had a greater proportion of families with 2 gainful workers. Manila, however, had a greater proportion of families with more than 2 gainful workers. In both Tondo and Manila, more than 3/4 of the families had 2 or more gainful workers, and only a little more than 1/80 of the families had no gainful workers at all. Table 14 may be referred to for exact percentages. See also Fig. 25.



FAMILIES IN TONDO & MANILA CLASSIFIED ACCORDING TO THE NO. OF CHILDREN UNDER 10 Yrs.

OCCUPATIONS
OF MANILA RESIDENTS - 10 Yrs. & Over

NON-GAINFUL - 150,340 (32.4%)


STUDENTS - 84,337 (18.2%)


DEPENDENTS - 53,612 (11.5%)


RETIRED - 12,391 (2.7%)

GAINFUL - 313,748 (67.6%)


DOMESTIC & PERSONAL SERVICE - 142,882 (30.8%)


MANUFACTURING & MECHANICAL INDUSTRY - 60,127 (13.0%)


TRADE - 34,572 (7.5%)


TRANSPORTATION & COMMUNICATION - 29,144 (6.3%)


PROFESSIONAL SERVICE - 18,669 (4.0%)


CLERICAL - 17,762 (3.8%)

PUBLIC SERVICE - 6,960 (1.5%)

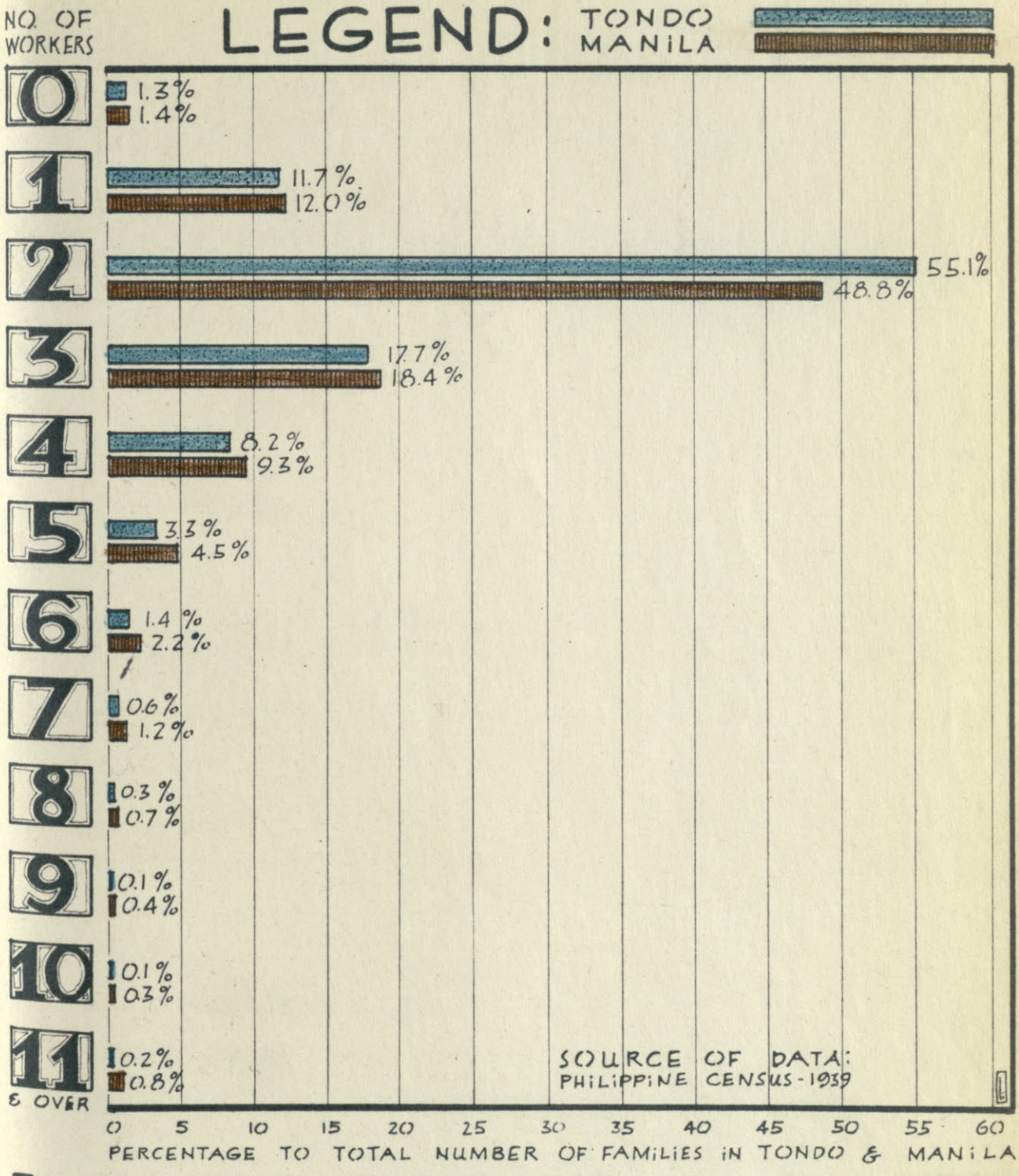

FISHING - 1,688 (0.4%)


AGRICULTURE - 1,411 (0.3%)


MINING AND QUARRYING - 424 (0.1%)


FORESTRY - 109 (-)

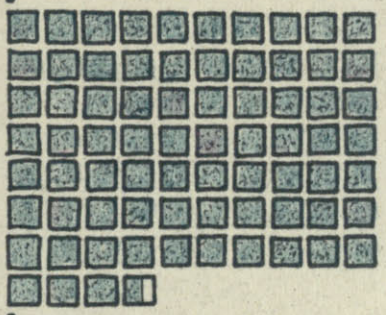
SOURCE OF DATA: PHILIPPINE CENSUS - 1939



FAMILIES IN TONDO & MANILA CLASSIFIED ACCORDING TO THE NUMBER OF GAINFUL WORKERS

Earning Capacities and Purchasing Power — Of these residents gainfully employed, about 3/4 earn less than $50 a month, about 1/6 earn between P50 and P99 a month, and only about 1/10 earn more than P100 a month - a Philippine peso being worth 1/2 a U.S. dollar. When I left the Islands, a peso could buy as much, if not more, there, as a dollar could buy here in America when I arrived. See graphic representation on Fig. 26. See also Table 18.

Breakdown and Comparison of Expenses — Knowing the earning capacities of Manila residents, it is interesting to find out how their incomes were spent. A survey in 1929, conducted by the Philippine Bureau of Labor regarding the cost of living of families of some married government employees (salaries ranging from P600 to P2400 per annum) showed the following facts: (1) The average government employee spent about 48% for food, 10% for clothing, 16% for shelter, 6% for fuel and light, and 20% for other items. (2) As the income of the employee increased - the percentage spent for food and for fuel and light decreased, that spent for shelter fluctuated but remained about constant; and that spent for clothing and for other items showed slight increments. The 48% spent for food by the average government employee seem small compared to the 68% spent by the average laborer who got a much smaller income (from P260 to P750 per annum). Averaging different trades, however, the following percentages were obtained: 60% for food, 10% for clothing, 11% for shelter, 8% for fuel and light, and 11% for other items. In all these cases the portion spent for shelter varied from 4% to 17% of the income, or anywhere from P10 to P360 per annum. This rent was for the use of the house and land alone; no services were included. See. Table 19 and Fig. 27.



73.6% OR ABOUT 3/4 EARN LESS THAN ₱50 A MONTH

16.4% EARN BETWEEN ₱50 & ₱99 A MONTH, and

Only 10.0% EARN MORE THAN ₱100 A MONTH

SOURCE OF DATA - PHILIPPINE CENSUS-1939

EARNING CAPACITIES OF MANILA RESIDENTS-

(PERSONS TEN YEARS OR OLDER - 1939)

26

BREAKDOWN IN PERCENTAGE OF EXPENSES OF MANILA RESIDENTS

SOURCE OF DATA: BULLETIN No. 27 OF THE BUREAU OF LABOR- 1929

27

EDUCATION

Comparative Literacy of Manila Districts

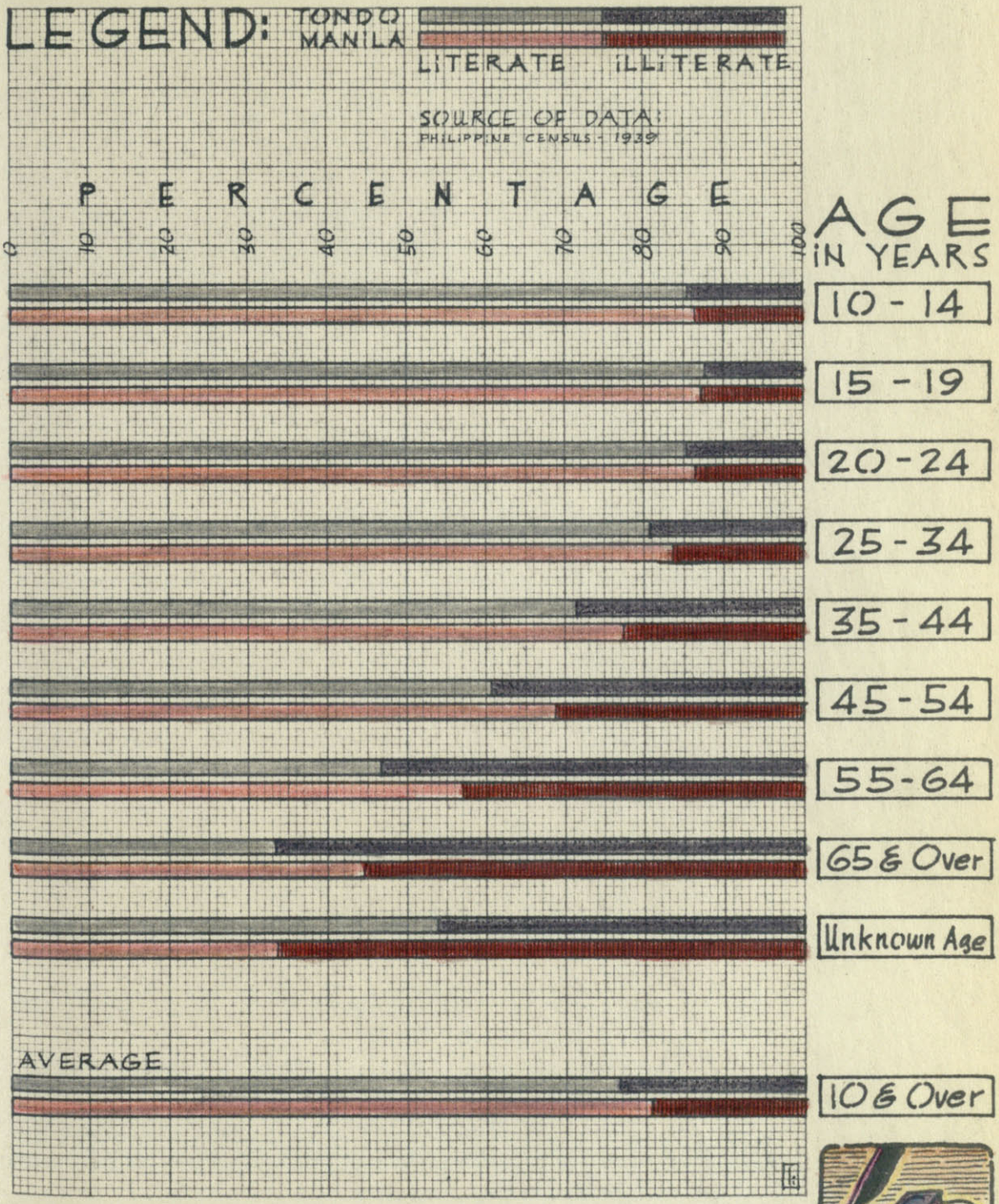
According to the census of 1939, Tondo ranked 12th in literacy among the 14 districts of Manila. It had a literacy of 76.9% which meant that so much percentage of its residents (10 years and over) could read and write in 1 or more of the dialects or languages spoken. The average percentage for the whole city was 80.7%. Table 22 gives details of comparative literacy of Manila districts.

Literacy of Persons in Tondo and Manila

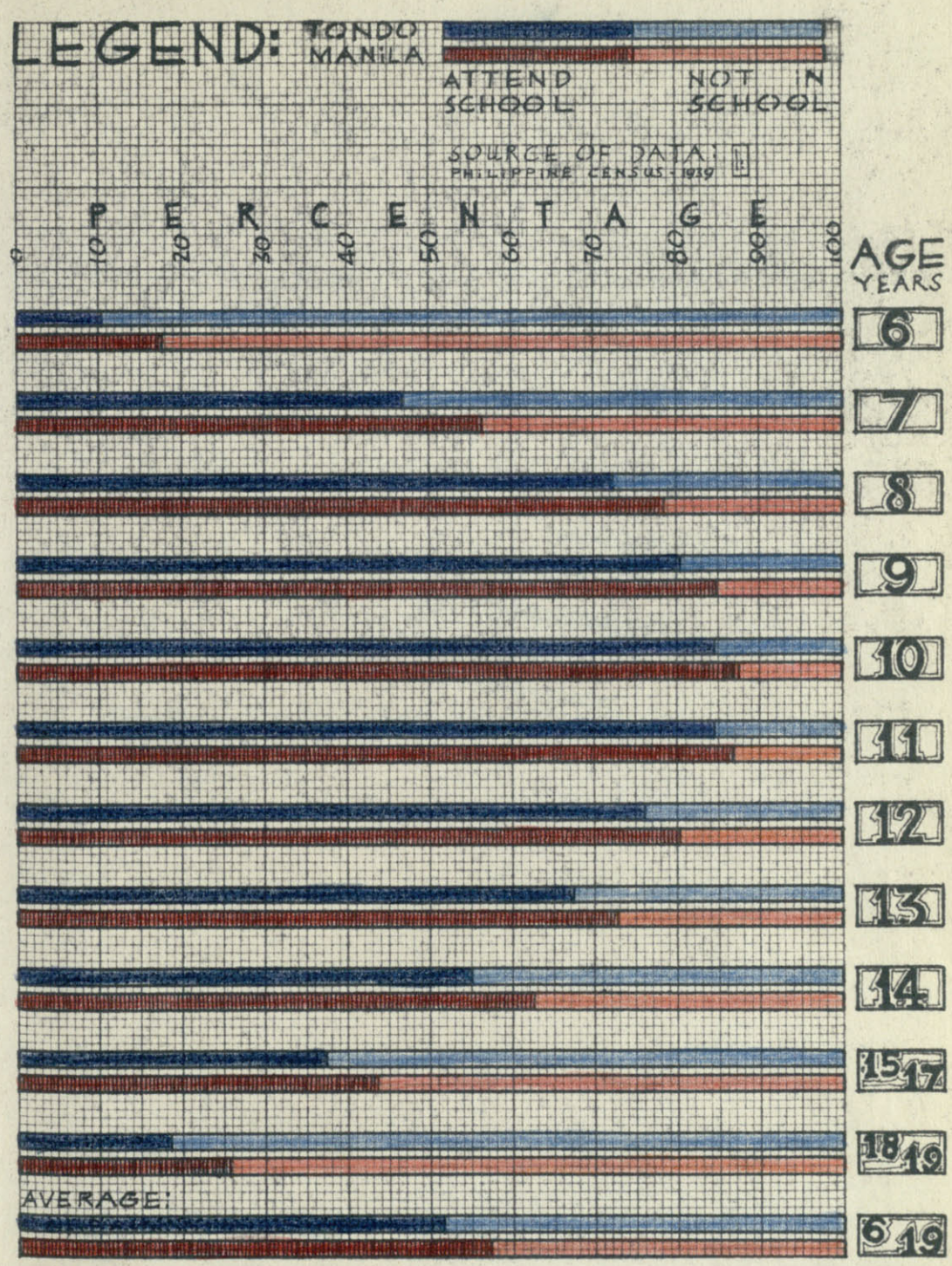
The literacy of residents according to their ages show (see Table 21 and Fig. 28) that more of the younger residents could read and write. In Tondo, those between the ages of 10-14 years and 15-19 years showed a literacy of 85.3% and 87.6% respectively, while those over 65 years old were only about 1/3 literate. This was due principally to the fact that free public education became popular only with the American Administration. In all the age brackets, there were proportionately more illiterates in Tondo than in the entire city.

Children Attending School

Only 51.7% of Tondo's children of school age (6-19 years) were actually attending school in 1939. The proportion for the entire city, at that time was greater - 57.1%. It is interesting to note from Table 20 and Fig.29 that those between the ages of 8 and 12 years had the greatest percentages (all over 70%) in school. In Tondo, the 1939 census showed that 63.7% of elementary grade children (6-13 years) attended school and only 33.4% of the high school children (14-19 years) were actually studying. It's



LITERACY OF PERSONS 10 YEARS OLD & OVER



PERSONS (6-19 YEARS) ATTENDING SCHOOL

apparent, therefore, that after finishing the elementary grades about 1/2 of the pupils stopped schooling.

Centralized Public Education

Manila, like the rest of the cities and towns of the Philippines, had a centralized public educational system; the Bureau of Education, an insular agency, was solely responsible for the system. The schools were: elementary (primary - 1st to 4th grade; intermediate - 5th to 7th grade) and high (1st to 4th year). This system is equivalent to the 8-4 system in the United States. Classes began in June and ended in March, with a 2-week Christmas vacation. Children began schooling at 7; but some, at 6.

Schools at the Site

In the site being considered were located the following schools, all spared from the fire: 1. Emilio Jacinto Elementary on Velasquez and Inocencio Streets, 2. Tondo Primary on Santa Maria Street between Pavia and Perla Streets, and 3. Tondo Intermediate on Ricafort Street near Estero de la Reina. Outside the site but also included in the map, because they were in the immediate vicinity, were these schools: 1. Rizal Elementary, on Tayuman Street between Prudencia and Pinkian Streets, 2. Tondo Elementary, on Sande Street between Morga and L. Chacon Streets, and 3. Torres High on Juan Luna Street near Tayuman Street. All these schools had small playgrounds adjoining them - areas which served as refuge for people and their belongings during the fire. See Land Use Map and Burned Area Map for locations of these places.

Private Education

Besides public schools, Manila had also a number of well known private educational institutions

mostly run by religious orders. In 1936, 54% of the school population of the Philippines were enrolled in private schools. The Tondo Catholic Church, which was located south of the site, ran a school for the kindergarten and primary grades.

RELATION OF THE SITE TO THE CITY

Maps Showing Relation

With this thesis are several maps depicting the peculiar relation of the site being planned to the entire city of Manila. Among these maps are those which show schools and their areas of service, open spaces (not including undeveloped land), institutions like churches and hospitals, markets and the areas they served, police and fire stations, and mass transportation. The data for these maps were mostly obtained from a 1932 map of the city published by John Bach, and brought up to date as far as my memory could recall.

Schools and Areas of Service

Using a 800-meter ($\frac{1}{2}$-mile) radius for areas served by elementary schools, it is apparent from Map G that nearly all sections of Manila were well within walking distance from the schools, except portions of Tondo north of the site, and an area in Malate near the south boundary of the city. There were 4 high schools in Manila, and one of these was very near the site. Private schools abounded but none were located at the site; most of them were in Sampaloc, Ermita, Malate, and Intramuros.

Distribution of Open Spaces

Except for the small school grounds and the 3 tiny plazas near the Tondo Catholic Church, the site was devoid of open spaces. Some of the largest greens were: around the walls of Intramuros, which were once moats around the walled

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
PRINCIPAL STREETS
SECONDARY STREETS
OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG RIVER

U.P.

SAN JUAN

PASAY

MAKATI

TO CAVITE

TO LAGUNA

TO MONTALBAN AND TAYTAY

TRAVEL DISTANCE FOR ELEMENTARY PUPILS = 800-METER or 1/2-MILE RADIUS

SCALE:

IN KILOMETERS
0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES
0 1/4 1/2 1

LEGEND: AREAS NOT ADEQUATELY SERVED BY ELEM. SCHOOLS

- PRIMARY
- INTERMEDIATE
- ELEMENTARY
- HIGH
- PRIVATE

SOURCE OF DATA: MEMORY AND MAP OF MANILA-1932-J.BACH

PLANNING FROM THE ASHES OF GONDO
MANILA, PHILIPPINES

SCHOOLS

A.C.KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

city but which were filled in and planted; at the Luneta which adjoined the government building groups; and at the southern tip of the city where the stadia and playfields were located. The nearest of these open spaces was about 3 kilometers (2 miles) from the site - a distance that could be covered only by passing thru congested bridges. Scattered about were other open areas, most of which being distributed in the section of the city south of the Pasig River. These open spaces included private playgrounds run by private schools and religious orders. The city had 3 cemeteries: the North which was located about 3 kilometers to the east of the site, the South which was located in Makati, outside the boundary of the city, and Paco (closed) which served as a museum. See Map H.

Churches of the City and Religious Fiestas

Manila had many churches, but the site being planned had in its immediate vicinity only a few of them: the Tondo Catholic Church which was one of the oldest and which was located in front of Plaza Leon XIII - a congested square as far as traffic was concerned, especially so on fiestas and other celebrations; the Templo de Solomon, a small chapel and meeting house on Bilbao Street, also south of the site; the Presbyterian Church at the corner of Folguerras and Azcarraga Streets; and the Aglipayan Church a short distance to the west of the Presbyterian Church. Looking at Map I , many of the Catholic Churches are seen to be clustered in Intramuros. Most of these churches drew their attendance not only from their immediate vicinity but from all over the city, for besides Sunday each had its own special day of worship. During the celebration in honor of patron saints, the sidewalks and the patios or plazas adjoining the churches were filled with temporary tents where novelties, candies, food, and many other

TYPICAL FIESTA SCENE

CELEBRATIONS LIKE THIS WERE FREQUENTLY HELD IN CONNECTION WITH SAINT DAYS AND OTHER RELIGIOUS FESTIVALS. NOTE GAY ATMOSPHERE . . .

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
PRINCIPAL STREETS
SECONDARY STREETS
OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG RIVER

SAN JUAN

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

SCALE:

IN KILOMETERS
0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES
0 ¼ ½ 1

LEGEND:
PUBLIC PARKS & PLAYGROUNDS
PRIVATE & SEMI-PUBLIC PLAYGROUNDS
CEMETERIES

SOURCE OF DATA: JOHN BACH'S MAP - 1932 MEMORY AND

PLANNING FROM THE ASHES OF TONDO MANILA, PHILIPPINES

OPEN SPACES
-NOT INCLUDING UNDEVELOPED LAND-

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BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
- PRINCIPAL STREETS
- SECONDARY STREETS
- OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG RIVER

SAN JUAN

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

SCALE:

IN KILOMETERS
0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES
0 1/4 1/2 1

LEGEND:
- CHURCHES (CATHOLIC, OTHER)
- HOSPITALS (PUBLIC, PRIVATE)

SOURCE OF DATA: MAP OF MANILA - 1932. MEMORY AND JOHN BACH'S

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

INSTITUTIONS

A.C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

articles were sold. Religious processions with elaborate floats carrying images of saints were the usual activities in the evenings of such fiestas. These processions went thru most of the important streets of the district and were participated by numerous devotees.

Hospitals and Their Location

The map showing distribution of hospitals thruout the city indicated only one private hospital (Mary Johnston) very near the site. True, there were others to the west of it, but these were mostly specialized ones: the Manila Maternity Hospital on Azcarraga and the San Lazaro Hospital (for contagious diseases) on Rizal Avenue - both public - and a few private hospitals. The Philippine General Hospital, a public institution, was on Taft Avenue, south of the Pasig River, and about 4 kilometers (2.5 miles) from the site.

Public Markets

The biggest public market of the city was located about 600 meters (3/8 mile) south of the site; and in the northern tip of the site itself, at the corner of Herboza and Sande Streets, was the Tondo Market which was spared by the fire. In the vicinity of Concha and Sande Streets was also a makeshift market area called "talipa", where pedlers brought their wares. Looking at Map J it is clear that most of the districts of Manila were within a 800-meter (1/2 mile) radius from markets, except such portions of Intramuros, Sampaloc, and Pandacan as indicated. In these public markets, peculiar features of the Philippine community, were sold everything that the housewife needed for the home. Here the farmers brought their produce and the small manufacturers their articles, and sold them to retailers or directly to the public. Around the market were huddled grocery stores, dry goods stores, refreshment parlors, and other businesses.

TYPICAL PUBLIC MARKET

FARMERS CAME TO TOWN CARRYING THEIR PRODUCE IN CARABAO CARTS. THE MARKETS HAD AN OPEN CONSTRUCTION . . .

H

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
- PRINCIPAL STREETS
- SECONDARY STREETS
- OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

SAN JUAN

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

N

SCALE:

IN KILOMETERS

0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES

0 1/4 1/2 1

LEGEND:

TRAVEL DISTANCE
= 800-METER RADIUS
= 1/2-MILE RADIUS

MARKET

AREAS NOT ADEQUATELY SERVED BY MARKETS

SOURCE OF DATA: JOHN BACH'S MAP - 1932

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

MARKETS

A.C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1962

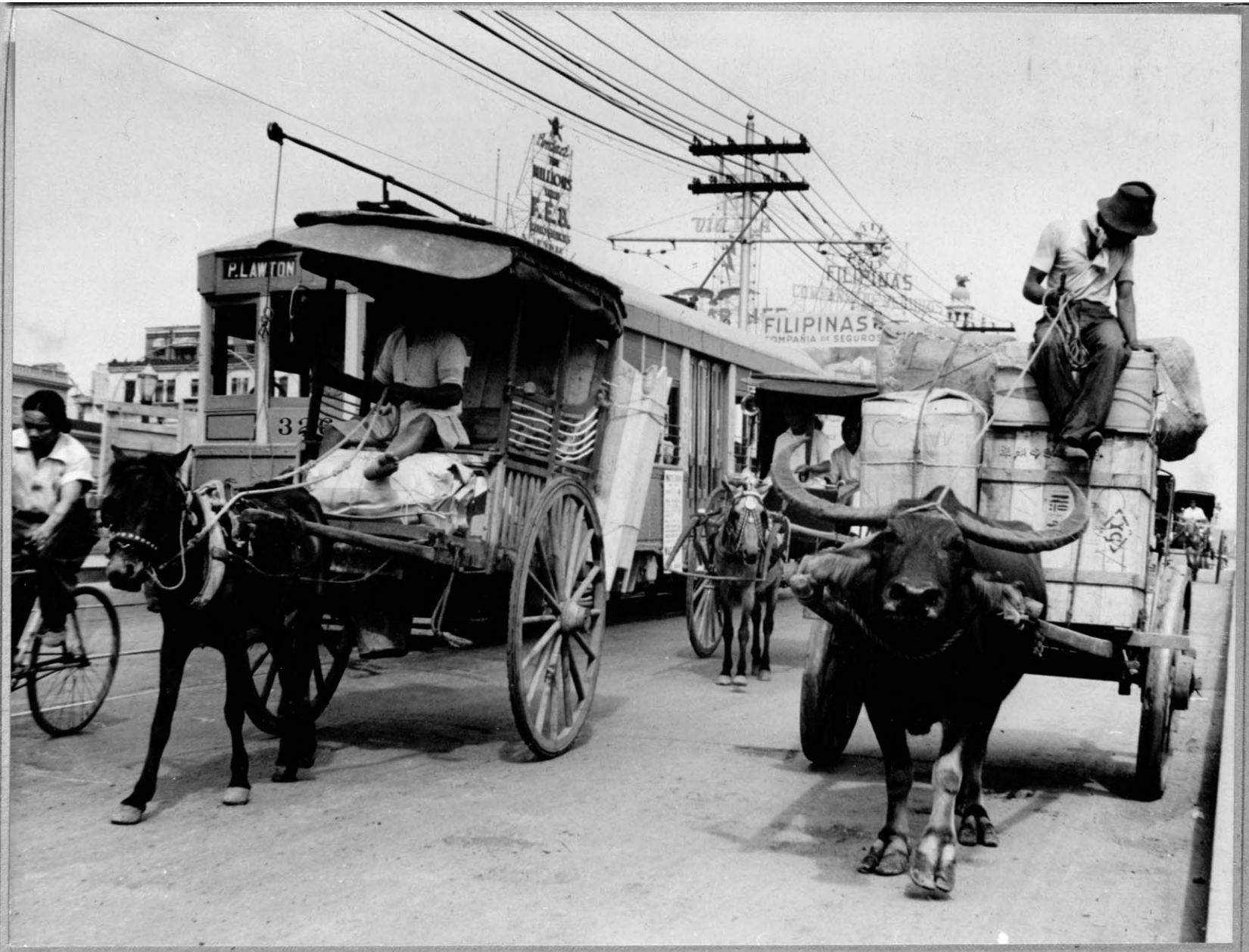
Sec. 795 of the Manila Ordinance provided that "No person, other than the City of Manila, shall establish, keep, or maintain within the corporate limits of the city, a public market of any kind". Sec. 803 further provided that "The public markets shall be opened for the sale of articles permitted for sale therein from 5 A.M. to 8 P.M. every day during the year, excepting Sundays and holidays when they shall be opened from 5 A.M. to noon".

Various Facilities for Mass Transportation

Of mass transportation facilities, Manila had a bit of everything, both old and new. The Meralco, a private corporation, ran a street car system in the city and to the adjoining suburbs. Motor busses supplemented this service. The fares on these vehicles were by zones, that from the site to downtown Manila, for example, being 5 centavos (2½ cents) and beyond to any part of the city, 8 centavos (4 cents). Other private companies also operated busses and bantam cabs in the city and to the suburbs. Their routes are indicated on Maps K and L - showing that the site was well served as far as mass transportation was concerned. The city had its share of railroad transportation from one district to another and from the city to the towns north and south of Manila. One of the city's 4 railroad stations, the main one, was located about 300 meters (1/5 mile) from the site. Taxis also were used, fares being about 1/4 those in the cities of the United States.

The Calesa and Its Evils

As I have mentioned before, Manila, especially the poorer sections like the site, depended very much on the horse and "calesa" for transportation about the city. The "calesa" was a 2-wheeled vehicle drawn by a horse and capable of trans-



TYPES OF TRANSPORTATION.
MANILA HAD A BIT OF EVERY TYPE: CALESAS, BICYCLES, STREETCARS, AUTOMOBILES, & CARTS PULLED BY SLOW & PATIENT CARABAOS

I

THE CALESA

A 2-WHEELED VEHICLE PULLED BY A DIMINUTIVE HORSE AND RUN BY A FRESH COCHERO WHO KNEW THE RULE OF THE ROAD WHEN HE CHOSE TO. NOTE CALESAS GOING IN OPPOSITE DIRECTIONS ON THE SAME SIDE OF THE STREET...

J

BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941

RELATION OF THE SITE TO THE CITY OF MANILA

The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

CALOOCAN

THE SITE

4 Km.

3 Km.

2 Km.

1 Km.

MANILA BAY

MAKATI

PASAY

SCALE in FEET

0 100 200 300 400 500

NEPOMUCENO

MALVAR

LALLANA

KAPULONG

GENARO

EMILIO JACINTO ELEMENTARY SCH.

INOCENCIO

ESTERO DE VITAS

AETA

TOCO

HERBOSA

FRANCISCO

YANGCO

TONDO MARKET

R. PADILLA PARK

TAYUMAN

RIZAL ELEM. SCH.

ARQUEROS

BALAYA

ESGUERRA

DANDAN

CORCUERA

BAKUSAY

MUELLE DE LA REINA

ESTERO DE PRUDENCIA

CALEZAS

ENDAYA

DIZKAYZ

GABRIELA

HAMABAR

MERCADO

JOSE BASA

KOLAMBU

LINAMPAS

MALONG

NICODEMUS

C. OCAMPO

PILAPIL

PERLA

MEJORADA

SIAGU

DAGUPAN

MANILA BAY

PANDAPIRA

AMARLANHAGUI

VELASQUEZ

FRANCO

PEÑALOSA

PACHECO

NICODEMUS

CORAL

PILAPIL

PERLA

MEJORADA

AGUILA

PAVIA

CONCHA

RICAFORT

TELLO

FAJARDO

SANTA CRUZ

A. REYES

TONDO PRIMARY SCHOOL

STA. MARIA

QUESADA

MORIONES

PLAZA JACINTO

CVDE VERA

MORGA

TONDO ELEM. SCHOOL

PLAZA DEL ROSARIO

JOSE PALMA

LORENZO CHACON

M. CANO

TONDO CATHOLIC CHURCH

HERRERA

PLAZA LEON XIII

LACANDULA

PANGA

RAXA MATANDA

PLAZA LIGA FILIPINA

ALBURQUERQUE

FOLGUERAS

C. PAGUIRRE

PADRE RADA

BILBAO

MARIA PAYO

TONDO INT. SCH. BRANCH

CORTADA

MORIONES

SAN LUNA

MANILA R.R. STA.

ALCARRAGA

SOLER

SCALE in METERS

0 20 40 60 80 100 120 140

PLANNING FROM THE ASHES OF TONDO MANILA, PHILIPPINES

MASS TRANSPORTATION

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
- R. R. LINE
- MERALCO STREET CAR LINE
- MERALCO BUS LINE
- PASTRANCO BUS LINE
- OTHER BUS LINES

SOURCE OF DATA: MAP OF MANILA - J. BACH - 1932

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
- PRINCIPAL STREETS
- SECONDARY STREETS
- OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG RIVER

SAN JUAN

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

N

SCALE:

IN KILOMETERS
0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES
0 ¼ ½ 1

LEGEND:
- RAILROADS
- STREET CARS
- BUSSES
- R.R. STATIONS

SOURCE OF DATA: JOHN BACH'S MAP - 1932 AND MEMORY

PLANNING FROM THE ASHES OF TONDO MANILA, PHILIPPINES

MASS TRANSPORTATION

A.C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

porting at a rather slow pace 3 passengers besides the "cochero" or driver. Fare was 10 centavos per quarter-hour. The "caritela" and the "caritela-bus" were versions of the calesa designed to carry more passengers and therfore they used more than 1 horse. Fare was per person and in accordance with the distance traveled. These horse-drawn vehicles caused much of the traffic congestions because of their slowness and the fact that the none too well mannered and educated cocheros had the pet habit of breaking traffic rules whenever the chance presented. These vehicles were incapable of ascending steep grades, but the cocheros tried anyway resulting in numerous accidents. Measures had been proposed and tried in segregating motor from horse traffic, but altho they have shown a measure of success they proved very unpopular among the cochero elements, and therefore, were unfortunately abandoned.

Rule of the Road - Drive Left

In the Philippines one drove to the left; the steering wheels of cars were on the right. Sec. 1143 of the Manila Ordinance read: "Every vehicle occupying the street shall keep to the left of the center of the traveled way; and no vehicle shall remain standing on the right hand side of the street for a longer period than is necessary to receive or discharge passengers". Several narrow streets were designated "one way" and "right turns" were prohibited at some intersections. Calesas and other slow-moving vehicles kept nearer the curbs.

RULE OF THE ROAD: DRIVE LEFT. . . . .
NOTE POSITION OF CAR ON THIS STREET AND THE ABSENCE OF SIDEWALKS. . . .

IK

85

FILIPINOS' ATTITUDES TOWARDS CITY PLANNING

DO FILIPINOS LIKE PLANNING?

The Governed and the Governing

So far I have presented the background of the people for whom I am intending to plan - a panoramic picture, as it were, with details as I knew them. Looking over this picture, as a whole, it is seen how details relate to other details making clearer the character and the form of that people for whom that background exists, and giving these people the perspective necessary for an adequate interpretation of their nature and a sympathetic planning for their future. Based on what little we have learned so far, these people, like all people for that matter, need planning now. But do they like planning? That is another question. And an important question, too! These people desire to live in a democracy where the people's wishes are valid and are considered - which is as it should be, we hope. If planning is to have a firm foundation in a democracy, it has to be desired and initiated by those governed and then vigilantly watched; if it has to be effective and long-lived, it has to be wisely and sincerely practised by those governing. Let us tap the attitudes of both sides. . .

THOSE GOVERNED

A Librarian-Writer Said

An article by I. V. Mallari, a librarian and a writer, which appeared in the Philippine Magazine shortly after the Tondo fire, partly read: "It is not callous to say

that from such a catastrophe as the recent Tondo fire, good may come. . . The wide-spread destruction affords a great opportunity to carry out the project of slum-clearance that has been in the minds of many people for years. . . The first thing that the Government should do is to revise the present street plan of the burned area taking into consideration the prevailing flow of traffic, both north-and-south and east-and-west. . . Open spaces afford breathing space to the inhabitants of the neighborhood and playground for children. . . The apartments should be of fire-proof construction and should include all the elementary conveniences conducive to healthful living. . . Such apartments can not very well be put up by private capital. For one thing, the project would entail an enormous investment. In the second place, the rents could not be brought within the reach of the families that the project is intended to benefit directly, without at the same time sacrificing profits. For that reason, the project should be undertaken - or, at least, subsidized - by the Government. The best approach to the problem is for the Government to expropriate the entire devasted area. . . Thus alone can it have complete control over the basic design of the project as a whole. . . the design and the construction of buildings. . . And thus alone can beauty and order, safety and convenience, be insured. What time and effort and money the Government will have to spend on this project should be considered, not as a commercial investment, but as an investment in social security and social rehabilitation. For the physical improvement of a community can not help bettering in proportion the living conditions, the health, and the character of its inhabitants. The wholesome attraction of playgrounds and other recreational facilities can not but save boys in their 'teens from the evil influences of the streets and pool halls and other question-

able places where they are forced to congregate for lack of better places to go to. . . If the President succeeds in doing this for Tondo, the millions that he is proposing to invest in the rehabilitation of the devasted area will have been well spent. But, in addition, he will also have created a beautiful and orderly community, a tangible expression of his deep and abiding interest in the well-being of the masses, a fitting monument to his vision as a national leader. The entire country, and especially the City of Manila, is awaiting the execution of this project with great expectancy."

A Resident Complained

Jacinto R. de Leon in complaining about expropriation, without representation, of land in the Tondo burned area wrote in the Herald Magazine of November 5, 1941: ". . . It is not yet late to make the necessary changes in the present plans of the government. Vice-President Osmena may appoint a committee of competent persons to make a close study of the matter and submit the corresponding recommendation. It is suggested that some members of such committee be selected from among the fire victims. They should be given a chance to defend their interests and at the same time help in arriving at a solution satisfactory to the parties concerned. An appeal is, therefore, hereby made to the government for just and fair deal."

A Newspaperman Commented on Zoning

D. L. Francisco, a Free Press staff member, wrote a biting article about that phase of planning - zoning. Quoting from that article, entitled PROMOTING PUBLIC WELFARE ON PAPER: " It took the Manila municipal board 12 years to enact a zoning ordinance. However, if the residents of the city of Manila

think they now have legislation which will really serve the purpose of 'better promoting health, safety, convenience, and welfare of the inhabitants of the city', they are sadly mistaken. Altho the Manila board labored 12 years, like the mountain it brought forth only a mouse. . . In each of its 21 sections - drafted and re-drafted, amended and re-amended - the zoning ordinance miserably fails to meet the pressing needs of Manila inhabitants, especially in ending nuisances which endanger the people's health and subject city inhabitants to annoyance and inconvenience. . . The only concrete thing about the city's zoning ordinance is the imperative order contained in SEC. 16 (which ordered the removal of the obnoxious business of fish-drying from certain zones) . . . Twelve years' labor just to remove these offensive businesses from Tondo!"

THOSE GOVERNING

The President Recounted Progress

President Manuel L. Quezon of the Philippine Commonwealth said, among other things, the following - excerpts from his message to the National Assembly on January 31, 1941: ". . . Social justice has been a major aim of our government during the last 5 years. . . We have organized the National Settlement Administration to help the poorer classes transfer from congested districts to unoccupied areas, purchased haciendas to be subdivided and resold to the tenants, embarked on housing schemes for workers and low-salaried employees. . . The Rural Progress Administration has been established to assist the landless in acquiring lands and homes of their own. . . To provide suitable homes for our working population, we have

organized the People's Homesite Corporation. . . The eagerness with which the people have responded to the opportunity of acquiring their own houses has been very gratifying. . . To improve fire protection in Tondo, a 30-inch feeder was laid at a cost of P178,518. . . The sewage has been improved with the initial execution of a 10-year program for the extension of pipes all over the city. . . The laying of a network of storm drains and the improvement of esteros have been undertaken with an appropriation of P2,000,000. . . The rapidly increasing population of the city of Manila and the highly unsatisfactory conditions in the districts where the laborers live have constituted a problem which for a long time needed attention. To solve this problem, as well as to give impetus to scientific community planning, Quezon City has been created, adjoining the City of Manila, and is now being developed as a model community. . . Sites for parks, schools, markets, and other public buildings have been reserved and streets have been plotted to meet the needs of traffic. . . All possible planning assistance will be offered to local authorities. . . Cooperative studies are now being made of a park and playground system for a greater Manila. . ." The President in his Executive Order No. 348 created a committee to formulate a comprehensive plan for the rebuilding of the Tondo burned area, "in such a manner as to reduce the fire hazard, improve the layout of the streets, and better the living conditions of the people residing therein."

The Vice-President Advocated Planning

In an inspired speech on the inauguration of the Manila City Hall on August 19, 1941, Vice-President Sergio Osmena of the Philippine Commonwealth dealt extensively on city planning which subject was his special obsession when he went

abroad in 1938-1939. Quoting from that speech:". . . we have the opportunity to profit by sound city planning. . . A housing commission has been authorized to assist in the elimination of the slum conditions of Manila. Slum clearance is a gigantic task and one which has been challenging our city for a long time. . . Near the North Port Area a large section of Tondo will rise from its burned ruins with widened streets, parks and playgrounds, and adequate school sites. . . The estero will be cleaned, with pleasant walks, minor driveways and grass strips along its bank. . . Buildings in Tondo will be improved from the standpoints of health and safety. . . all of these call for the city planner, assisted by the other professions. . . The entire city and its surrounding territory must be considered as a unit, Simple large areas, not small spoiled ones, should be zoned for residential, commercial and industrial uses with a maximum of efficiency and a minimum of conflict between them. Streets and boulevards must serve as the nerve centers for these uses, and at the same time solve the traffic problems and present safe, attractive routes for the users. . . We must clean up our esteros and parallel them with pleasant walks and trees. . . Dust, offensive odors and noise should be effectively controlled. . . We must relentlessly push the elimination of our blighted residential districts. Living conditions of the poor must be improved, especially from the standpoints of health and safety. . . Markets should be designed with emphasis on convenience and protection of public health. The buildings should be models of architectures and land planning. Growing trees and flowers with adequate lawns and parking spaces will some day be demanded by all market users. . . All public open areas should be permanently covered with grass or paved. No street, commercial or residential,

should be denied the benefit of trees, particularly in our climate conditions where trees grow so luxuriantly. . . The traffic problems of Manila must be solved if we are to avoid great waste in time and energy as well as the general confusion and accidents resulting from inadequate traffic arteries. It is not enough to solve the traffic difficulties on the outskirts of the city, they must also be taken care of in and through the heart of our city. Circumferential roads are all well and good, but the big problem lies in the congested commercial and business part of our city. Parking space should be provided whenever a large building is constructed. Buses should be allowed to stop only at designated stations, preferably removed from through traffic. . . With its natural features and plant material, Manila can easily become a very beautiful city, with a fine system of parks, parkways and recreational areas. School grounds should be an integral part of this system. Manila should guard its last opportunity to preserve a beach park to the north in Tondo . . . Playgrounds safe from traffic should be located within easy reach of all children. . . The time has come to make a careful revision of the Burnham plan so as to bring it up to date and to adapt it to the new and increasing needs of this cosmopolitan city. . . The planning and development of this city must be a persistent and continuous effort. A city is a growing, live organism. Its complicated units must be knit together with a maximum of usefulness and desirable living conditions. It must keep abreast of the changing conditions of the world. Its planning and development require men of adequate training and experience of past and present conditions, together with vision based upon sound judgment of the future trends. City planning and development is not the ex-

clusive field of the politician, lawyer, industrial and commercial interests, the layman, architect, engineer, health and educational authorities, economists and sociologists, but a coordination of all of these. A permanent body versed in existing and proposed civic needs must direct and correlate the city plan. A life-time devoted to the planning of a large city is the kind of personnel our city must depend upon if its growth is to be orderly and efficient and provide for the greatest welfare of its people. Such planning would combine utility, with desirable living. It would avoid the unnecessary expense, the human waste and suffering that result from non-planning. . ."

A Public Official Wrote

In an article published in the Philippine Engineering Record, Vol. 5, No. 2, 1940, Manuel Manosa, Assistant Manager of the Metropolitan Water District, Manila, said "If the purpose of housing is to plan and construct houses to meet the needs of the individuals, then that of city planning is to plan and distribute the land upon which town and cities are built so as to meet, in the best possible manner, the needs of the community. And just as the quality of life and the moral atmosphere in a home are affected by structural conditions of the home, so the whole life of the community, whether it be a neighborhood, district, town, city, or region is affected by the physical development of that community. Many things are taken into consideration, such as the adequacy of streets for circulation, the provision of ample open spaces for the conservation of health, the control of the use of land for the general welfare of the community, etc. Strictly speaking, the problems of city or town planning and housing are interlinked so that the study or solution of one necessarily involves the other."

THE PLANNING DESIGN

HOUSES

From Facts and Analyses to Design

Now that the facts are known about the site and about the people, and what these facts mean in the planning process, and knowing, too, the attitudes of different individuals who know that site and those people, this thesis will proceed to the actual planning design, step by step, based on those facts and on their interpretation. From the people and their background. . . to the structures which will house them. . . and thence to the neighborhood. . . the community. . . and the city as a whole - that will be the itinerary.

Minimum Requirements

In planning for human beings, it is apparent that one should know first the minimum requirements to satisfy adequately a decent standard of the basic human needs - a standard which is the same the whole world over irrespective of race, economic status, or creed. As to the maximum, this thesis shall not be much concerned about - for man's capacity for the maximum, if there is such a maximum, is limitless and extremely elastic. This thesis shall first be concerned with the minimum and from there on develop the plan.

Considerations for Minimum Room

What is the minimum room? And how small shall the minimum house be? These questions will in-

vite different answers depending on the concept taken by the one who answers them. An exploration of some of those concepts may suggest that the minimum size for a room could be based on: 1. the prevailing size commonly acceptable, 2. the space required to arrange the necessary amount of furniture of a given size, 3. assumed occupancy, using legal requirements for each occupant, 4. a combination of all these plus a consideration of peculiar customs and habits (e.g. - Do all people sleep in beds or do some sleep on the floor too? Are living rooms used for sleeping purposes also?) So that the minimum may not be rigid, it is desirable to take also into consideration the element of elasticity in the determination of such a minimum so that the rooms may be adequate not only for the present needs but also for the future requirements of a growing family.

Bed Rooms and Living Rooms

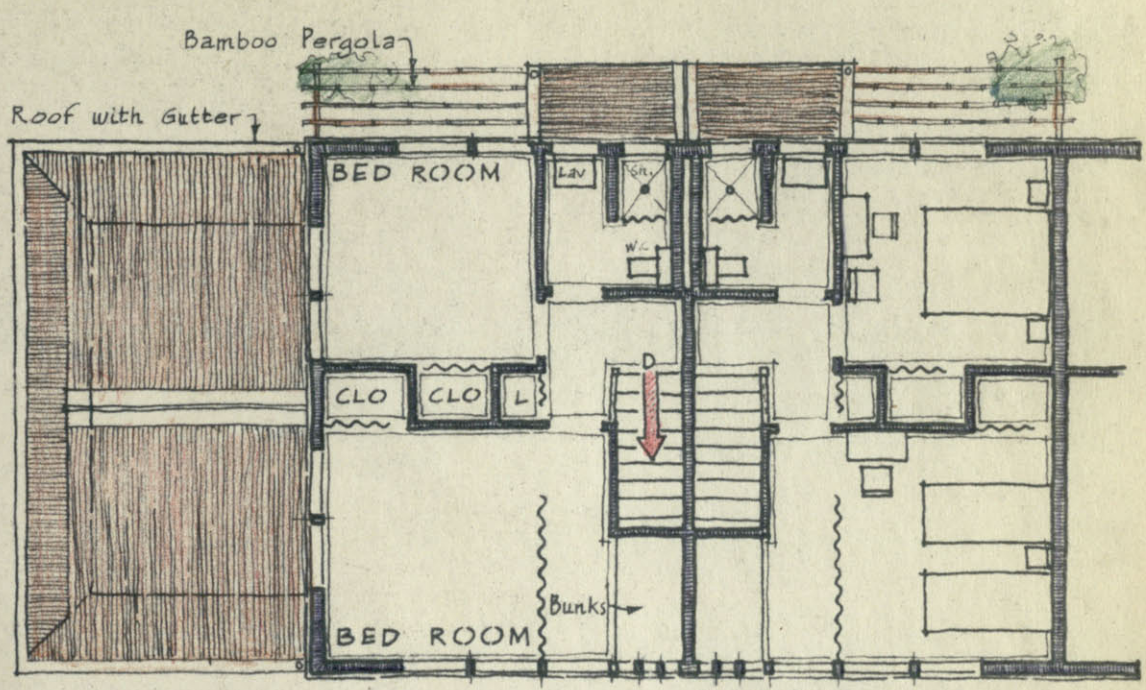
Bed rooms and living rooms, and their relation to each other, present peculiar aspects in their design. Finally, however, a 3- by 3-meter (10- by 10-foot) minimum has been adopted for bed rooms; and a 3.5- by 4-meter (10.5 by 12-foot), for living rooms. These minimum sizes were arrived at by studying the previously mentioned considerations: 1. Prevailing sizes commonly acceptable have little weight, for many of the present rooms in the vicinity of the site are inadequate not because of size but because of design. 2. Altho the determination of the minimum room based on the amount of furniture of a given size may be quite a sensible approach, it is thot as rather impractical for the particular problem on hand, because the fire victims who are the prospective tenants have saved from the fire pieces of furniture which, for some reason or another, they are reluctant to throw

away and change with new ones which they could ill afford to buy. To obviate such an attitude, however, built-in furniture has been incorporated in the minimum room. 3. On an assumed occupancy of 2 persons per bed room, the City Ordinances require 28 cu. meters (990 cu. feet) of air space; or adopting a 3.1-meter (10.2-foot) height for the ceiling, the ordinances require 9 sq. meters (97 sq. feet) of floor area. On the plans developed, no living room is less than the legal 10-sq. meter (108-sq. foot) minimum. 4. Considering in addition the habits of the people, the minimum sizes adopted are sufficient. Some of the natives are used to sleeping on woven palm mats spread on the floor and they have ample area for this custom. The living room could also be used for sleeping purposes by the residents of the house when a bed room is offered to a guest. For the element of flexibility in the design to take care of the increasing size of the family, unobtrusive bunks for the smaller children could easily be added in a corner of the larger bed rooms. These bunks could be separated from the main room by the use of curtains or woven bamboo screens.

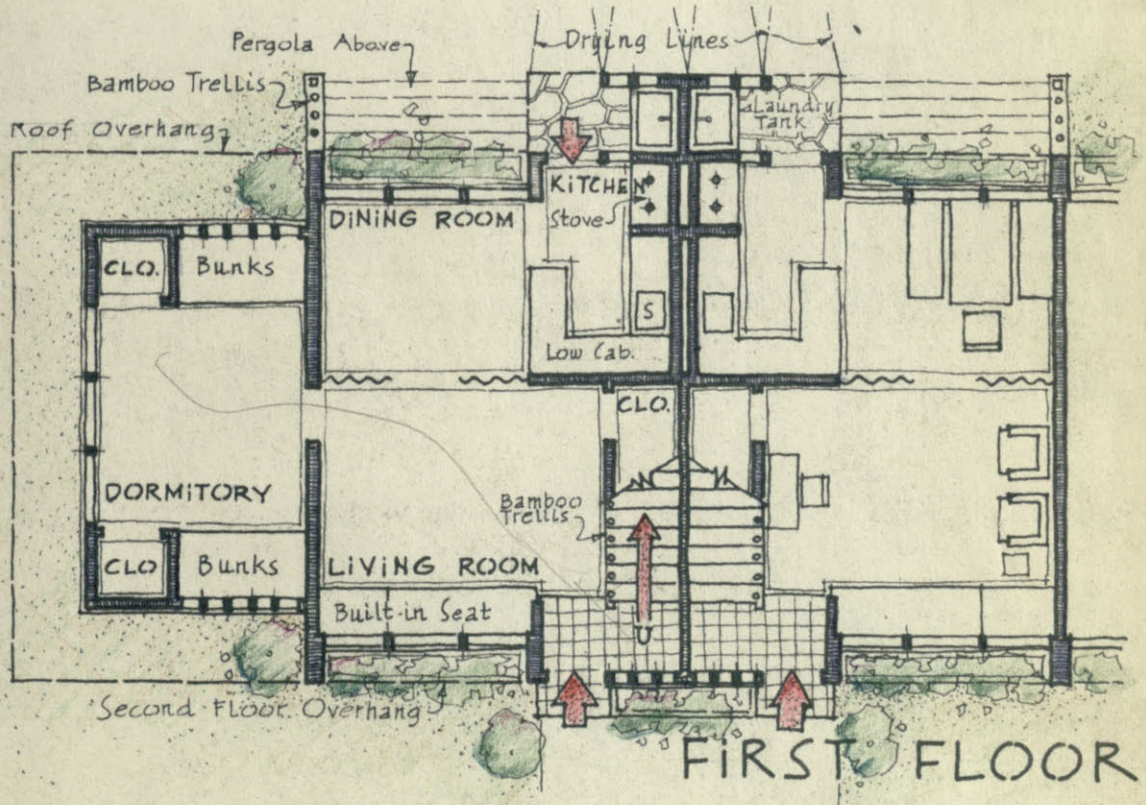
Bath Rooms and Closets

Unlike those of the bed rooms and the living rooms, the dimensions of the bath rooms are more or less governed by the standard sizes of fixtures. Bath tubs, besides being expensive, are never popular in the Islands; showers are preferred. Closets have been fixed at a minimum depth of 55 centimeters (22 inches) and a minimum width of 90 centimeters (36 inches) according to accepted standards which are quite adequate for the Islands because there clothing articles are thin and less varied (no separate winter and autumn clothes - all summer wear).

ROW HOUSE UNITS - 2-STORY -
FOR FAMILIES OF 4-6 (Right) AND 7-10 (Left)



SECOND FLOOR

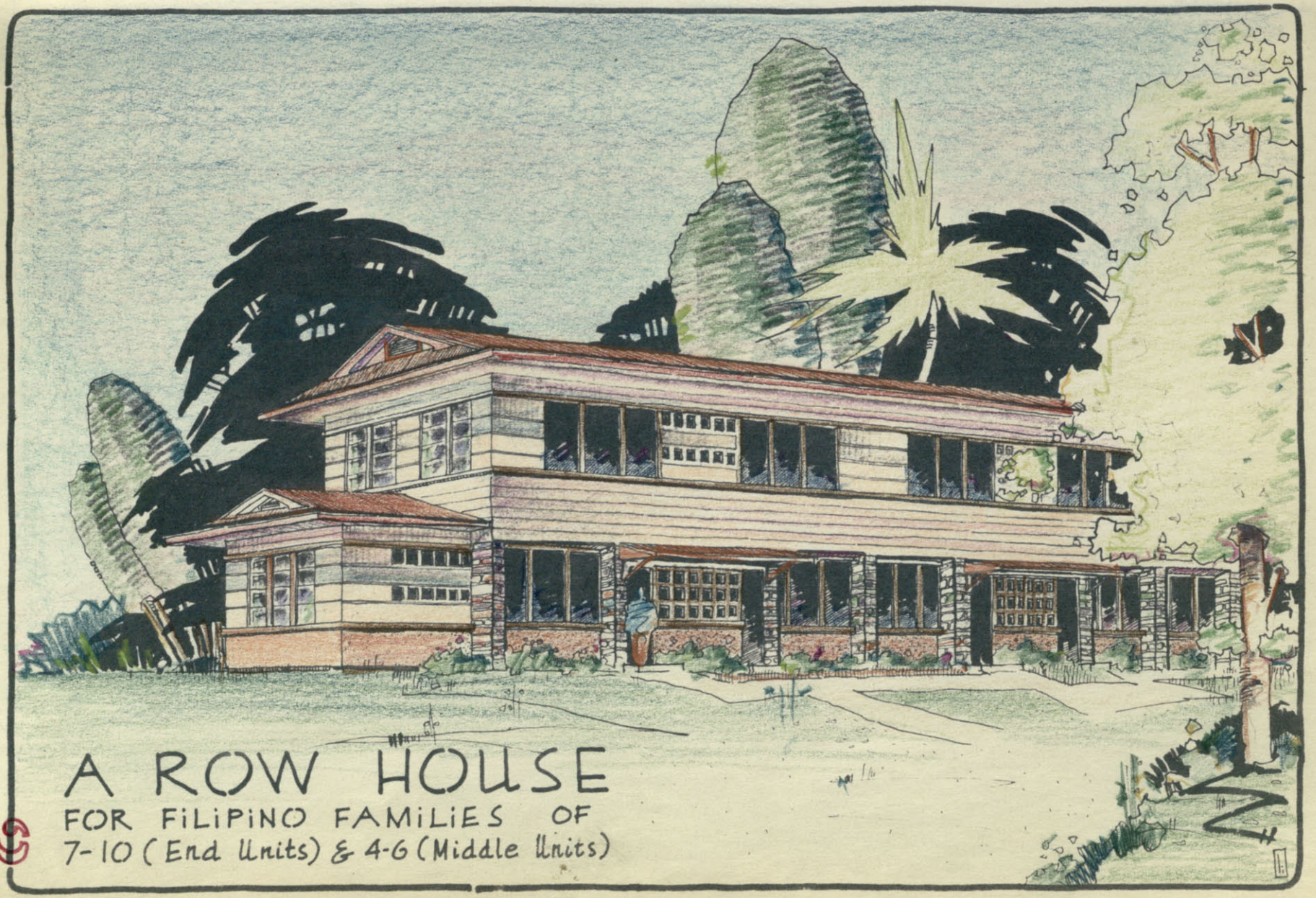


FIRST FLOOR

SCALE IN METERS

0 1 2 3 4 5 6 7

33 (1)



A ROW HOUSE

FOR FILIPINO FAMILIES OF
7-10 (End Units) & 4-6 (Middle Units)

Kitchens and Service Areas

In the design of the kitchen, a 2- by 3-meter (6.5 by 10-foot) size has been taken as sufficient to answer the needs of the Filipino family. Each kitchen contains a set of wall and floor cabinets of standardized design and size, a sink with drainboards, and a built-in stove platform. Beneath the platform is a compartment for fuel (wood or charcoal) while above it is a galvanized iron hood which leads the smoke to the twin chimney. The fixtures have been arranged for economy in the first cost and in the travel while doing household work. Behind the kitchen may be added a small service space with a laundry tank, a bamboo lattice partition, and a drying yard. See Figs. 30, 31, 32 and 33.

Curtains and Other Details

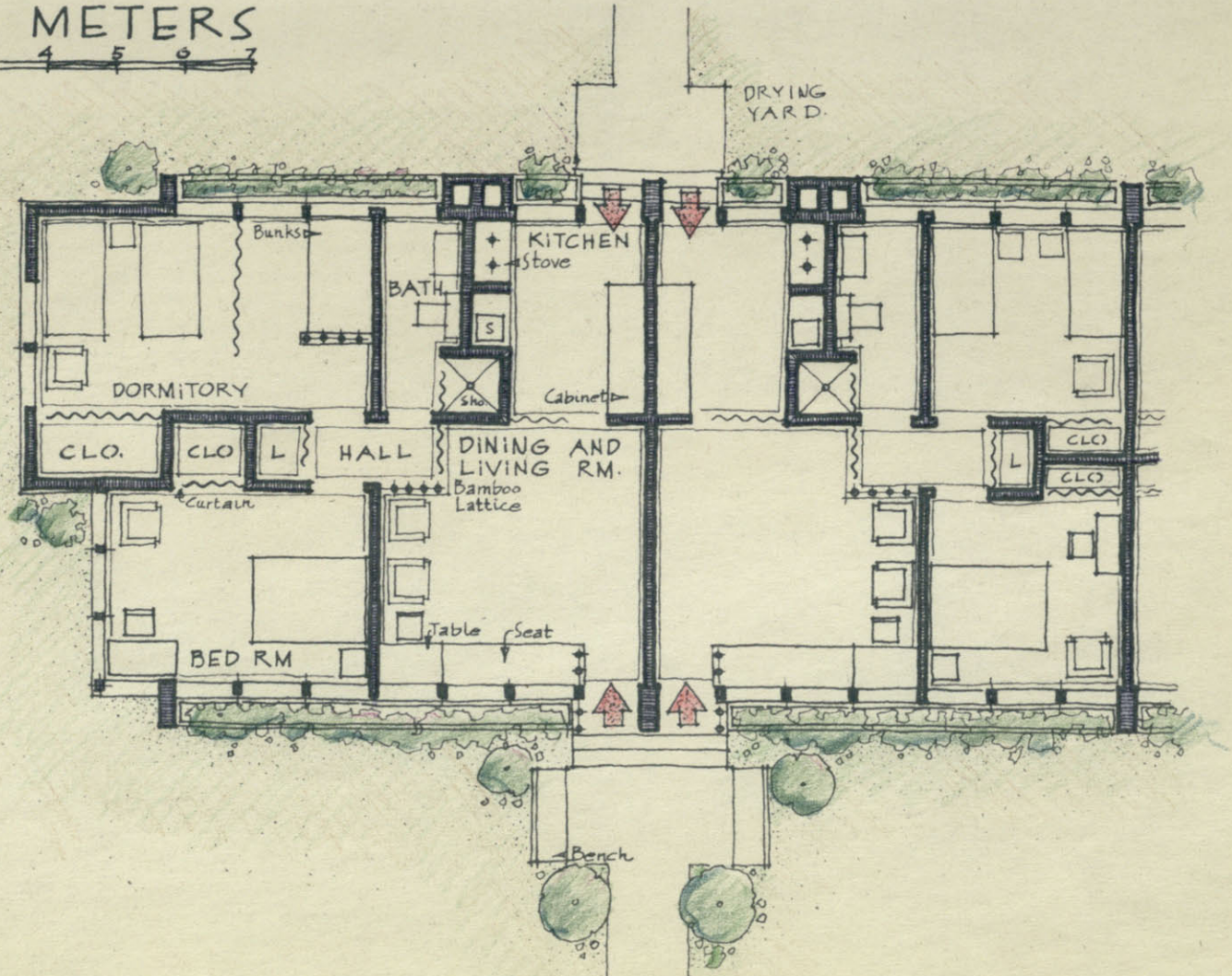
Curtains have been adopted for doors of closets and temporary partitions like those between the living room and the dining room, or between the childrens' bunks and the main bed room. Built-in seats have been incorporated in living rooms, and inexpensive plant boxes placed below windows and near entrances. Wherever appropriate, bamboo lattices have been used instead of wrought iron grilles on ground floor windows.

Arrangement of Rooms

Rooms have been arranged for maximum livability and utmost economy without the sacrifice of privacy, comfort, and convenience. Halls have been made as small as possible and have been introduced only to effect private and convenient access to bath rooms. Privacy has been achieved also by the convenient placement of the stairs for the 2-story structures. There is flexibility in the occupancy of rooms and in their uses: units may be enlarged to accommodate more people by just adding a projection to a room without

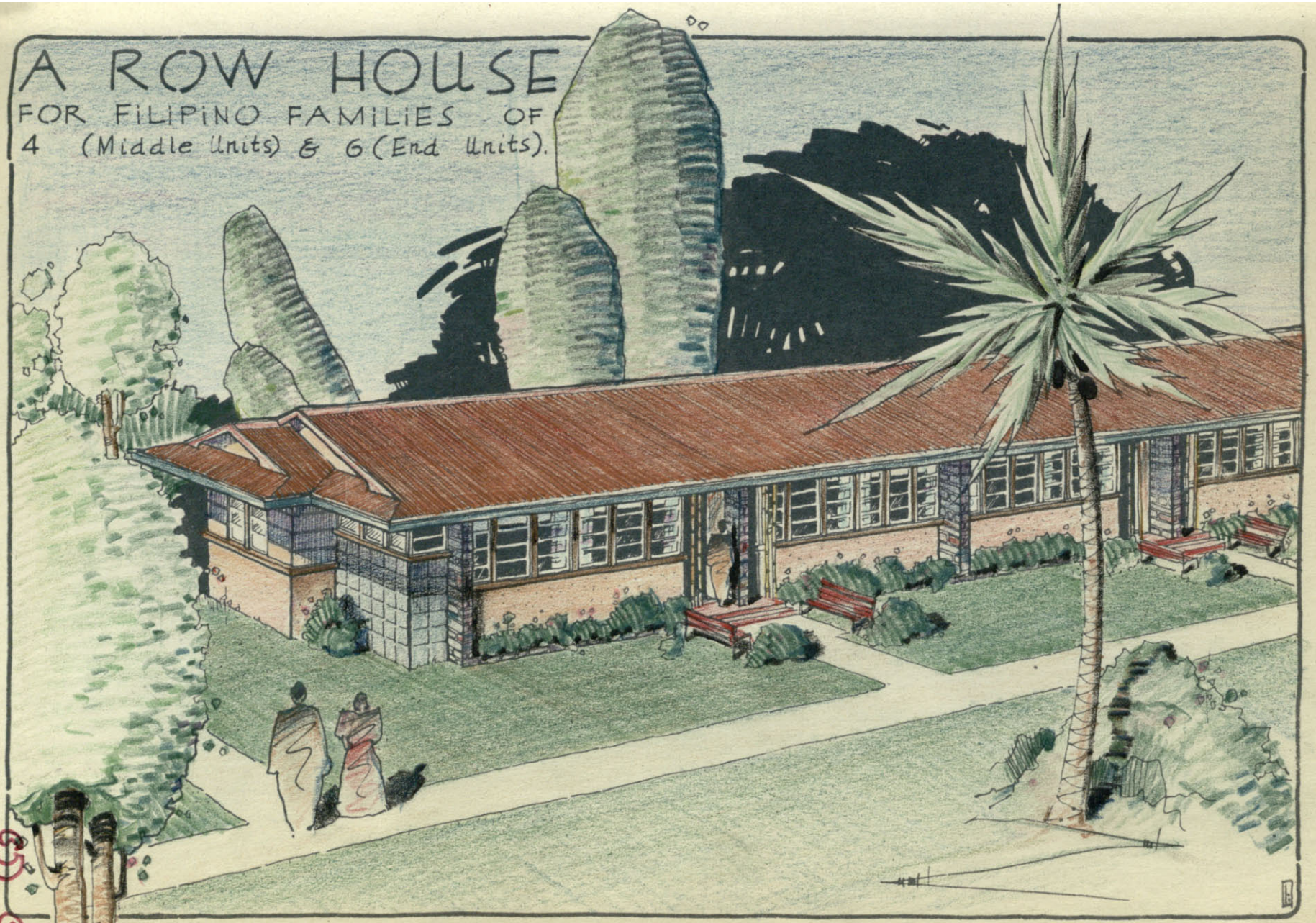
SCALE iN METERS

0 1 2 3 4 5 6 7



ROW HOUSE UNITS 1-STORY

FOR FILIPINO FAMILIES OF 4 (Middle Units) & 6 (End Units)


A ROW HOUSE
FOR FILIPINO FAMILIES OF
4 (Middle Units) & 6 (End Units).

destroying the arrangement of the other rooms; or the size of the kitchen, for example, may be changed by just shifting the movable cabinets; or the dining room may be used as part of either the kitchen or the living room. The relationship of rooms to each other has been largely standardized. Good planning places the kitchen adjacent to the dining space, the bath room near the bed rooms. Only to a slight extent do site conditions or other physical factors have important bearing on change in plan relationship of rooms. Even then the desirable arrangement in a good plan will remain without fundamental alteration, for human requirements are unchanged.

Economics and Standardization

For economy in plumbing, the bath rooms have been placed above the kitchen in 2-story units, and adjacent to each other in 1-story units. For other economies, the walls have been kept to a low minimum and windows, doors, etc. have been made with standardized sizes. Standardization will involve plenty of economies in cost of production and installation. The objective is a reduction in cost thru repetitive shop operations, improved working conditions, volume purchase of materials, and reduced erection time at the site. The standardization of parts need not radically alter building methods. It would be a step in the direction of simplifying complex processes. It should permit continued flexibility in plan and design to meet individual desires and conditions imposed by site and climatic conditions. It has been used already in many articles by reducing the range of types and styles, without lessening the functional value of these articles.

Standardization Without Monotony

With standardization of parts and of house plans, many people think that monotony will be inevitable in a row of identical structures. While monotony may, and in some projects often does, result from the use of standard parts and plans, it is a quality which is not inherent in standardization, but in the lack of skill and imagination with which standardization is applied. Monotony in individual houses and in street and community appearance may as readily occur where plans are not standardized. Standardization, intelligently used, is often an aid to good design, particularly with the larger aspect of the street picture in view. Even though plans may be largely standardized, variations in outward appearance may occur. Different orientation of houses on streets introduces elements of variety. In addition, interest can be obtained by varying set-back of houses from the street. Combinations of units can be varied, too, in number and in their grouping. Color and texture of surfaces which do not affect the street or plan, and the arrangement of building masses, variations in roof lines, fenestration, and individual landscaping could be utilized to avoid the unnecessary monotony commonly associated (unfortunately) with standardization.

Distribution of House Capacities

The basic dwelling units which have been adopted are of various capacities to answer the needs of the vari-sized families intended to be housed. The illustrations of these units accompanying this thesis should be viewed as a possibility, among the many possibilities, of planning the dwelling units inside out and the development of comprehensive neighborhoods using such dwelling units. Some of these units can accommodate 3-4 persons; others can hold 4, 6, 4-6, and even 7-10 people. By a study of census figures

and the population characteristics of Tondo and Manila residents as to family size, age, and sex composition, the following percentages of dwelling unit sizes have been arrived at: for 3 or less persons - 28.6%; 4 and 5 - 29.6%; 6 - 12.4%; and 7 or more - 29.4%. Adjusting these figures because of the flexibility of occupancy of the units and of the overlap in their capacities and in order to have the proportioning more applicable to the incomes of the group from which the tenants would be drawn from, the following tentative percentages have been obtained: for 3 or less persons - 15%; 4 and 5 - 45%; 6 - 10%; and 7 or more - 30%.

Choice of Dwelling Types

It has been decided, after some deliberation, to have row houses as the predominant type of residential structures because of the economies (first cost, maintenance, and operation) and the amenities involved. This decision has also been prompted by the fact that row houses are well adapted to flat terrain like that of the site. Besides this type gives each tenant its own home and the opportunity of developing a plot of land for its own use. Flats, 2 stories high and based on the basic plan of the 1-story row house unit have also been used to provide "L" and "C" wings to the row houses without disturbing the lot apportioning and to answer the needs of a different type of living - one with little domestic responsibility. For people who insist on detached single-family houses because of habit and because they can afford to spend more for shelter, a number of these structures have been set aside for them on the SW corner of the site - near the Mary Johnston Hospital.

Advantages of Row Houses

The general advantages of the row houses over the detached single-family house may be enumerated as follows: 1. There is a sizable saving in the first cost and maintenance of the structure due to the use of the common party wall and common service lines and paths. 2. There is economy in the twinning of plumbing lines vertically in the house and horizontally in the sewer and water mains to the street. 3. There is a similar saving in electric lines. 4. There is a decided gain in privacy by the elimination of side windows overlooking each other. 5. Due to the 2-room depth, light is insured in all rooms; there are no rooms close to the wall of the adjacent house. 6. With the same population density, the row house group permits large spaces between groups, while the space between single houses must be much less. A specific example shows this advantage clearly: If row houses of 4 units each were constructed with 16 meters (52 feet) between ends, they will have the same population density as detached single-family houses in a row 4 meters (13 feet) apart. Viewed as a whole, the effect of the group development is more free and more open than the detached structures. 7. The larger-sized family with a somewhat higher income and who desires more privacy and more grounds can occupy an end unit which will still be cheaper than a detached house of the same area and also superior from the point of view of pleasant distance from the end unit of the next structure. Albert Mayer maintains that detached single houses place emphasis on a non-existent independence, and what ever meaning it has is directed toward promoting an attitude of non-cooperation. He said, "The frank statement of a group house unit is that we do lead interdependent lives, that a man's home in this complex age in which we live is certainly not an unap-

proachable castle. Such an architectural statement of itself will affect peoples' attitude toward community living."

Assembly and Patterns

In assembling the row-houses an effort has been made to avoid movements of major traffic in any considerable volume parallel to the rows. The movement of vehicles has been restricted to streets lying at the ends of the buildings, the space between the buildings, in close contact with the dwelling units, having been reserved for the safe and comfortable use of the prospective tenants. The row houses have been assembled mostly in parallel row plans, but where flats have been added as wings, court plans have been found convenient. Each of these patterns has its own advantages. A court layout attains an effect of spaciousness in its esthetically satisfying enclosed area. When the rows are predominantly parallel, the distance from row to row will be a little less than the average width of the court (using the same density), but the longitudinal views will be longer. It is obvious as will be shown more in detail later, that when a particular orientation to sun and prevailing breezes is strongly favored, such orientation will result in predominantly parallel rows, as indicated on the proposed plan Parallel rows usually facilitate a simple and practical servicing scheme in which all dwelling units are handled uniformly. Court plans can seldom be arranged without traffic routes becoming parallel to some buildings, so that the use of courts has only been sought to lend variety and interest to the whole scheme. In order that the living rooms will not look into the kitchens of the next row, the rows have been placed front to front and back to back - thus consolidating at the same time the front yards for sitting and gardening purposes, and the back

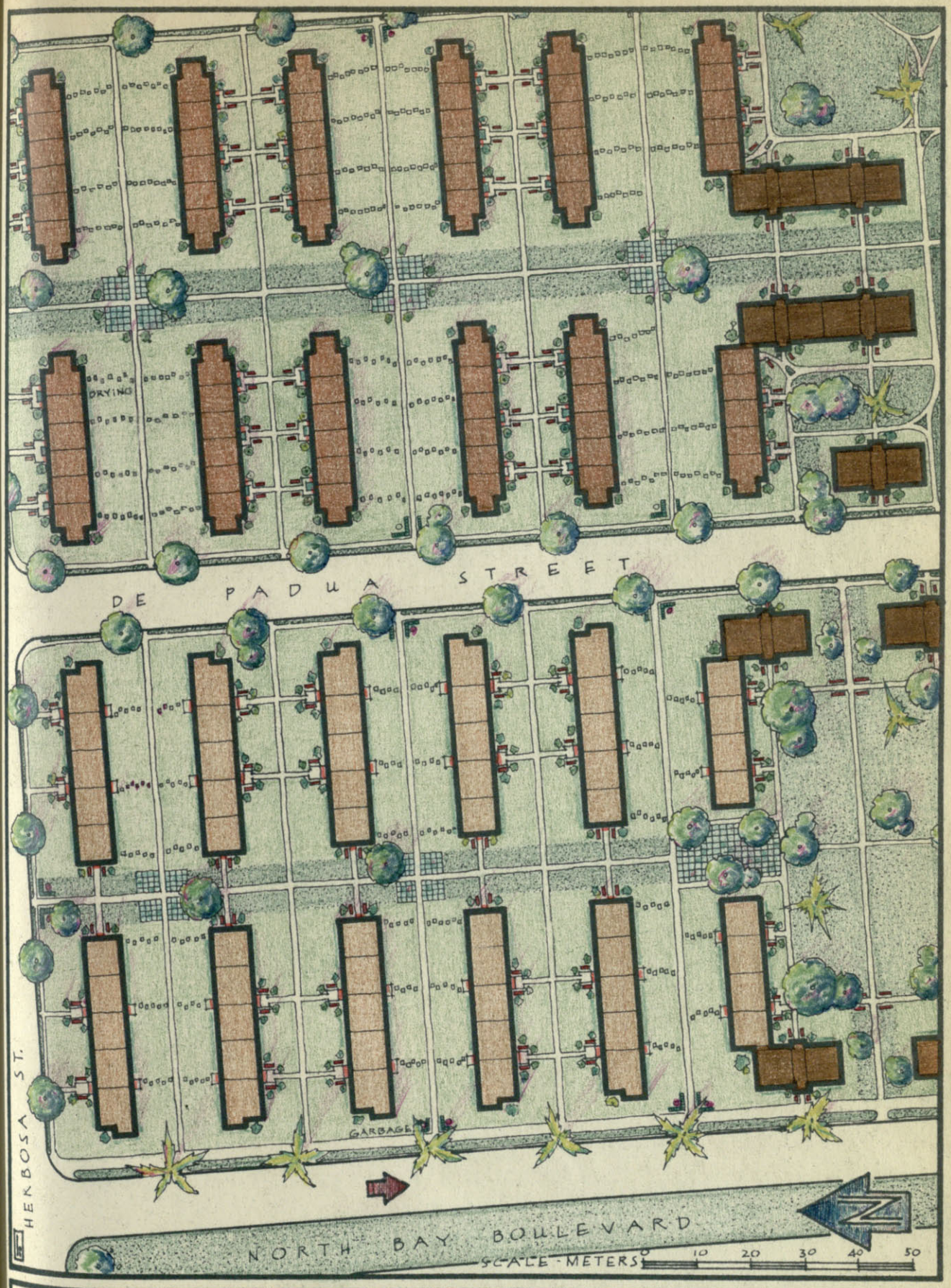
yards for service such as laundrying, drying, etc. Row houses which are 1-story high have been placed near the bay to preserve desirable view, and also at the ends of 2-story rows to effect an agreeable massing of structures. See Fig. 34.

Spacing of Buildings

The 1-story row houses which lie parallel have been spaced 24 meters (80 feet) center-to-center, giving open spaces of 16 meters (52.5 feet). The minimum spacing of 1-story structures has been recommended by the U.S.H.A. at 50 feet (15.2 meters) center-to-center. For the 2-story row houses, the distances have been made greater at one side of the building than at the other, the open space being 20 meters (65.5 feet) at the service side and 13 meters (42.7 feet) on the front side - or a lot depth of 25 meters (82 feet). The minimum spacing recommended by the U.S.H.A. for 2-story structures is 55 feet (16.8 meters) center-to-center. End-to-end distances have been kept close to 14 meters (46 feet) for the 1-story edifices and 16 meters (52.5 feet) for the 2-story ones, the spaces so created being used for pedestrian circulation and play lots for the small children.

Orientation to Sun and Winds

Due to the intensity of sunshine in the Philippines, the orientation of buildings takes into consideration the avoidance of direct sunshine in preferred rooms, whereas in the United States orientation to sun is considered successful only when it makes sunshine available in those rooms during the greater part of the year, and especially during winter. This does not mean, however, that good planning for Philippine houses tries to do away with all sunshine. Direct sunshine is avoided, but indirect sunshine is sought



PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

LEGEND:

- 1-STORY ROW
- 2-STORY ROW
- 2-STORY FLAT
- "TENANT" AREA
- "PROJECT" AREA
- TOTS' PLAY LOT

TYPICAL SITE PLAN

SCALE FEET 0 30 60 90 120

after. Bed rooms and living rooms are considered more "cheerful" and more "livable" when they receive the mild sunshine at sunrise and all thru early morning. Because of the radiation of heat from the earth in the afternoon, sunshine during the later part of the day becomes undesirably uncomfortable in those rooms; sunsets are appreciated only as scenic phenomena. Besides, bed rooms should be cool in the afternoons to make the traditional siesta pleasant to take. . . and refreshing; and often, too, visitors are received for afternoon merienda in the living rooms. On the basis of this objective in the orientation of buildings to sun, it becomes advisable that the axes of row houses and other groupings be made as nearly parallel to the path of the sun, which path does not vary a great deal in Manila (latitude - 14 degrees and 37 minutes North). And to protect rooms, under this scheme, from direct sunlight during the middle part of the day, hoods have been incorporated over the window openings or else the roof eaves have been made as wide as practicable. Orientation of Philippine buildings to prevailing breezes, unlike orientation to sun, attempts no such avoidance; it is most desirable when it makes these breezes available in all the rooms thruout the year, but especially so during the hottest months of April and May. In order to have a clearer visualization of the combined effect of winds and sunshine, Fig. 35 has been prepared showing the availability of winds and sunshine in rooms with different orientation and during all months of the year. It has been found with the use of this figure that the most desirable orientation of bed rooms and living rooms for the combined effect of winds and sun takes place when the windows of these rooms face the octant SE and S - at which orientation the breezes

ORIENTATION	ITEM	MONTH											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
N.	WIND	■		□	□	□	□		□		□	■	□
	SUN						○ △	○ △					
N.E.	WIND	■	□	□	□	□	□				□	■	■
	SUN	○	○	○	○	○	○	○	○	○	○	○	○
E.	WIND	■	■	■	■	■	■				■	■	■
	SUN	○	○	●	●	●	●	●	●	●	●	○	○
S.E.	WIND	□	■	■	■	■	■	□	□	□	□	□	□
	SUN	●	○	○	○	○	○	○	○	○	○	○	●
S.	WIND	□	■	□	□	□	□	■	■	■	■		
	SUN	○ △	○ △	○ △	○ △					○ △	○ △	○ △	○ △
S.W.	WIND		□	□	□	■	■	■	■	■	■		
	SUN	▲	△	△	△	△	△	△	△	△	△	△	▲
W.	WIND	□				□	□	■	■	■	■	□	
	SUN	△	△	▲	▲	▲	▲	▲	▲	▲	▲	△	△
N.W.	WIND	□				□	□	□	■	□	□	■	□
	SUN	△	△	△	△	△	△	△	△	△	△	△	△

DEDUCED FROM WIND AND SUNSHINE DATA OF THE PHILIPPINE WEATHER BU.

LEGEND:

WIND ■ PERPENDICULAR TO WINDOW; □ OBLIQUE TO WINDOW.
THE ■ INCLUDES OCCASIONALLY OBLIQUE DIRECTIONS ALSO.

SUN ● SUNRISE NEARLY ⊥ TO WINDOW; ○ OBLIQUE TO WINDOW.
▲ SUNSET NEARLY ⊥ TO WINDOW; △ OBLIQUE TO WINDOW.

ORIENTATION OF ROOMS TO MANILA WINDS AND SUNSHINE

335

are abundant and the sunshine is admitted obliquely in the morning. With this range of orientation, the opposite rooms do not fare badly, either. This range of orientation to winds also agrees rather well with the desired orientation to sun - in which the axes of the row houses are as nearly parallel to the solar path. The predominantly W-E and SW-NE directions of the rows are the results and these are clearly manifested on the proposed development plan.

Esthetics and Architecture

In the design of the buildings, no attempt has been made to adopt and adapt a particular "period style"; nor have the structures been emphasized separately at the expense of the collective character of the community of structures. The motivating idea has been to evolve an architecture, not exterior decoration, which will answer frankly and adequately the requirements of a people and reflect sincerely their spirit and characteristics. The technique has been to employ simple, necessary, and functional details and to repeat these details wisely and unobtrusively in a continuous and smooth rhythm that ultimately leads to a cumulative impression - at once distinctive and rational - as if the structures, singly and as a group, have grown from the earth on which they stand. This thesis has been ever conscious of the fact that an entire community of homes is being designed - not merely a number of individual houses huddled in a group; and therefore efforts have been exerted to effect a pleasant and efficient relationship among the houses and groups of houses in their location, arrangement, and massing.

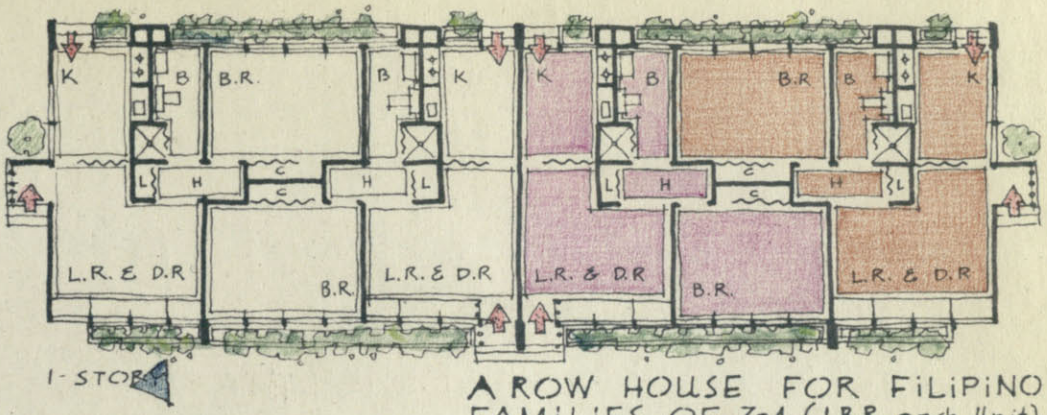
Variety of Combinations

The 1-story and 2-story row houses, and the 2-story flats have been combined with each other

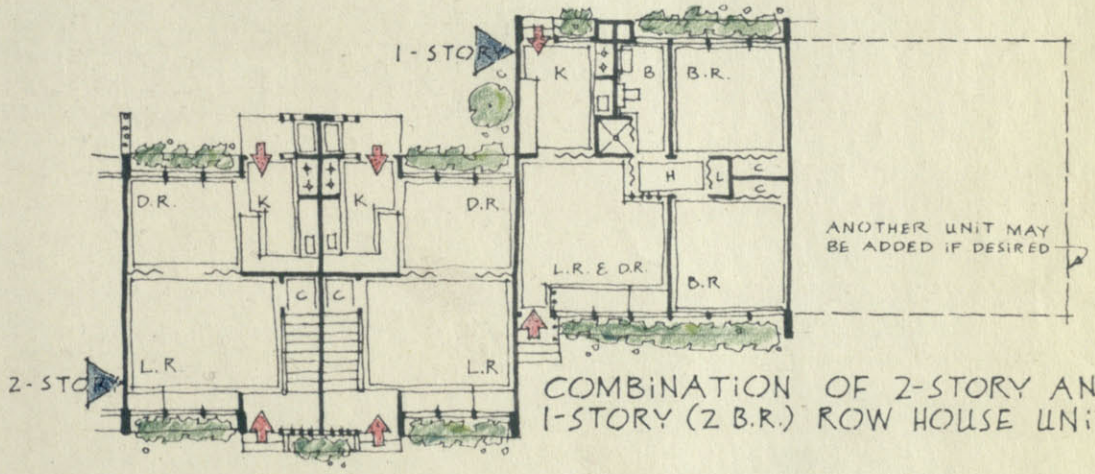
in the house groupings to furnish variety in form, in occupancy, in height and in pattern. The figures and table illustrating a few of such combinations show variations which involve lengths ranging from 26 meters (85 feet) to 56 meters (184 feet). Most of the "L" and "C" groupings have been obtained by using flats for the wings; others, by offsetting end row-house units. See Figs. 36, 37 and 38.

Detached Single-Family Houses

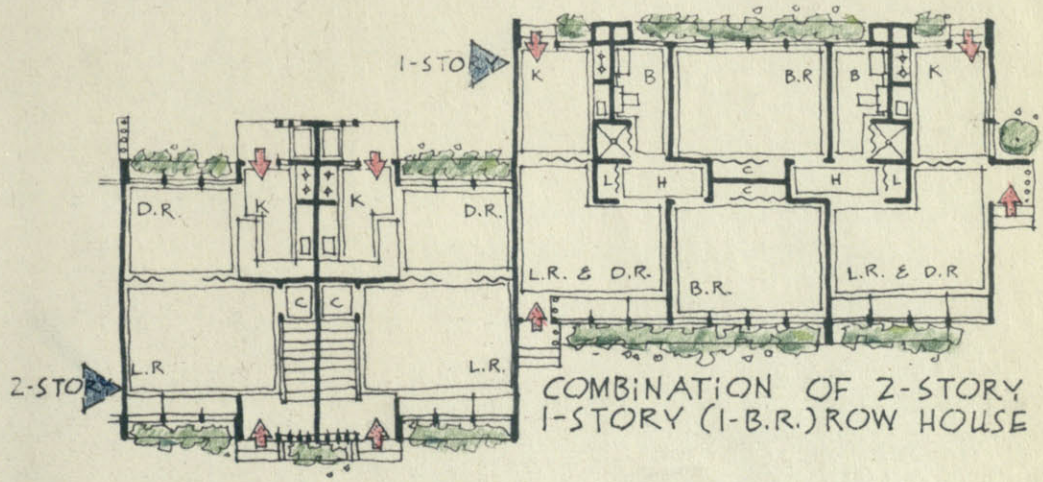
For further variety, plans for detached single-family houses have been included. These plans, which have been designed after the same idea, and treated with the same techniques employed in the other structures, are offered as mere suggestions or samples. Others could be designed likewise to suit the particular description of individual lots. One of the plans included in this thesis is an adaptation of an end unit of a 1-story row house, with a porch added for utility and interest. Another is a bungalow - a functional structure for a family with servants and a car. The third of these plans is particularly interesting because of its simple and economic design. This house is a 2-story affair with all the features of a modern residence for a typical family of 6-8 of the better middle class. All the bed rooms have a corner location and an easy accessibility to the bath room. For convenience and privacy at all occasions, the toilet fixtures have been placed in separate compartments - all above the kitchen, too, for economy in plumbing installation. The first floor of the house, which is devoted to the "living" activities, show a compact room arrangement that is without congestion. The porch is open and airy, but it is protected as well from intrusion by sturdy bamboo lattice-work, a detail which is both decorative and



A ROW HOUSE FOR FILIPINO FAMILIES OF 3-4 (1 B.R. each Unit)



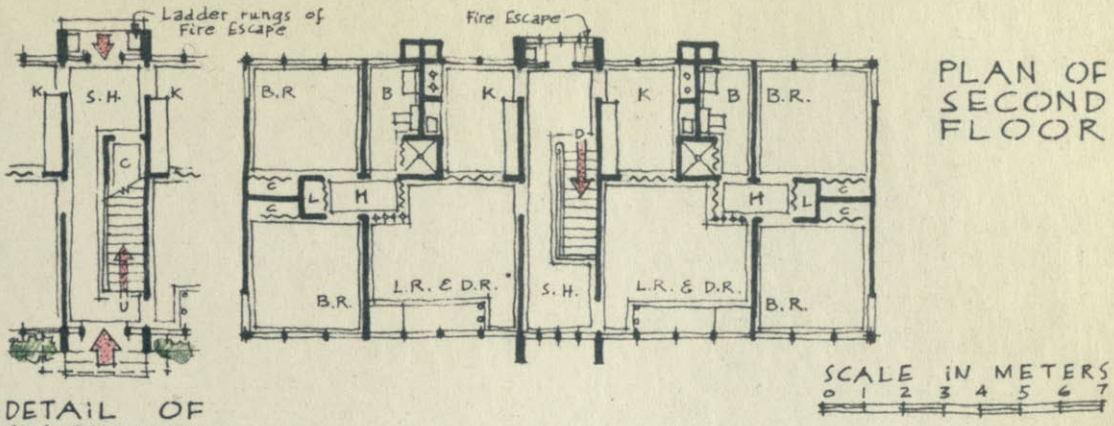
COMBINATION OF 2-STORY AND 1-STORY (2 B.R.) ROW HOUSE UNITS



COMBINATION OF 2-STORY AND 1-STORY (1-B.R.) ROW HOUSE UNITS

VARIATIONS AND COMBINATIONS IN THE PLANS OF ROW HOUSE UNITS FOR FILIPINO FAMILIES

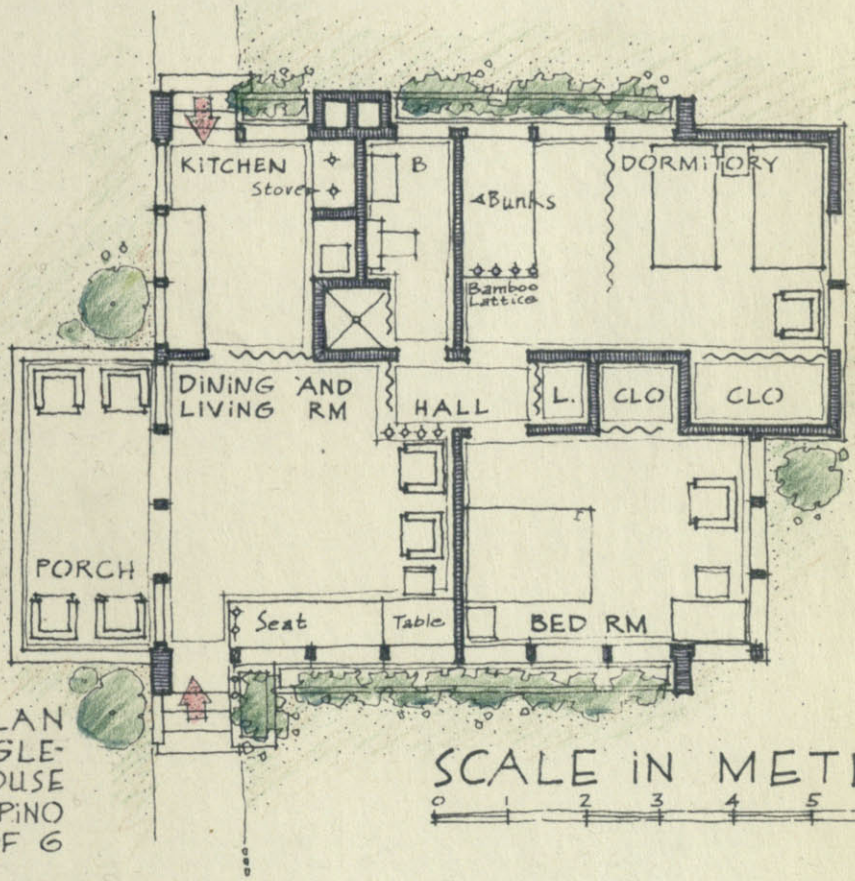
SCALE IN METERS
0 1 2 3 4 5 6 7



PLAN OF SECOND FLOOR

DETAIL OF STAIRHALL ON FIRST FLOOR

COMBINATION TO FORM 2-STORY FLATS FOR FILIPINO FAMILIES OF 4



FLOOR PLAN OF A SINGLE-FAMILY HOUSE FOR A FILIPINO FAMILY OF 6

SCALE IN METERS
0 1 2 3 4 5 6 7

VARIATIONS AND COMBINATIONS IN THE PLANS OF ROW HOUSE UNITS TO FORM SINGLE-FAMILY RESIDENCES OR FLATS (2-STORY) FOR FILIPINO FAMILIES

CLASSIFICATIONS:

ROW HOUSE	INTERIOR	1-STORY	FOR 4 PERSONS		R_i - I - 4
" "	"	1- "	" 3+ "		R_i - I - 3+
" "	EXTERIOR	1- "	" 6 "		R_e - I - 6
" "	INTERIOR	2- "	" 4+ "		R_i - II - 4+
" "	EXTERIOR	2- "	" 7+ "		R_e - II - 7+
F L A T	INTERIOR	2- "	" 4 "		F - II - 4
SINGLE FAMILY		1- "	" 6 "		S - I - 6
" "		2- "	" 6+ "		S - II - 6+
"	& GARAGE	1- "	" 3+ "		SG - I - 3+

DENSITY = 16 FAM./ GROSS ACRE = 27 FAM. / NET ACRE = 40 FAM./ GROSS HE. = 67 FAM. / NET HE. = 150 SQ.M. / D. U.

VARIETY OF COMBINATIONS:

COMBINATION OF DWELLING UNITS	LENGTH OF STRUCTURE-M	LOT WIDTH METERS	AREA / D.U. SQ. METERS
2 (R_i - I - 4) + 2 (R_e - I - 6)	32	20	160
4 (R_i - I - 4) + 2 (R_e - I - 6)	46	20	153
4 (R_i - I - 4) + 2 (R_e - I - 6)	28	20	140
6 (R_i - I - 4)	42	20	140
4 (R_i - I - 3+) + 2 (R_e - I - 6)	42	20	140
4 (R_i - I - 3+)	24	20	120
6 (R_i - I - 3+)	36	20	120
2 (R_i - I - 3+) + 2 (R_i - I - 4)	26	20	130
4 (R_i - I - 3+) + 2 (R_i - I - 4)	38	20	127
4 (R_i - I - 4) + 1 (R_e - I - 6)	37	20	148
4 (R_i - I - 3+) + 1 (R_e - I - 4)	33	20	132
4 (R_i - I - 3+) + 1 (R_i - I - 4)	31	20	124
4 (R_i - II - 4+) + 2 (R_e - II - 7+)	36	25	150
2 (R_i - II - 4+) + 2 (R_e - II - 7+)	26	25	162
6 (R_i - II - 4+)	30	25	125
4 (R_i - II - 4+) + 2 (R_e - I - 6)	36	25	158
4 (R_i - II - 4+) + 2 (R_i - I - 4)	34	25	142
4 (R_i - II - 4+) + 1 (R_e - II - 7+)	28	25	140
4 (R_i - II - 4+) + 1 (R_e - I - 6)	29	25	145
4 (R_i - II - 4+) + 1 (R_i - I - 4)	27	25	135
4 (R_i - II - 4+) + 2 (R_i - I - 3)	32	25	133
4 (R_i - II - 4+) + 1 (R_e - II - 7+) + 1 (R_e - I - 6)	37	25	15.4
6 (R_i - II - 4+) + 2 (R_e - II - 7+)	46	25	144
8 (R_i - II - 4+) + 2 (R_e - II - 7+)	56	25	120
4 (F - II - 4) + 2 (R_i - I - 4)	30.5	30	152
8 (F - II - 4)	33	30	124
4 (F - II - 4) + 2 (R_e - I - 6)	34.5	30	172
4 (F - II - 4) + 1 (R_e - I - 6)	25.5	30	153
4 (F - II - 4) + 1 (R_i - I - 4)	23.5	30	141
4 (F - II - 4) + 2 (R_i - I - 3)	28.5	30	143

DWELLING UNITS

NOTE " AREAS GIVEN ABOVE ARE MINIMUM. THEY MAY " BE INCREASED TO SUIT SIZE OF BLOCKS. ALLOWANCE TO BE MADE FOR AREAS NEAR END UNITS

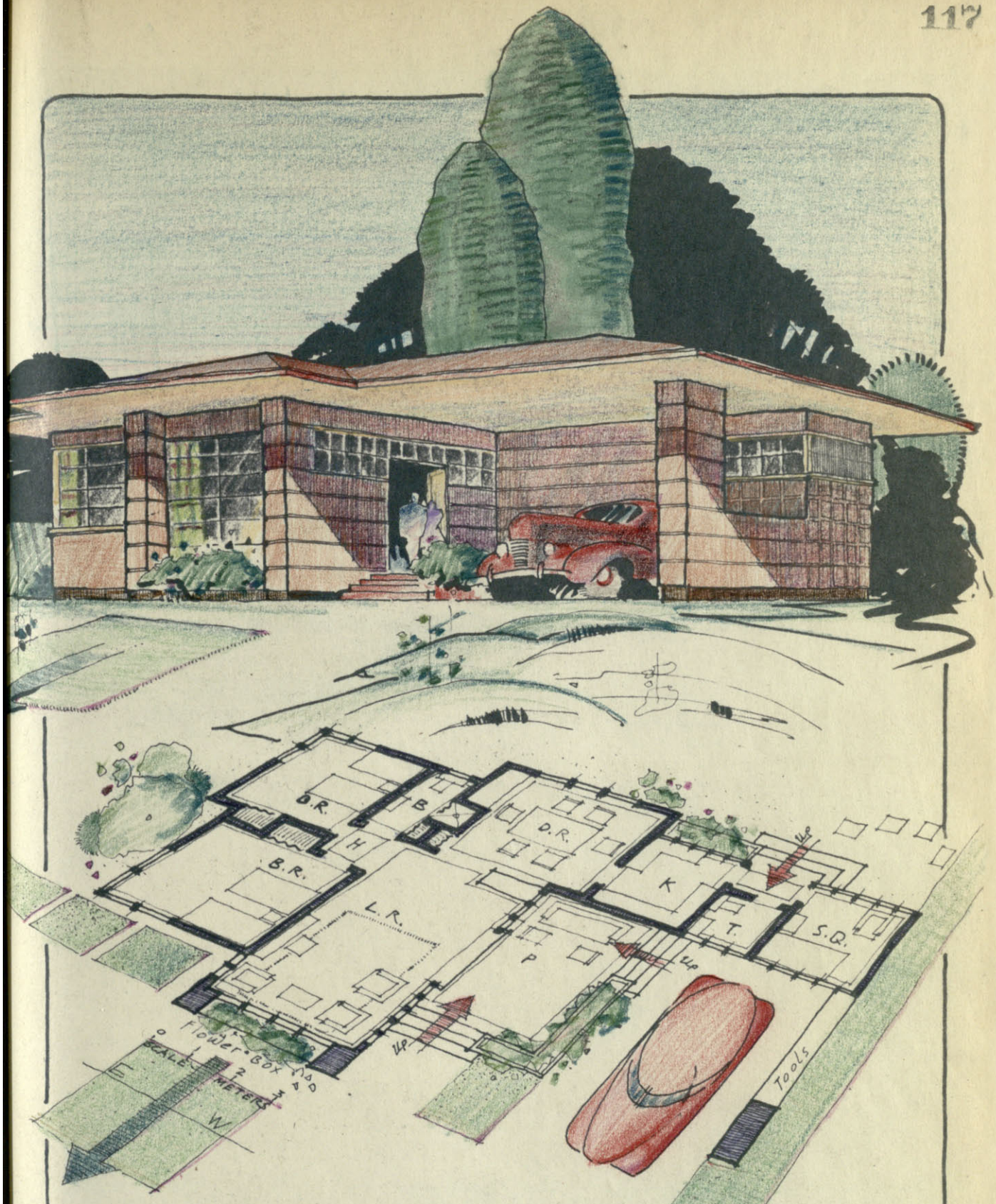
practical. A useful built-in closet at the porch lends an interesting mass to the whole structure. The living room has a cozy alcove seat with bookshelves on the sides. And from the dining room, steps lead out. . . to the open lot and blades of grass. See Figs. 37, 39 and 40.

Building Materials

In selecting the materials for the proposed buildings, native ones have been given first choice. Adobe stones, which are quarried in and around Manila, have been used for the party walls of the group houses and for the ground-story wainscots. Buttresses made of these stones serve to support the building vertically and stiffen it horizontally against earthquakes. The flooring on the ground story is of plain concrete while that on the second floor is of wood on joists, except for the bath room which has, in addition, a top surface of concrete finished with cement or vitrified tiles. Wood has been used for the framing, for door and window sashes for second floor walls and interior partitions, and for built-in furniture. Bamboo, native of the Islands, has been used ingenuously for trellis-work. The roofing may be of galvanized iron or locally manufactured clay roof tiles. "Capiz", translucent sea shells, make inexpensive glazing for window sashes which are many, tall, and wide.

Legal Requirements, Etc.

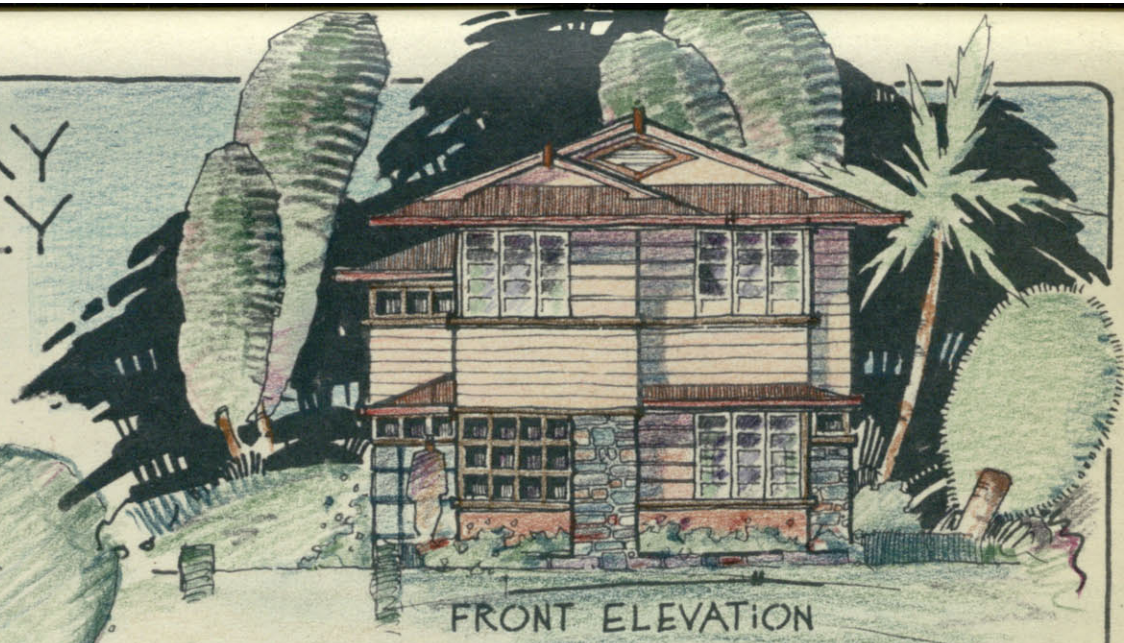
In the design of the structures and in their placement on the site, no sections of the Building Code and no pertinent ordinances of the City of Manila (See Appendix) have been violated. In accordance also with measures passed subsequent to the Tondo Fire no light materials such as nipa, sawale, or cogon, have been used. Desirable but varied "set backs" from the street lines have been maintained for all buildings to insure pleasant street views and to prevent congestion.



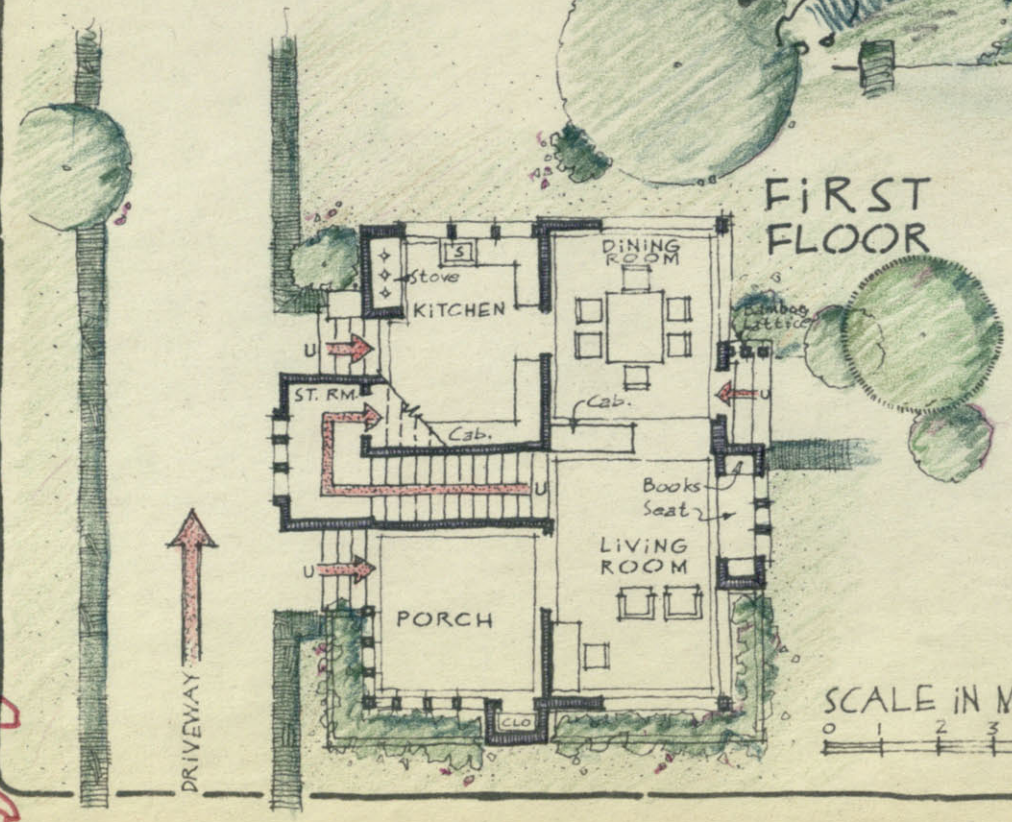
A SINGLE-FAMILY HOUSE
-WITH A GARAGE- FOR A FAMILY OF 3-5.
▾BUNGALOW TYPE▾

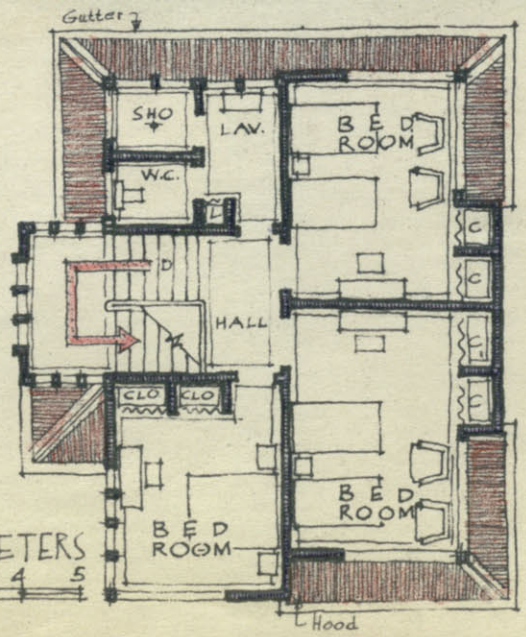
A TWO-STORY SINGLE-FAMILY HOUSE

FOR A FILIPINO FAMILY OF 6-8



FRONT ELEVATION





SCALE IN METERS

0 1 2 3 4 5

THE COMMUNITY AND THE CITY

Cellular Structure of Manila

At this stage in the actual planning of the burned area in Tondo, it is advisable to look back at what has been finished so far and then look forward at the entire city as one picture which has this area as one of its integral parts. Upon a critical scrutiny, this picture of Manila presents, like those of most big cities, a conglomeration of distinct communities independent of, or shall we say, in spite of political boundaries. Take the case of Singalong, for example. This community respects no political boundaries - it lies on both the adjacent political districts of Paco and Malate. Or the case of Gagalangin - altho politically a part of Tondo, sociologically it is not Tondo. It is not uncommon to hear a resident of this community say , "No, I don't live in Tondo. I live in Gagalangin." The site being considered is another such community - one without a name. But before the fire, it had a distinctive quality - it had been regarded as "tough". But it need not be tough. It should not be tough. It could be planned and then maintained as a good neighborhood permanently. It could contribute to the well-being of Manila rather than to the troubles of the city. That will be the goal. In planning this community, it should not be thot, however, that a good city is merely a collection of well-planned communities. Rather, a well-planned, properly functioning city can only be realized if the individual communities which make it up are also well planned. This will be borne in mind.

Why the Site Could Be a Cell

After designing the houses and determining how they shall relate to each other, and before pro-

ceeding with the actual planning of the whole site, it may be safe to analyze whether there is any justification in considering the burned area as capable of being a distinct community. . . outside of the personal feeling that apparently defines it as one. As has been previously mentioned it has an identifying quality in spite of the fact that it goes by no name other than that of "Tondo". And Tondo, politically, is a very much larger area. The site is enclosed by natural boundaries like the esteros and the bay, and when planned, by man-made barriers like the North Bay Boulevard and Moriones Street which will carry solid lines of mobile traffic. Internally there could be devised some cementing media to bind together the people and their homes, like community school system playground network, and neighborhood shops. The site, therefore, could be a definite contributing cell in the cellular city.

The Automobile and the Cellular City

It may be pointed out here that the cellular city has been mainly the inevitable product of the automobile, and since this machine has not found any firm and extensive footing in the Islands, it may be rather premature to take for granted such an urban structure for Manila. It is true that when I left home about 2 years ago, Manila was not yet completely motorized. The city had its calesas-and-horses and even its carts-and-carabaos intermingled (and were holding their own) with cars and trucks and trams. The city was, say, like some American cities about 20 or 30 years ago. The initial influences of the automobile were taking root and it would be just a matter of years when conditions identical to those of American cities today would have been in full growth. If the neighborhood unit scheme of the cellular city had been conceived to meet the emergency created

by solid and dangerous lines of motor traffic traversing the American city, then it is far-sighted, not premature, to treat the future anticipated problems of growing Manila likewise. Knowing what conditions are now in this country, it is not hard to imagine what conditions would be in my country 20 or 30 years from now.

Demands of Family Life

Because the site being considered is intended for people with children, it has been planned for these people and their children. They require more than just houses and lots. They need all the neighborhood facilities to maintain a pleasant family life: schools, playgrounds, markets, churches, and the like. They want their children to associate with other children and to grow normally under pleasant surroundings. The community has been planned so that the people are interdependent to each other and to the community in which they shall live - communal, not communistic - for there are, during these complex times, certain highly cherished objectives which people can achieve only by sharing together common facilities. The fact that these people lived uncooperatively in substandard neighborhoods before the disastrous fire should not, by any means, be taken as an argument to show that they preferred to live in such neighborhoods, but rather as convincing proof of their necessity in accepting these neighborhoods in the absence of better ones well within their limited means.

THE SITE AND CALCULATION OF POPULATION

Structure of the Site

The site which has an area of 82.3 hectares (203 acres) has been divided into 3 neighborhood units with a common market - all acting together as a single community.

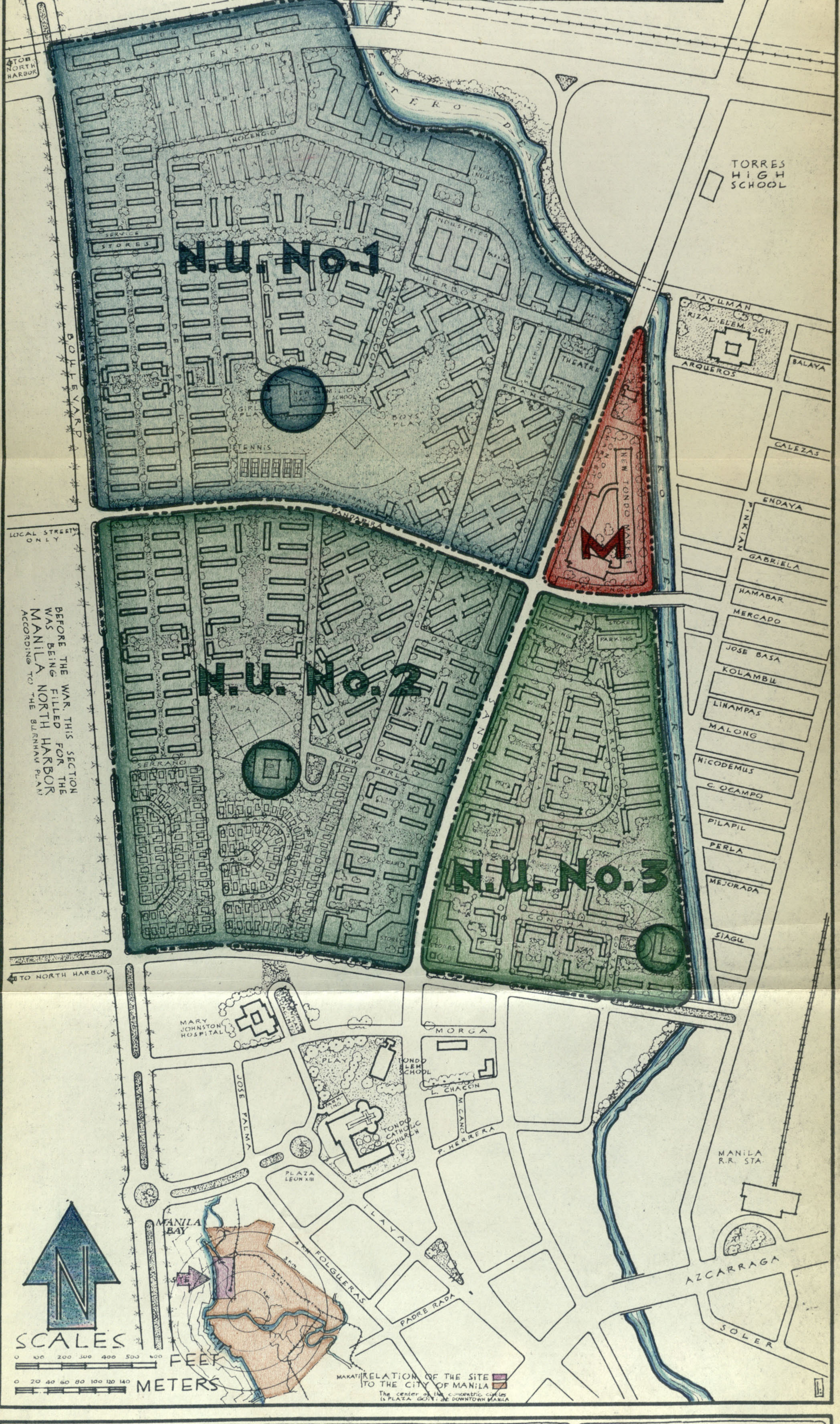
This division has been accomplished by the fact that the main street (Sande) crossed the fire belt street (Pandapira) as shown on Map M accompanying this thesis. Under ideal and non-restricting conditions, the entire site could have been treated as one large neighborhood, but due to the fact that there were existing streets to consider and to the strong recommendation of fire department personnel and other public officials to introduce a fire belt (with easy access for fire engines, etc.) across the path of prevailing winds, the division of the site into parts became inevitable. The areas formed were designated as follows: Neighborhood No. 1 - the NW section with an area of 39.0 hectares (96.5 acres); Neighborhood No. 2 - the SW section with an area of 26.2 hectares (64.7 acres); Neighborhood No. 3 - the SE section with an area of 14 hectares (34.6 acres); and Market Area - the NE section, the smallest of the areas formed.

Computed Census Population — Using the population density of Tondo in 1939, it was computed that the site had in that year about 22,450 people, or about 4175 families. Using the density for the whole city, however, and the corresponding average size of family, there would have been in the site only about 13,900 people, or approximately 2,480 families. Due to the unavailability in this country of block-to-block population data for the particular area being studied, it has been assumed that at the time of the fire there were in the site about 21,500 people, or approximately 4,000 families.

Population to be Housed — Using a proposed population density of 40 families per gross hectare (16 families per gross acre), the site would be able to accommodate 3,292 families, or 17,700 people.

DIVISION	AREA	FAMILY	SCH. CAP.
NEIGHBORHOOD NO. 1	39.0 HE.	1300	1170
NEIGHBORHOOD NO. 2	26.2 HE.	1100	990
NEIGHBORHOOD NO. 3	14.0 HE.	600	680
MARKET AREA	3.1 HE.	—	—
TOTAL	82.3 HE.	3000	2840

DATA



NEPOMUCENO
TO NORTH HARBOR
INDUSTRIES
TAYABAS EXTENSION
STABLES
INOCENCIO
ESTERO DE VITAS
EXISTING INDUSTRY
INDUSTRIES
PARKING
HERBOSA
SERVICE STORES
N.U. No.1
BOULEVARD
NORTH BAY
PADILLA
LOOP
NEW EMILIO JACINTO SCHOOL
GIRLS' PLAY
BOYS' PLAY
TENNIS
ADMINISTRATION & HEALTH CENTER
PANDACAN
THEATRE
INDUSTRIES
FRANCISCO
SERVICE ROAD
TORRES HIGH SCHOOL
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
CALEZAS
ENDAYA
PINKIAN
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
SIAGU
NEW TONDO MARKET
M
PARKING
ESTERO DE LA REINA
LOCAL STREETS ONLY
BEFORE THE WAR THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN
SANTA MARIA
N.U. No.2
PLAY
DAVID
SANDE
NEW PERLA
SERRANO
RAYMUNDO
CRUZ
STORES
PARKING
JUAN LUNA
N.U. No.3
PLAY
CONCHA
CORTADA
SCH.
TO NORTH HARBOR
MARY JOHNSTON HOSPITAL
PLAZA JACINTO
MORGA
PLAY
TONDO ELEM. SCHOOL
L. CHACON
M. CANO
PARKING
TONDO CATHOLIC CHURCH
P. HERRERA
JOSE PALMA
PLAZA LEON XIII
ILAYA
FOLGUERAS
PADRE RADA
MANILA R.R. STA.
AZCARRAGA
SOLER
MANILA BAY
SITE
1 KM
2 KM
3 KM
4 KM
MAKATI
RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA
N
SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

PROPOSED N.U. STRUCTURE

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
- ELEM. SCH. - NUCLEUS OF CELL
- BOUNDARY OF N.U. OR CELL
- N.U. NEIGHBORHOOD UNIT
- M MARKET AREA

Because of the intention to have some of the industries existing before the fire to occupy an appropriate portion of the planned community, it shall be assumed for the purposes of this thesis that only 3,000 families, or 16,200 people, shall be housed.- or approximately the estimated number of families rendered homeless by the Tondo fire. Out of the 4,000 families who were assumed to have been residents of the area before the fire, 1,000 families, 25%, willtherefore have to be housed somewhere else in the city - presumably in the adjacent undeveloped sections or in the adjoining Isla de Balut which was, before the war, being enlarged by reclamation thru fill. A higher density than 40 families per gross hectare (16 families per gross acre) has not been recommended even as a desperate remedy to accommodate all the residents at the time of the fire, because: a greater density is conducive to another blight and eventual slum, 2. the land is not too expensive to justify a greater density, and 3. there is still plenty of vacant land in and around Manila where any surplus population may be decently accommodated. The surplus population of about 1,000 families which will move away from the site would most probably be those engaged in "offensive" industries and those who run objectionable stables.

Distribution of Proposed Population

The proposed development of the area will make possible the housing of the assumed number of families. In this proposed development, the second stories of stores and other business buildings will be put into residential use for the store owners or for other tenants, according to the prevailing custom in the Islands. Eventually, all the stables in Neighborhood No. 1 will be eliminated, and the space vacated will be converted into more resi-

dential areas. Based on measured residential areas, the 3000 families will be distributed as follows: Neighborhood No. 1 - 1300, Neighborhood No. 2 - 1100, and Neighborhood No. 3 - 600.

PRINCIPLE AND ELEMENTS OF THE NEIGHBORHOOD UNIT

A Community : 3 Neighborhood Units

The basic principle of the neighborhood unit concept is to regard the neighborhood as a self-contained unit in itself and at the same time as an integral part of a larger whole - usually the city. In view of the imposed pressure of existing conditions and of local requirements involved in this particular site, the 3 neighborhood units inevitably created have been planned both separately and jointly in order to form a well-integrated and distinctive community - this community in turn serving as an integral cell of the entire city. In the original concept, the neighborhood unit is regarded as depending upon the city for its government, fire and police protection, and many other public services too numerous to mention. Its residents may or may not find employment within its limits. For special articles or services, they may have to go "downtown" or they may have to share a common market or shopping area with others in adjacent units. Our community - a workable combination of 3 related neighborhood units - has all these characteristics and will be regarded on the same principle of the original concept. Also like the neighborhood unit in the original concept, our community has certain facilities which have been considered as "local", and these may be placed under 4 classifications: 1. elementary schools, 2. small parks and playgrounds, 3. local shops, and 4. residential environment.

SCHOOLS

Significance of the School

The elementary school, because of its tremendous influence in a community where children are raised, has been taken as the nucleus of each of the neighborhood units. It is believed that the units so formed are of such size and location that are favorable for the smooth working of the different elements - whether the units are taken singly or combined with each other to form the community. In the relation of the elements it has been thot as advantageous to combine the schools and the playgrounds for school children. It is to be admitted that it is much simpler and more efficient if officials and parents deal with the education and with the recreation of the same set of children.

Location of Elementary Schools

Since the school is the nucleus of a neighborhood unit, it has been given a central location in each of the 3 units. The existing schools, which were all spared by the fire, were carefully studied as to their relation to the distribution of population in the residential areas, to the street pattern and traffic movement, to the play spaces and pedestrian circulation, to the land use, and to the directions of prevailing winds. Of the existing schools only the Emilio Jacinto School has been found as unfavorably located. And the one near the Estero de la Reina and Moriones Street could have been more conveniently located had it been nearer the center of the unit. But because it has been assumed that some of the children on the east side of Estero de la Reina and on the south side of Moriones Street will attend this school, it has been retained on its present location. As part of the program of the proposed development, the old Emilio Jacinto

School will be eventually abandoned and replaced with a new and functional structure more centrally located in Neighborhood No. 1 and adjacent to the main playground which has been, in turn, located centrally with respect to the entire community. All the schools in the proposed development are within the recommended 1/2-mile (800-meter) distance from all parts of the areas which they serve. As a matter of fact, the distance from the building farthest from any school is no more than 500 meters (1/3 mile). See Map N.

Areas of Sites for School-Playgrounds

For advantages already mentioned, the elementary school sites have been combined with the playgrounds for school children, giving the following areas for the dual purpose of education and recreation: Neighborhood No. 1 - 3.6 hectares (8.9 acres), Neighborhood No. 2 - 2.2 hectares (5.4 acres), and Neighborhood No. 3 - 1.6 hectares (4.0 acres).

Capacities of the Elementary Schools

A study of the age distribution of the population of Tondo in 1939 has disclosed that 19.3% of the expected residents of the proposed community, or about 3130 children, will be of elementary-school age (7-14 years). Of these, 70%, or about 2200 children, will be attending school. Adjusting these figures to fit the percentages of house capacities (and thus expected family sizes) determined earlier in this thesis, and also to take into consideration the probable increase (about 10%) in school enrollment due to better educational facilities, it could be expected that 2700 children will attend the 3 elementary schools. These children will be distributed as follows: Neighborhood No. 1 - 1170, Neighborhood No. 2 - 990, and Neighborhood No. 3 - 540. Since the school in Neighborhood No. 3 has been

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

PROPOSED DEVELOPMENT

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:

- DETACHED SINGLE-FAMILY
- 1-STORY ROW
- 2-STORY ROW
- 2-STORY FLAT
- SCHOOL, ETC.
- STABLE
- COMMERCIAL
- L. INDUSTRY
- H. INDUSTRY
- "TENANT" AREA
- "PROJECT" AREA

BEFORE THE WAR, THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN

SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS

RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

expected to draw children from the area east of Estero de la Reina and from the area south of Moriones Street also, its capacity of 540 may be increased by 25% to about 680. Except for Neighborhood No. 3, these capacities are close to the desirable standard of 1,000 pupils per elementary school as recommended by Professors Strayer and Engelhardt and other authorities who had made school surveys in different parts of the United States.

High School Population

The children of high-school age (15-19 years) constitute about 11% of the expected residents, or about 1770 in number. Of these, 30%, or about 530 children, will be attending the Torres High School which is located on the present Juan Luna Street, 150 meters (500 feet) NE of the site.

PARKS AND PLAYGROUNDS

The Importance of Play

The provision of space for recreation - active for the young and passive for the old - is essential in the design of a community where the best and the most out of life have to be expected. Active recreation - or simply, play - has been assumed too often as having sentimental rather than practical qualities. Somewhat reluctantly, it has been accepted as having indirect economic values by giving the young a greater amount and a more interesting variety of happiness, and by increasing their physical fitness. Prof. John A. Thompson wrote in his book "Towards Health" that play has a definite historic biologic purpose and significance, and that it should be treated as a "form of work" for the young. The proper development of young people depends as much on facilities provided for play as on those provided

for mental and moral education.

The Lure of the Streets

It is not uncommon to find children playing in the streets, in the absence of better places to play in, to satisfy this natural urge for active recreation. When they do play in the streets they find very little space to move around, and what little space is available is usually dirty and fraught with danger. Children on the streets are often left to themselves, if not arested, resulting in discorderly conduct due to unrestrained competition and lack of guidance.

Provision for Play Areas

In order to avoid this scene, or similar scenes, in the community being planned, areas for play have been provided generously and so located as to insure safety and convenience of access. These play areas have been designed so as to make them compellingly attractive - to draw children from the streets and other danger areas and then hold their interest by means of effective and pleasing play leadership. The children will soon find that they are playing organized sports where team cooperation replaces selfish individual competition. The children will learn to behave and to follow the rules and to respect the rights of others - and thus experience a working preview of what future relation they will have with others when they grow up to be men and women of their community.

Distribution of Play Areas

The community has been planned with parks and playgrounds amounting to 11 hectares (27.2 acres) and distributed as follows: school sites and playgrounds for school children - 7.4 hectares (18.3 acres); playgrounds for pre-school children,

or tot lots - 1.7 hectares (4.2 acres); parks and other green spaces - 1.9 hectares (4.7 acres). The total area devoted to recreation, both active and passive, amounts to about 13.4% of the area of the entire community - which percentage is well above the 10% minimum recommended by Clarence Arthur Perry and other city Planners. See Map O.

Comparison with NYRS Standards

The amount of recreational areas provided for the residents of the community is adequate on the basis of space requirements per capita. The New York Regional Survey recommended: children's playgrounds - 100 sq. feet for each child (5-15 years) playing at one time, or 25 sq. feet for each child in the neighborhood; playfields - 1000 sq. feet for each player on field at a given time, or 50 sq. feet for each person (12-20 years); neighborhood parks- 275 sq. feet for each person using the park at any one time, or 300-500 people per acre of park; and active recreation for adults - 1 acre for every 1000 population. Based on these space requirements for recreation, the community will need 1 hectare of children's playground, 1 hectare of playfield, 2 hectares of parks, and 7 hectares of space for adult recreation (to be combined with playfield) - or a total of 11 hectares, which is also the amount provided.

Absolute Minimum

After computing the space requirements for recreational activities, one may be led to think of recreational facilities only in such terms as so much space per capita, etc. This is of little value. For whether there are 100 or 1000 children to take care of, recreational areas must satisfy a minimum - they must be large enough to permit the kind and range of play activities which these children will indulge in. A glance at the playgrounds ad-

DATA

KIND	AREA
SCHOOL SITE & PLAYGROUND	7.4 HE.
PRE-SCHOOL PLAYGROUND	1.7 HE.
PARK, BUFFER, FIRE BELT, ETC	1.9 HE.
TOTAL	11.0 HE.

BEFORE THE WAR, THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN

SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS

RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI in DOWNTOWN MANILA

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

PROPOSED AREAS FOR RECREATION

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
- SCH. SITE & PLAYGROUND
- PRE-SCHOOL PLAYGROUND
- PARK, BUFFER, FIRE BELT, ETC.
- PEDESTRIAN WALK

joining the schools, as indicated on the proposed development plan, will show that they are ample in area to permit the playing of the more popular games in the Islands such as baseball, basketball, softball, volleyball, tennis, badminton, and sipa.

Tot Lots for the Younger Children

Tot lots for pre-school children (below 7 years) have been provided also, but these have been placed separately from areas assigned to older children. The younger children are dependent on others for care and their play areas have therefore been effectively combined with sitting areas for adults who watch over them. In choosing locations for these tot lots, convenient views from kitchens where the mothers work and watch their children at the same time, and safety from dangerous traffic lanes and parking areas, have been considered. Pedestrian walks connect the tot lots to each other and to the bigger play areas in courts, and thence to the playgrounds at the center of the neighborhood units.

Parks and Buffers

Parks have been incorporated in the development plan: along the banks of Estero de Vitas and of Estero de la Reina; between parking areas, stables, industries, or businesses and residential areas; connecting playgrounds to each other and to the plaza in front of the Tondo Catholic Church; and as a fire belt along Pandapira Street. If eventually the North Harbor of Manila is developed according to modification of the Burnham Plan, a sizeable park will be appropriate between the harbor and the proposed development. This park will serve as a play field for adults and as a buffer between the nuisances of harbor activities and the amenities of residential areas.

Prior to the final realization of the North Harbor, a planned green with bicycle and bridle paths between the bay and the boulevard will prove to be a pleasant promenade and will, at the same time, give the residents of the proposed development unobstructed views of and breezes from the bay.

Details of the Fire Belt

A fire belt partly along Pandapira Street from the North Bay Boulevard to Estero de Vitas has been incorporated into the plan as a device to stop the spread of any future fire similar to the one that gutted Tondo on May 3, 1941. This belt, which is simply a park strip across the direction of the prevailing winds, has a B-2 street running in the middle of it. The belt has been made 40 meters (131 feet) wide - from edge to edge of the planted strips. The roadway running in the middle of the belt has been chosen in favor of the street with a middle island as recommended by the committee appointed by the President of the Philippines in order to utilize the planted strips for pedestrian circulation on both sides of the roadway and to add to the area of the playground adjoining the belt. Since the fire-protective feature of the fire belt is its open width, the planted strips which should have been on both sides of Pandapira Street near the proposed market have been replaced, without loss of this feature, with necessary parking bays for automobiles and animal-drawn vehicles.

SHOPPING DISTRICTS

An Opportunity For Planning

The proposed development of the Tondo Burned Area based on the neighborhood unit scheme - or rather a modification of the neighborhood unit scheme to fit the existing

conditions - offers an excellent opportunity for planning local stores functionally. It is surprising, indeed, how obstinately the stereotyped and standardized forms of stores and markets have persisted to exist and to be repeated in spite of their unattractiveness and inconvenience, and the fact that civilization and modern practices have made them obsolete in form and extremely inefficient in use.

Plans Already Recommended

The committee appointed by the President of the Philippines to study the rebuilding of the Tondo Burned Area recommended, among other things, to build a much bigger market than the present Tondo Market on a site near the present Emilio Jacinto School and a smaller one on Sande Street between Concha and Pavia Streets to remedy the "talipapa" or bootleg market which existed, before the fire, at the latter vicinity. It is believed that such a proposal will not solve adequately the shopping situation in the community, altho it may give a temporary relief at an enormous expenditure of public funds - money which could be put into better use thru careful planning based on reliable data. The reasons for this belief will be obvious after the discussion of a planning method in connection with shopping districts.

Matters to Be Settled

In planning for the shopping facilities for a neighborhood - or for a set of related neighborhoods - there are several matters to be settled about those facilities: their kind, amount, location, shape, and control. These matters will be treated here as they relate to the requirements of the community concerned.

Kind of Shopping Facilities

Regarding the kind of shopping facilities needed for a certain group of people, the consumption habits and customs, and the merchandising practices of those people have to be considered. In Manila, as in most cities of the Philippines, there is a strong demand for public markets where the housewives go every day to purchase the day's supply of food and every market day to stock on articles which they could keep without the aid of refrigeration. Here they find most of the things they need and often purchase them directly from the producers without the benefit, or shall we say the burden, of the middleman. Clustered around the market are bakeries, refreshment parlors, restaurants, barber shops, beauty parlors, pharmacies, and other private stores like those dealing in dry goods, hardware, groceries, fruits, and general merchandise. Most of these are local in category altho there may be some that belong more to the "downtown" section rather than to a neighborhood. Frequency and urgency of service seem to be the governing criteria in determining whether a store is "local" or not, but unfortunately, facts are difficult to ascertain even here in America - especially for concerns on the borderline between the "local" and the "city" classifications. The actual determination of the kind of stores for the community being planned will be done much later - when and if we finally go home. For the present, it will suffice for the purposes of this thesis that all the different stores necessary for the well-being of the community will be assumed as provided. Among these shall be "co-ops" incorporated with the schools which will sell only the things which school children need for their education.

Calculation Based on Precedent and Law

The second matter to be settled - that of amount or quantity of stores - is closely related to the first, for it is concerned with how much of each kind are required by the residents who will live in the community when it is completed. The quantity of shopping facilities may be expressed in any of these terms: number, area, or length. An evident, tho not recommended, way to determine the amount of these facilities is on the basis of present practice and experience - to take the various statistical studies of existing conditions and after some computations arrive at so many stores of each kind for so much population, or this ratio of business area to the entire developed area, or so many meters of street frontage per capita. All these are based on the "status quo" - which, from the progressive point of view, is certainly not worth repeating. For it is a well known fact that there are, here in the United States as well as in the Philippines, too many stores, a great number of which fail before they even get started. Logic, not precedent, must be the rule. Neither must existing laws be followed blindly in calculating the amount of shopping facilities - laws like the present Manila Zoning Ordinance, for example, which had assigned to business an enormous area of the city. This situation is worse than one where there is no zoning at all. For according to Harland Bartholomew: ". . . The over-zoning of business frontage is detrimental in many respects. It has created a great surplus of business property. It has stimulated speculation in such property beyond reasonable limits, the reaction from which has resulted in depressed values. It has produced involved problems of taxation. It has invited and produced blighting of large stretches of property along our main thoroughfares."

Method Suggested by Stein & Bauer

A method to determine the amount of stores needed has been suggested by Clarence Stein and Catherine Bauer in their study, "Store Buildings and Neighborhood Shopping Centers". It is based not on front footage, nor on existing ratios between number of stores and population, nor on percentage of business area to total area but on: "1. Total sum likely to be spent within the community for different kinds of goods, and 2. Most efficient volume of business needed for success in each category". Many planners, like Albert Mayer and others, agree with the logic of this method and have used it in several of their projects. Dr. Carol Aronovici had been quoted as having once written satirically: ". . . Not frontage but use determines the number, sizes, and character of lots required for business purposes. . . Any cut and dried standard which merely represents a relation between population and business frontage may be as far off the mark as an estimate of birth rate of a community based on the quantity production of baby carriages. . ."

Comparison of Amounts of Shops

Due to the unavailability of statistics necessary for a scientific calculation, according to the above method, of the amount of shopping facilities needed in the Tondo Burned Area, only a rough estimate thru the aid of "measuring sticks" in current use in this country has been made with the reservation that the results obtained shall be taken in no case as final and accurate, but as preliminary figures to serve merely as warnings or guides and as amounts to be compared with others obtained from the Manila Zoning Ordinance, etc. If "not more than 5% of the developed areas of cities can be expected to develop for business", according to Harland Bartholomew, were taken as the measure, then the community will need about 4.12 hectares (10.19 acres)

for this use. In the proposed development, 4.14 hectares (10.23 acres) have been assigned for business purposes. If on the other hand, the New York Regional Survey estimated frontage standard of 50 feet (15.2 meters) per 100 persons were used as the measure, then the community of 21,500 people will need 10750 feet (3280 meters) of store frontage. The proposed development has 1480 meters (4850 feet) of street frontage devoted to business - only 45% of the NYRS standard. This apparent "deficiency" will be made up by more efficiency in the design and arrangement of the business structures. It is interesting to note that figures obtained from the Manila Zoning Ordinance and compared with the above standards show 300% as much area for business and 168% as much frontage; and compared with those of the proposed development, 298% as much area and 372% as much frontage!

Location of Stores

The stores in the proposed development have been located for convenience of the future residents and of the people who supply the merchandise: a single market on a site bounded by Sande Street, Estero de la Reina, and Pandapira Street - a location in close proximity to the 3 neighborhood units and to the estero which is used for the transportation of goods; and stores in the vicinity of the market, at Herbosa Street (entrance from North Bay Boulevard), and at Sande Street (entrance from Moriones). It will be noticed on the proposed development plan that all the shopping districts have been located at the periphery of the neighborhood units rather than at places in their interior. Among the advantages for this are: 1. Supplies from wholesalers and manufacturers can be trucked direct to the shop door without having to enter and destroy the security and peace of the interior areas;

2. Shops are in a better position to get the trade of thru traffic; 3. It facilitates family convenience because downtown workers can easily attend to house purchases while going and coming from their work; 4. It brings stores next to shops of adjacent units making competition keener, prices better, and business conditions healthier in every respect. Furthermore, locating the stores in the interior of the neighborhood units would extend the contact of these stores to the dwellings and would hasten the destruction of the pleasant residential atmosphere. Yet even tho the business areas have been located near the rims of the neighborhood units, the market and the stores are all within convenient walking distance from the homes, for in the course of the planning design, accessibility to population has been considered as a prime requisite for store sites. The building farthest from the market is no more than 800 meters ($\frac{1}{2}$ mile) away, and from any neighborhood store, no more than 500 meters (1/3 mile) away!

Form and Details of Shopping Areas

It is suggested, as roughly indicated on the proposed development plan, that the market and its adjacent stores, and the neighborhood shops be designed as compact groups instead of a series of separate stores strung along a street like sausages - in order to make them attractive features contributing to the beauty of the community rather than oddities vying for attention. Their form or shape will follow and be governed by their function. They will be designed and grouped with an eye to the comfort and convenience of local customers on which they must depend for existence and prosperity. In the proposed plan, shady and safe pedestrian paths have been provided to connect all these stores to the residences. Near these stores, park-

ing spaces have been provided for those who would prefer to shop by car or calesas. Service drives have been indicated behind the stores. And trees have been planted to screen the stores from the adjoining residences and to furnish a pleasant transition between land uses.

Proposed Control of Business Areas

If the neighborhood unit concept has to be accepted as a remedy to effect economic planning - to preserve for the benefit of the community the value increment which the planned community brings to the properties within its bounds, and if it is intended to maintain a healthy retail shopping center in order to guard the interest of all concerned, then the community ownership of land and buildings for the stores is proposed as a part of the development plan. These could be rented to the right people, and therefore a bright future for all retail enterprises scientifically apportioned could be secured. Rentals would be determined to enable the landlord to get a good return on his investment, to give the shopkeeper a decent living, and still leave the city with an adequate, fair, and assured tax income. All these could be achieved only by a thoro understanding of the immediate site and its people plus a clear and comprehensive idea of the city in its over-all pattern.

LAND USES

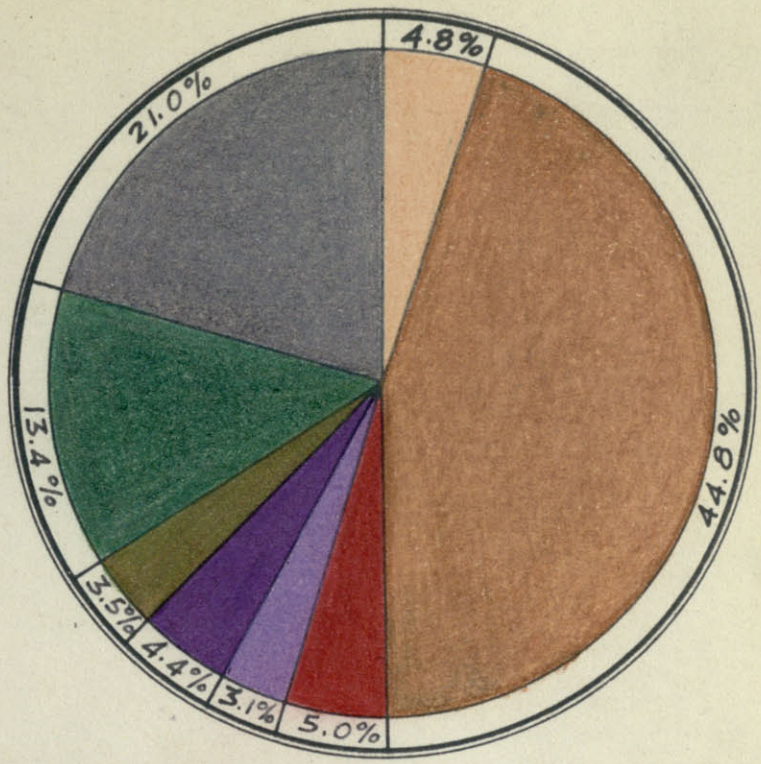
Distribution of Land Uses

In distributing the different land uses of the community, the entire site has been treated as a single area; the identities of each of the 3 neighborhood units have been submerged, altho not completely forgotten, in favor of the bigger whole. So far the appropriate locations of the residences, schools, parks and

playgrounds, and market and shops have been discussed, and reasons for each of the respective chosen locations have been given. It remains now to establish for the other land uses areas of adequate size and agreeable location. Fig. 41 shows the quantitative distribution, in area and in percentage basis, of the different land uses as proposed in the development of the entire community. It may be interesting to compare visually this figure with Fig. 14 , Distribution of 1941 Zoning Areas, included in the earlier part of this thesis. It is rather unfortunate that no record of land uses in the burned area before the fire is available, for had there been one, it would have furnished a more direct comparison with the proposed land uses. See Map P.

Light and Heavy Industrial Uses

All indications seem to show, however, that before the Tondo fire, there flourished within the boundaries of the site several industries, both light and heavy, which provided employment to some of the residents of the area. As an additional, altho not conclusive, proof of this, the Manila Zoning Map showed several sections assigned to such uses - principally between Juan Luna Street and Estero de la Reina and between Herbosa and Inocencio Streets, adjacent to the Emilio Jacinto School. Just what and how large these industries were had not, unfortunately, been ascertained by me before the outbreak of the present war; such an information would have been helpful in the planning of areas for the intended uses. But because there has been some familiarity with the site, it could be safely said that the light and heavy industries were as mentioned previously in this thesis and that they were haphazardly intermixed with blighted residential areas. In the proposed development plan, these industries have been confined along the proposed extensions of the railroad tracks and of Tayabas Street and near



LEGEND:

CLASSIFICATION	AREA
SINGLE-FAMILY	3.90 HE.
MULTI-FAMILY	36.88 "
COMMERCIAL	4.14 "
LIGHT INDUSTRY	2.56 "
HEAVY INDUSTRY	3.61 "
STABLES	2.91 "
PARKS, ETC.	11.00 "
STREETS*	17.30 "
TOTAL	82.30 HE.

*INCLUDE PARKING AREAS

DISTRIBUTION OF PROPOSED LAND USES

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

PROPOSED LAND USE
A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND: PARK, PLAYGROUND
SINGLE-FAMILY
MULTI-FAMILY
COMMERCIAL
L. INDUSTRY
H. INDUSTRY
STABLE

BEFORE THE WAR, THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN

SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS

RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

NEPOMUCENO
TO NORTH HARBOR
TAYABAS EXTENSION
CLOSE
INOCENCIO
ESTERO DE VITAS
TORRES HIGH SCHOOL
SERVICE STORES
HERBOSA
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
BOULEVARD
NORTH BAY
DEPARTURE
ARRIVAL
TENNIS
GIRLS PLAY
BOYS PLAY
NEW SEMI. JACINTO
FRANCISCO
FIRE STATION
ESTERO DE LA REINA
CALEZAS
ENDAYA
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
SIAGU
TONDO MARKET
PARKING
STORES
PANCAPIRA
LOCAL STREETS ONLY
SANTA MARIA
FRANCO
DAVID
SANDE
CUYUNTUNA
FAJARDO LOOP
SERRANO
NEW PERLA
MARY CONCEPCION
RAYMUNDA
CRUZ
CONCHA
CORTADA
SCHOOL
PLAY
TO NORTH HARBOR
MORGA
MARY JOHNSTON HOSPITAL
TONDO ELEM SCHOOL
L. CHACCIN
M. CANO
P. HERRERA
JOSE PALMA
PARKING
TONDO CATHOLIC CHURCH
PLAZA LEON XIII
ILAYA
FOLGUERAS
PADRE RADA
AZCARRAGA
SOLER
MANILA R.R. STA.
MANILA BAY
SITE
MAKATI
1 KM
2 KM
3 KM
4 KM
5 KM
N

the Estero de Vitas. All these industries have been placed as near to the laborers' residences as possible in order that those employed may be able to walk from their homes to the factories, and back. This arrangement will give the resident laborers more time for their families and for recreation with the least expenses for transportation. It may be argued, however, that the noise and the smoke of the factories will affect the residences so much that the advantages of proximity of home to place of employment become only of secondary importance. In the proposed development this has been foreseen, and proper measures have been taken to protect the amenities of the homes. The industries have been correctly orientated (to the leeward side of the site) with respect to the prevailing winds. The placement of the light industrial concerns has been accomplished in such a way as to make these concerns serve as a gradual and pleasant transition between the residences and the heavy industries like lumber yards, etc. The reduction of the ill effects of probable noise and unsightliness has been assured by the introduction of buffer strips between the industries and the homes. These buffers have been designed in the form of open spaces which may be used for recreation or parking areas. Looking now at the entire community, as illustrated on the map showing the proposed land uses, it will be noted that the choice of this part of the site for the industries has also made it possible to exclude the industrial traffic from the residential sections - thus insuring the precious quiet and safety of the homes.

The Stables and Provision for their End

The location of the stables in the NW edge of the site has, like those for the industries, been governed principally by the directions of the prevailing winds. Stable

owners, for their convenience, have been furnished with housing facilities near their stables. Eventually, transportation in Manila will be completely motorized and the stables will be automatically eliminated in the process. The area vacated by the stables will then be developed for additional housing units, planned in the same manner as the rest in the community. A study of this section of the site on the proposed development plan will disclose the anticipation of this eventual end of the stables and all their attendant evils. The houses that will rise from the vacated areas will call for no changes in the street pattern or on the layout of parks. And while the stables are in existence, planted park strips will act as natural buffers and consequently will help preserve the pleasant qualities of the other sections of the community and, at the same time, keep both factions in the "calesa" controversy satisfied.

"Offensive" Industries

As for the so called "offensive" industries which consist mostly of fish-drying and similar activities, exclusion from the site has been thot as the best solution. This opinion is not as harsh as it sounds, for it has been prompted by the fact that a little farther north - on Isla de Balut, to be more precise - a fishermen's village will be planned to accommodate the fishermen in this part of the city and make possible the pursuit of their industries without undue nuisance to the adjoining communities. Besides, such an "exclusion" from the limits of the site being planned will involve only 0.4% of the area legally provided by the Manila Zoning Ordinance as may be seen from the "pie" chart illustrating the distribution of 1941 zoning areas.

Relation to Adjacent Land Uses

Except for the existing industries to the SE, the land uses in the immediate vicinity of the site will merge agreeably with the proposed land uses of the community. The natural barriers like the Estero de Vitas and wide Moriones Street will, however, keep these unplanned industries from infecting the community with their blighting effect.

INSTITUTIONS

The Civic Plaza

The civic square, or plaza, in a community for a people as gregarious as the Filipinos is more of a necessity than a luxury. The seat for such a plaza might appropriately be located at the focal point of the community - and, as expected, it has been so located - not, however, as a separate formal feature but as one which has been made informally coincident with the main elementary school and its grounds, the spot which is both physically and psychically the focus of the community. For this purpose the main school has been equipped with a commodious assembly hall which will serve the pupils during school hours and the residents after those hours and during holidays. Here, the parent-teacher association may meet to co-ordinate and seek to improve the character-building effects of home and school upon their common charges. Here, too, may be held the numerous social activities so characteristically Filipino.

Health Center & Administration Office

A health center, a recent institutional feature in most Philippine communities, has been located in the civic plaza - accessible from all parts of the site thru both vehicular and pedestrian routes. Since the health center will be con-

cerned with the physical well-being of the residents, its location next to the main playground has been considered as most suitable. For efficiency and convenience in the management of the community as a project, the administration office has been incorporated as a wing to this health center.

New Fire Station

On the park near the New Tondo Market, a fire station, designed to fit the rest of the community structures, is proposed to be built to supplement the one located south of the site, and will at the same time serve the inadequately protected area north of the Sande Bridge (Pretil). This proposal will be in line with the program of expansion of the Manila Fire Department previously mentioned in the course of this thesis.

Adequacy of Old Churches

It is believed that there is no need for additional religious institutions inside the community, for the existing ones located to the south of the site have been and still are adequate to minister to the spiritual needs of the residents. Besides, erecting new churches in the proposed community may lead to unwholesome competitive rivalry and hurt feelings - a situation which is likely to happen among sensitive people like the Filipinos. But should it be found later that such institutions will be wanted, then, the vicinity of the civic plaza on Pandapira Street is recommended for these institutions. This desire for new churches must come, however, from the people.

Improvements Near Institutions

Even if no new churches have been proposed, improvements in the lines of access to the old edifices have been indicated on the development plan - improvements such

as: the continuous and convenient pedestrian walks from the site to the Tondo Catholic Church by jointly utilizing existing parks and the proposed open space net-work of the development, and the solution of traffic congestion in front of this church by means of a practical re-routing of the present wiggly Ilaya Street as it connects with Sande Street at Plaza Leon XIII. By such arrangement the Presbyterian Church and the Aglipayan Church on Azcarraga Street to the south and the Mary Johnston Hospital on Plaza Emilio Jacinto will likewise be conveniently accessible. Moreover, the open spaces near the churches have been made more useful, safer, and more pleasant for the fiestas, processions, and novenas - celebrations that are the brand of Fillipino religious and festive life.

STREETS

Planning from Existing Street Pattern

The fact that the site was denuded of structures by the fire gave me a disturbing temptation at the start to follow a natural tendency of planners in envisioning the great possibilities of finer neighborhood design by scrapping totally the old street system and providing, instead, one with a more ideal community pattern. Somehow that temptation was overcome; and it was realized that there would seem to be some merit, especially in the better portions of the burned area, in seeing how far the existing street pattern may be utilized as a foundation for the rebuilding of the site and making of it a community which the residents could be well proud of.

Elements of the Burnham Plan

In the design of the street system for the community, several elements of the Burnham Plan for

SOUTH BAY BOULEVARD
A FEATURE IN THE BURNHAM PLAN OF MANILA - TREE & PALM LINED . . .

Bu. of Public Works Photo

149 a

Manila have been considered as important - not only because such elements had been in the process of construction prior to the writing of this thesis, but also because such elements were basically sound and practical. Among these elements was the proposed North Bay Boulevard - an extension of the South Bay Boulevard, or the Dewey Boulevard, as it is more popularly known. The North Bay Boulevard will start from the Luneta and stretch along Andres Bonifacio Street, across the Pasig River over a bascule bridge, and thence along Del Pan Street skimming the edge of the bay (on fill west of the Tondo site) as it sweeps northward and then westward to Bataan. From the report accompanying the Burnham Plan, I quote: ". . . this (South Bay) boulevard. . . with roadways, bridle paths, . . . and broad sidewalks should be available for all classes of people. . . and so well shaded with palms, bamboos, and mangoes as to furnish protection from the elements at all times. Its seaward side should be planted so as to interrupt occasionally the view of the sea and, by thus adding somewhat of mystery, enhance the value of the stretch of ocean and sky. . . The possible extension of the South Bay Boulevard along the north shore will naturally depend upon the development of the town in that direction and upon the question of additional harbor works north of the Pasig. . . " The additional harbor works mentioned were being constructed when war broke out. The bay shore was being reclaimed by fill and a branch line of the Manila Railroad was being laid out north of the site to serve the North Harbor and to replace the existing inconvenient line on Azcarraga Street south of the site. See Map Q.

Defects of the Gridiron Pattern

Most of the streets in the residential sections of Manila had been laid out in the gridiron pattern, and unless better patterns are proposed, future residential streets

BASE MAP DRAWN FROM THE MAP OF MANILA - BY JOHN BACH - 1932

THE CITY OF MANILA

LEGEND ON BASE MAP
- PRINCIPAL STREETS
- SECONDARY STREETS
- OPEN SPACES, PARKS, ETC.

MANILA BAY

THE SITE

CALOOCAN

TO CENTRAL LUZON

QUEZON CITY

PASIG RIVER

SAN JUAN

TO MONTALBAN AND TAYTAY

PASAY

MAKATI

TO CAVITE

TO LAGUNA

SCALE:

IN KILOMETERS
0 .1 .2 .3 .4 .5 1.0 2.0

IN MILES
0 1/4 1/2 1

LEGEND:
- PROPOSED BY THE BURNHAM PLAN
- PROPOSED BY THE TONDO COMMITTEE

SOURCE OF DATA: PROPOSED DEVELOPMENT PLAN

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

RELATION OF PROPOSED DEVELOPMENT TO THE ENTIRE CITY

A.C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

will be laid out likewise - without protest. A critical study of the gridiron street pattern will indicate the following disadvantages: 1. It is wasteful - it provides more paved area than is necessary to serve adequately the residential neighborhood. 2. It is expensive - it necessitates the installation of a costlier type of street surfacing due to the fact that it invites into the residential area heavy thru traffic which has no business to be there. 3. It is unsafe - it has an increased traffic hazard, especially to children, created by the unwanted intrusion of thru traffic. 4. It is unpleasant - it is exposed to the noise and dirt of speeding cars and to the litter of horses and carabaos. 5. It is uninteresting - it produces a monotonous architectural setting and fails to create a desirable community aspect.

Separation of Street Functions

Due to these defects, the strict gridiron pattern has been abandoned and, instead, a more functional layout, proposed for the community. In this layout, thru traffic has been separated from local circulation, and each treated separately: for the convenience of motorists in the former, and for the safety of pedestrians in the latter. The boulevard and the main streets have been designed for the needs of the vehicles - both motor-driven and animal-drawn; the interior streets, for the special requirements of the pedestrians. The interior street layout, therefore, has been so planned as to require vehicles to move cautiously while in the vicinity of the homes - and more rapidly when they reach the rim of the community. It is true that cautiousness in driving in residential areas can doubtless be inculcated in the minds of motorists by means of traffic lights and police control, but the most efficient method, especially in this

community which is being built from its ashes, to secure the desired behavior is by designing the street pattern with an eye at making reckless driving difficult, forbidding, and unnatural. The safety and tranquillity resulting therefrom will be worth more than the selfish convenience sacrificed.

The Proposed Street Pattern

The proposed street pattern has been achieved by the ingenious device of re-routing indirect and inconvenient main thorofares and of closing some of the gridiron interior streets and constructing more functional ones to connect to those retained, to form loops. The street pattern resulting from this device may be confusing to visitors and others not well acquainted with the place, but this difficulty can be remedied by posting, under waterproofed and attractive frames at convenient points of entry, maps of the community showing streets with their names and houses with their numbers.

The Major Thorofares

Before the interior streets were planned, the layout of the major thorofares were first ascertained to conform with and provide for the prevailing directions of thru traffic. The location of the North Bay Boulevard has been, more or less, determined by the City Engineer's Office, Manila, as evidenced by a plan of proposed improvements in this part of the city. Tayabas Street was extended to connect with this boulevard at a point NW of the site. Juan Luna Street was widened from Azcarraga Street northward - expropriated land being taken from both sides of the existing street. And there were other proposed street widenings too numerous to mention. In my proposed development for the site, however, only the North Bay Boulevard feature with its connection with Tayabas Street Extension was

adopted. The extensive widening of Juan Luna Street has not been followed because this would have made the already bad traffic congestion on the Azcarraga intersection (dangerously near a bridge) worse. Instead, Sande Street has been widened on one side and given a more graceful curve as it joined with Azcarraga Street at a safe point farther west from the bridge over the Estero de la Reina. Mass transportation facilities have been routed principally along Sande with cross-access to the harbor at Moriones and Herbosa Streets only. Connections to the North Bay Boulevard and to Sande Street have been kept as few as possible, the blocks having been arranged predominantly in the N-S direction, or parallel to these thorofares. Tayabas has been made to pass under the Pretil Bridge and then connected to Tayabas Extension by an easy curve along Estero de Vitas. And a wide avenue with an island has been introduced south of the site to connect Plaza Leon XIII to the North Bay Boulevard and to give the picturesque and historical Tondo Catholic Church the proper importance and setting which it rightfully deserves.

Local Interior Streets

The location of connecting thorofares and the probable principal destinations of residents in their daily movements placed a strong influence on the planning of the interior streets - thus determining the portals of entry and exit for the community. Movements, which have been taken as towards the downtown area and to the east via Tayabas Extension and northward to Gagalangin, have therefore been manifested by the resulting layout. Each of the interior streets has been proportioned in width, and detailed, to stand the probable traffic load. Their arrangement has been planned

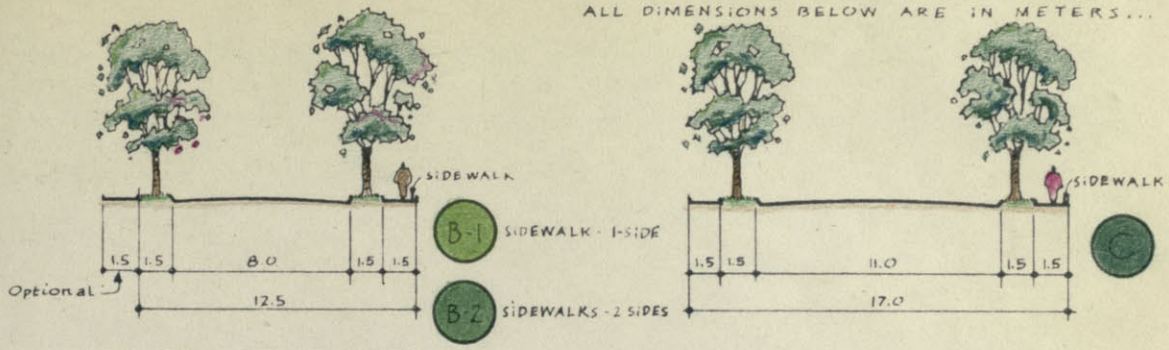
to facilitate local circulation within each unit and to discourage intrusion of unwanted outside traffic. At the same time, vehicular traffic has been segregated from pedestrian movement by carefully utilizing the open spaces between the buildings and the boundaries of the playgrounds for sidewalks. This will enable children to walk to school and playground, and back, with the least number of street crossings.

Street Types and Cross-sections

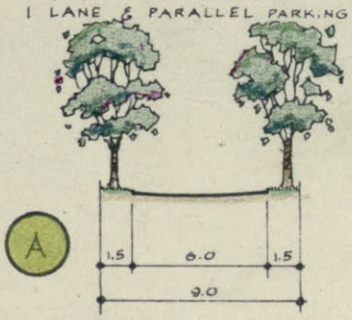
In planning the streets of the community, their functions have been determined and classified to achieve maximum traffic safety at minimum paving cost. The map of proposed street types Fig. 42 , "Cross-section of Streets at the Tondo Site, Manila", show what has been done: A. Cul-de-sacs, service alleys, and school approaches, 9.0 meters (29.5 feet) wide, with 6.0 meters (19.7 feet) of roadway - wide enough for 2 cars. B. Minor residential streets, 12.5 meters (41.0 feet) and 14.0 meters (46.0 feet) wide, depending on whether only 1 or 2 sidewalks have been provided - parallel parking on 2 sides and a lane in between. C. Major residential streets, 17.0 meters (55.7 feet) wide, with a 11.0 meters (36 feet) of paved surface - wide enough for parallel parking on 2 sides and 2 cars moving in opposite directions. D. Business streets (without a middle island), 25.0 meters (82 feet) wide, with an 18-meter (59-feet) paved roadway - ample for parallel parking on both sides and 2 lanes of moving traffic in each direction; sidewalks varying in width according to expected pedestrian traffic volume. E. Business streets (with a middle island), 30.0 meters (98.3 feet) from property line to property line, with 2 roadways 8.5 meters (27.9 feet) wide each - wide enough for 2 lanes and parallel parking on 1 side. F. North Bay Boulevard (with a middle island), 2 road-

STANDARDS:

MODERATE SPEED LANE = 3.00 M = 9.85 FT.
FAST SPEED LANE = 3.50 M = 11.50 FT.
AUTO PARALLEL PARKING = 2.50 M = 8.20 FT.
TRUCK PARALLEL PARKING = 3.00 M = 9.85 FT.
ALL DIMENSIONS BELOW ARE IN METERS...

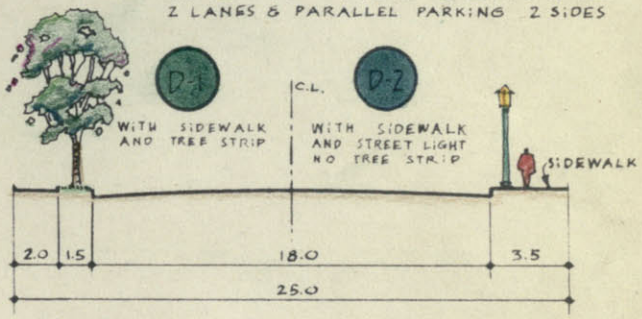


MINOR RESIDENTIAL
1 LANE & PARALLEL PARKING 2 SIDES

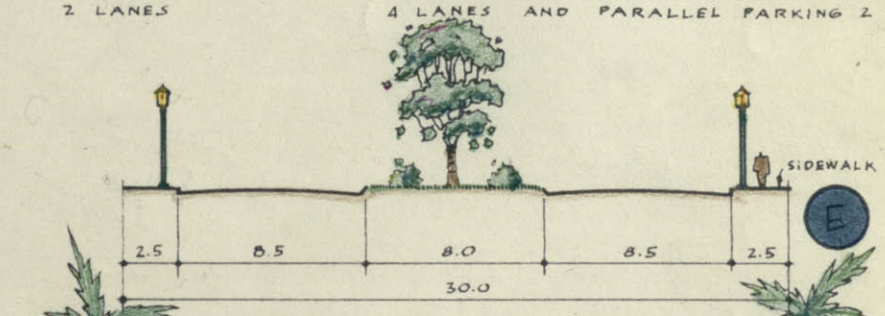


SERVICE & CUL-DE-SAC
2 LANES

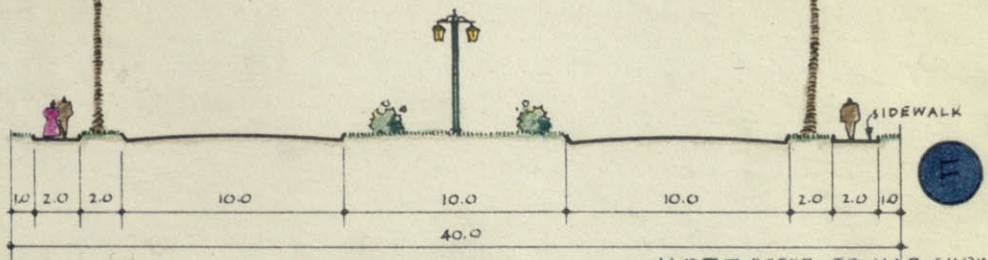
MAJOR RESIDENTIAL
2 LANES & PARALLEL PARKING 2 SIDES



BUSINESS - NO MIDDLE ISLAND
4 LANES AND PARALLEL PARKING 2 SIDES



BUSINESS - WITH MIDDLE ISLAND
EACH WAY - 2 LANES & PARALLEL PARKING 1 SIDE



NOTE: REFER TO MAP SHOWING DISTRIBUTION OF TYPES

NORTH BAY BOULEVARD
EACH WAY - 2 FAST LANES & PARALLEL PARKING 1 SIDE

CROSS-SECTIONS OF STREETS AT THE TONDO SITE, MANILA

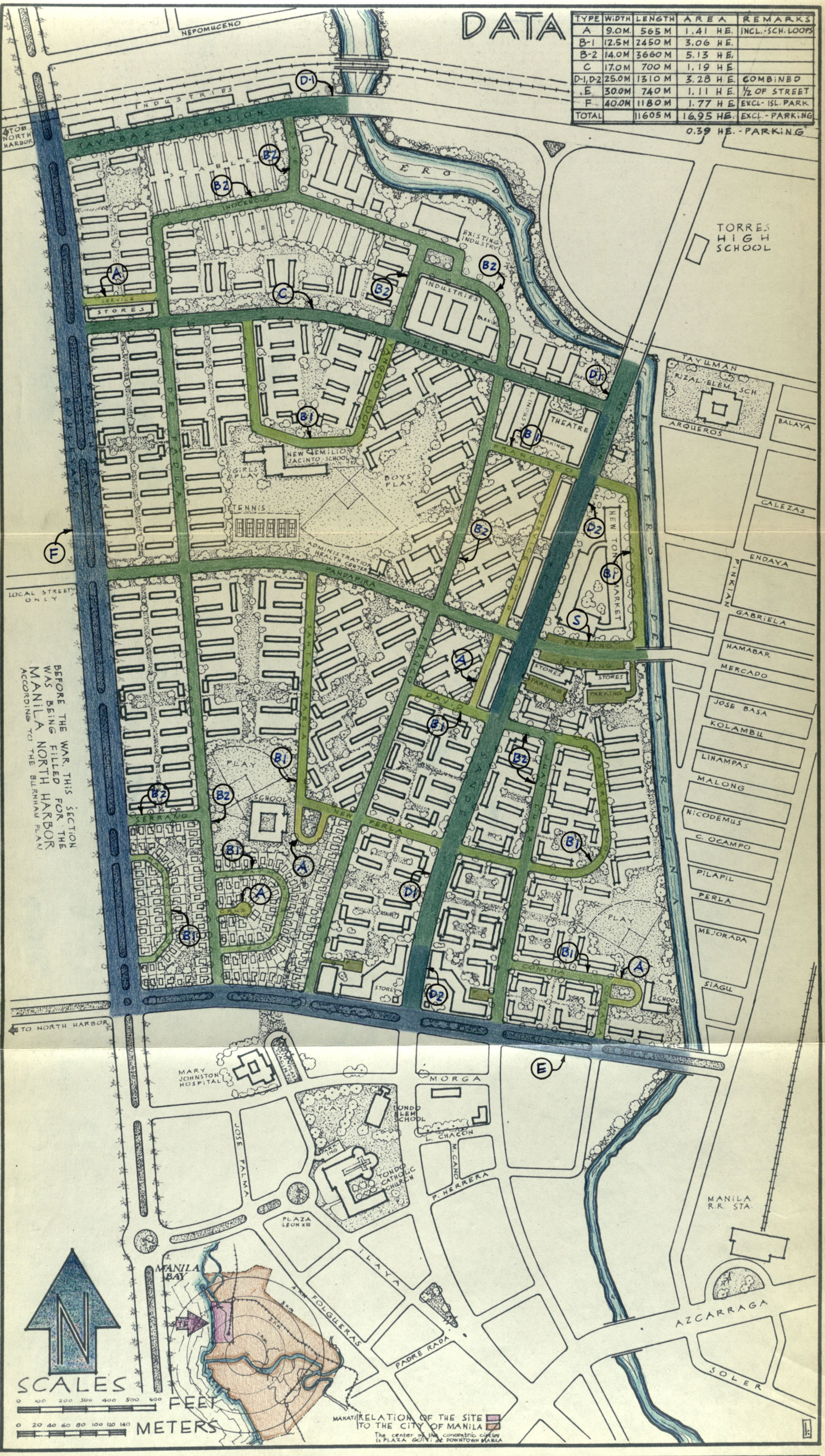
42

ways, each 10.0 meters (32.8 feet) wide - paving determined by 2 fast lanes and parallel parking on 1 side. S. Parking bays where needed - near market, stores, industries, etc. See Map R and Fig. 42.

Assumed Width Standards — In all the above dimensions, the following width standards have been assumed: moderate speed lane - 3.00 meters or 9.85 feet; fast speed lane - 3.50 meters or 11.50 feet; parallel parking for automobile - 2.50 meters or 8.20 feet; parallel parking for truck - 3.00 meters or 9.85 feet.

Special Features of Streets — Instead of having gutters at each side, cul-de-sacs, service alleys, and school approaches have been designed so that they will drain by "dishing" the center. Sidewalks have been omitted along these streets because the dishing towards the center permits walking along the edges during the rainy season. This detail of construction is also cheaper than the usual reverse curve surface of a crown and 2 gutters for the same width of roadway. Except in the business sections, curbs have been designed to stand at an angle, rather than vertical, to permit cars to use the shoulders of the street in times of emergency without causing much damage and casualty. Sidewalks have been placed near the property lines and plant strips introduced between them and the paved areas. Shade trees and street lights have been distributed generously along the length of most streets - insuring the convenience of pedestrians and motorists thruout the day and the night.

Statistics About Streets — An analysis of the present and the proposed street patterns shows some interesting figures. Altho both the present and the proposed street patterns occupy about



NEPOMUCENO
INDUSTRIES
TAYABAS EXTENSION
TO NORTH HARBOR
STABLES
INOCENCIO
SERVICE
STORES
EXISTING INDUSTRY
INDUSTRIES
PARKING
HERBOSA
ESTERO DE VITAS
TORRES HIGH SCHOOL
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
THEATRE
FIRE STATION
FRANCISCO
YANGCO LOOP
NEW EMILIO JACINTO SCHOOL
GIRLS PLAY
BOYS" PLAY
TENNIS
ADMINISTRATION & HEALTH CENTER
DE PADUA
NORTH BAY BOULEVARD
PANDAPIRA
SERVICE ROAD
NEW TONDO MARKET
CALEZAS
ENDAYA
PINKIAN
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
SIAGU
ESTERO DE LA REINA
LOCAL STREET ONLY
BEFORE THE WAR, THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN
SANTA MARIA
FRANCO
DAVID
PARKING
STORES
SANDE
JUAN LUNA
FAJARDO LOOP
NEW PERLA
PLAY
SCHOOL
SERRANO
CRUZ
CONCHA
CORTADA
MORIONES
MARY JOHNSTON HOSPITAL
MORGA
TONDO ELEM. SCHOOL
L. CHACON
M. CANO
P. HERRERA
JOSE PALMA
TONDO CATHOLIC CHURCH
PLAZA LEON XIII
ILAYA
FOLGUERAS
PADRE RADA
MANILA R.R. STA.
AZCARRAGA
SOLER
MANILA BAY
SITE
MAKATI
SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS
RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA

DATA

TYPE	WIDTH	LENGTH	AREA	REMARKS
A	9.0M.	565 M	1.41 HE.	INCL.-SCH. LOOPS
B-1	12.5M	2450 M	3.06 HE.	
B-2	14.0M	3660 M	5.13 HE.	
C	17.0M	700 M	1.19 HE.	
D-1, D-2	25.0M	1310 M	3.28 HE.	COMBINED
E	30.0M	740 M	1.11 HE.	½ OF STREET
F	40.0M	1180 M	1.77 HE.	EXCL.- ISL. PARK
TOTAL		11605 M	16.95 HE.	EXCL.- PARKING

0.39 HE.- PARKING

PLANNING FROM THE ASHES OF TONDO

MANILA, PHILIPPINES

PROPOSED STREET TYPES

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND: SEE STREET CROSS-SECTIONS

A, B-1, B-2, C, SPECIAL, D-1, D-2, E, F

21% of the entire area, the latter, besides having been furnished with ample parking facilities, is more efficient, functional, convenient, and attractive. About 3/8 of the original street area has been retained and incorporated deftly into the proposed network for circulation. This fraction is quite significant if one has to take into consideration the fact that the streets retained were those of the better type and were in good condition. Those which were abandoned were unpaved, except for thin surfaces of water-bound macadam, and were devoid of extensive system of underground utilities. See Maps S and T.

Type of Street Intersections

The intersections of streets have been designed as simple as possible - without elaborate grade separations and other similar devices for taking care of heavy traffic, because the need for them in the immediate future will not be so great as to justify decently the high cost of their construction and maintenance. It will take some time yet for Manila to be motorized completely, and since the development plan is intended for the transition also, it is but fair, and wise, to provide details that are practical under prevailing conditions. But should the need for such devices arise sooner than expected, then they will be designed and constructed with little difficulty, for the proposed development is of such a character as will allow the expropriation of necessary areas without affecting any costly improvements on those areas. Appropriate traffic light and police control will supplement the street design at busy intersections. All these details for safe, convenient, and pleasant circulation in and around a community will not, however, be utilized to their full value unless the population learn to respect the rights of others and begin to think in terms of "our" community rather than just "this" community.

BASE MAP DRAWN FROM THE PLAN OF THE RECONSTRUCTION COMMITTEE, CITY OF MANILA - JULY 1941

RELATION OF THE SITE TO THE CITY OF MANILA

The center of the concentric circles is PLAZA GOITI at DOWNTOWN MANILA.

CALOOCAN
THE SITE
MANILA BAY
MAKATI
PASAY
1 Km.
2 Km.
3 Km.
4 Km.

DATA

STREET	AREA	%
RETAINED	6.6 HE.	37.9
CLOSED	10.8 HE.	62.1
TOTAL	17.4 HE.	100.0

NEPOMUCENO
MALVAR
ALIANA
KAPULONG
GENARO
EMILIO JACINTO ELEMENTARY SCH.
INOCENCIO
ESTERO DE VITAS
JUAN LUNA
ABAD SANTOS
HERBOSA
TIOCO
YANGCO
SAN NICOLAS
BALMASEDA
ESGUERRA
DANDAN
CORCUERA
TONDO MARKET
R. PADILLA PARK
TAYUMAN
RIZAL ELEM. SCH.
ARQUEROS
BALAYA
CALEZAS
ENDAYA
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
DAGUPAN
SIAGU
PRUDENCIA
DINGIN Z
MANILA BAY
PANDAPIRA
AMARLANHAGUI
PEÑALOSA
FRANCO
SANDE
PACHECO
NICODEMUS
CORAL
PILAPIL
PERLA
MEJORADA
AGUILA
PAYA
RICAFORT
CORTADA
MORIONES
TONDO PRIMARY SCHOOL
TONDO INT. SCH. BRANCH
VELASQUEZ
SAN FERNANDO
PLAZA JACINTO
PLAZA DEL ROSARIO
MORGA
TONDO ELEM. SCHOOL
LORENZO CHACON
M. CANO
TONDO CATHOLIC CHURCH
HERRERA
PLAZA LEON XII
JOSE PALMA
ANDULA
PANGA
FOLGUERAS
BILBAO
MARIA PAYO
C.P. AGUIRRE
ALBUQUERQUE
PLAZA LIGA FILIPINA
RAXA MATANDA
PADRE RADA
YLAYA
MANILA R.R. STA.
AZCARRAGA
SOLER

SCALE in METERS
0 20 40 60 80 100 120 140

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

PRESENT STREET SYSTEM

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
STREETS TO BE RETAINED
STREETS TO BE CLOSED
BOUNDARY OF SITE
SOURCE OF DATA: DEVELOPMENT PLAN OF SITE

DATA

STREET	AREA	%
RETAINED	6.6 HE.	38.1
PROPOSED	10.7 HE	61.9
TOTAL	17.3 HE	100.0

PROPOSED AND TOTAL AREAS INCLUDE PARKING

NEPOMUCENO
INDUSTRIES
TAYABAS
STABLES
TO NORTH HARBOR
ESTERO DE PANDACAN
EXISTING INDUSTRY
TORRES HIGH SCHOOL
SERVICE STORES
INDUSTRIES
PARKING
TAYUMAN
RIZAL ELEM SCH
ARQUEROS
BALAYA
CALEZAS
ENDAYA
GABRIELA
HAMABAR
MERCADO
JOSE BASA
KOLAMBU
LINAMPAS
MALONG
NICODEMUS
C. OCAMPO
PILAPIL
PERLA
MEJORADA
SIAGU
BOULEVARD
NORTH BAY
DE PANDACAN
NEW EMILIO JACINTO SCHOOL
GIRLS' PLAY
BOYS' PLAY
TENNIS
ADMINISTRATION & HEALTH CENTER
PANDACAN
THEATRE
PARKING
NEW TONDO MARKET
STORES
DAVID
PERLA
CONCHA
PLAY
SCHOOL
LOCAL STREETS ONLY
BEFORE THE WAR, THIS SECTION WAS BEING FILLED FOR THE MANILA NORTH HARBOR ACCORDING TO THE BURNHAM PLAN
TO NORTH HARBOR
MARY JOHNSTON HOSPITAL
TONDO ELEM SCHOOL
TONDO CATHOLIC CHURCH
MORGA
L. CHACON
M. CANO
P. HERRERA
JOSE PALMA
PLAZA LEON XIII
ILAYA
FOLGUERAS
PADRE RADA
AZCARRAGA
SOLER
MANILA R.R. STA.
MANILA BAY
SITE
4 KM
3 KM
2 KM
1 KM
MAKATI

SCALES
0 100 200 300 400 500 600 FEET
0 20 40 60 80 100 120 140 METERS

RELATION OF THE SITE TO THE CITY OF MANILA
The center of the concentric circles is PLAZA GOITI IN DOWNTOWN MANILA

PLANNING FROM THE ASHES OF TONDO
MANILA, PHILIPPINES

PROPOSED STREET SYSTEM

A. C. KAYANAN, DEPARTMENT OF CITY PLANNING & HOUSING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, 1942

LEGEND:
STREETS (OLD) RETAINED
STREETS (NEW) PROPOSED
BOUNDARY OF SITE

MISCELLANEOUS ITEMS

Extension of Sewerage and Water

As part of the development plan, it is proposed to extend the sewerage system of the Metropolitan Water District to the entire area of this unprivileged section of Manila. This could be inexpensively accomplished because the main line is in the immediate vicinity - on Azcarraga Street, just 500 meters (1/3 mile) to the south of the site. It is also proposed to improve the present sewage disposal (mere dilution) into the bay so that the waters along the beach may be clean and suitable for recreational purposes. In line with the sewer extension, it is proposed further that a better system of water distribution be studied and applied immediately to the community to insure, once and for all, an adequate supply of water at a pressure sufficient for domestic and fire-protection purposes.

Gas and Electricity

Improvements in the distribution of gas and electricity are also recommended to effect better service at a lower cost, so that the use of wood for fuel and kerosene for lighting may stop. Just what these improvements are to be specifically, and how they are to be done, or by whom they will be done are in themselves separate and important problems worthy of careful study - problems outside the scope of this thesis.

Proposals in the Present Zoning

Zoning ordinances have been either conservative or progressive. The conservative zoning ordinances have endeavored to retain or freeze present conditions and guide future developments along existing trends - a little at a time. The progressive ones, however, go beyond mere preservation. The ideal, or

almost ideal, community is the ultimate goal. It is based from what there is and aimed firmly at what should be. Whereas the first type is sedative, the latter is curative. The Manila Zoning Ordinance is partly conservative, but mostly retrogressive - partly sedative, but mostly narcotic! What could be done? In the first place, the proposed development of the site can not have a fair chance of survival unless it is given ample protection by the law. And unfortunately, the present Zoning Ordinance (see Appendix) does not, can not, furnish this protection. It is therefore proposed that this ordinance be given a thoro overhauling based scientifically on existing land uses and directed at a Comprehensive Plan. This ordinance will be applied on the site, following closely the land uses proposed on the development plan. But in order to do this effectively the classification of permitted uses in the ordinance will have to be revised to exclude undesirable features presently tolerated - features too numerous to mention. Strict provisions for the eventual elimination of non-conforming and undesirable uses will be definite, practical, and fair. The ordinance will provide for a Board of Appeals composed of men who know zoning and the needs of the city, and who are beyond the reach of personal influence and selfish politics. This Board of Appeals will give the people the right to be heard, and the ordinance, a certain degree of elasticity so desirable in smoothing out unforeseen peculiarities and in applying fairness where fairness is due. This is, I believe, the essence of democracy.

FINANCE AND ADMINISTRATION

Costs of the Development

The effective planning of a site for decent human habitation takes more than just the designing of its physical and social features; it has to include a sound program - financial and administrative - for the execution of the plan evolved, and a workable scheme for the maintenance and operation of the community resulting therefrom. It has been the original intention, when data began to be gathered, to include in the financial considerations in this thesis a detailed estimate of the whole project - but, unfortunately an unwanted war interferred. . . upsetting the normal behavior of things, finance being one of them. Just what the financial conditions would be in the Islands after this world conflict is, certainly, hard to predict. Any attempt at a guess would simply be futile and utterly impractical. Any estimate on costs of the development made on pre-war conditions would be foolish.

Scheme for an Actual Project

Even if no estimate of the costs of the development and no discussion of the attendant financial repercussions have been prepared, a rough suggestion for a scheme of financing and administering the project has been inserted in this thesis. But before any suggestion for a scheme is started, it may be well to examine what had been done, before this war, in connection with the finance of the rebuilding of the burned area of Tondo. It has to be remembered that the planning of this area is not a paper study with theoretical data and requirements; it is an actual project which involves living people.

What Had Been Done Prior to the War

Prior to this war, the Philippine National Assembly had under consideration 2 plans for the housing of the underprivileged. One of these plans called for the appropriation of P1,000,000 to be spent for the inprovement of slums, while the other would transfer funds already assigned for the construction of the South Bay Boulevard to the North Bay Boulevard which will run thru Tondo, the heart of the slums, in the northern part of the city. On the other hand, the Executive Branch thru a process of purchase and expropriation (where plain purchase is impossible) and thru the construction of model tenements. Also there had been appropriated the amount of P2,500,000 for reclaiming the Tondo foreshore and of P500,000 for a breakwater to protect it. Reclamation of 160 hectares (about 400 acres) of land - ample space for public and private needs in connection with the port and as sites for industries, businesses, and housing projects in Tondo - had already began. And finally the Philippine National Assembly passed on June 6, 1941, 6 weeks after the Tondo Fire, Commonwealth Act No. 648 - "An Act Creating the National Housing Commission", the full text of which having been included in the Appendix as a part of this thesis. The P5,000,000 appropriated under this act is strictly for housing purposes and not for the widening of streets or the acquisition of land for parks and schools or the construction of community facilities and structures. Because of this provision, it became necessary for the City of Manila to float bonds to finance theimprovements not classified strictly as "housing". As of August 5, 1941, the amount of P5,000,000 had already been recommended by the City Council of Manila, and approved by the President of the Philippines, for a bond issue for the reconstruction of Tondo. The floating of a bond issue, however, can not be ac-

complished in the twinkling of an eye - hence the delay.

Acquisition of the Site

As a part of the development plan for the site, it is proposed that Commonwealth Act No. 648 be amended so that the National Housing Commission can acquire the entire site (and not only that intended for housing), as defined in the earlier part of this thesis, by purchase, exchange, condemnation, and other processes granted it by law, whichever it may deem advisable and more effective. This has been proposed rather than direct land acquisition by the city itself, because the commission, as a corporate device, could operate with the same flexibility as a co-partnership or a natural person. (See SEC. 4 of the Act.) A second consideration relates to the general indebtedness of the city and its debt limit in relation to total assessed valuations. It will be necessary to use the funds of the commission in the acquisition of land, and not the general funds of the city. The necessary land for public streets and sites for playgrounds and schools will be donated later to the city which will construct the streets and the playgrounds and schools for the community out of the bond issue which it has floated. The sum spent by the commission will be charged to the improvement value of the developed area and will be recouped eventually from the rents and other incomes of the project. Furthermore, under the Act, "the Commission may include in the rental rate an amount equal to the real estate taxes which would accrue were the property privately owned and turn over the same to the local government concerned."

Economics of Expenditure & Income

The commission will undertake the whole project on a large-scale program at such a cost so that

when it is finished the buildings will not involve prices or rentals beyond the means of those who have been originally intended to be housed. Such a large-scale program will result in the rationalization of complex and, in many ways, antiquated housing practices; in the realization of economies and amenities of physical layout possible only in large-scale planned operations; and in the demonstration to industry and to the public that scientific planning and collective purchasing coupled with skilled management and maintenance make for more economical living at higher living standards. Altho former residents will be given preference over others, the community will not, however, be restricted to providing accomodations for the low-income families alone who can not maintain a self-supporting urban neighborhood. Instead, it will include substantial quantities of housing - both rental and for sale - for families of wide ranges of income, and several commercial and industrial uses which will help in maintaining the community. But if it should be necessary that the government give some subsidy to make up for the deficit incurred in providing decent housing to its underprivileged masses, then such a subsidy, even if it can not be fully repaid, must not be considered as an investment lost but as one paid for the social uplift of its people - a project which can not be evaluated in terms of money spent.

Plans, Specifications, and Contract

Detailed plans and specifications of the proposed development will be prepared under the supervision of the commission and then construction will be let out to private concerns by competitive bidding. The project will be itemized in order to give smaller contractors a chance to participate in an item or several items of the project. Such a provision will not exclude, however, the

possibility of awarding the contract to a single company, or combination of companies, should a lump-sum contract be more advantageous to the commission and the public which it represents.

Arrangements for Rental and Sale

The multi-family residences will be for rent, while the detached single-family structures may be either for rent or for sale. The commission will build the single-family houses according to plans satisfactory to both the prospective occupants and the commission and then rented or sold, minus the lots. The retention of the title to the lots will control the haphazard resale of the land and will insure the security of the neighborhood from undesirable elements. Rents may be so adjusted as to have the same effect as installments for the purchase of the house. The cost of the original lot of a resident in the site prior to the development may be considered as part payment for a house, if requested by this resident who desires to own a house. Or should it be desired by prospective residents to buy also the lots on which their houses stand, then the commission will provide that resale of such lots be made only with the commission.

Assistance for Shelter

A family of sub-standard income may receive public assistance for shelter suitable to its size in the form of a "shelter certificate", as the FHA recommends, which will represent to the commission or to any landlord in Manila an amount in pesos and centavos which represents the difference between the economic rental amount and the amount that this family can afford to pay unassisted. In this way rentals will be standardized, and any former low-income resident of the site not desiring to stay in the development will have the same chance as any one else in finding a decent house elsewhere at appropriate rent levels.

CONCLUSION

After describing, in my own inadequate way, the peculiar characteristics of my people and the elements that influence and impel them, and after analyzing those characteristics and those elements as they affect the process and the technique of planning their homes and their community, it may be proper to pause for a while and look at what has been said and done . . . as one, at the end of a journey, looks back over the entire trip to see what has been enjoyed best and what has been missed.

As to what has been enjoyed best - the thesis will speak for itself, I hope. As to what has been missed - I can not, will not, offer excuses. For friends need no excuses, and enemies will not believe them, anyway.

When this war comes to a close - the way we want it to end, soon and in our favor - and when I finally go home with other Filipinos to a free Philippines, I will help in the task of making my country proud of what she is and will be. And planning will be one of the contributing activities. And like the other destroyed areas of the Islands, the Tondo burned area will be rebuilt. When that time comes, Tondo, like the fabled Phoenix, will rise from its ashes into a planned community - a healthier, safer, and more pleasant place in which to live, work, and play.

TABLES

TYPICAL TEMPERATURE RANGES IN MANILA

1

Source of Data: Philippine Weather Bureau

MONTH - 1931	MEAN MAX.	MEAN MIN.	AV. DAILY
JANUARY	88.9° F	70.3° F	84.6° F
FEBRUARY	91.4	69.6	80.5
MARCH	93.2	73.0	83.1
APRIL	94.5	74.5	89.5
MAY	94.8	77.2	86.0
JUNE	91.2	77.2	84.2
JULY	89.8	75.6	82.7
AUGUST	86.4	75.6	81.0
SEPTEMBER	89.1	75.7	82.4
OCTOBER	88.0	75.4	81.7
NOVEMBER	86.5	73.6	80.0
DECEMBER	86.4	70.9	78.6

VARIATION OF RAINFALL IN MANILA

2

Source of Data: Philippine Weather Bureau

MONTH	FREQUENCY	INTENSITY
JANUARY	0-7 DAYS PER MONTH	0-50 MM. PER MONTH
FEBRUARY	0-7 " " "	0-50 " " "
MARCH	0-7 " " "	0-50 " " "
APRIL	0-7 " " "	0-50 " " "
MAY	15-21 " " "	51-275 " " "
JUNE	15-21 " " "	276-500 " " "
JULY	22-31 " " "	OVER 500 " " "
AUGUST	22-31 " " "	OVER 500 " " "
SEPTEMBER	22-31 " " "	276-500 " " "
OCTOBER	15-21 " " "	51-275 " " "
NOVEMBER	8-14 " " "	51-275 " " "
DECEMBER	8-14 " " "	51-275 " " "

MANILA MEAN SUNLIGHT AND WIND

3

Source of Data: Philippine Weather Bureau - Sunlight (1880-1927); Wind (193

MONTH	MEAN SUNLIGHT	MEAN WIND VEL.	PREVAILING WIND DIR.
JANUARY	176 HOURS	19.5 KM./ HR.	N.E., E., N.
FEBRUARY	190 "	19.5 " "	S.E., VARIABLE
MARCH	227 "	20.0 " "	S.E., E.
APRIL	253 "	17.3 " "	S.E., E.
MAY	219 "	20.4 " "	E., S.E., S.W.
JUNE	160 "	21.5 " "	S.W., E., S.E.
JULY	134 "	19.5 " "	VARIABLE, S.W.
AUGUST	132 "	26.4 " "	S.W., VARIABLE, W.
SEPTEMBER	132 "	24.2 " "	S.W., VARIABLE
OCTOBER	160 "	20.0 " "	S.W., VARIABLE, E.
NOVEMBER	154 "	17.4 " "	N., N.E., VARIABLE
DECEMBER	151 "	17.5 " "	N.E., VARIABLE

FAMILIES CLASSIFIED ACCORDING TO OWNERSHIP OF HOUSE AND LAND 4

Source of Data: Philippine Census - 1939

OWNERSHIP	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
OWN HOUSE AND LAND	1,206	4.0	7,540	6.8
OWN HOUSE ONLY	11,120	37.2	26,152	23.4
OWN LAND ONLY	16	0.1	91	0.1
OWN NO HOUSE AND NO LAND	17,528	58.7	77,941	69.7
TOTAL	29,870	100.0	111,724	100.0

FAMILIES CLASSIFIED ACCORDING TO MATERIAL OF HOUSE 5

Source of Data: Philippine Census - 1939

MATERIAL OF HOUSE	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
CONCRETE	161	0.6	2,062	1.8
STRONG MATERIALS	8,105	27.1	46,874	42.0
LIGHT MATERIALS	8,405	28.1	23,348	20.9
MIXED MATERIALS	13,046	43.7	38,879	34.8
NOT REPORTED	153	0.5	561	0.5
TOTAL	29,870	100.0	111,724	100.0

FAMILIES CLASSIFIED ACCORDING TO KIND OF LIGHTING USED 6

Source of Data: Philippine Census - 1939

KIND OF LIGHTING	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
ELECTRICITY	19,753	66.1	87,452	78.3
PETROLEUM	9,737	32.6	23,054	20.6
OIL	264	0.9	771	0.7
NOT REPORTED	116	0.4	447	0.4
TOTAL	29,870	100.0	111,724	100.0

FAMILIES CLASSIFIED ACCORDING TO SOURCE OF WATER SUPPLY 7

Source of Data: Philippine Census - 1939

SOURCE OF WATER SUPPLY	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
WATER PIPE SYSTEM	28,601	95.7	107,869	96.5
ARTESIAN WELL	1,109	3.7	3,344	3.0
SURFACE WELL	53	0.2	182	0.2
RAIN WATER	0	–	6	–
NOT REPORTED	107	0.4	323	0.3
TOTAL	29,870	100.0	111,724	100.0

POPULATION

Source of Data: Philippine Census of March, 1903, December, 1918, and January, 1939

8

PLACE	POPULATION MAR. 1903	POPULATION DEC. 1918	INCREASE 1903-1918	R.I.* P.YR.	POPULATION JAN. 1939	INCREASE 1918-1939	R.I. P.YR.
PHILIPPINES	7,635,426	10,314,310	2,678,884	1.9%	16,000,301	5,685,991	2.2%
MANILA	219,928	285,306	65,378	1.7%	623,492	338,186	4.0%
TONDO	89,043	71,905	32,862	3.9%	160,958	89,053	4.1%

*Rate of increase per year

POPULATION OF TONDO BY AGE AND SEX

Source of Data: Philippine Census - 1939

9

AGE IN YRS.	MALE	FEMALE	TOTAL	% OF MALE TO TOTAL MALE	% OF FEM. TO TOTAL FEMALE	% OF MALE TO TOTAL POPUL.	% OF FEM. TO TOTAL POPUL.	% TO TOTAL POPUL.
UNDER 5	12,692	12,297	24,989	15.6	15.5	7.9	7.6	15.5
5 - 9	10,750	10,605	21,355	13.2	13.3	6.7	6.6	13.3
10 - 14	9,528	8,953	18,481	11.7	11.2	5.9	5.6	11.5
15 - 19	8,422	9,309	17,731	10.3	11.7	5.2	5.8	11.0
20 - 24	8,300	8,575	16,875	10.2	10.8	5.2	5.3	10.5
25 - 34	13,789	13,131	26,920	17.0	16.5	8.6	8.2	16.8
35 - 44	8,256	7,025	15,281	10.1	8.8	5.1	4.4	9.5
45 - 54	4,915	4,634	9,549	6.0	5.8	3.0	2.9	5.9
55 - 64	2,969	2,782	5,751	3.6	3.5	1.8	1.7	3.5
65 & OVER	1,781	2,232	4,013	2.2	2.8	1.1	1.4	2.5
UNKNOWN	8	5	13	0.1	0.1	-	-	-
TOTAL	81,410	79,548	160,958	100.0	100.0	50.5	49.5	100.0

POPULATION OF MANILA BY AGE AND SEX

Source of Data: Philippine Census - 1939

10

AGE IN YRS.	MALE	FEMALE	TOTAL	% OF MALE TO TOTAL MALE	% OF FEM. TO TOTAL FEMALE	% OF MALE TO TOTAL POPUL.	% OF FEM. TO TOTAL POPUL.	% TO TOTAL POPUL.
UNDER 5	44,015	42,681	86,696	13.5	14.4	7.1	6.8	13.9
5 - 9	36,930	35,778	72,708	11.3	12.0	5.9	5.7	11.6
10 - 14	33,246	31,996	65,242	10.2	10.8	5.3	5.1	10.4
15 - 19	35,144	38,146	73,290	10.8	12.8	5.6	6.1	11.7
20 - 24	39,875	35,950	75,825	12.2	12.1	6.4	5.8	12.2
25 - 34	65,168	52,264	117,432	19.9	17.6	10.5	8.4	18.9
35 - 44	36,440	26,613	63,053	11.2	8.9	5.9	4.3	10.2
45 - 54	18,839	16,506	35,345	5.8	5.6	3.0	2.6	5.6
55 - 64	10,578	9,769	20,347	3.2	3.3	1.7	1.6	3.3
65 & OVER	5,976	7,480	13,456	1.8	2.5	1.0	1.2	2.2
UNKNOWN	76	22	98	0.1	-	-	-	-
TOTAL	326,287	297,205	623,492	100.0	100.0	52.4	47.6	100.0

POPULATION BY RACE

Source of Data: Philippine Census - 1939

11

RACE	TONDO		MANILA	
	NUMBER	%	NUMBER	%
BROWN	154,639	96.1	556,141	89.2
YELLOW	5,035	3.1	51,088	8.2
WHITE	123	0.1	8,372	1.3
BLACK	17	–	86	–
MIXED	1,114	0.7	7,517	1.2
NOT REPORTED	30	–	288	0.1
TOTAL	160,958	100.0	623,492	100.0

POPULATION BY RELIGION

Source of Data: Philippine Census - 1939

12

RELIGION	TONDO		MANILA	
	NUMBER	%	NUMBER	%
ROMAN CATHOLICS	137,783	85.7	515,584	82.7
AGLIPAYANS	11,190	6.9	39,131	6.3
PROTESTANTS	6,094	3.8	20,595	3.3
MOHAMMEDANS	187	0.1	2,120	0.3
BUDDHISTS	1,974	1.2	16,051	2.6
SHINTOISTS	828	0.2	2,888	0.5
OTHERS	1,735	1.1	13,613	2.2
NOT BELONGING TO ANY	1,572	1.0	13,203	2.1
NOT REPORTED	95	–	307	–
TOTAL	160,958	100.0	623,492	100.0

CIVIL STATUS OF TONDO POPULATION OVER 10 YEARS IN AGE

Source of Data: Philippine Census - 1939

13

AGE YEARS	SINGLE	MARRIED	WIDOWED	DIVORCED, UNKNOWN	TOTAL
10 – 14	18,449	29	–	3	18,481
15 – 19	15,752	1,928	38	13	17,731
20 – 24	10,323	6,358	177	17	16,875
25 – 34	5,829	20,195	852	44	26,920
35 – 44	1,031	13,010	1,206	34	15,281
45 – 54	344	7,546	1,641	18	9,549
55 – 64	185	3,759	1,790	17	5,751
65 AND OVER	135	1,771	2,103	4	4,013
UNKNOWN	7	5	–	1	13
TOTAL	52,055	54,601	7,807	151	114,614
PERCENTAGE	45.4%	47.7%	6.8%	0.1%	100.0%

FAMILIES CLASSIFIED ACCORDING TO NUMBER OF GAINFUL WORKERS 14

Source of Data: Philippine Census - 1939

NUMBER OF GAINFUL WORKERS	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
NONE	389	1.3	1,557	1.4
1	3,507	11.7	13,377	12.0
2	16,459	55.1	54,514	48.8
3	5,300	17.7	20,585	18.4
4	2,455	8.2	10,447	9.3
5	974	3.3	4,992	4.5
6	422	1.4	2,401	2.2
7	170	0.6	1,348	1.2
8	80	0.3	762	0.7
9	37	0.1	416	0.4
10	23	0.1	302	0.3
11 OR MORE	54	0.2	923	0.8
TOTAL	29,870	100.0	111,724	100.0

POPULATION BY ABILITY TO SPEAK LANGUAGES 15

Source of Data: Philippine Census - 1939

LANGUAGES	TONDO		MANILA	
	NUMBER	%	NUMBER	%
TAGALOG	158,057	98.0	584,455	93.6
ENGLISH	78,164	48.5	321,482	51.5
PAMPANGO	28,489	17.7	63,152	10.1
SPANISH	10,718	6.6	83,372	13.4
ILOKO	9,402	5.9	58,527	9.4
CHINESE	5,279	3.3	48,395	7.8
PANGASINAN	4,573	2.8	21,157	3.4
BICOL	2,647	1.6	20,634	3.3
CEBUANO	2,951	1.7	18,513	3.0
PANAY	2,116	1.3	21,982	3.5
SAMAR	1,705	1.1	16,713	2.7
BISAYA	1,285	0.8	10,215	1.5
JAPANESE	381	0.2	4,666	0.7
OTHERS	910	0.6	8,547	1.3
TOTAL	160,958	--	623,492	--

FAMILIES CLASSIFIED ACCORDING TO SIZE

16

Source of Data: Philippine Census - 1939

SIZE	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
1 PERSON	426	1.4	2,668	2.4
2 PERSONS	3,671	12.3	13,874	12.4
3 PERSONS	4,436	14.9	16,698	14.9
4 PERSONS	4,514	15.1	16,744	15.0
5 PERSONS	4,321	14.5	15,153	13.6
6 PERSONS	3,720	12.4	12,980	11.6
7 PERSONS	2,874	9.6	10,264	9.2
8 PERSONS	2,105	7.1	7,756	7.0
9 PERSONS	1,427	4.8	5,270	4.7
10 PERSONS	935	3.1	3,604	3.2
11 PERSONS	549	1.8	2,230	2.0
12 OR MORE PERSONS	892	3.0	4,483	4.0
TOTAL	29,870	100.0	111,724	100.0
AV. SIZE OF FAMILY	5.37 PERSONS		5.60 PERSONS	

FAMILIES CLASSIFIED ACCORDING TO NUMBER OF CHILDREN UNDER 10 YEARS OF AGE

17

Source of Data: Philippine Census - 1939

SIZE	TONDO		MANILA	
	FAMILIES	%	FAMILIES	%
NO CHILDREN	9,931	33.2	41,972	37.6
1	6,405	21.4	23,784	21.3
2	5,606	18.8	19,710	17.6
3	4,408	14.8	14,222	12.7
4	2,416	8.1	8,122	7.3
5	871	2.9	3,026	2.7
6	180	0.6	668	0.6
7	36	0.1	140	0.1
8	12	0.1	36	0.1
9	3	-	13	-
10	0	-	11	-
11 OR MORE	2	-	20	-
TOTAL	29,870	100.0	111,724	100.0

EARNING CAPACITIES OF PERSONS, 10 YEARS OR OLDER, IN MANILA, PHILIPPINES 18

Source of Data: Philippine Census - 1939

SALARY RANGE PESOS	NUMBER	%	TOTAL %	SALARY RANGE PESOS	NUMBER	%	TOTAL %
UNDER 10	23,890	18.8		100-119	3,832	3.0	
10-19	20,856	16.4		120-139	1,761	1.4	
20-29	17,439	13.7		140-159	1,852	1.5	
30-39	18,923	14.9		160-199	794	0.6	
40-49	12,405	9.8		SUM: 100-199			6.5
SUM: 1-49			73.6	SUM: 1-199			96.5
50-59	7,042	5.5		200-249	1,375	1.1	
60-69	5,754	4.5		250-299	625	0.5	
70-79	3,434	2.7		300-399	986	0.8	
80-89	3,279	2.6		400-499	464	0.4	
90-99	1,413	1.1		500-699	448	0.4	
SUM: 50-99			16.4	OVER 700	401	0.3	
SUM: 1-99			90.0	SUM: OVER 200			3.5
				TOTAL	126,973	100.0	

BREAKDOWN IN % OF EXPENSES OF MANILA RESIDENTS 19

Source of Data: Bulletin No. 27 of the Bureau of Labor, 1939

INCOME GROUP	FOOD	CLOTHING	SHELTER	FUEL & LIGHT	OTHER	TOTAL
AVERAGE GOVT. EMPLOYEE	48	10	16	6	20	100
UNDER ₱600 P.A.	54	7	17	10	12	100
600-900	53	10	15	7	15	100
900-1200	51	9	17	6	17	100
1200-1500	48	10	15	5	21	100
1500-1800	47	11	16	6	20	100
1800-2400	41	12	15	5	27	100
AVERAGE LABORER	68	4	8	8	12	100
UNDER ₱260 P.A.	73	4	4	7	12	100
260-365	71	4	5	8	12	100
365-520	69	4	8	7	12	100
520-625	68	3	10	8	11	100
625-750	62	4	14	7	13	100
AV. FOR DIFF. TRADES	60	10	11	8	11	100

PERSONS (6-19 YEARS) ATTENDING SCHOOL

Source of Data: Philippine Census - 1939

AGE IN YEARS	TONDO			MANILA		
	TOTAL	IN SCHOOL		TOTAL	IN SCHOOL	
		NUMBER	%		NUMBER	%
6	4,353	443	10.2	14,971	2,668	17.8
7	4,607	2,152	46.7	15,369	8,672	56.4
8	4,416	3,193	72.3	14,558	11,422	78.5
9	3,573	2,871	80.4	12,719	10,796	84.9
10	4,007	3,381	84.4	13,592	11,876	87.4
11	3,343	2,824	84.5	11,851	10,273	86.7
12	4,175	3,171	76.0	14,370	11,529	80.2
13	3,593	2,418	67.3	12,819	9,342	72.9
14	3,363	1,848	55.0	12,610	7,888	62.6
15 - 17	10,235	3,805	37.2	41,010	17,880	43.6
18 - 19	7,496	1,395	18.6	32,280	8,356	25.9
TOTAL: 6 - 19	53,161	27,501	51.7	196,149	110,702	57.1

LITERACY OF PERSONS (10 YEARS AND OVER)

Source of Data: Philippine Census - 1939

AGE IN YEARS	TONDO			MANILA		
	TOTAL	READ & WRITE		TOTAL	READ & WRITE	
		NUMBER	%		NUMBER	%
10 - 14	18,481	15,760	85.3	65,242	56,238	86.2
15 - 19	17,731	15,524	87.6	73,290	63,858	87.1
20 - 24	16,875	14,356	85.1	75,825	66,441	86.3
25 - 34	26,920	21,749	80.8	117,432	98,283	83.7
35 - 44	15,281	10,903	71.4	63,053	48,584	77.1
45 - 54	9,549	5,795	60.7	35,345	24,334	68.8
55 - 64	5,751	2,683	46.7	20,347	11,605	57.0
65 AND OVER	4,013	1,342	33.4	13,456	6,019	44.7
UNKNOWN AGE	13	7	53.8	98	33	33.7
TOTAL: 10 & OVER	114,614	88,119	76.9	464,088	374,395	80.7

COMPARATIVE LITERACY OF MANILA DISTRICTS

Source of Data: Philippine Census - 1939

DISTRICT	%	DISTRICT	%	DISTRICT	%
1. ERMITA	88.4	6. PORT AREA	83.3	11. SAN MIGUEL	81.0
2. QUIAPO	86.4	7. SAMPALOC	83.2	12. TONDO	76.9
3. INTRAMUROS	85.8	8. PACO	83.1	13. BINONDO	75.3
4. MALATE	84.2	9. SANTA ANA	82.3	14. SAN NICOLAS	69.7
5. PANDACAN	84.0	10. SANTA CRUZ	81.4	AV. - MANILA	80.7

APPENDIX

EXCERPTS FROM THE BUILDING CODE AND OTHER ORDINANCES OF MANILA

General Provisions of Building Code

When I left the Philippines in 1940, Manila had then in force a building code which regulated the construction of buildings within the boundaries of the city. It prescribed that the plans to be made should show: location of lot and structure, foundations, floors and their framing, roofs and their framing, elevations, sections, plumbing, and other details. Only licensed engineers and architects were permitted to draw plans, altho licensed master carpenters were allowed to draw plans in the case of small houses. Sets of these plans were submitted to the Office of the City Engineer, the Fire Department, and the Health Department for their respective approval of structural, fire safety, and sanitary details. Loads were specified for different uses such as residences, churches, assembly halls, gymnasiums, warehouses, roofs, retaining walls, stairs, etc. while working stresses were furnished for concrete, steel, wood, etc. For large framed structures, stress diagrams were required. The code also enumerated what precautions to take to facilitate inspection, what fees to pay and what penalty is imposed for violations. Among the items of the Building Code of Manila which are pertinent to this thesis are quoted as follows:

Corner Buildings

"Every corner building on a public street or alley less than 12 meters (40 feet) in width shall be made with a truncated angle at the corner. The face of the triangle formed shall be at right angle to the bisector of the angle of intersection of the street lines. In no case shall the length of this "chaflan"

be less than 4 meters (13 feet). Sec. 112.

Building Projections on Streets

"On streets less than 8 meters (26 feet) in width, no balconies or other permanent projections shall be permitted but this projection shall not apply to awnings or other movable hoods not wider than 0.3 meter (1 foot). On streets from 8 to 15 meters (26 to 49 feet) in width, balconies and other projections may be constructed to within 1 meter (3.28 feet) of the established curb lines. On streets from 15 to 20 meters (49 to 66 feet) in width, balconies and other projedtions may not extend more than 1.5 meters (5 feet) over the established sidewalk. All projections shall be at least 3 meters (10 feet) above the established sidewalk grade at the established line. Sec. 113.

Downspouts and Gutters

"All buildings shall be provided with proper metallic downspouts and gutters for carrying water from the roof to the ground, drainage conduit, or street in such a manner as to protect from damage the walls and foundations, and in no case shall water from roofs be allowed to flow over sidewalks. The downspouts shall be connected by drain pipe to the drainage conduit, and if no such conduit exists on the street, such pipes may discharge under the sidewalk into the gutter. Sec. 178.

Hollow Construction

"Hollow constructions are prohibited in the city unless they are made rat-proof. Details for rat-proofing, on the plans and as constructed, shall be approved by the proper departments. Rat-proofing may consist of metal or other durable sheeting. Sec. 184.

Percentage of Coverage of Site

"Every building shall be so located upon its lot as to secure proper natural light and ventilation for the occupants thereof, and for this purpose, as well as for better fire protection, no building to be erected shall occupy more than 90 % of any inside lot. Buildings for domestic use shall occupy not more than 90% of a corner lot nor more than 70% of an inside lot. Sec. 262.

Courts for Open Spaces

"Minimum size of courts for buildings shall be as follows: 1-story - 6 sq. meters (64.5 sq. feet); 2-story - 9 sq. meters (97 sq. feet). No court less than 2 meters (6.5 feet) wide shall be allowed for 1- and 2-story buildings. Where the first story of a building is used for business purposes only, the upper story, or stories, being for dwelling purposes, the space occupied by the first story may conform to the requirements prescribed for business buildings, except that no court or light well shall be less than that herein prescribed, but the upper stories must conform to the requirements for buildings used for domestic purposes. Sec. 264.

Ventilation of Dwellings

"Every building erected for human habitation, if provided with a board floor, shall be so constructed as to leave a clear space of 0.75 meter (2.5 feet) between the underface of the floor joists and the surface of the ground or paved surface. If the building is constructed entirely with masonry walls, the space between the floor joists and the ground shall be vented by means of air vents or air bricks protected by suitable gratings so as to prevent the passage of rodents. Sec. 267.

Windows and Other Openings

"Every story of a building intended for human habitation, which may be erected, shall be provided with at least 1 window opening directly to the external air. The total area of the window or windows provided shall be at least 10% of the floor area for each story. Every story of such building shall be provided also with a window of at least 1 sq. meter (10 sq. feet) area opening into the space in the rear of such building, such area being in addition to the window area required in this section. Sec. 271.

Room Sizes and Air Spaces

"In determining the size of rooms, these air spaces per person shall be provided for: schoolrooms for children - 5 cu. meters (177 cu. feet); schoolroom for adults - 7 cu. meters (247 cu. feet); workshop, factories, offices - 10 cu. meters (354 feet) for day workers and 14 cu. meters (485 cu. feet) for night workers. No living room shall contain less than 10 sq. meters (108 sq. feet) and sleeping room, less than 6 sq. meters (65 sq. feet) of floor area. Any adult occupying any room shall have at least 14 cu. meters of air space, unless it be shown to the satisfaction of the Director of Health that other adequate means of ventilation exist. Two children under 10 years of age shall be counted as 1 adult. Sec. 274 and 935.

Minimum Height of Rooms

"The height of rooms shall never be less than 3 meters (10 feet) with the exception of clearly open spaces such as porches, balconies, as well as toilets, bathrooms, garages, and stables with no living quarters, where the height may be reduced to not less than 2.5 meters (8 feet), provided that the conditions in every case where the room is 2.5 meters in height shall exclude the possibility of its being used as a sleeping or living room. Sec. 270."

Regulations Affecting the Burned Area

Subsequent to the fire that gutted a portion of Tondo District, the City Council passed an ordinance regulating the construction of buildings on an area bounded on the north by the proposed railroad line, Estero de Vitas, and Tayuman Street, on the east by the Manila Railroad Company at Dagupan Street, on the south by Moriones Street, and on the west by Manila Bay as contained in the recommendations of the Technical Sub-Committee in its report of June 6, 1941, as follows:

Materials of Construction

"All roofing shall be of non-combustible materials, such as galvanized iron, tile, asbestos, or any other similar materials subject to the approval of the City Engineer and the Chief of the Fire Department. No light materials such as sawale, bamboo, etc. shall be used for interior partitions. Sidings on the first floor shall be of adobe stones, bricks, concrete, plastered sawale, or other fire-resisting materials. Sidings on the second or higher stories shall be of plastered sawale or any other fire-resisting materials; wood may be allowed if the building is erected at a distance of not less than 2 meters (6.5 feet) from any boundary line or if there is a firewall erected between buildings.

Minimum Distance Between Buildings

"No buildings shall be allowed to be erected at a distance of less than 2 meters from any boundary line other than on the street line, unless a firewall is erected between buildings or unless the sidings are constructed of fireproof materials.

Minimum Size of Lot and Alley Frontage — "The minimum size of the lot shall be not less than 100 sq. meter (1078 sq. feet). No buildings will be allowed facing private alleys for proper control of sanitation and fire."

ORDINANCE NO. 2830 AS AMENDED BY ORDINANCE NO. 2906 - AN ORDINANCE PROVIDING FOR THE ZONING OF THE CITY OF MANILA.

SEC. 1. Purpose. - For the purpose of better promoting the health, safety, convenience, and welfare of the inhabitants of the City of Manila, and in order to direct its building development along orderly lines, the territory of said City is hereby zoned according to the zoning plan, the original of which being on file in the Office of the City Engineer.

SEC. 2. Zones. - The City of Manila is hereby divided into the following zones: 1. Residential "A", 2. Residential "B", 3. Commercial, 4. Light Industrial, 5. Heavy Industrial, 6. Stable, 7. Offensive, 8. Park, and 9. Military.

SEC. 3. Residential "A" Zones. - Buildings and premises to be established in these zones shall be used for private dwellings, but excluding tenement houses commonly known as accesorias. Apartments, first-class hotels, first-class clubs, churches, telephone sub-stations or exchanges, flower markets, beauty, manicurist, chiropodist and masseur parlors, barber shops, dress-making shops, tailor shops, drug-stores, and public buildings or establishments of public character, such as police stations, fire stations, puericulture centers, schools, colleges, etc., with the exception of hospitals, sanatoria, and jails, may also be established in this zone: Provided, That noiseless machineries which are necessary for the operation and for the exclusive use of establishments herein permitted, shall be allowed in Residential "A" zones: Provided, Further, That

activities, amusements, and recreations, including bowling alleys, billiard, and pool rooms, connected with the operation of first-class hotels and first-class clubs shall also be permitted.

First-class clubs are those defined as Class "A" clubs in SEC. 635 of the Revised Ordinances of the City of Manila.

First-class hotels are those defined as Class "A" hotels in SEC. 661 of the same Ordinances.

No light or mixed material buildings or structures of permanent or semi-permanent character shall be permitted in these zones: Provided, That light or mixed material structures of temporary character, such as those erected in connection with the celebration of festivities, carnivals, fairs, and other similar activities may be permitted, but such structures shall be removed upon the termination of such activities.

SEC. 4. Residential "B" Zones. - Buildings and premises to be erected in these zones shall be used for private dwellings. Tenement houses commonly known as accesorias, as defined in SEC. 940 of the Revised Ordinances of the City of Manila, and boarding and lodging houses may likewise be established in this zone. Such buildingsand premises may also be used for hotels with no steam boiler for power purposes, clubhouses, hospitals and sanatoria, laboratories, "sari-sari" tiendas, restaurants, carinderias, panciterias, cafeterias, ice-cream parlors, ice-drop factories, photograph studios, public baths, and laundries, dry cleaning and laundries with machinery, if the total horse-power in the establishments does not exceed $\frac{1}{2}$ H.P., amusement centers including billiards and pool rooms but excluding bowling alleys, unless

such bowling alleys are connected with the operation of hotels or clubs permitted in these zones: Provided, However, That no bowling alleys shall be permitted in clubs defined as class "D" in SEC. 635, as amended, of the Revised Ordinances of the City of Manila.

Mixed material buildings and structures of permanent or semi-permanent character may be allowed in these zones, subject to the conditions of SEC. 126 of the Revised Ordinances as amended.

SEC. 5. Commercial Zones. - The following businesses, buildings, and establishments shall be restricted to Commercial zones, namely: markets, bakeries, dry goods and grocery stores, office buildings, electric sub-stations, garage and gasoline service stations, light industries clearly incidental to a retail business house with machinery not exceeding 5 horse-power, funeral parlors, bazaars and tiendas, bill-boards, printing shops and newspaper publishing companies, cosmetic factories, and bowling alleys. Cold storage, hat factories, and watch repairing shops may also be established in these zones.

Notwithstanding existing ordinances to the contrary, the distance from one gasoline service station to another in the zones where such stations are permitted to be established, shall not be less than 300 meters.

No light or mixed material structures of permanent or semi-permanent character shall be permitted in these zones.

SEC. 6. Light Industrial Zones. - Light industrial zones are those where the following industries shall be established: factories with noisy

machinery, such as nail factories, sawmills, shoe factories, etc., having not more than 10 H.P.; factories with noiseless machinery, such as shirt factories, shoe factories, etc., without limitation as to the number of H.P.; steam laundries, bottling works warehouses and storage houses, provided they are not obnoxious; marble works with machinery not exceeding 2 H.P.; cigar and cigarette factories; compounding establishments or rectifying plants with no machinery; machine shops not exceeding 10 H.P. with no boiler and sheet metal works; fruit and food canning or preserving and other light industries with no obnoxious odor and noise.

Notwithstanding existing ordinances to the contrary, businesses and industries may be established anywhere in the zones in which they are by this Ordinance permitted, provided their distance from a hospital or school existing at the time of the approval of this Ordinance shall not be less than 100 meters.

No light or mixed material structures of permanent or semi-permanent character shall be permitted in this zone.

SEC. 7. Heavy Industrial Zones. - The following industries shall be established in Heavy Industrial zones: boiler works, gas manufacturing, shipyards, blast furnaces, lumber yards, sawmills of any H.P., machine shops without limit to H.P., smelting of iron, foundries, dairies, distilleries of non-producing objectionable odors or noxious matter, candle factories, crematories of non-producing objectionable odors and noxious matter, varnish, paint and oil manufacturing or boiling companies, lampblack, turpentine, tar or charcoal manufacturing factories, spray painting establishments, manufacturing of bricks, pottery, or lime, manufac-

turing of matches, and crushing, grinding or burning of stones, bones, or shells.

Strips of land 80 meters wide parallel to and along railroad tracks and navigable streams in the City of Manila, measured from the nearest boundary lines of the right of way of the railroad and, in case of navigable streams, from the established lines of such streams, are also included in Heavy Industrial zones, except the north bank of the Pasig River from Estero de Binondo to Quezon Bridge; north banks of the Pasig River in front of Melacanang grounds; both banks of Estero de Binondo from the Pasig River to Estero de la Reina; both banks of Estero de la Reina from Pasig River to Azcarraga; both banks of Estero de Magdalena from Estero de la Reina to Azcarraga; and both banks of Estero de San Lazaro from Estero de la Reina to Azcarraga, all of which shall remain in the respective zones indicated in the zoning plan as amended.

No light or mixed material structures of permanent or semi-permanent character shall be permitted in this zone.

SEC. 8. Offensive Zones. - The following businesses shall be established in the Offensive zones: glue or gelatin manufacturing, fertilizer manufacturing, sewage disposal plants or dumping stations, storage and refining of raw sugar or "pilon" sugar, extraction of molasses, manufacturing of "toyo", "bijon", and "tocua", dyeing, lye and soap making, tanning, storing bones and feathers, fish drying and curing, incineration or reduction of garbage, dead animals, and refuse, boiling of fat, tallow, or lard, stock-yards, slaughterhouses, and kapok factories.

Mixed material structures of permanent or semi-permanent character may be allowed in this zone subject to the conditions of SEC. 126 of the Revised Ordinances, as amended.

SEC. 9. Stable Zones. - Stables shall be allowed only in these zones and in the offensive zones: Provided, That persons who conducted boarding stables which were burned during the Tondo Fire on May 3, 1941, are hereby allowed to re-establish their business on their former places: Provided, Further, That should these owners of boarding stables prefer to conduct said business in another place within the Tondo Fire area, they are hereby permitted to do so, and the place where this business was previously established shall not be allowed to be used for stables.

Mixed material structures of permanent or semi-permanent character may be allowed in this zone subject to the conditions of SEC. 126 of the Revised Ordinances, as amended.

SEC. 10. Park Zones. - Under these zones shall be included places, boulevards, parks proper and park avenues, playgrounds, cemeteries, and municipal nurseries.

SEC. 11. Military Zones. - These zones shall be reserved for whatever use the Military Authorities may deem proper to make.

SEC. 12. Prohibitions and Exceptions. - From and after the date when this ordinance shall take effect, no building (and premises) shall be erected, altered, enlarged, or rebuilt except in conformity with this

ordinance. However, erection of annexes to existing buildings on the same lot not involving the conduct of a business prohibited in the zone where such buildings are located may be permitted.

SEC. 13. Height and Building Area. - The height of buildings to be erected in any zone as well as the percentage of occupancy of a lot area shall be governed by the provisions of the City Ordinances now in force or which may hereafter be enacted.

For a tenement house in a Residential "B" zone, not more than 80 percent of the lot shall be permitted to be occupied.

SEC. 14. Keeping of Domestic Animals. - No domestic animals except dogs, cats, monkeys, birds, and other inoffensive animals shall be kept in a Residential "A" zone, nor shall more than 2 milk animals, or 2 horses, in addition to dogs, cats, and other inoffensive quadrupeds, birds, and poultry be permitted in any building or premises in Residential "B" zone.

SEC. 15. Garage, Gasoline Stations, and Funeral Parlors. - No garage or gasoline service stations shall be permitted in any place in a commercial zone where there is no sufficient space for parking vehicles inside the premises. No funeral parlors shall be permitted in any place in a commercial zone where there is no sufficient space inside the premises for parking the hearses or vehicles belonging to the said funeral parlors.

SEC. 16. Licenses in Residential "A" Zones. - From the time this ordinance shall take effect no new business or industry shall be established in any zone unless such business or industry is, by this ordinance, per-

mitted in such zone: Provided, However, That non-conforming businesses and industries existing in any zone at the time of the approval of this ordinance shall be permitted to remain in their present location, but they shall not be enlarged or otherwise expanded. This privilege shall expire when the business or industry changes in kind, class, or character: Provided, Further, That the "umbuyans" (fish drying and curing - an obnoxious business) located in a zone where its establishment is not permitted by this ordinance shall be removed to the zone where said business shall be established immediately upon the approval of this ordinance.

SEC. 17. Permitted Uses of Buildings or Premises and Changes in Their Uses. - Except as herein otherwise provided, any lawful use of a building or premises existing at the time of the adoption of this ordinance may be continued, although such use does not conform to the provisions of this ordinance for the zone in which such building or premises is situated. If a non-conforming use is ever discontinued, any future use of such building or premises shall conform to the provisions of this ordinance. If a building housing a non-conforming use is destroyed to an extent of 1/3 or more of its assessed value, such use shall be discontinued.

Nothing herein contained shall be held to prohibit the establishment or erection of buildings or use of premises which conform with the regulations for one zone, in another less restricted zone, as follows:

Premises permitted within Residential "A" zone are allowed in Residential "B", Commercial, Light Industrial, Heavy Industrial, Offensive, and Stable zones.

Premises permitted within Commercial zones are allowed in Light Industrial, Heavy Industrial, Offensive, and Stable Zones, except markets which shall not be permitted in Offensive and Stable zones.

Premises permitted within Light Industrial zones are allowed in Heavy Industrial, Offensive, and Stable zones.

Premises permitted within Heavy Industrial zones are allowed in Offensive and Stable zones.

Premises permitted in Offensive zones may be permitted in Stable zones.

SEC. 18. New Businesses and Industries. - For a new business or industry not mentioned in this ordinance, application therefor shall be filed with the City Mayor who, before granting or denying license or permit for the new business or industry, shall transmit the application to the City Engineer who shall recommend in what zone such new business or industry should be established.

SEC. 19. Penalties. - Any person violating any provision of this ordinance shall, upon conviction, be punished by a fine of not more than 200 pesos, or by imprisonment for not more than 6 months, or by both such fine and imprisonment, in the discretion of the court. Each day that any violation of the regulations of this ordinance is carried on shall be deemed to be a separate violation.

SEC. 20. Conflict with previous ordinances. - Any ordinance or part of an ordinance in conflict with any provision of this ordinance is hereby repealed.

SEC. 21. Effectivity. - This ordinance shall take effect upon its approval.

Approved: September 23, 1941.

HOW THIS ZONING ORDINANCE CAME TO BE:

A Zonification Committee was created by the Mayor of Manila in Executive Order No. 4, dated March 22, 1928. This order was amended by Executive Order No. 6, dated May 19, 1928. The Committee was charged with making a thoro study of and submitting comments and recommendations for a Zoning Ordinance and Plan for the City of Manila.

The Committee held 21 sessions out of which 2 were public hearings. The first public hearing was held on August 6, 1931, and the second on the next day. By creating several sub-committees among its members, it distributed as evenly as possible the various phases on the subject of zoning which could not be thoroly discussed and decided in one session. On June 18, 1931, 1000 copies of a zoning plan were printed and the majority of these were given free to interested residents for their information.

After holding the public hearings and after considering the voluminous written requests from various persons and parties, the Committee corrected the plans, and reprinted them. The papers were then transmitted to the City Fiscal for the drafting of the Zoning Ordinance, and after more conferences, the Ordinance was approved on October 28, 1940.

Then several days later, acting on a request of the Mayor, the City Council suspended the effectivity of this Ordinance indefinitely. Reason given was: a number of protests were under study by a special committee. After almost a year, or on September 23, 1941, the re-revised Zoning Ordinance of the City of Manila was approved.

COMMONWEALTH ACT NO. 648 - AN ACT CREATING THE NATIONAL HOUSING COMMISSION. SECOND NATIONAL ASSEMBLY - THIRD SESSION - B. No. 3177

SEC. 1. There is created a public corporation to be known as the National Housing Commission, which shall be a body corporate and politic in deed and in law and as such is endowed with the attribute of perpetual succession and possessed of the powers which pertain to public corporations, to be exercised in conformity with the provisions hereof. It shall have its central office in the City of Manila.

SEC. 2. The purposes for which the National Housing Commission is created are:

(a) The acquisition, development, improvement, construction, leasing and selling of lands and buildings or any interest therein in the cities and populous towns of the Philippines, with the object of providing decent housing for those who may be found unable otherwise to provide themselves therewith;

(b) The promotion of the physical, social, and economic betterment of the inhabitants of the cities and populous towns of the Philippines, by eliminating therefrom slums and dwelling places which are unhygienic or unsanitary and by providing homes at low cost to replace those which may be so eliminated; and

(c) The provision of community and institutional housing for

destitute individuals and families and for paupers.

SEC. 3. The Commission shall have the power to adopt a common seal and alter the same at pleasure, to contract and be contracted with, to sue and be sued, and to prosecute and defend to final judgment and execution, in the exercise of its power herein granted.

SEC. 4. The National Housing Commission shall have the power to take, acquire, purchase, receive, and hold personal and real property by lease, purchase, expropriation, or otherwise, and to sell, mortgage, let, demise, convey, exchange, lend, and otherwise dispose of real and personal property, for cash, by installment contract, or otherwise, to solicit, receive and disburse loans and grants of money and property from the Government or from private individuals, to apply any profit or capital recoveries which might accrue from its operations for the purposes for which the Commission is created, to select after investigation the individuals and families which are to occupy or acquire lots and houses at the disposal of the Commission, to enter into or execute contracts as may be considered convenient and advantageous to the Commission, and for the purpose of carrying on its business and of attaining or furthering any of its objects, to perform any and all acts which a co-partnership or natural person is authorized to perform under the laws existing or which may be hereafter enacted, and to adopt or promulgate such rules and regulations as may be necessary to carry out the purposes of this Act.

SEC. 5. The National Housing Commission shall exercise its corporate powers, perform its duties, and carry out its purposes through a Governing Council and its executive officers hereinafter specified and such additional officers, employees, and agents as may be authorized from time to time by the Governing Council, with the approval of the President. The Governing Council of the National Housing Commission shall consist of a chairman and four members to be appointed by the President of the Philippines, with the consent of the Commission on Appointments. The members of the Governing Council shall hold office for five years. When the members of the Governing Council first appointed hereunder shall have assumed office, the President shall designate in writing within thirty days of notification of their assumption of office the members who are to serve one, two, three, four, and five years, respectively, and their terms shall expire in accordance with such designation. Thereafter the person appointed to succeed a member of the Governing Council whose term of office shall have expired by reason of such designation shall continue to serve for the full five-year term, and except in the case of vacancies caused otherwise than by the expiry of the term, only one member shall be appointed to the Governing Council each year. In the event of a vacancy, the successor appointed to fill the same shall serve only the unexpired portion of the term of the member he succeeds.

Unless holding other office in the Government or a position with fixed compensation in any government corporation or instrumentality,

the chairman of the Governing Council shall receive, for each meeting of the council which he attends, a per diem of thirty pesos, and each member shall receive a per diem of twenty pesos.

SEC. 6. The chairman shall preside over the meetings of the Governing Council and perform such other duties as may be assigned to him by said Council. A vice-chairman may be designated by the President to act in case of the absence or disability of the chairman.

SEC. 7. The Governing Council shall, with the approval of the President of the Philippines, appoint and fix the salary of a manager, who shall be the chief executive officer of the National Housing Commission, and under the direction of the Governing Council shall be responsible for carrying out the orders, resolutions, ordinances, rules and regulations of the Council. The Council may suspend and, with the approval of the President, remove the Manager.

The Governing Council shall likewise appoint and fix the salaries of one or more assistant managers, a secretary, and treasurer, and define their powers and duties, or may assign to one person the duties of secretary and treasurer.

The Governing Council may adopt and publish such bylaws as it may deem convenient to regulate its procedure.

SEC. 8. The Governing Council shall fix the compensation of all other officers, employees, and agents of the National Housing

Commission. The manager shall appoint them in accordance with the Civil Service Law and the Salary Law: Provided, however, That agents performing occasional services and handling commercial activities for the Commission, and not regularly employed, shall not be subject to the limitations nor entitled to the benefits applicable to the Civil Service.

SEC. 9. If the volume of work of the Commission shall require the assignment of one or more full-time representatives of the Auditor-General to serve with the National Housing Commission, the compensation of such representatives shall be paid by the Commission.

SEC. 10. The Solicitor-General shall be attorney for the National Housing Commission, and may designate or authorize any other law officer of the Government, including provincial fiscals and public defenders, to represent the Commission in matters requiring the services of an attorney-at-law.

SEC. 11. Whenever the National Housing Commission shall certify to the President of the Philippines that it is to the public interest to expropriate private lands in any city or populous town or adjacent thereto for the purpose of subdividing the same into small lots and leasing and selling the lots to individuals, the President may authorize the National Housing Commission to exercise the right of eminent domain. The National Housing Commission may enter into possession of the land sought to be expropriated immediately, upon

deposit with the court of an equal amount to the assessed value of such land, as declared by the owner and approved by the city or provincial assessor, in accordance with the provisions of Commonwealth Act Numbered Five hundred thirty.

SEC. 12. In computing the cost of the lots to be leased or sold to individuals under the authority of the next preceding section, the following expenditures may be taken into account:

(a) Aggregate cost of acquisition of the land from the private owner, including expenses of the expropriation proceedings and appraisals.

(b) Cost of subdivision survey.

(c) Cost of development expenses for filling, construction of streets, curbs, and sidewalks, drainage, clearing, and other public works which enhance the value of the land.

(d) Cost of improvements acquired incidental to the acquisition of the land.

If the land acquired be of varying character or value, the aggregate cost of acquisition shall be distributed equitably by the Governing Council among the various sections or lots. The cost of areas set aside for streets, parks, community centers, and other public uses primarily for the benefit of the individual lots shall likewise be equitably allotted to the cost of the lots.

SEC. 13. Pending the sale to individuals of land acquired by ex-

propriation under authority hereof, the Commission may dispose of unsold lots by lease.

SEC. 14. The National Housing Commission is empowered to take title to, develop, administer, and dispose of by sale or lease any portion or portions of the public domain designated for residential use, pursuant to the provisions of sections seventy-one to eighty-two, inclusive, of the Public Land Act, and other applicable provisions of said Act.

SEC. 15. When the Commission shall have available and reasonable number of dwelling places under its control, it shall have the power from time to time, after due investigation, to declare a specified area a slum area, and to take measures to eliminate or improve unsatisfactory conditions obtaining in such slum area.

SEC. 16. The order of the Commission declaring a slum area must be by virtue of a finding of facts that the living conditions prevailing in the specified slum area are unhygienic or unsanitary to a degree which renders same a danger to the health and welfare of the inhabitants of such area and its environs, which finding of facts shall be recited in the order. The order shall specify the boundaries of the slum area by reference to known streets or public places, or by other notes and bounds, and shall have annexed thereto a plan clearly showing the location of the slum area. Said order shall be published twice in the Official Gazette for two consecutive

weeks and copies thereof posted in four conspicuous places on or adjacent to the slum area, and at the municipal building of the city or municipality in which the slum area is situated. Copies of the order shall also be left at each dwelling house in the slum area and an effort made to serve copies on the owners of the land embraced in the slum area, but failure to leave or serve such copies shall not vitiate the proceedings hereunder. For a period of thirty days after such posting and publication, any party may object to the order declaring a slum area, and shall be given an opportunity within a period specified in the order to be heard by the Commission. The Commission may eliminate a portion of the slum area or otherwise modify its order as a result of objections presented, or refuse to reconsider its order. In the latter case, the person objecting may appeal from the order of the Commission to the President of the Philippines within ten days of the date of the Commission's decision, by filing his appeal with the Commission. The Commission shall forthwith transmit the appeal with its views to the President, whose decision thereon shall be final. An objection or appeal hereunder shall not stay the Commission from proceeding under this Act with respect to the land or buildings of those not appealing.

SEC. 17. When an order declaring a slum area shall have become effective, the Commission shall have concurrent jurisdiction with the government of the city or municipality in which the slum is situated to adopt building and sanitary regulations with the same powers as such city or municipality might have with respect thereto;

but such regulations shall in general follow the existing municipal ordinances if an adequate sanitary and building code or regulations be in force, and shall not be less exacting than those of the city or municipality concerned. In case of conflict, the President of the Philippines shall determine which regulation shall prevail.

SEC. 18. The Commission may declare its jurisdiction over a slum area terminated when in its opinion its purposes have been accomplished therein, but may subsequently declare such area or portion thereof a slum area should conditions again justify the same.

SEC. 19. The Commission shall exercise the following powers and authority over duly declared slum areas:

(a) To prohibit the owner or agent of a parcel of land to use, or to rent to, or permit its use by others, for any building which the Commission may declare to be unfit for use or habitation because of being unhygienic, unsanitary, dangerous to life or property, or of a type or character prohibited by the sanitary or building regulations of the Commission or of the city or municipality in which situated.

(b) To prohibit the owner or agent of a parcel of land to use, to rent to, or permit its use by others for more buildings or dwellings than permitted by ordinance or regulations, and to prohibit the owner or agent of a house abutting on a private alley to use, to rent to, or permit its use for a building, unless (1) the site is provided with adequate surface drainage by means of concrete, tile, metal

or masonry canals, gutters, or pipes emptying into a public drain, estero, or other suitable body of water so as to prevent the accumulation and stagnation of water on the site or lot, and unless (2) each dwelling abuts upon a public street or alley or on a private alley having the minimum width hereinafter prescribed, so constructed and maintained with stone, gravel, cinders, bricks, cement, or other equally suitable material, that surface water will flow therefrom and that garbage collectors and others rendering public service may conveniently pass thereon. The minimum width for public and private streets and alleys for the purposes of this Act shall be three meters when the length thereof does not exceed thirty meters or the length thereof between intersecting streets or alleys does not exceed fifty meters. In all other cases the minimum width shall be five meters.

(c) To cause any building deemed unfit for use or habitation for the causes stated in paragraphs (a) and (b) of this section to be demolished at the cost and expense of the owner, unless the same be brought into conformity with the requirements of the Commission within a reasonable time, which shall be not less than fifteen days from the date of the order of the Commission declaring said building to be unfit.

(d) To defray the cost of demolition if the owner of the building fails or refuses to demolish the same or to bring it into such conformity in due time, or to defray the cost of such demolition from the value of any salvaged materials resulting from the demolition of the building.

(e) To pay to the owner of a building demolished by virtue of this section such an amount as the Commission may determine to be just but not exceeding the assessed value of the building, when in the opinion of the Commission such payment will be less expensive and will be more apt promptly to accomplish the purposes of this Act than the withholding of such payment, and may stipulate how such payment shall be applied to further the purposes of this Act, including the application to arrears in rental due to the owner of the land when the building is owned by a tenant, when the Commission is able to supply the dispossessed tenant with other housing suitable to his income and is satisfied that the owner of the land is fully cooperating in the Commission's program of slum clearance.

(f) When the owner or agent of a property or properties has been notified under this section to bring the same into conformity with the requirements of the Commission and fails or neglects to do so within the time stipulated in the order of the Commission, the Commission may in its discretion cause the work to be done which it deems necessary to bring the property or properties into conformity with the requirements of the Commission and the cost thereof, plus a surcharge of not to exceed ten per centum for overhead expense, shall be a lien against the property affected superior to all other liens except tax liens, and the Commission may proceed against the owner or against the property, or both simultaneously, to recover such cost and surcharge. The power of the Commission to bring a property into conformity with its requirements includes the power

to repair or remodel existing structures when the cost thereof does not exceed fifteen per centum of the assessed or reasonable market value, whichever is the lesser. Should the owner make a showing to the Commission that his failure or neglect to bring the property into conformity with the requirements of the Commission is due to his lack of means, the Commission may in its discretion authorize reimbursement of the cost and surcharge incurred by it hereunder over a period of years, with interest not exceeding six per centum per annum.

(g) Should any person do or refrain from doing any act or thing in violation of any municipal or city ordinance or order of the Commission, the Commission may apply to the court of first instance for an order enjoining the person against doing or ordering him to do the act or thing complained of, and if upon due hearing the court shall find the complaint of the Commission to be justified it shall issue and enforce the corresponding order, and in such case the sheriff or any officer of the Commission appointed by the court in lieu of the sheriff shall enforce such order of the court. In such cases the applicable provisions of the Rules of Court shall be availed of.

(h) Should the order of the Commission involve the filling of lowlands in the City of Manila, the owner of the land or the Commission may avail themselves of the provisions of Act Numbered Thirty-three hundred and fifty-two, as amended, known as the Lowland Improvement Act, and upon petition of the Commission, or at the request of the

owner made within fifteen days after receipt of an order of the Commission requiring the filling of his land, the Mayor of Manila shall, if there be sufficient money available for expenditure in the fund created by said Act, condemn the land complained of and require that it be filled pursuant to said Act.

SEC. 20. The officers and employees of the Commission shall have the same right of entry into private premises and other police powers as officers and employees of the Bureau of Health, or of the health department of the City of Manila.

SEC. 21. Any person who shall fail or neglect to carry out the lawful orders of the Commission issued pursuant to section nineteen hereof, or who shall violate any sanitary or building regulation promulgated by the Commission shall be punished for each offense by a fine of not more than six hundred pesos, or by imprisonment of not more than six months, or by both.

SEC. 22. The National Housing Commission may appropriate available funds under its control for the use of the city, municipal, or municipal district government whenever the local revenues are deemed insufficient to maintain the standards of public services deemed appropriate for the accomplishment of the purposes of this Act within the areas controlled by the Commission. In the case of the lease of lots or houses in cities or towns which furnish suitable public services and assume the cost of maintaining streets and other public

works, the Commission may include in the rental rate an amount equal to the real estate taxes which would accrue were the property privately owned and turn over the same to the local government concerned.

SEC. 23. The Commission shall commence its activities under this Act in the City of Manila and its environs, but shall promptly undertake technical investigations to determine the extent of slum conditions in other cities and populous towns of the Philippines and make an estimate of the cost of extending its activities thereto when funds and personnel are made available therefor. Report of the Commission's investigations and estimates shall forthwith be submitted to the President of the Philippines and to the Congress of the Philippines with his recommendations in the premises.

SEC. 24. There is appropriated out of any funds in the Philippine Treasury, not otherwise appropriated, the sum of five million pesos in order to enable the National Housing Commission to accomplish its purposes and objects as set forth in this Act: Provided, That the sum herein appropriated shall not be paid to said Commission except upon order of the President of the Philippines, who may require that such payment be made in full or in installments, in his discretion. The unexpended and unobligated balances of the appropriations made in Act Numbered Forty-one hundred and eighty-four, as amended by Commonwealth Act Numbered Forty-three, are re-

verted to the general funds of the National Treasury.

SEC. 25. All moneys received or collected by the National Housing Commission from its operations shall accrue to, and form part of, its funds and be available for appropriation by said Commission.

SEC. 26. The corporate existence of the National Housing Commission shall commence upon the date when a majority of the members of the Governing Council shall have taken their oaths of office.

SEC. 27. This Act shall take effect upon its approval.

Approved, June 16, 1941.

PHILIPPINE LEGISLATURE ACT NO. 4184 AS AMENDED BY COMMONWEALTH ACT NO. 43 - AN ACT TO PROVIDE FOR LABORERS' DWELLINGS, APPROPRIATE FUNDS THEREFOR, AND FOR OTHER PURPOSES.

SEC. 1. All buildings constructed and maintained in conformity with this Act to provide solid, commodious, and hygienic dwellings for laborers, the grounds used in connection with said buildings and the revenues or dividends derived from such buildings and grounds shall be exempt from all taxation while such buildings are used for laborers' dwellings.

SEC. 2. The benefits of the preceding section shall not apply, or shall be discontinued if the enjoyment thereof has begun, in any of the following cases:

(a) If the building is not of strong materials, constructed in accordance with a plan, specifications, and estimate of cost approved by the Secretary of Labor and the Director of Public Works;

(b) If the building lacks sufficiently spacious and sanitary grounds for the use of the occupants of the building;

(c) If tenants have been received in the building who are not reputable laborers or subordinate employees, after notice to this effect has been given by the Secretary of Labor;

(d) If rentals are charged at a rate higher than that approved by the Secretary of Labor, or if the terms offered are disapproved by said Secretary.

SEC. 3. The Secretary of Labor is hereby authorized to proceed to purchase land and construct buildings for laborers' dwellings as above set forth with the public funds placed from time to time at his disposal.

SEC. 4. It shall be the duty of the Secretary of Labor to see that this Act is carried into execution; to manage the land, buildings and improvements set aside for laborers' dwellings under this Act which are owned by the Insular Government; to supervise the management of real property used for said purpose and owned either by private persons or by the governments of provinces, municipalities or chartered cities; to promulgate from time to time rules to insure the punctual payment of rentals for such real property, and to adopt all other measures necessary to carry out the purposes of this Act.

SEC. 5. There is hereby appropriated, out of any funds in the Insular Treasury not otherwise appropriated, the sum of P250,000, or so much thereof as may be necessary, for the purposes specified in SEC. 3 of this Act, and for any other incidental expenses required for the proper enforcement of this Act.

SEC. 6. This Act shall take effect on January 1, 1935.

Approved, December 7, 1934.

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