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ABSTRACT

THE URBAN GEOGRAPHY OF MORELIA, MICHOACAN, MEXICO

by Carroll J. Schwartz

This study is based on library research, and on field-work in Morelia during the summer of 1965. Information used was obtained from five principal sources: (a) official Mexican government publications, (b) printed materials supplied by various businesses and organizations, (c) books written by private individuals, (d) numerous personal interviews in the field, and (e) an intensive block-by-block inventory of the city.

While the central theme is the impact of improved transportation on the functions and morphology of the city, three objectives are of significance: (a) to contribute specific factual knowledge concerning the functional and structural character of Morelia and to analyze its interconnections with the immediate surrounding area and more distant places, (b) to develop a better understanding of the attributes of the traditional Latin American city by making a case study of a center which has as yet undergone relatively little modification, and (c) to establish methods, techniques, meaningful goals and other guidelines for comparable study of other Latin American cities.

Morelia, the capital of Michoacan, has a population of 116,692 (in 1965), and is situated at an elevation of 6,400 feet in a small valley midway between Mexico City and Guadalajara. Founded in 1541 as Valladolid, the city early became

the provincial capital, seat of a bishopric and an important processing and distribution center for the rich agricultural and forest lands of Michoacan. The functions the city performed, as well as its internal character and structure, changed very little from colonial times to 1938 when the first paved highway reached it from Mexico City.

The arrival of the highway, and its extension westward to Guadalajara, marked the beginning of a new era in the city's development. Improved transportation has resulted in the influx of large numbers of rural people, expanded and diversified manufacturing, and growing retail, wholesale and service activities. In the 25-year period since 1940, when the city's inhabitants numbered 44,304, the population has increased by more than 70,000, representing an increment greater than that of the previous four centuries. The continuing high growth rate, involving primarily unskilled, low-income people, presents the city with its major internal problems.

Morelia's volume of manufacturing has grown substantially during the past quarter-century, but not at a pace sufficient to provide jobs for the swelling population. The 20 plants established since 1940 turn out a wide assortment of products, including some completely new kinds. This trend reflects the expansion of outside markets and sources of raw materials resulting largely from transportation improvements. Retail trade is restricted primarily to Morelia and neighboring municipios, while wholesale activities extend into all parts of the state. Service businesses cater to the local

populace and the increasing numbers of transients.

Land-use mapping in Morelia was found to be more difficult than in cities of equal size in the United States, and the results less reliable. The contiguity of many buildings, which necessitated classification on a frontage basis, and the complexity of functional relationships within individual structures and neighborhoods, presented the basic problems. This has undoubtedly led to an underenumeration of some usages, but the writer feels that his survey depicts land utilization in Morelia more accurately than any completed here-to-fore.

Of some 20,355 structures surveyed, 17,046, or 83.7 percent, are used primarily as residences. Of these, some 69.3 percent are lower-class, 17.4 percent middle-class, and the remaining 13.3 percent upper-class in quality of construction. Upper-class homes are found near the central plaza, and in several new peripheral locations. Middle-class dwellings are restricted almost exclusively to the zone surrounding the old upper-class area in the heart of the city. Lower-class residences are situated on the outward margins of the middle-class zone and on the city's edge. Lower-class peripheral areas constitute Morelia's poorest neighborhoods.

Buildings used primarily for business purposes (2,413) comprise 11.9 percent of all structures. Most of the 4,273 individual establishments are small and widely scattered, although 39.3 percent (1,679) are found in the thirty blocks delimited as the CBD (Central Business District). Four large public markets contain 1,366 businesses, while well over

2,000 are food related.

Most of Morelia's 361 manufacturing establishments are small, widely distributed and residence-associated. Well over one-half supply tortillas or wheat bakery products to the local area. Only 22 plants employ 25 or more workers. Seasonal variations in employment among the largest manufacturers constitute a major urban problem.

Land used for public and quasi-public purposes accounts for a significant proportion of the total built-up area. Government agencies operate or regulate the schools, churches, hospitals and public utilities, in addition to the parks, plazas and recreational areas.

The advent of improved highways has already produced significant transformations in the functional organization and internal structure of Morelia. Continued rural-to-urban migration, expansion of markets and raw materials sources, and other trends already in motion will bring about even more profound changes in the years just ahead. Morelia provides an excellent example of a Latin American city which is fast losing its traditional character. For this reason, if no other, this study of Morelia is justified. It provides a benchmark at a critical point in the city's evolution into the world of the future.



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By

Carroll Jacob Schwartz

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CHAPTER I

INTRODUCTION

A growing rural to urban population movement is currently a significant trend in underdeveloped parts of the world. As a consequence, cities in these areas are undergoing rapid changes in size, morphology, and functions performed. Nowhere is this better illustrated than in Latin America. There, many of the cities are experiencing growth rates seldom equaled anywhere in the world. Yet, a review of available literature reveals a dearth of research and writing concerning the traditional character of Latin American cities, knowledge basic to understanding the transformations underway.

If not done soon, such investigations will be difficult, if not impossible, to make. Because of the recency of change, or the small amount already completed, however, a number of urban centers still provide opportunity for studies of this kind. One of these, Morelia in the state of Michoacan, Mexico is the subject of this dissertation.

Morelia was known as Valladolid until 1828. It has been the capital of Michoacan since 1580. As late as 1940 the population numbered only 44,304, but by 1960 it had risen to 100,828. The city still retains much of its colonial character, however, particularly since industrialization

as yet plays a relatively minor role in its overall economic activity and the tremendous influx of "turistas" from the United States has had no great influence. The extensive areas of suburban development typical of some other Mexican centers are still lacking. Newcomers have crowded into older established portions of the city, thus affecting but not radically changing the traditional internal structure. Thus, Morelia appears to provide opportunity for study of a Spanish-type city on the threshold of metamorphosis.

The city today operates primarily as a distribution center, although its political function as capital of Michoacan is also economically important. It is located in a small valley midway between Mexico City and Guadalajara to the northwest. Although situated some 75 miles south of the main rail line between these two places, it is on the principal paved highway joining them and has rail connections with both. It is also connected by airline with Mexico City and Guadalajara, and by paved road with the major towns of Michoacan and many of those outside the state, especially to the north. In fact, improvement of the transportation facilities serving Morelia appears to have been largely responsible for its recent growth.

Consequently, investigation of the impact of improved transportation on the functions of the city and its morphology has been an important part of this study. Dan Stanislawski has stated that "the advent of the truck may prove to be the most revolutionary single factor in the alteration of

the urban pattern in Latin America."¹ The writer agrees in principle with this idea, but proposes amending the statement to include the motorbus along with the truck. While the truck has made possible the increasing exchange of goods between cities and regions, thereby acting as a stimulus to economic development, the motorbus has been largely responsible for the transfer of large numbers of the rural population into the urban centers, both on a temporary and a permanent basis. The retail functions of Morelia and other cities of Latin America have been accelerated by these additions to their population, and by the country people who can now journey to the cities for their commodity purchases and the sale of their wares.

Morelia is by no means unique in many of its attributes. Conditions prevalent in urban centers elsewhere in Mexico and Latin America, such as removal from isolation by transportation improvements, rapid growth, low purchasing power, lack of sufficient manufacturing, unemployment and underemployment, small-scale businesses, unskilled labor, widespread poverty, inadequate housing and generally unsanitary living conditions are found here as in most other cities of the area. This lack of uniqueness actually enhances the contribution of this study to the field of urban geography. Since most cities of Latin America are believed to have many similar characteristics, examination of the

¹Dan Stanislawski, The Anatomy of Eleven Towns in Michoacan, Latin American Studies, Pub. No. 10 (Austin: University of Texas Press, 1950), p. 15.

development of one leads to the possibility of inferences with respect to the others. A better understanding of the evolution and problems of Latin American cities in general can thus be achieved.

Objectives

Principal objectives in making this study were:

(1) To contribute specific factual knowledge concerning the morphological and functional character of this particular Mexican city and to analyze its interconnections with the immediate surrounding area and more distant places. Such information will provide a benchmark for determining future change; (2) To develop a better understanding of the physical structure and functional nature of the traditional Latin American city by making this case study of a center which has as yet undergone relatively little modification; and (3) To establish methods, techniques, meaningful goals, and other guidelines for comparable study of other Latin American cities.

The problem, then, has been to determine the physical and cultural factors that have been responsible for the development of the present internal structure of Morelia, and the city's functional relationships with its immediate hinterland and other outside areas, both in Mexico and abroad. While primary emphasis was placed upon evolution during recent decades, a thorough study of the city from its founding by the Viceroy of New Spain in 1541 was undertaken. The

writer felt that an understanding of the present city can be obtained only through an analysis of its complete historical geography.

It is hoped that this study will contribute to research in urban geography and encourage persons with interests in this field to similarly investigate other cities in Latin America, or elsewhere in less developed parts of the world. When the fund of knowledge has been sufficiently extended, valuable analyses and comparisons can be made that will lead to a better overall understanding of these cities and will have the practical value of offering vital new information to the city planners and other officials concerned with their improvement and orderly development. The results of mistakes of the past cannot be completely eradicated in most cases, but a better understanding of the evolutionary processes leading to the present structural and functional patterns can help to prevent committing errors in the future.

Methods Used

Interests in urban, historical and economic geography, combined with a regional concern for Latin America, especially Mexico, prompted the writer to select a Mexican city for study. The investigation of the evolution of the internal structure and external relationships of Morelia has allowed ample opportunity for the development and use of research techniques in each of the three systematic specialties, while at the same time providing the writer field

experience in the particular area of Latin America which interests him most.

Any one of a number of cities in Mexico, or elsewhere in Latin America, offers fertile ground for a study of this kind, but the writer's interest specifically in Morelia was fostered first during a visit to that city in 1958 while on a quick tour of Mexico by automobile, and again in the summer of 1963 while attending the summer session of a Spanish language institute at the University of Michoacan in Morelia. During the latter summer, a preliminary field reconnaissance of the city and its immediate area, as well as conversations with the local citizenry, interested the writer in the problems and prospects of Morelia, and emphasized the need and possibilities for the type of study that could be done by one trained as a geographer. A number of local acquaintances were made and likely sources of published information were surveyed, including the university library, local bookstores and the private collection of Licenciado Melesio Aguilar Ferreira. Tentative arrangements were concluded for living quarters and for a native resident to act as field assistant and informant during the more intensive fieldwork to be undertaken upon the writer's return to Morelia. These preliminary preparations proved to be invaluable during the actual fieldwork which was completed in the summer of 1965.

Not only were several books discussing historical activities in Morelia and the state of Michoacan obtained from friends and at the local bookstores, but a street map

of the city (Plano de Morelia, Ultima Edicion, 1963-64) was acquired which later was employed in preparing a preliminary base map for making the land use portion of this study. The historical studies of Morelia and Michoacan provided much background information on the early phases of development, and contained bibliographies which served as leads to other materials. Maps of the state of Michoacan obtained that first summer, also provided valuable information, particularly regarding the transportation network connecting Morelia with other places in the state.

Thus, the first summer spent in Morelia allowed the writer to get the "feel" of the city, and to become acquainted with some of the problems to be faced once serious fieldwork was begun. Probably one of the most significant results was the revelation that many types of essential information would have to be obtained elsewhere and that certain types of information would not be available at all.

Between the summer of 1963 and that of 1965, when the fieldwork was actually completed, a great deal of pre-fieldwork preparation was accomplished. A dissertation proposal was prepared and submitted to the doctoral committee. Once this was approved, an extensive bibliography was compiled utilizing the libraries of Michigan State University and Southern Illinois University. Publications listed in this bibliography were then reviewed for possible relevance to the contemplated study. Although many of these items provided incidental information and procedural ideas,

few were found to be directly related to the urban geography of Morelia. Thus, the necessity for the securing of relevant information in other places soon became apparent. Inquiry in Morelia and research in the University of Texas Library later proved to be the major sources of knowledge.

Probably the best studies of a similar nature previously completed were written by Mary Megee at the University of Chicago¹ and John M. Ball at Michigan State University.² Dr. Megee's dissertation on Monterrey forms the basis for comparable studies of other Latin American cities and has furnished a number of working ideas for this study of Morelia. Dr. Ball's dissertation on Tepic also provides valuable guidelines to further research and has been very influential in the development of this study. In addition, Martin E. Brigham's study of Monterrey, which was completed at the University of Michigan in 1951, has offered a number of suggestions, while several shorter studies have also been quite helpful.³ Even with these models available, however,

¹Mary Megee, Monterrey, Mexico: Internal Patterns and External Relations (Published Ph.D. Dissertation, Department of Geography, University of Chicago, 1958), Pub. No. 59.

²John M. Ball, The Urban Geography of Tepic, Nayarit, Mexico: A Study of Changing Functions (unpublished Ph.D. dissertation, Department of Geography, Michigan State University, 1961).

³Martin E. Brigham, Monterrey, Mexico: A Study in Urban Geography (unpublished Ph.D. dissertation, Department of Geography, University of Michigan, 1951). Studies in the form of published papers that have been helpful are the following: Donald D. Brand, "Quiroga, A Mexican Municipio," Smithsonian Institution, Institute of Social Anthropology, Pub. No. 11, Washington, 1951; Samuel N. Dicken, "Monterrey

the writer found himself constantly confronted with the necessity of developing additional research procedures.

Following the initial library research, a plan of field operation was drawn up, and base maps to be used in recording land use were drafted from the street map obtained in Morelia earlier. The city was, for convenience, divided arbitrarily into four sections--northwest, southwest, northeast, and southeast--using the major north-south and east-west streets of the city for this purpose. These areas were then subdivided further and a page-size map of each subsection was drafted and placed in a loose-leaf notebook. The sheets were designed for use with a clipboard in the field, and proved to be quite adequate for inventorying land use. Each was drawn to a scale sufficiently large to permit easy application of descriptive land-use symbols which were developed in the field. The rather exhaustive preparation of these base maps proved to be time well spent when the actual land-use mapping began. The source map, although relatively accurate, did contain some errors, but these were easily

and Northeastern Mexico," Annals of the Association of American Geographers, XXIX (June, 1939), pp. 127-158; Alice Foster, "Orizaba, A Community in the Sierra Madre Oriental," Economic Geography, I (October, 1925), pp. 356-372; Preston E. James, "Belo Horizonte and Ouro Preto: A Comparative Study of Two Brazilian Cities," Papers of the Michigan Academy of Science, Arts and Letters, XVIII (1932), pp. 239-258; Preston E. James, "Rio de Janeiro and Sao Paulo," Geographical Review, XXIII (April, 1933), pp. 271-298; Dan Stanislawski, "The Origin and Spread of the Grid-Pattern Town," Geographical Review, XXXVI (January, 1946), pp. 105-120; Dan Stanislawski, "Early Spanish Town Planning in the New World," Geographical Review, XXXVII (January, 1947) pp. 94-105; Dan Stanislawski, The Anatomy of Eleven Towns in Michoacan, Latin American Studies, Pub. No. 10. (Austin: University of Texas Press, 1950).

corrected in recording field observations on the page-size base maps. Eventually, an up-to-date composite map of the City of Morelia was drafted by the writer, incorporating changes noted on the field maps. It served as the base for the distributional maps illustrating this dissertation.

The first two weeks of June, 1965 were spent at the University of Texas Library working in the Latin American Collection. Research here proved to be quite fruitful as an abundance of information about Morelia was found, particularly for the period since 1800 A.D. Although most historical publications on Morelia, and as a matter of fact on all of Mexico and Latin America, deal primarily with religious or military affairs, it was possible to glean some facts concerning other aspects of the city's development from their pages. Statistical information for the period since 1895 was obtained from the various national censuses which are well represented in the Texas Library. Several old city maps (Planos de Morelia or de Valladolid) were available in the rare map collection, including the very first known map of Valladolid (Morelia) drawn in 1794.¹ Photostatic copies of these maps were obtained and are reproduced in Chapter IV.

The materials available at the Texas Library have certainly enhanced the quality of this study. The Latin American Collection there is probably the outstanding

¹The 1794 map in the University of Texas Collection is a reproduction of an original held in the Museo Michoacano in Morelia.

assemblage of publications and manuscripts on Mexico and Latin America generally to be found in the United States, and possibly in the world. The fact that scholars from all over Latin America come to Austin for research purposes is evidence in support of this statement.

The writer resided in Morelia from mid-June to mid-September, 1965. The first two weeks were spent primarily in becoming familiarized with the city and in compiling a preliminary interview list. This list proved to be useful later, but was subject to constant revision once the land-use survey began. During the months of July and August, a very detailed land-use study of the city was made and numerous persons familiar with the problems of the city and with its past were interviewed. These included manufacturing plant owners and officials, businessmen, civic leaders, newspaper editors, hotel managers, religious leaders, bank executives and transportation supervisors, as well as people on the street.

Interviews were integrated with the land-use survey. It was very soon found that most people in positions of authority tended to be in their offices only at certain times of the day and from Monday through Friday only. Generally speaking, these hours were from 9:00 A.M. to 12:00 Noon, and again from about 4:30 P.M. to 6:00 P.M. The afternoon "siesta" is still very much in vogue in Morelia. Land-use mapping was, therefore, accomplished primarily in the early mornings, early afternoons, and late evenings. Some was

also done on Saturdays and Sundays when interviewing was virtually impossible.

The interview procedure involved five basic steps: (1) the interview listing, (2) securing an appointment, (3) prior preparation of an individualized questionnaire, (4) the interview, and (5) arrangement and preliminary analysis of information obtained. As mentioned, an interview list was compiled during the preliminary survey of the city. Other names were added to the original group as the study progressed. Each individual or firm was then contacted and arrangements were made for a meeting date. This phase of the work proved to be necessary due to the differences in hours of availability and also due to the personal policies of the interviewees. It was not uncommon to have to appear for an interview three or four times before the actual conference took place. In several instances it was necessary to write formal letters requesting time and stating purposes for the interview before a meeting could be arranged.

Prior to the interview a question sheet was prepared covering the types of information desired. These question sheets varied considerably, although certain types of information were generally common to each one. For example, all of those pertaining to manufacturing establishments contained such questions as number of employees, date of establishment, area of market, source of raw materials, products manufactured, and means of transportation of raw materials and finished goods. As an interview proceeded, it was sometimes

possible to expand previously developed lists due to the cooperation of the interviewee, but in other cases it was necessary to delete questions of a personal or financial nature when the informant showed signs of reluctance to answer them. The writer feels, however, that the preparation of a tentative question sheet geared to each specific situation was quite beneficial in conducting the interviews.

After each interview was completed, the material obtained was organized and analyzed for its basic content. A 5" by 8" record card was then prepared, and a file of these cards was maintained. It was later found that this procedure facilitated the organization of materials for the writing of this thesis, and aided in the expeditious handling of a great amount of information.

The land-use portion of the study involved a block-by-block and building-by-building inventory, utilizing the page-size maps prepared prior to the writer's arrival in Morelia. The city blocks on each of these sheets were sufficiently large to allow the rough drafting of building sizes, with additional floors indicated by the tiering method, and to allow the use of a fractional code system. Each block, then, when completed showed the number of buildings, their relative sizes, and their basic functions. Each one-story structure was classified according to its basic function, even where two or more functions were obvious. In cases of buildings with two or more floors the function performed on each floor was determined where possible.

Quality or condition of a building was recorded only in the case of its being used for residential purposes. Such structures were broadly categorized as upper, middle, or lower class according to previously determined criteria (and criteria developed in the field) which are discussed in Chapter VI.

A fractional code system, tailored to the local conditions, was devised as the survey was carried out. It was felt that this would be the best way to inventory land use in Morelia, rather than try to utilize a system set up for some other city or country. The initial mapping of land use was accomplished along the principal east-west commercial street (Avenida Francisco I. Madero), beginning at the major intersection at the northeast corner of the cathedral and moving first eastward and then westward to the respective boundaries of the city. As each new type of function was encountered, a fractional symbol was given to it, and this was used in recording all subsequently encountered cases of performance of this function. The method was found to be highly satisfactory, both because of its inclusive nature and because of the ease with which it could be used. A legend sheet was permanently attached to the clipboard used in the mapping and facilitated quick reference to the established symbolization. A more detailed discussion of the procedure followed is included in the land-use chapter (Chapter VI).

In order to gain a better comprehension of Morelia's hinterland and its transportation network, a number of trips

were made to neighboring towns and cities. These excursions included one by second-class bus, several by automobile, and a final one by four-wheel drive jeep into the roadless mountains just south of the city. An awareness of the general characteristics of Morelia's "neighborhood," as well as of the quality of transportation facilities and the problems involved in moving people and goods into and out of the city proper was gained by these brief journeys.

The relative isolation of area villages to the south of Morelia, for example, was made apparent by the jeep trip to one of these, San Miguel del Monte. The trip to this place, located approximately fifteen kilometers southeast of the city, required one and one-half hours of travel and would have been impossible by any ordinary type of motor vehicle. An afternoon trip to Charo and other villages located east of Morelia on the unpaved former main road leading to Mexico City revealed some of the transportational problems Morelia had to cope with prior to the arrival of the paved highway from Mexico City in the late 1930's. Maximum speed possible on the rocky road to Charo (it could not be called a gravel road by any stretch of the imagination) was about thirty miles per hour, and even this was somewhat excessive considering road conditions. It is fairly certain that the condition of this route hasn't been improved much in the past three decades.

Organization of Materials

The organization of materials in each succeeding

chapter has been designed to emphasize method and procedure, while at the same time dealing with factual information regarding the City of Morelia and with conclusions arrived at through analysis of knowledge accumulated.

Chapter II discusses the physical setting of Morelia. Emphasis is placed on those physical factors of site and situation which have affected the past growth of the city, and which will play an important role in its future expansion. Chapter III is a rather detailed account of the important historical events which have influenced the present structure and functional organization of the city, and of the sequent occupance of Morelia from its beginning in 1541 to the present time.

The presentation of the city's historical background is then followed in Chapter IV by a discussion of its growth of population and accompanying spatial expansion. In the first part of the chapter, Morelia is compared to cities throughout Mexico and to other urban places in Michoacan as to the rate of growth and relative position within the respective political units. A brief consideration of the relative growth of population in the city, the municipio, and the state follows in an attempt to demonstrate some of the basic differences in rate of urban and rural increases. A small section is devoted to the place-of-birth of Morelia's residents in an attempt to determine the origin of the city's population, for which purpose census data are inadequate.

The second portion of Chapter IV deals with the actual spatial or areal expansion of the city during the past two

and one-half centuries, and in so doing utilizes (1) old city maps found in the Texas Library, (2) maps made available by the Junta de Planeacion y Urbanizacion del Estado de Michoacan in Morelia, and (3) the final field map prepared by the writer from information gathered in the field.

Chapter V is an analysis of the external relations of Morelia at the present time. The focus of this chapter is on the transportation facilities that serve the city, and the commercial relationships existing between Morelia, its immediate hinterland, the rest of the state of Michoacan, and elsewhere in Mexico and in foreign lands.

A very detailed examination of the present use of land in Morelia is presented in Chapter VI. Changes that have been brought about in recent decades are discussed in relation to transportation improvements and the massive increase in the city's population. An analysis of the major internal problems is given, and proposals are made for implementing and guiding future expansion of the city.

Chapter VII summarizes the findings of the previous chapters and elucidates the conclusions the writer reached in analyzing the information contained in those chapters. A brief section is devoted to an evaluation of the future prospects of Morelia and to recommendations for their enhancement.

CHAPTER II

THE PHYSICAL SETTING

The Situation

Morelia is the capital of the state of Michoacan and the seventeenth largest city of Mexico. The Census of 1960 recorded its population as 100,828, but that figure had increased to an estimated 116,692 by the end of 1965.¹ The city is situated at an elevation of 6,368 feet² in a small, picturesque valley within the densely populated central plateau region (Mesa Central or Mesa de Anahuac) of Mexico, about midway between Mexico City and Guadalajara (Fig. 1). The highway distance eastward to Mexico City is approximately 200 miles, while that westward to Guadalajara is 230 miles, although straight-line distances to the two cities are 120 and 150 miles, respectively. The differential in land and air distances attests to the ruggedness of the terrain both east and west of the city. Due to the elevational changes

¹Estimated by the writer based on a 1963 estimate of 109,144 by the Direccion General de Estadistica and the national increase rate of 3.4 percent in 1964 and 1965.

²The elevation of Morelia (Valladolid) was first calculated by Baron Alexander von Humboldt as 1950 meters when he visited the city in 1803 on his famous expedition across Mexico. For a discussion of this see Manuel Padilla, "Morelia," Boletin de la Sociedad Mexicana de geografia y estadistica, III, 5 (1908), p. 468.

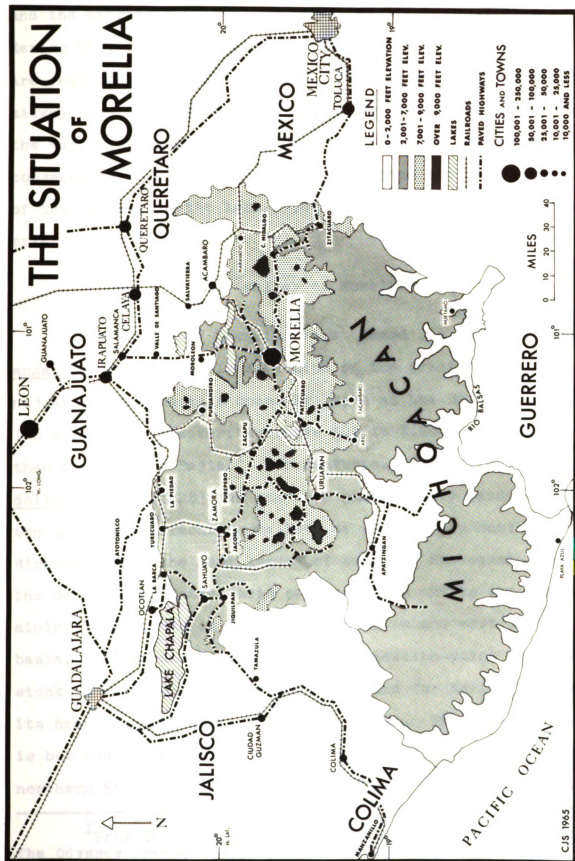


Figure 1

and the extremely winding character of the highway from Mexico City to Guadalajara, two days of auto driving time are required for the trip, a condition which makes Morelia's midway location a convenient overnight stopping point along the way. This position has been of significant economic consequence to Morelia, particularly since the hard-surfacing of the highway in the late 1930's, although it was important prior to that event.

The Valley of Morelia

The Valley of Morelia (first named the Valle de Guayangareo) is a southerly extension of the great Basin of Guanajuato, which is more commonly known as the Bajio (El Bajio). Its elevation, however, averages 500 to 1,000 feet higher than that of the Bajio.¹ For centuries Morelia (called Valladolid prior to 1828) has been the gateway city leading from the fertile intermontane valleys of western and northern Michoacan, and the "hot lands" of southern Michoacan, into the densely populated Basin of Guanajuato and to the famous mining communities in the highlands north and west of the basin. It has also served as the collection point for livestock and agricultural products destined for Mexico City and its heavily populated surrounding region. This small valley is but one of many situated in northern Michoacan. In fact, northern Michoacan is known as the Region of the Valleys in

¹Preston E. James, Latin America (3rd ed.; New York: The Odyssey Press, 1959), p. 639 and p. 643.

Mexican geographical literature and well deserves the name.

The major axis of the Valley of Morelia extends in an east-to-west direction for about twelve miles, while the north-to-south width varies from four to six miles (Fig. 2). The approximate area of the valley, then, is about sixty square miles. Morelia is located near its eastern end on a gently rising basaltic slope (loma) formed by the extrusive flow of material from the collapsed west side of Cerro Punguato--one of several surrounding volcanic peaks (Pl. II, Fig. 1).

These extinct volcanoes rim the valley on the north-west, west, south and east, while gently-sloping uplands resulting from the extrusive activity of the volcanoes border it on the north and northeast. Cerro Quinceo, rising to an elevation of 9,000 feet, overlooks the valley on the north-west (Pl. II, Fig. 2). Lava flows and ashes from this cone have created a steady slope of the land from its base toward the center of the valley, facilitating drainage and providing a relatively smooth surface for agricultural pursuits. Cerro El Aguila (8,500 feet) lies at the southwestern end of the valley (Pl. II, Fig. 3). Its flows of lava have created a slope situation similar to that at the base of Quinceo.

On the west the Valley of Morelia is terminated by tongues of lava from Quinceo and El Aguila which have coalesced forming a rather rugged terrain, but one at a much lower elevation than the crests of the volcanic cones on either side (Pl. II, Fig. 4). The major highway connecting

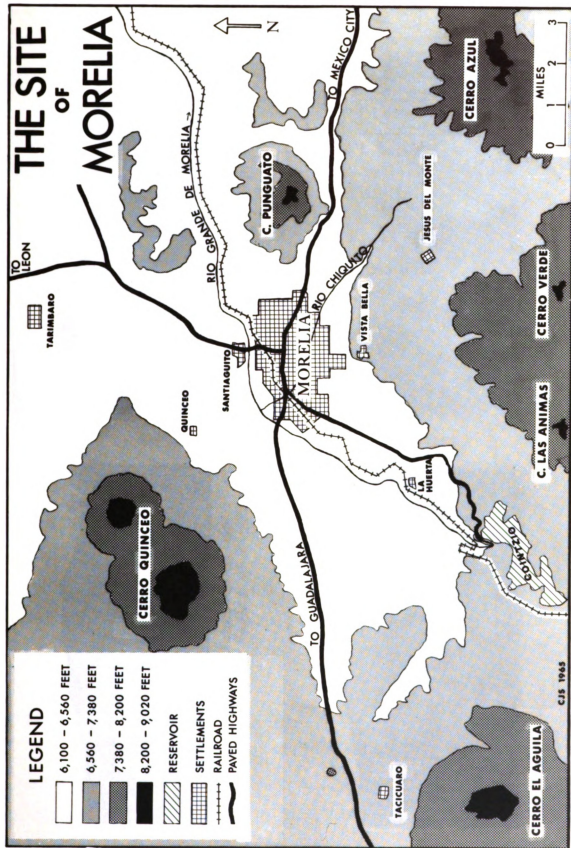


Figure 2

PLATE II



Fig. 1--Cerro Funguato at the eastern edge of the Valley of Morelia.



Fig. 2--Cerro Quinceo and the western part of Morelia, from the south-east.



Fig. 3--Cerro El Aguila and the southwestern extension of the Valley of Morelia.



Fig. 4--Western area of coalescence of lava flows from Cerro Quinceo and Cerro El Aguila. Colonia Vista Bella in foreground.

Morelia to the western part of the state and to Guadalajara traverses this relatively low passageway between the two peaks.

The south rim of the valley is formed by lava flows from Cerro Azul (8,400 feet), Cerro Verde (8,250 feet) and Cerro Las Animas (8,250 feet)(Pl. III, Fig. 1). These volcanoes are more closely spaced than those previously mentioned and their combined activity, along with severe erosion, has resulted in a very complex surface configuration. Actually, these peaks are associated with the Sierra Ozu-matlan and the Sierra Curucupaseo which are highly-complex, rugged mountain chains that effectively isolate the Valley of Morelia from the regions to the south. The barrier effect of this terrain is emphasized by the fact that no roadway of any kind links Morelia to the lands in the south along the slopes of the mountains and beyond in the Tierra Caliente of the Balsas Lowland (Depresion Austral). Access to the Balsas Lowland from Morelia requires following circuitous routes around the eastern and western ends of these mountains. The steepest of the slopes rimming the valley are found a short distance south of Morelia along the Loma de Santa Maria de la Asuncion which was formed by the outflow of lava from Cerro Verde (Pl. III, Fig. 1).

To the northeast, lava flows from Punguato and eastward from Quinceo have formed low hills that separate the Valley of Morelia from the Basin of Lake Cuitzeo in the Bajio (Pl. III, Fig. 2). Slopes of these hills are sufficiently gentle to permit the cultivation of grains and in years of adequate

PLATE III



Fig. 1--Loma de Santa Maria de la Asuncion rising just south of Morelia. Cerro las Animas in center and Cerro Verde on the left in background.



Fig. 2--Overlooking Morelia and the low hills to the north from the Loma de Santa Maria de la Asuncion.



Fig. 3--Presa Cointzilo. Reservoir which furnishes water supply to Morelia.



Fig. 4--Rio Chiquito is little more than a drainage ditch. Note the lower-class housing.

rainfall produce abundant harvests of corn and wheat, the two major crops of the valley.

The Valley of Morelia is drained by the Rio Grande de Morelia and its tributaries. This stream begins in the mountains to the south and flows across the valley floor past the northern edge of the loma on which Morelia is situated (Fig. 2). A reservoir, Presa Cointzio, constructed on the upper portion of the river supplies water to the city and to farmlands in the valley (Pl. III, Fig. 3). A tributary stream, the Rio Chiquito, flows along the south side of the loma and joins the larger stream just west of the city (Pl. III, Fig. 4). The Rio Grande de Morelia leaves the valley just north of the northernmost slopes of Cerro Punguato and drops rapidly into the Basin of Lake Cuitzeo (Querendaro Plain). Upon reaching the plain the stream flows sluggishly across it reaching Lake Cuitzeo near the village of Chehuayo Grande.

This so-called river and its tributaries are little more than large ditches and in times of heavy rainfall are unable to accommodate large volumes of water. As a result, the lower-lying portions of the valley near Morelia are susceptible to inundation both by the parent stream and the small tributaries that flow into it. Standing stagnant water along the lower portions of these streams formerly constituted quite a health problem in the form of malaria, but programs of mosquito eradication in recent years have

diminished much of the hazard.¹

Derived from suitable volcanic materials, the soils in the valley are among the most fertile in Mexico and are able to support a dense farm population.² This fertility, combined with the gentle slope of the land and an adequate water supply for irrigation in most years, has created a relatively affluent agricultural community in the valley. The prosperity of farms near the city promises to create some major difficulties with respect to the spatial expansion of Morelia in the future. Similar conditions exist in the Basin of Lake Cuitzeo (Querendaro Plain) a few miles north of Morelia and in other valleys in northern Michoacan

¹A department of malaria control (Departamento de Paludismo) exists in Morelia to combat the mosquito and malaria.

²See George M. McBride, The Land Systems of Mexico (New York: The American Geographical Society, 1923), pp. 21-23, for a discussion of the most fertile valleys of Mexico. The following are quotations from this publication: (1) "Most of the best agricultural lands of Mexico are found upon the Mesa Central and its adjoining slopes. The extensive bolsones already described contain a large portion of the nation's tillable soil. The valleys of Toluca, Mexico, Queretaro, Guanajuato, Aguascalientes, Morelia, Guadalajara, Puebla and Tlaxcala are examples of these lands. In them are located many of the most productive rural properties in the country. Next in importance come the lava flows and deposits of volcanic ash that have been sufficiently exposed to moisture to suffer disintegration upon the surface. These deposits afford large areas of productive soil, such as the red-earth hills of Michoacan."; (2) "these pockets of fertile land were the first to be coveted by the Spaniards upon their arrival in Mexico, and they have since continued to be the most productive districts of the country Ten of the principal cities of Mexico ... Morelia ... are situated in these districts and are directly dependent upon their agriculture, while many of the most important mining towns ... derive their food supply from them."

and nearby states. The productivity of these agricultural districts enhances the location of Morelia in terms of the foodstuffs and agricultural raw materials they supply to the city, and the retail market they represent.

The Site of Morelia

The city itself is located at the western end of a wedge-shaped tongue of lava which spilled out from Cerro Punguato in past geologic time. Elevations are highest in the eastern outskirts and diminish generally toward the west reaching their lowest point near the confluence of the Rio Grande de Morelia and the Rio Chiquito. The slope of land from the center of the city southward toward the Rio Chiquito is very gradual, while that northward to the Rio Grande de Morelia is much more abrupt. The convex surface of the site facilitates drainage of the central part of the city to the two rivers mentioned, but adds to the problem of flooding in the lower lands during periods of heavy rainfall. Expansion of Morelia in the past was greatly hampered by this condition. Although canalization of the main channel of the Rio Grande de Morelia and the smaller Rio Chiquito was completed in the late 1930's,¹ flooding still occurs when excessive rain falls.²

¹This information was obtained during an interview with Jaime O. Sandoval, an engineer and leading citizen of Morelia, August 21, 1965.

²Excessive flooding occurred along the two rivers twice during the summer of 1965. Water to a depth of two feet covered portions of the city on either side of the Rio Chiquito.

Much of the surface of the older part of the city consists of solid rock, a condition which facilitates the construction of firm building foundations, but which creates problems with respect to the development of underground water and sewer lines. In several of the rocky areas in the eastern part of the city water lines have actually been laid on the surface. Sewer lines are entirely absent in such areas. Very little vegetation exists in the city due partly to this physical condition and partly due to the density of buildings, a characteristic of most cities of Spanish background.

Most of the city possesses a rectangular street pattern, commonly utilized throughout Spanish America by the early colonizers. The configuration of the site was no bar to the use of this standard pattern. Since much of the expansion of the city in the future must be within the lowlands surrounding the old core, the rectangular pattern can be maintained, although the problem of flooding still must be solved.

The Weather and Climate

The climate of Morelia is classified as Tropical Upland (Cwb) according to the Köppen Classification System.¹ The valley's position between 19 and 20 degrees north latitude places it well within the world zone (the tropical

¹For a good discussion of this system see Henry M. Kendall, Robert M. Glendinning and Clifford H. MacFadden, Introduction to Geography (3rd ed.; New York: Harcourt, Brace and Company, 1962), pp. 588-599.

zone) in which the sun's rays are vertical or nearly so for most of the year, a condition which assures the receipt of abundant insolation throughout the year. The elevation (6,368 feet) does, however, modify the high temperatures normally found within this zone, and contributes to a greater diurnal range of temperature than is found at lower altitudes.

The elevation of Morelia places it within the Tierra Fria (cold land) of a system of vertical zonation of tropical uplands used by Karl Sapper and later by Preston E. James.¹ In this system lands up to 2,100 feet in the latitude of central Mexico are classified as Tierra Caliente (hot land), those from 2,100 to 6,000 feet as Tierra Templada (temperate land), and those from 6,000 to 10,000 feet as Tierra Fria (cold land). Morelia's position, therefore, places it within the cold zone, but close enough to the upper limit of the temperate zone to create a transitional situation. The high mountains that virtually surround the valley influence wind directions and velocities, and create somewhat of a "rainshadow" affect. Air drainage from the highlands also affects diurnal ranges of temperature, and plays a role in decreasing average temperatures.

Constancy of temperature is the rule at Morelia. During the 36-year period, 1925-1960, the average annual temperature fluctuated only 2.5 degrees, ranging from 62.6°

¹See Preston E. James, Latin America (3rd ed.; New York: The Odyssey Press, 1959), pp. 599-600, and Preston E. James, A Geography of Man (3rd ed.; New York: Ginn and Company, 1959), pp. 432-438.

in 1935 to 65.1° in 1960 (Table 1).¹ Maximum and minimum temperature averages for each year in the period also attest to this constancy (Table 1). Maximum averages ranged only 3.6° , from a high of 76.1° in 1957 to a low of 72.5° in both 1935 and 1959. Minimum averages exhibited a slightly greater range of 4.5° , with the low of 50° in one of the years from 1925 to 1934² and the high of 54.5° in 1941.

Average annual temperatures, however, do not depict the changes that occur on a month-to-month basis. Mean monthly temperatures for the years 1951-58 are listed in Table 2, while their averages for the period are portrayed in Figure 3. December or January is the coolest month in Morelia, while April or May is the warmest. The range between the coolest and warmest month averages for a typical year is somewhere between 11 and 16 degrees. During the period the coolest month was January, 1956 (54.5°), while the warmest month was May, 1953 (71.4°). The warmest months, April or May, are prior to the onset of the rainy season which begins in early June. One might expect the highest temperatures to occur at this latitude during June, July and August, but shading by the cloud cover and the cooling affect of the rain lowers temperatures in these three months.

Even mean monthly temperatures do not tell the complete story, since they give no indication of extremes during

¹Temperature data are given in Fahrenheit degrees.

²The specific year experiencing the 50-degree low temperature from 1925 to 1934 was not distinguished.

Table 1.-Average yearly maximum, minimum and mean temperatures, annual precipitation, and days with precipitation per year, Morelia, 1925-1960^a

Year	Temperatures (Fahrenheit)			Precipitation	
	Maximum	Minimum	Average	Annual (Inches)	Days With
1925-34	75.2	50.0	63.1	30.71	119
1935	72.5	53.1	62.6	38.01	119
1936	73.6	54.1	63.7	33.78	122
1937	73.6	54.1	63.7	31.34	134
1938	73.4	52.9	63.1	24.28	104
1939	73.6	52.8	63.3	24.00	108
1940	74.1	52.9	63.7	27.25	111
1941	73.9	54.5	64.2	38.33	145
1942	74.5	54.1	64.4	5.90 ^c	105
1943	73.8	53.1	63.5	26.80	96
1944	73.8	53.2	63.7	23.98	100
1945	75.2	54.0	64.7	22.04	92
1946	74.5	54.1	64.4	30.80	122
1947	73.9	53.6	64.1	31.81	116
1948	74.5	54.1	64.4	28.63	117
1949	N/A ^b	N/A ^b	64.2	21.05	92
1950	73.8	52.3	63.7	27.67	105
1951	74.7	52.8	64.4	29.27	104
1952	74.1	52.9	63.9	33.72	109
1953	75.0	52.9	64.2	29.42	102
1954	74.7	52.9	63.9	30.40	96
1955	74.5	52.5	63.7	36.93	99
1956	74.1	51.8	63.1	35.91	113
1957	76.1	52.9	64.9	22.68	106
1958	73.8	53.9	64.2	44.92	146
1959	72.5	53.1	64.1	39.04	135
1960	75.9	52.2	65.1	22.05	92
Average for 1925-1960	73.4	52.3	63.7	29.64	116

^aSources: Data for 1925-45, Anuario estadístico de los Estados Unidos Mexicanos, 1943-45; Data for 1946-60, various volumes of Compendios estadísticos, Estados Unidos Mexicanos. Fahrenheit temperatures and inches calculated by the writer from centigrade temperatures and millimeters, respectively.

^bNo data available.

^cAlthough this figure appeared in the Anuario estadístico, the writer feels that it is a statistical error since 1942 had 105 days of precipitation.

Table 2.-Mean monthly temperatures in Morelia, 1951-1958^a
(Fahrenheit)

Year	Annual Range	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1951	11.3 ^b	58.3	60.6	63.1	68.4	69.6 ^b	68.4	65.5	66.0	65.3	63.7	63.3	61.0
1952	N/A ^b	60.6	61.7	65.7	67.8	N/A ^b	66.4	65.5	64.9	64.8	60.3	62.1	58.3
1953	14.2	57.2	62.4	66.0	69.1	71.4	68.9	66.2	65.8	64.0	64.4	58.5	57.2
1954	11.0	59.4	61.3	66.6	67.5	68.2	68.2	64.9	65.1	65.3	62.8	59.9	57.2
1955	13.5	57.6	59.5	65.7	69.1	70.7	69.3	64.4	64.6	64.2	61.3	61.0	57.2
1956	13.7	54.5	61.3	66.0	68.2	67.6	65.5	63.7	64.8	64.0	63.5	61.2	59.0
1957	11.0	60.3	62.4	63.3	68.5	69.6	69.3	67.3	66.4	66.0	63.5	63.5	58.6
1958	16.4	54.1	58.8	66.0	70.5	68.7	67.6	65.8	66.2	66.2	65.3	61.7	58.6
Average	13.0 ^c	57.8	61.0	65.3	68.6	69.4 ^d	68.0	65.4	65.5	65.0	63.1	61.4	58.4

^aSource: Fahrenheit temperatures calculated from centigrade temperatures published by Servicio Meteorológico Mexicano and appearing in Gabriel Ortiz Santos, "Agua potable para la Ciudad de Morelia, Michoacan, 1960," Ingeniería Hidráulica en México, Enero-Febrero-Marzo, 1960, p. 78.

^bNo data given.

^cAverage annual range for seven years only.

^dAverage May temperatures for seven years only.

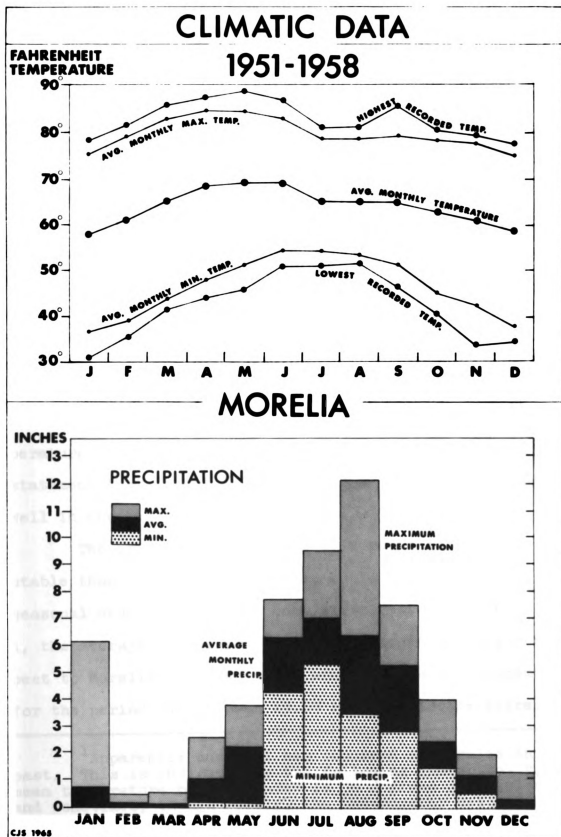


Figure 3

the month. Table 3 shows the absolute maximum and minimum temperatures reached during each month of the year, while Figure 3 shows the average of highest and lowest temperatures recorded for each month during the 1951-58 period. During these eight years, the highest temperature experienced was 88.2° in May, 1957. The lowest was 31.1° in January, 1956. Freezing temperatures are almost unknown in Morelia,¹ although night temperatures do consistently dip into the upper thirties in December and January. Day temperatures reach into the upper seventies during the same months. On the other extreme, temperatures above 90° are rarely if ever experienced. The average maximum for the warmest months is between 80° and 85° , while their average minimum is around 50° (Fig. 3). The diurnal range of temperature, therefore, is greater than the annual range. The statement that "night is the winter of the tropics" applies well in the Valley of Morelia.

The precipitation regime of Morelia is somewhat less stable than that of temperature, but a relatively well defined seasonal and daily pattern does exist. As is shown by Table 1, the average annual precipitation or rainfall (with respect to Morelia, the two terms are practically synonymous) for the period 1925-60 was 29.64 inches, and the average

¹Apparently snowfall has occurred in Morelia in the past. This is indicated by the following quotation: "...the mean temperature of the winter is 56 degrees [in Mexico City], and sometimes, though rarely, the thermometer descends to the freezing point, and a small quantity of snow falls. This last phenomenon is also observed at Valladolid [Morelia], which is several hundred feet lower." George Folsom, Mexico en 1842 (New York: C. J. Folsom, 1842), p. 43.

Table 3.-Highest and lowest temperatures for each month in Morelia, 1951-58^a
(Fahrenheit)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1951	Max. 75.2 Min. 38.7	81.3 36.7	81.9 41.9	84.6 44.6	82.0 46.6	84.2 55.8	78.8 55.5	78.8 55.5	77.9 47.3	79.7 40.5	79.7 42.8	76.6 41.0
1952	Max. 78.4 Min. 42.8	81.5 36.3	83.7 47.6	84.0 50.9	N/A ^b N/A	80.6 53.2	77.7 55.8	77.9 54.7	78.8 52.9	76.3 40.5	75.7 42.3	73.4 39.6
1953	Max. 74.3 Min. 36.5	79.7 40.1	83.6 46.0	85.1 50.5	87.8 50.4	83.3 57.7	79.9 54.9	81.1 54.0	77.2 48.2	77.9 51.3	75.2 34.7	74.7 35.8
1954	Max. 76.1 Min. 39.7	77.2 43.3	85.6 42.8	86.9 47.3	84.2 54.5	86.0 57.6	77.9 54.5	77.9 54.5	77.7 52.7	77.4 46.4	77.5 40.1	75.6 37.4
1955	Max. 74.3 Min. 32.4	80.2 38.3	82.4 47.3	86.0 50.0	86.0 53.6	83.7 53.6	81.1 54.9	78.8 52.5	77.0 52.9	77.1 42.3	77.5 42.3	75.2 37.9
1956	Max. 76.1 Min. 31.1	81.0 38.7	82.6 46.2	85.3 48.6	84.6 53.6	81.0 50.9	77.0 50.9	76.6 52.7	76.5 50.0	79.3 47.5	75.6 44.6	77.0 37.2
1957	Max. 76.1 Min. 41.9	77.4 45.0	80.3 42.1	83.7 44.8	88.2 50.7	86.0 55.0	80.6 55.9	78.4 53.6	82.8 50.7	80.1 45.7	79.3 48.4	77.5 35.6
1958	Max. 73.4 Min. 37.6	76.5 38.5	81.5 43.9	87.4 49.8	86.4 49.3	83.4 55.4	77.7 56.1	78.3 55.0	86.6 56.5	77.5 52.2	77.4 47.5	75.9 40.8

^aSource: Fahrenheit temperatures calculated from centigrade temperatures published by Servicio Meteorológico Mexicano and appearing in Gabriel Ortiz Santos, "Agua potable para la Ciudad de Morelia, Michoacan, 1960," Ingeniería Hidráulica en México, Enero-Febrero-Marzo, 1960, p. 78.

^bNo data given.

number of days of occurrence was 116. The largest annual amount recorded was 44.92 inches in 1958, while the smallest was probably in 1949 and totaled 21.05 inches.¹ No year had less than 92 days with rain or more than 146.

Most of the rain in Morelia is concentrated in the four-month period of June through September, although May and October sometimes receive significant amounts (Table 4 and Fig. 3). There is, then, a pronounced wet season and a season of drought. This regime is rather typical throughout all of highland Mexico and is directly related to the seasonal movement of the subtropical high pressure system. The Valley of Morelia is dominated by this high pressure from November through April. Descending air currents and winds blowing from the land seaward (a modified monsoon situation) create a situation in which very little convectional activity takes place and in which moisture-bearing winds from the Caribbean Sea and Gulf of Mexico (northeast tradewinds) or from the Pacific Ocean cannot reach the valley. As the high pressure belt starts moving northward with the advance of the sun's vertical rays in early May, convectional activity becomes more prominent and warm, moist winds begin to blow inland. By June Morelia is deluged by rains carried inland by the trades and to a lesser extent by winds from the Pacific.

¹The Anuario estadístico for 1943-45 gives a figure of 5.90 inches of precipitation for the year 1942. The writer feels that this figure is a printing error, both because it is completely inconsistent with the other data shown and because there were 105 days with rainfall in 1942. Other years with approximately the same number of days of rainfall indicate annual amounts from 24 to 29 inches.

Table 4.-Monthly rainfall in Morelia, 1951-1958^a
(Inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1951	N/A ^b	N/A ^b	0.04	0.74	2.37	6.40	6.53	3.40	6.24	2.41	0.93	0.11
1952	0.02	N/A ^b	N/A ^b	1.09	3.05	7.78	6.21	6.32	6.91	N/A ^b	2.11	0.10
1953	0.17	0.15	0.52	0.15	0.13	5.95	6.32	6.53	3.42	2.99	1.95	1.23
1954	0.20	0.48	N/A ^b	1.10	2.48	6.03	6.70	4.31	5.24	3.13	0.72	N/A ^b
1955	0.19	N/A ^b	N/A ^b	2.62	0.57	4.15	6.60	12.08	6.78	3.95	1.02	N/A ^b
1956	N/A ^b	N/A ^b	0.06	2.02	3.47	5.78	9.47	5.98	2.84	1.34	0.49	0.52
1957	0.01	0.09	0.01	N/A ^b	1.15	5.75	5.22	5.05	2.98	2.39	N/A ^b	0.03
1958	5.12	0.13	N/A ^b	0.27	3.84	7.73	9.07	7.00	7.50	2.46	1.70	0.20
Average ^c	0.71	0.11	0.08	1.00	2.13	6.20	7.01	6.33	5.24	2.33	1.12	0.27

^aSource: Inches calculated from millimeters published by Servicio Meteorológico Mexicano and appearing in Gabriel Ortiz Santos, "Agua potable para la Ciudad de Morelia, Michoacan, 1960," Ingeniería Hidráulica en México, Enero-Febrero-Marzo, 1960, p. 77.

^bNo data given.

^cMonthly averages calculated from available data.

This condition continues until late September or early October when, once again, the high pressure belt becomes dominant as a result of the sun's southward migration. The tradewinds are increasingly blocked by this high pressure ridge and by early November are almost completely ineffective. Onshore winds from the Pacific shift to offshore, also in response to the pressure build-up over the land.

During the years 1951-58 the rainy-season months of June, July and August each averaged well over 6 inches of precipitation, while the average for September exceeded 5 inches (Fig. 3). During these same months, the highest amount received was 12.08 inches in August, 1955, while the lowest was 4.15 inches in June of the same year (Table 4). In a typical year approximately 75 percent of the total precipitation occurs during these four months. If May and October are added, and usually they are sufficiently rainy to warrant such inclusion, approximately 90 percent of the total annual precipitation is accounted for. There is no doubt, then, that Morelia possesses a decided wet season and a season of water deficiency. The least rainy month is usually either February or March, although December and January are also dry. The average precipitation in March during the years 1951-58 was 0.08 inches, while February with 0.11 inches had only a little more.

The daily pattern of rainfall is rather distinctive. Rain usually occurs during the late afternoon or early evening hours and only occasionally at night or in the morning.

The early morning hours are commonly clear, but by late morning or early afternoon huge cumulus clouds are forming and become more and more threatening because of increasing convectional activity as the afternoon progresses. When the rain finally begins, it is usually in a downpour of one hour or less duration, but occasionally it continues into the evening hours.¹

The seasonal rainfall regime in the Valley of Morelia causes some basic problems. Insufficient water for half of the year limits natural vegetation growth, ruling out the maturation of those trees which require quantities of water on a continuing basis. Exceptions occur in low-lying portions of the valley where sufficient groundwater is available to carry such trees through the dry months. Also, it is necessary to store water during the wet season to supply dry season needs for domestic and agricultural purposes. On occasion, however, the overabundance of rain received during the wet months causes serious flooding and because of this expensive flood control projects are a necessity. As was previously mentioned, the City of Morelia has been hampered in its areal expansion by the prevalence of flooding along the Rio Grande de Morelia and the Rio Chiquito. Considerable agricultural land in the valley and in the nearby Basin of Cuitzeo is also subject to inundation, and suffers damage

¹Discussion of the daily rainfall pattern is based upon field observations during the summer of 1965 and upon information supplied by a number of residents of Morelia.

to crops, especially when heavy downpours occur in a short period.¹

The concentration of rainfall in the warmer half of the year does, however, constitute an asset in terms of its effectiveness on crops. And, because of the amount of precipitation received, the valley is far better off than much of Mexico with respect to the availability of water for agricultural, domestic and other uses. In fact, with the development of storage facilities, Michoacan as a whole is one of the best watered parts of highland Mexico. Large irrigation projects have been developed in the northern part of the state, including those in the Valley of Morelia and the Querendaro Plain. Huge combined hydroelectric-irrigation projects are planned for southern Michoacan. One big dam, known as El Infiernillo, was recently completed in the Balsas Lowland south of Morelia and is now supplying large quantities of electrical power to various parts of central Mexico, particularly Mexico City. The potential for development of extensive irrigation districts in the Tierra Caliente of Michoacan, and the affect of these on the City of Morelia, is tremendous. The possibility of large quantities of water and hydroelectricity being available for Morelia in the future is a prime factor in plans for economic development of the city.

¹During the summer of 1965, the writer witnessed two week-long periods of flooding of farmlands, especially in the Querendaro Plain. Crop losses resulting from such disasters have had a profound affect on the economic well-being of Morelia.

The average annual relative humidity in the valley is a moderate 62.6 percent. Monthly averages range from a low of 47.0 percent in April to a high of 74.0 percent in August and September (Table 5). These percentages, along with the

Table 5.-Average monthly relative humidity in Morelia, 1941-1960*

Month	Percent
January	59.0
February	53.0
March	48.0
April	47.0
May	55.0
June	68.0
July	71.0
August	74.0
September	74.0
October	71.0
November	67.0
December	64.0
Annual	62.6

* Source: Junta de Planeacion y Urbanizacion del Estado de Michoacan, Morelia, 1963.

mild temperatures, provide a quite comfortable "sensible temperature" throughout much of the year. Lower temperatures in the evening and early morning hours, however, accompanied by the usual increase in the relative humidity at these times, do make the wearing of additional clothing and the use of blankets for sleeping necessary for comfort. Wood-burning fireplaces are used during these hours, even in the months of highest average temperatures, by those who

can afford this luxury.¹ Unfortunately, the lower-income groups of the city cannot afford fireplaces or the purchase of wood to burn in them. Chimneys, therefore, are very rare on the skyline of Morelia.

Although the statement that highlands in the tropics are "lands of eternal springtime" is not entirely appropriate for the Valley of Morelia, the climatic regime does approach that condition. The climate of Morelia represents one of the major assets of the city and is almost certain to be an influential factor in the future development of a lucrative tourist industry. It may also play a vital role in attracting additional manufacturing industries, especially those utilizing large quantities of water and electrical energy.

¹During the summer of 1965, the writer found it necessary to utilize the fireplace almost every night for maximum comfort. This situation from June through September in Morelia is very similar to that of the mid-latitudes in the Midwest of the United States during early spring and late fall.

CHAPTER III

THE HISTORICAL SETTING

A part of the extensive Tarascan Kingdom, the Valley of Morelia was nearly empty at the time of the Spanish Conquest. It had been occupied only two generations before by a group of Otomi Indians known as Matlaltzincas.¹ These people were not of Tarascan stock, but had been given permission to live here because the Tarascans avoided settling in large open valleys with heavy, compacted soils and drainage problems, preferring instead the forested slopes of smaller valleys where the moist, loose volcanic soils favored the simple digging-stick agriculture which they practiced.² The Matlaltzincas called the valley Guayangareo and located their settlement on the present site of Morelia.

The Colonial Period

Shortly after the conquest of the Aztecs at Tenoch-

¹Dan Stanislawski, "Tarascan Political Geography," American Anthropologist, XLIX (January-March, 1947), p. 48. This is a good discussion of the Tarascan Kingdom and the methods used by the Tarascans for extending and holding their domain.

²Dan Stanislawski, "The Political Rivalry of Patzcuaro and Morelia, An Item in the Sixteenth Century Geography of Mexico," Annals of the Association of American Geographers, XXXVII (September, 1947), p. 141. This article compares the site and situation of Morelia and Patzcuaro and evaluates the reasons for the eventual dominance of Morelia.

titlan (later Mexico City) in August, 1521, Spanish explorers entered what is now the northern part of the state of Michoacan.¹ In the summer of 1522 Cristobal de Olid, envoy of Hernan Cortez, completed a nearly bloodless conquest of the Tarascan state by accepting the surrender of its chieftain, Caltzontzin.² This took place on the Llanos de Guayangareo (Valley of Morelia).³ Occupation of the valley by the Spaniards did not begin, however, until almost a decade later.

In 1531 Fray Juan de San Miguel and Fray Antonio de Lisboa came as missionaries to the pueblo of Guayangareo. They were the valley's first residents of Spanish birth.⁴ Fray Antonio supervised the construction of the first church (Convento de San Francisco) on the site of present-day Morelia, a structure that still stands.⁵ These priests converted the Matlaltzincas to the Roman Catholic faith and established

¹Donald D. Brand et al., Coalcoman and Motines del Oro, An Ex-Distrito of Michoacan, Mexico (The Institute of Latin American Studies, University of Texas, Austin. Published, The Hague: Martinus Nijhoff, 1960), p. 56.

²Ibid.

³Jesus Amaya T., Cedulas Reales de 1537 y 1609 relativas a la fundacion de Valladolid hoy Morelia (Morelia: VII Feria Mexicana del Libro, Mexico, 1956), p. 7.

⁴Jesus Romero Flores, Diccionario Michoacano de historia y geografia, Edicion del Gobierno del Estado (Morelia: Talleres Tipograficos de la Escuela Tecnica Industrial "Alvaro Obregon," 1960), p. 179.

⁵Secretaria de Hacienda y Credito Publico, Direccion General de Inspeccion Fiscal, Estudios historico, economico, fiscales sobre los Estados de la Republica, III, Michoacan, Primer Tomo (Mexico: T.I.E.V., 1940), p. 107.

Guayangareo (Morelia) as one of the earliest important religious centers in Michoacan, a position that the city has continued to enjoy to the present time.

A number of Spaniards, both transients and settlers, reached the valley in the 1530's. Among the transients was the notorious Nuno de Guzman, who is famous in colonial history for his extremely cruel treatment of the Indians. His activities in Michoacan converted the condition of the Tarascan state from one of prosperity and friendly submission, to virtually a shambles, with rebellious tribal remnants.¹ As a consequence, the Audiencia of Mexico dispatched one of its members, Don Vasco de Quiroga, to Michoacan in the late 1530's to assess the problems of the region and to make specific recommendations for restoration of the political and social order present prior to Nuno de Guzman's invasion.²

Don Vasco soon returned to Michoacan as resident bishop of the newly-formed Bishopric of Michoacan. Although thoroughly familiar with Guayangareo and its valley, he chose Patzcuaro, a suburb of Tzintzuntzan the former Tarascan capital, as the seat of the bishopric. This was primarily because of his interest in the greater number of Indians in that area.³ Tzintzuntzan, together with Patzcuaro and other smaller adjacent settlements, had been the administrative

¹Stanislowski, op. cit., p. 139.

²Ibid.

³Ibid., p. 140.

center of the Tarascan Kingdom long before the arrival of the Spaniards. Tzintzuntzan proper did not allow ample space for the development of a compact, orderly city of Spanish design, however, so it gave way to Patzcuaro.¹

The choice of Patzcuaro as the seat of the bishopric gave that city initial advantages for growth over Guayangareo, but these were to be outweighed several decades later with the discovery of rich mineral ores in the rugged mountains north of Michoacan. As the mining communities grew, they provided expanded markets for the agricultural products and livestock raised in valleys such as Guayangareo and the Bajio. As a consequence, Valladolid (Morelia) became an important supply point.

In 1540 Viceroy Don Antonio de Mendoza passed through the Valley of Guayangareo, while enroute to put down an insurrection in Nueva Galicia (Jalisco) west of Michoacan. He was very much impressed with the potentialities of the valley for future Spanish settlement, particularly with the loma (site of Morelia) on which the pueblo of Guayangareo was located.² Acting under prior authorization, he founded the

¹Ibid.

²In fact, he considered Vasco de Quiroga's choice of Patzcuaro rather than Guayangareo as the seat of the bishopric to be unreasonable, since the latter had many square miles of flat, fertile, well-watered land that were magnificent for the pasturing of animals, for plow cultivation, for the planting of European small grains, for irrigation and for surplus crop production. See Stanislawski, op. cit., p. 141.

Villa de Valladolid which he named in honor of his birth-place in Spain.¹

The royal decree (Cedula Real) authorizing this action had been issued in Spain on October 27, 1537 and specifically stated that a settlement was to be established on land between the two rivers (the present Rio Grande de Morelia and the Rio Chiquito) in order to assure, among other things, the security of the roads between the various settlements.² It further stipulated that all lands within one legua (league)³ of the villa in each direction were to belong to it, and authorized the use of trees and other materials from the surrounding mountains for the construction of buildings, and the use of waters necessary for the sustenance of its inhabitants.⁴ The first official function of Morelia as a Spanish settlement, then, was to provide protection for travelers moving through the area. The decree undoubtedly was primarily fostered by the desire of the crown to insure the free movement of people and goods between Mexico City and places in the west, although this was not specifically stated. The settlement was, however, to serve this purpose equally well

¹Juan Jose Martinez de Lejarza, Analisis estadistico de la Provincia de Michuacan [sic] en 1822 (Mexico: Imprenta Nacional del Supremo Gobierno de los Estados Unidos Mexicanos en palacio, 1824), p. 5.

²Amaya T., op. cit., pp. 27-29.

³A legua as delineated by the Spaniards in the colonial period was a linear distance of approximately four miles.

⁴Amaya T., op. cit., pp. 27-29.

for later movements from Michoacan to the mining districts developed in the north.

On May 18, 1541 a charter formally recognizing the establishment of Valladolid was issued in Mexico City by the viceroy.¹ This is considered by most historians as the official date of the city's founding, although Don Antonio de Mendoza had proclaimed it as being the previous year. The population of Valladolid about this time was comprised of sixty Spanish families, nine clergymen and numerous Indians.²

The settlement retained the title of villa until February 6, 1545 when it was elevated by royal decree to the status of a city (ciudad)³ and received the new designation of Ciudad de Valladolid de Michoacan. Eighty to one-hundred Spanish houses were here in 1545, indicating that the white population had not increased much since establishment of the

¹Juan de la Torre, Bosquejo historico y estadístico de la ciudad de Morelia, capital del Estado de Michoacan de Ocampo (Mexico: Imprenta de Ignacio Cumplido, 1883), p. 264.

²Gabriel Ortiz Santos, "Agua potable para la ciudad de Morelia, Michoacan, 1960," Ingenieria Hidraulica en Mexico, (enero, febrero, marzo, 1960), p. 72. The original source for this information was not given.

³During the colonial period, three general types of titles were given to settlements depending upon the make-up of the population and the importance of the settlement. These titles were pueblo, villa and ciudad. The title pueblo was originally applied to Indian settlements; the title villa was given to settlements founded by the Spaniards, but of little importance; while the title ciudad was given to settlements of considerable consequence either politically, commercially, or both. Apparently the importance, or at least the potential importance of Valladolid was early recognized by Spanish authorities. For a discussion of this system see Nathan L. Whetten, Rural Mexico (Chicago: The University of Chicago Press, 1948), pp. 40-43.

villa four years before.¹ During the 1540's, large numbers of Indians from the surrounding pueblos were brought to Valladolid under the repartimiento system to furnish the labor necessary for the construction of houses and public buildings.² Some of these people remained, thereby augmenting the population, but most of them returned to their villages once their required work had been completed.³

By the mid-1500's most of the lands in the valley were in the hands of Spaniards who resided in Valladolid. These landholdings (encomiendas) resulted from special grants, and were established primarily for the production of wheat and the grazing of cattle.⁴ The climate, the soils and the terrain of the valley proved to be almost ideal for both activities, which began to flourish.

Very early, then, Valladolid became oriented toward agriculture as a basic industry, acting both as a supply center for the encomiendas and as a market concentration point for their products. Performance of the latter function was hampered initially by the great distances and difficulties

¹Ortiz Santos, op. cit., p. 72.

²Jose Bravo Ugarte, Historia sucinta de Michoacan, II. provincia mayor e intendencia (Mexico: Editorial Jus, S.A., 1963), p. 106.

³Ibid.

⁴Grants of land for the production of crops were usually called Caballerias and each contained about 43 hectares, while those for cattle-grazing were called Estancias and were much larger.

of terrain involved in the transfer of products to the markets to the east, but this situation was radically changed with the development of markets in the great mining districts in the desert region of Zacatecas and the rugged mountains of Guanajuato to the north. Valladolid soon found itself to be in a position of advantage with respect to these centers.

The rich silver deposits of Zacatecas were discovered in 1546 and within a short time a sizeable community had developed which could not support itself with food, wood and other needed materials because of the dry climate. Within two years Zacatecas was a booming city. With several thousand people, five churches and fifty refineries, it ranked as the second most important city in New Spain.¹ The demands for bread and meat were tremendous and the nearest Spanish settlements with surplus foodstuffs were hundreds of kilometers away.² These were, of course, places in the Bajío proper and in northern Michoacan. Valladolid, therefore, found itself sharing in a large, rich, new market and efforts began immediately to supply its demands.

Although the agricultural activities of Valladolid's immediate hinterland benefited greatly from the developments in Zacatecas, the city profited in other respects. The opening of the mines in the north created a new economic

¹Francois Chevalier, Land and Society in Colonial Mexico (Berkeley: The University of California Press, 1963), p. 39.

²Ibid., p. 38.

system in the area of New Spain stretching from Mexico City to the mines, and northern Michoacan was a functioning part of it.¹ Valladolid became an important way-station along the main avenues of traffic, developing a service function to travelers which it still performs today. Then, too, the over-all economic development of northern Michoacan insured the increasing importance of Valladolid as a marketing and supply center for the region, and was a dominant factor several decades later in its selection as the capital of Michoacan and the seat of the bishopric.

In the mid-1550's gold and silver deposits were discovered in the mountains of Guanajuato. Communities that sprang up in response to mining operations in this region (notable among them was Guanajuato) faced many of the same shortages of food supply and raw materials as did those farther north in Zacatecas, but were much closer to Valladolid. Therefore, not only did their need for food provide a further stimulus to agricultural and livestock production in the Valladolid area, but the demand for charcoal, lumber, and wood products created a market for a new industry. The forested mountain slopes of central and northern Michoacan became a prime source of supply. Small woodworking establishments developed in Valladolid, as well as in other communities of Michoacan for the production of lumber, furniture, etc., adding another activity which has persisted down to the present time. The mining boom in Guanajuato enhanced

¹Stanislowski, op. cit., p. 143.

the economic development of northern Michoacan to even a greater extent than had the earlier one in Zacatecas and further expanded the importance of the lines of transportation passing through Valladolid from Mexico City and from the central region of Michoacan northward.

The growing prosperity of Valladolid, resulting from its location and interaction with other parts of the economic heart of New Spain stretching from Mexico City to Zacatecas, elevated the city to a position of prominence in Michoacan. This was recognized by the Viceroy, Don Martin Enriquez de Almanza, who on December 25, 1575 issued the most important document in the city's history.¹ It authorized the transfer of the capital of Michoacan from Patzcuaro to Valladolid. Addition of this political function established Valladolid as the focal point of the province and further accelerated its growth.

Four years later, on November 6, 1579, the Bishop of Michoacan, Don Juan de Medina Rincon, issued a decree transferring the Episcopal See from Patzcuaro to Valladolid.² This action further consolidated Valladolid's position of focality in the province and virtually assured its dominance over other settlements in the area.³ Several months later

¹Estudios historico, economico, fiscales sobre los Estados de la Republica, op. cit., p. 87.

²Jesus Romero Flores, Historia de la ciudad de Morelia (Morelia: Imprenta de la Escuela de Artes, 1928), p. 46.

³Jose Bravo Ugarte has said that "el traslado de la sede episcopal a Valladolid en 1580 fue el factor decisivo para el progreso de esta ciudad." See Bravo Ugarte, op. cit., p. 99.

the first institution of higher learning in Michoacan, the Colegio de San Nicolas, which had been established in Patzcuaro in 1540 by Don Vasco de Quiroga, was also relocated in Valladolid.¹

Thus, in the five-year period, 1575-80, Valladolid added three new functions--governmental, religious, and educational--to those already extant. These new activities, particularly those of government and church, actually justified the title of ciudad for the first time and have continued to play significant roles in development of the city up to the present.

At the beginning of the 17th Century northern Michoacan and the Bajio of southern Guanajuato constituted one of the major wheat-producing areas of New Spain. In fact, only one other region, that of Puebla-Atlixco-Tepeaca, exceeded it in importance.² Valladolid and other settlements acted as milling centers for this wheat, and flour-milling became the city's first large-scale manufacturing industry. The manufacture of textiles and cloth had also begun by this time, however, and Valladolid possessed several mills producing these items.³ Undoubtedly the bulk of the wheat flour and cloth was manufactured for sale in the mining centers to the north, but no precise confirmation of this supposition

¹Amaya T., op. cit., p. 19.

²Chevalier, op. cit., p. 65.

³Ibid., p. 108. A list drawn up in 1604 by Viceroy Montesclaros stated that Celaya had four mills, and that many others were located in Queretaro, Guatzindeo and Valladolid, but the exact number in each of the latter three cities was not reported.

could be found. Certainly Valladolid and the other settlements of the Bajío region were in a location that gave them a distinct advantage over producers farther east for supplying this wealthy market.

The grazing of cattle also was a significant industry in Valladolid's hinterland. While the lower-lying valley lands were utilized primarily for the cultivation of crops, the higher slopes and more inaccessible areas were relegated to cattle. By the middle of the 17th Century Michoacan was one of the principal livestock producing regions of Mexico.¹ A lively trade in animals had been built up with Mexico City, as well as with the mines to the north. The price of a steer in Michoacan averaged five or six pesos, while the same animal brought as much as ten or twelve pesos at the markets mentioned.² Then, too, the exportation of hides to Spain helped create a market. Many head which originated on the estancias of northern Michoacan, were collected at Valladolid, and then driven to Mexico City. There they were slaughtered for their meat, which was consumed locally, and hides, which were exported to Spain. As early as 1598 over 150,000 hides annually were shipped from Veracruz to Spain.³

Specific information on the economic activity and development of Michoacan and Valladolid during the 17th Century

¹Ibid.

²Ibid., p. 104.

³Ibid., p. 107.

and much of the 18th Century is lacking. One leading scholar recently wrote that "the seventeenth century is well-known to students of Mexican history for its relative lack of documentation."¹ Apparently, however, increased activity in agriculture and the cattle industry in its tributary area, as well as its growing importance as a governmental and religious center, continued to bring prosperity to Valladolid.

This is evidenced by the fact that many of the most prominent and imposing buildings in the city today were constructed during the latter half of the 17th Century or the first half of the 18th Century. The great cathedral on the central plaza, which is exceeded in size and grandeur only by the one in Mexico City, was begun in 1640 under Bishop Marcos Ramirez del Prado, and completed 104 years later during the tenure of Bishop Don Francisco Matos Coronado.² The imposing building on the east side of the main plaza, today a hotel (Hotel Osequera), was constructed in the late 1600's as the episcopal palace.³ The erection of other religious edifices in Valladolid was such that by 1750 the city possessed at least nine major convents, monasteries, and churches,⁴ be-

¹Brand, op. cit., p. 73.

²Romero Flores, Diccionario Michoacano de historia y geografia, p. 79.

³Estudios historico, economico, fiscales sobre los Estados de la Republica, op. cit., p. 104.

⁴The following is a list of convents, monasteries and churches in Valladolid at the middle of the 18th Century, according to Romero Flores. Each is named and the date of construction is indicated: Convento de San Francisco, 1531; Convento de San Agustin, 1550; Colegio y Templo de la Com-

sides the cathedral. The importance of the religious function of Valladolid at that time is verified by this impressive array of religious properties. Then, too, the wealth necessary for their construction and maintenance is an indication of the relative prosperity of the city. These churches, along with many others, still stand in Morelia and constitute one of the city's major tourist attractions.

In addition, many of the elegant residences located on or near the main plaza, and along the east-west Mexico City-Guadalajara highway, were built during the late 1600's and early 1700's.¹ Often these were the homes of wealthy landowners who chose to reside in Valladolid and leave the management of their estates to overseers.

The population of Valladolid in 1750 numbered about 18,000 and placed the city among the largest in New Spain.² Although the wealthy markets in the mining districts to the north had by this time declined in importance, others were opening up with even greater potential. The rapid growth of Mexico City and other places in the east created almost insatiable demands for the products of Valladolid's hinterland.

pania, 1581; Convento de Santa Catarina de Sena, 1590; Convento del Carmen, 1596; Convento de la Merced, 1613; Convento y Templo de San Diego, 1716; Convento de Capuchinas, 1737; Colegio y Templo de las Rosas, 1738. See Romero Flores, Diccionario Michoacano de historia y geografia, various pages.

¹Hudson Strode, Now in Mexico (New York: Harcourt, Brace and Company, 1947), p. 147.

²Manuel Padilla, "Morelia," Boletin de la Sociedad Mexicana de geografia y estadistica, III (1908), p. 468.

And developments in the hinterland itself were also significant. New lands were occupied in the vast interior Tierra Caliente of central and southern Michoacan, and in the coastal section as well. Agricultural products from these areas were funneled to Valladolid for processing and transfer eastward. Among them was tobacco, which made possible the establishment of a tobacco factory in 1781. This operated until 1824 in the building now occupied by the municipal government.¹ The increasing production of crops and livestock throughout the Bajio also was significant, since large portions of both found their way to Valladolid for distribution elsewhere. At the end of the century Valladolid was commercially aligned with Mexico City and abroad, and retained its ranking as the most important processing and distribution center in Michoacan.²

The development of Valladolid and its hinterland during the colonial period had been influenced by both physical and cultural factors. The many square miles of virtually unoccupied land endowed with moderate temperatures, abundant seasonal rainfall, fertile volcanic soils and gentle slopes presented the Spaniards with an almost ideal milieu for the development of small-grain agriculture and livestock grazing, and was a physical factor of primary importance. Valladolid's geographical location became one of great advan-

¹Romero Flores, Diccionario Michoacano de historia y geografia, p. 151.

²Bravo Ugarte, op. cit., p. 118.

tage with the rise of the mining districts in the north and the resultant orientation of the economy of New Spain to the zone extending from Mexico City to Guanajuato and Zacatecas. Also, the city's position at the midway point on the main road connecting Mexico City and Guadalajara in Nueva Galicia was significant in creating a service function which is still important today. Then, too, with the economic development of western and southern Michoacan, and the subsequent increase in trade between these regions and others to the north and east, Valladolid became a focal point for the assembling, processing, and distribution of products shipped in both directions. Surface configuration was largely responsible for this focality.

The cultural factors of greatest significance for the growth of Valladolid during colonial times involved primarily personal decisions made by officials in positions of importance. Certainly the decisions to transfer the seats of governmental and ecclesiastical authority had a profound affect on the maturation of the city then, and have played a decisive role in its primacy to the present. The impact of a background of Spanish culture also influenced the development of Valladolid, especially with respect to its internal structure. The rectangular-grid pattern of narrow streets, the massive buildings constructed immediately adjacent to the sidewalks, the absence of trees except in the parks and plazas, and the overall orientation of city life toward the central plaza and the cathedral were results of this influence, still very much in evidence. Valladolid was

and is a Spanish city with practically no influence of Indian culture visible.

The Nineteenth Century

At the turn of the century, then, Valladolid was a city of consequence due to its administrative, ecclesiastical and commercial functions. Although the controlled economic system imposed upon New Spain by the mother country had tended to stifle trade and prevent maximum economic development, the city's excellent physical endowment and location had been sufficient to bring relative prosperity. By 1803 the population numbered 18,000,¹ and had increased to a high of 20,000 at the outset of the War for Independence in 1810.²

Because of its importance and its strategic location within the major zone of hostilities, Valladolid was a prime target for contending forces throughout the war period (1810-1821), and therefore experienced a great deal of turmoil and a general decadence. In 1814 the population was only 3,000 persons, according to Juan de la Torre.³ Many, especially those of Spanish birth, had fled to Mexico City, while others had taken refuge in the mountains to the south and west.⁴ By the close of hostilities, however, many of those who had left

¹Martinez de Lejarza, op. cit., p. 33.

²Romero Flores, Historia de la ciudad de Morelia, p. 11.

³Ibid.

⁴Brand, op. cit., p. 87.

earlier had returned, but the population numbered only 14,000 in 1822.¹

With the achievement of independence in 1821, and the overthrow of the pseudo-empire of Iturbide (a native of Valladolid) in 1823, a constitutional republic was established in Mexico in 1824 and Valladolid became the capital of the newly-formed state of Michoacan. In 1828 the state legislature changed the name of Valladolid to Morelia in honor of Don Jose Maria Morelos y Pavon, a native of the city and one of the major heroes of the War for Independence.²

The five decades that followed independence constituted a period during which anarchy, civil wars, internal revolutions and foreign intervention almost continually plagued the newly-formed country.³ These conditions stifled economic progress and are reflected in the slow growth of Morelia during the period. The city did not regain its pre-war population until 1842,⁴ and had increased to only 25,000 at the

¹Martinez de Lejarza, op. cit., p. 30.

²Jesus Romero Flores, Michoacan historico y legendario (Mexico: Talleres Graficos de la Nacion, 1936), pp. 362-363. The name was first proposed by Don Jose Maria Silva, a deputy to the state legislature, who suggested that Morelos should be honored in the same manner as Simon Bolivar had been in the naming of Bolivia. His proposal was adopted on September 12, 1828.

³Brand, op. cit., p. 93.

⁴George Folsom, Mexico en 1842 (New York: C. J. Folsom, 1842), p. 92.

outset of the regime of General Porfirio Diaz in 1876.¹

Conditions in Morelia at the end of the revolutionary war were bad, to say the least. The mills which had produced large quantities of cotton and woolen cloth and hats for sale in the Tierra Caliente, the coastal region to the south, and elsewhere in central Mexico were abandoned for lack of raw materials and markets.² The tobacco factory, established in 1781, was closed and the building confiscated for use as a governmental office.³ The city itself was in great disrepair. Most of the streets contained gullies and holes which made travel on them almost impossible. Many of the houses were in a state of deterioration, while the use of open ditches for the drainage of sewage created a pestilential situation.⁴

Apparently, however, much of this internal decay had been rectified a few years later. A British captain, George Francis Lyons, writing in 1826, gave the following as his impression of the city:

I was much struck on entering Valladolid [Morelia] by the width and airy appearance of its streets, the goodness of the houses, and its magnificent cathedral. The city of Valladolid pleased me more than any I had hitherto seen. It has indeed but one prin-

¹Secretaria de Economia, Direccion General de Estadistica, Estadistica sociales del Porfiriato - 1877-1910 (Mexico: 1956).

²Martinez de Lejarza, op. cit., p. 29.

³Romero Flores, Diccionario Michoacano y geografico, p. 151.

⁴Romero Flores, Michoacan historico y legendario, pp. 359-360.

cipal street [Avenida Francisco I. Madero]; but this is broad, clean, and cheerful; so that a stranger escapes all the filth, misery, and crowds with which most other Mexican cities abound.¹

During the next four decades, many of the pre-revolutionary war functions of Morelia were restored as the war-ravaged areas of its hinterland recovered. In 1844, despite the internal turmoil, a silk factory (Fabrica de la Seda) was opened in Morelia, but operated only a short time due to inefficiencies and a lack of raw silk.² The cotton textile industry, with a surer supply of raw materials, fared somewhat better. In 1846 a variety of cotton products were being produced in small establishments in Morelia and elsewhere in Michoacan.³ Cotton for the industry was grown in the Tierra Caliente, and was brought to Morelia by arrieros.⁴

The lack of good roads connecting Morelia with the other cities and towns was a decided disadvantage throughout the period. Trails suitable for mule, horse and burro trains

¹Statement of Captain George Francis Lyons in Strode, op. cit., p. 146.

²Several years before the opening of the factory over a million and a half mulberry trees had been planted in various municipios of the state (Los Reyes, Uruapan, Cotija, Ecuandureo, and Tacambaro) to supply the raw material, but these perished as a result of unexpected frosts a short time after the factory's initial operations. See Bravo Ugarte, op. cit., p. 138.

³Ibid.

⁴Arrieros were men who possessed mules, horses or burros used to carry goods from one place to another on a fee basis. Many arrieros still function in Michoacan.

comparable to those of the colonial period existed, but roadways adequate for movement of wagons and stagecoaches were slow to develop. By 1861, however, Morelia was connected by stagecoach road with Mexico City to the east and three coaches arrived and departed each week. The trip required three days, and was dangerous and expensive, costing 39 pesos.¹ The same trip for cargo-wagons was much slower and freight rates were very high. Roads in 1861 also connected Morelia with Celaya, Guanajuato and Leon to the north, and with Patzcuaro, Zamora, Jiquilpan and La Barca to the west. Although these were equally time-consuming and costly to negotiate, they were an improvement over the earlier trails. Thus, Morelia's waystation function, which had been initiated during the early colonial period, continued to be significant. In 1862 the city possessed a hotel, a stagecoach house, seven inns (mesones), a theater and other establishments catering primarily to the traveler.²

The French Intervention under Maximilian from 1863 to 1867 caused a temporary loss of the city's basic governmental function and a corresponding setback in its growth and economic development. Prior to the occupation of Morelia by imperialist forces in 1863, the constitutional government was moved to Uruapan in southwest Michoacan, where

¹Bravo Ugarte, op. cit., p. 138.

²Jose Guadalupe Romero, Noticias para formar la historia y la estadística del Obispado de Michoacan (Mexico: Imprenta de Vicente García Torres, 1862), p. 51.

it functioned throughout the hectic period that followed.¹ The French installed provisional military governors in the state palace, but these men governed only with the support of the imperialist troops, so Michoacan remained in a state of siege and political disorder until 1867. That year, with the expulsion of the French, and the execution of Maximilian, republican government returned and the state capital reverted to Morelia from Uruapan.

During the next decade, the progress of Morelia was greatly hampered by the political disorders rampant throughout Mexico following the ouster of Maximilian. These prevented orderly economic development.² The city was sorely in need of improved transportation facilities, internal improvements, and employment for its people, but had to wait until the regime of Porfirio Diaz for the realization of most of these goals. Two new factories were opened, however, which helped. One, a mill (Fabrica "La Paz") utilizing steam-power for the production of cotton cloth (manta), began operations in 1868 and provided jobs for two-hundred day workers and a similar number at night.³ This employment of 400 people was of great economic benefit to the city. In 1871 a second cotton textile factory (Fabrica "La Union")

¹Brand, op. cit., p. 97.

²Bravo Ugarte, op. cit., p. 166.

³Romero Flores, Historia de la ciudad de Morelia, pp. 162-163.

was opened, and, although somewhat smaller than Fabrica "La Paz," was also of great significance to Morelia.¹ These were the first two highly mechanized, steam-powered factories operating in the city. Both functioned until shortly before the downfall of Diaz in 1910.

Morelia's other manufacturing activities during this time included the milling of wheat, the preparation of meats, and the making of candy. The latter industry was carried on primarily in small individual establishments with only a few workers each, but in total engaged a relatively large number of persons, and was certainly one of the most important of the city.² The making of candy called guayabate or ate is still an enterprise of consequence in Morelia today. In fact, the city is known throughout Mexico as the "Candy Capital of the Republic," and many residents gain their livelihood from its manufacture and sale.

La Porfiriata

The rise of Porfirio Diaz to power in 1876 ushered in a dictatorship which lasted until 1910. This period of Mexican history, commonly referred to as the Pax Porfiriana or La Porfiriata, was one of relative internal tranquillity and made possible for the first time a situation in which economic

¹Ibid., p. 163.

²E. C. Justo Mendoza, "Morelia en 1873, su historia, su topografia y su estadística," Boletín de la Sociedad de geografía y estadística, III, I (1873), p. 629.

advancement could be made on a grand scale. The half century from independence to Diaz had been characterized by great turmoil. This had restricted both the growth of the basic industries of the country and expansion of its cities. Thus, the economic foundations of modern Morelia were largely laid during the Porfiriata.

Since poor transportation had been a major factor in restricting development, its improvement was high on the list of priorities needed for progress. Mexico had only one railroad when Diaz came to power, one completed in 1872 connecting Veracruz and Mexico City.¹ Vehicular roads were more numerous, of course, but were entirely inadequate and in ill-repair due to a half-century of neglect. The construction of railroads, with the aid of foreign capital, began almost immediately after Diaz took office, with the goal of connecting the state capitals and major ports of the country with Mexico City. The road network of Michoacan and all of central Mexico was also extended and improved during the Porfiriata, but hard-surfacing of roadways awaited the coming of the motor vehicle and did not take place until long after Diaz' regime had ended.

A railroad westward from Mexico City, via Toluca, Maravatio and Acambaro, reached Morelia in September, 1883, thereby connecting Morelia to the national capital and to

¹Mary Wilhelmine Williams et al., The People and Politics of Latin America (3rd ed.; Boston: Ginn and Company, 1955), p. 477.

Veracruz, the major port of the country.¹ By 1886 this line had been extended to Patzcuaro and in 1889 it reached Uruapan.² During the 1880's, other lines were laid from Mexico City northward to Ciudad Juarez (El Paso del Norte) via Queretaro, Celaya, Leon, Aguascalientes, Zacatecas and Chihuahua, and to Nuevo Laredo via San Luis Potosi, Saltillo and Monterrey. A branch constructed from Acambaro northward to Celaya, gave Morelia and Michoacan access to the major north-south line of the country (Fig. 1). Another branch extended from the latter westward to Guadalajara. Thus, by 1891 Morelia possessed rail connections with the major cities of the republic, although some of these were circuitous indeed. Railroad connections between Morelia and the Pacific northwest coast via Guadalajara, however, were not completed until 1928.³

Communications were also improved during the 1880's and 1890's. Although a telegraph line had been extended from Mexico City through Celaya to Morelia as early as 1870, connections with the other urban places of Michoacan had not been developed.⁴ By 1890, however, lines united Morelia

¹Romero Flores, Historia de la ciudad de Morelia, p. 175.

²Brand, op. cit., p. 106.

³John M. Ball, The Urban Geography of Tepic, Nayarit, Mexico: A Study of Changing Functions (unpublished Ph.D. dissertation, Department of Geography, Michigan State University, 1961), p. 28.

⁴Bravo Ugarte, op. cit., p. 174.

with Ario, Tacambaro, Uruapan, Taretan, Patzcuaro, Zamora, Zacapu, La Piedad and Puruandiro, the major settlements of the state.¹ During the 1890's, telephones were installed in Morelia and lines were constructed between the city and most of the state's major centers.² By 1908 Morelia was served by two private companies which had approximately 400 customers each.³

Internal improvements in the city were also realized during this period. Shortly after the arrival of the railroad, streetcar tracks were laid along the major east-west thoroughfare connecting the railroad station with both the heart of the city and its eastern edge.⁴ During the several years that followed, tracks were added to connect the plaza with northern and southern extremities of the city as well. Jesus Romero Flores has described the advent of the streetcars (tranvias) as being a major step in the internal progress and modernization of the city.⁵

Bettering of the city's lighting system was accomplished in 1888 when an electrical street-lighting network replaced the petroleum lamps (faroles de petroleo) which had been used since the 1820's.⁶ Two private companies operated

¹Ibid.

²Ibid.

³Padilla, op. cit., p. 475

⁴Romero Flores, Historia de la ciudad de Morelia, p. 175.

⁵Ibid.

⁶Romero Flores, Michoacan historico y legendario, p. 434. It is significant that Morelia possessed such a system prior to Mexico City.

in the city by 1908 providing electricity to an undetermined number of customers.¹

Improvements in the city's water supply were also made toward the end of Diaz' government. In 1904-05 a filtration plant was constructed southeast of the city to process the waters of the Rio Chiquito.² This was the first plant of its kind in Mexico. Water lines were laid and both public and private outlets were installed. These modern facilities replaced the aqueduct system which had been supplying the city with spring water from the mountains since its construction in the 1780's.³ The installation of underground sewer drainage did not take place until after the fall of Diaz, however, while major improvements of the city's streets were similarly delayed.

The functions performed by Morelia throughout the Porfiriata (1876-1910) were very similar to those of previous times, but in some instances were on a much larger scale. The governmental function naturally increased with the rising levels of population in the state. The religious function, although somewhat downgraded by restrictive legislation

¹Padilla, op. cit., p. 478.

²Ortiz Santos, op. cit., p. 73.

³Ibid., pp. 72-73. The aqueduct was constructed as a relief measure by Fray Antonio de San Miguel, after several years of bad harvests had brought great suffering to the peoples of Valladolid. It was built between 1785 and 1789 and contained 253 arches. Water was brought to the city from the springs (manantiales) in the mountains to the south-east and was distributed by a series of public fountains.

against the church in the second half of the 19th Century, was still important. The city's function as a service center and way-station along the major route connecting Mexico City and Guadalajara grew in importance as those two centers expanded. The number of hotels reflects this growth. In 1862 Morelia possessed one hotel, in 1883 it had three,¹ and there were five in 1899.²

Morelia's function as a processing and supply center, as well as a marketing and distributional point for the rich farm and grazing lands of Michoacan and southern Guanajuato, was enhanced by the arrival of the railroad. It made possible the rapid and economic transfer of bulky agricultural products and livestock to the cities in the east, while at the same time providing an improved means for moving manufactured goods back to Morelia on the return trip. Wheat flour, wood products, vegetable oils and livestock were some of the major items shipped from Morelia. The rich pasturelands of Michoacan were still supplying Mexico City with thousands of steers in 1888, and probably represented the most important source of beef for the capital at that time.³

¹Manuel Rivera Cambas, Mexico pintoresco, artistico y monumental (Mexico: Imprenta de la Reforma, 1883), p. 440.

²J. Figueroa Domenech, Guia general descriptiva de la Republica Mexicana: Estados y Territorios Federales (Barcelona, Spain: Imprenta de Henrich y Compania, 1899), 11, p. 350.

³The following statement was taken from Bureau of the American Republics, "Mexico," Bulletin No. 9 (July, 1891), p. 47: "The rich pasture lands of the latter state [Michoacan] feed the thousands of cattle slaughtered for the sustenance of the residents of the capital of the Mexican Republic, which is by no means an inconsiderable num-

The function of manufacturing in Morelia during the Diaz era was dominated by the processing of agricultural and forestry products. Even the small establishments operating in 1899, such as those producing soap, candles, leather goods, beer, candy and tobacco, depended upon agricultural raw materials. These came from the immediate hinterland or from the expanding activities in the Tierra Caliente to the south. Extension of the railroad to Uruapan in 1889 facilitated the procurement of raw materials from the south since Uruapan was situated in the zone of contact between these hot lands and the more temperate ones of the north.

By 1900 the population of Morelia had increased to 37,278,¹ and it reached 40,042 by 1910.² There had been an increase of 62.5 percent during the thirty-five years of the Diaz dictatorship. Despite this growth, and although much progress had been made, Morelia still had many of the characteristics of a small town. Jesus Romero Flores summed up the situation nicely when he wrote, "Morelia and the principal cities of the state, until the year 1910, were nothing more than 'grand pueblos,' lacking most of the elemental services of hygiene."³

ber, for during the year 1888 there were 83,228 beeves and 130,263 sheep slaughtered in the abbatoirs of the City of Mexico.

¹Censo general de la Republica Mexicana verificado el 28 de octubre de 1900.

²Tercer censo de poblacion de los Estados Unidos Mexicanos verificado el 27 de octubre de 1910.

³Jesus Romero Flores, Historia de Michoacan (Mexico: El Nacional, 1941), p. 184.

The Twentieth Century

The regime of Porfirio Diaz was waning at the beginning of the 20th Century. Although great economic progress had been made in the previous quarter-century, much of this had been at the expense of increasing foreign economic domination, and the living standards of the majority had improved but little. Most of the lands and industries of Mexico were in the hands of a few wealthy Mexicans, or of foreign interests. The common man was landless and virtually at the mercy of these groups. Growing discontent with this situation presaged the coming disorder that culminated in The Revolution¹ of the masses against the established system.

Mexico was thrown into civil war in 1910 and internal disorder continued for the next decade. Morelia again was a center of strife and suffered because of it. By 1921 the population had decreased to 31,148.² Much of the city's progress which had begun under Diaz, was halted or severely curtailed. Programs of internal improvement that had been approved by the state legislature as late as 1909, such as asphaltting of streets, construction of underground sewers, and enlargement of the water system, were delayed.³ The

¹The term The Revolution is used in Mexico to denote the overthrow of the Diaz regime and the changes in the economic, social and political systems of the country which have been carried out under the provisions of the Constitution of 1917. The Revolution is still in progress.

²Censo general de habitantes, 30 de noviembre de 1921.

³Romero Flores, Historia de la ciudad de Morelia, p. 237.

railroad system of the country as a whole suffered greatly from war damage and general neglect, resulting in a diminished exchange of goods so vital to the progress of cities. Under these conditions a decline in the population of Morelia was inevitable.

With the election of Alvaro Obregon as constitutional president in 1920, Mexico returned to a semblance of internal order. Obregon was committed to the provisions of the liberal constitution of 1917,¹ and proceeded to implement them. Since the election of Obregon, Mexico has experienced relative harmony in internal affairs and progress has continued at an accelerating rate to the present time. Morelia's

¹The Constitution of 1917 embodied many of the provisions of previously issued decrees, constitutions and plans, and particularly the liberal provisions of the Constitution of 1857 promulgated under Benito Juarez. It was truly a document of the masses and continues in force to the present time. The articles of greatest social and economic significance are: Article 3, providing for mass public education by the state only; Article 123, guaranteeing the rights of labor and commonly referred to as the "Magna Carta" of labor; Article 130, depriving the church of privileges, and particularly of property ownership; and Article 27, providing for the ownership of land by the people and the nation as a whole. Article 27 was probably the most important one in the constitution, because of the following provisions: (1) only people of Mexican birth, naturalized citizens, or foreigners who will accept the Mexican laws as supreme are eligible to own land; (2) foreign companies can own land in Mexico only on concession from the government of Mexico; (3) the church cannot own property of any kind; (4) lands taken from the people before 1857, and also during Diaz' regime, were to be restored to the rightful owners; (5) large haciendas were to be purchased by the government for distribution to the common people at a nominal price; and (6) all underground minerals are the property of the nation.

growth from 1921 to 1965 is ample evidence of this trend (see Chapter IV).

Internal improvements postponed during the 1910's were implemented in the 1920's and included the paving of most of the streets in the central part of the city, the construction of a sewage system and the extension of the water system to include the installation of faucets in individual homes. By 1928 most of the buildings of the city had water service and many possessed sewage facilities also.¹ Public faucets were provided in portions of the city lacking individual water service. Health and sanitation measures were stressed, and apparently were successful for in 1931 one official visitor wrote, "Morelia is the cleanest city I have ever seen. It is absolutely spotless. It has one long, magnificent street, which once seen will be never forgotten."²

Economic activity in Morelia increased during the 1920's and 1930's, especially in the realm of manufacturing. This was possibly partly a result of the worldwide depression which restricted the importation of manufactured goods. Early in this period probably the largest manufacturing firm in the city was Negociacion Industrial "Santa Lucia," S.A., established in 1915, which specialized in the milling of wheat and the processing of sesame and cottonseed oils. In

¹Romero Flores, Historia de la ciudad de Morelia, p. 248.

²A statement by a Mr. Harry Carr of California, made while on an official road-commission inspection tour in 1931, appearing in Strode, op. cit., p. 147.

1924 a large firm specializing in the manufacture of wooden products, La Compania Industrial Madereria "El Carmen," S.A., went into production. An additional wheat-milling firm, Harinera Michoacan, S.A., was opened in 1929.

During the 1930's, a number of new plants began operating. These included El Pino, S.A. (1934), Industria "OKEN," S.A. (1935), Comercial Maderera, S.A. (1935), and Tron Hermanos y Compania, S.A. (1936), established respectively for the production of resin and turpentine, metal scales, wood products, and vegetable oils.¹ The operations of El Pino, S.A., initiated a new phase in the external commercial relations of Morelia since its products were manufactured primarily for foreign markets. The first two plants named represented entirely new types of industries for Morelia. The success of all four is verified by the fact that each is still functioning today and has undergone considerable expansion. With the exception of Industria "OKEN," S.A., these plants were located adjacent to the railroad station and yards at the northwest edge of the city, indicating the importance of that transportation facility.

Each of the plants opened between 1915 and 1936 represented an addition to Morelia's basic industry,² and pro-

¹Information on these plants was obtained by personal interviews with plant officials during the summer of 1965.

²For a discussion of the basic-nonbasic concept, see John W. Alexander, "The Basic-Nonbasic Concept of Urban Economic Functions," Economic Geography, III (July, 1954), pp. 246-261.

vided much-needed outside income as well as employment positions. The introduction of these plants marked the beginning of an upward trend in the modern manufacturing function of the city which has continued at an increasing rate to the present.

During the 1930's, Morelia still functioned as a major retail marketing and processing center for nearby towns and farms, and its trade with areas outside the immediate hinterland was considerable. The extent of the retail trade was greatly limited, however, by poor transportation connections within much of the state, although the railroad system provided facilities for the transfer of large quantities of products to other parts of the country. Agricultural and forest products dominated the city's commercial activities in 1938, as is shown by Table 6 which lists the number of railroad cars of various products leaving Morelia that year. Since the railroad was the only form of transportation allowing the mass transfer of products in 1938, the figures in Table 6 give a good indication of the relative importance of the various activities at that time.

As can be seen, agricultural, livestock and forest products represented the major items of manufacturing and commerce. Of the 998 railroad cars departing Morelia that year, 552, or well over one-half, contained agricultural products or livestock, while 338 were loaded with lumber and other wood products. Lumber alone accounted for over 25 percent of all cars, while wheat and flour comprised an additional 20 percent. Vegetable and animal fats, oils and pastes

Table 6.-Number of railroad cars of various products leaving Morelia in 1938*

Products	Number of Cars	Products	Number of Cars
<u>Agricultural</u>		<u>Wood and Products</u>	
Flour	185	Lumber	253
Wheat	16	Charcoal	30
Bran	73	Sawdust	1
Corn	40	Wood Chips	2
Beans	17	Wooden Posts	2
Chickpeas	6	Wooden Beams	1
Rice	2	Barrel Staves	2
Sugar	11	Furniture	1
Potatoes	1	Turpentine	12
Hay	1	Tar and Pitch	34
Vegetable and Animal Fats	106		
Sesame Oil	32	Total	338
Sesame Paste	24		
Sesame Seed	3	<u>Miscellaneous</u>	
Peanut Oil	3	Machinery	7
Peanut Butter	3	Soap	6
Linseed Paste	3	Alcohol	1
		Paraffin	1
<u>Livestock</u>		Concrete Pipes	1
Beef Cattle	12	Crackers	1
Dairy Cattle	1	Scrap Iron	3
Swine	7	Scrap Paper	3
Goats	4	Rags	2
Hides	1	Empty Bottles	47
Bones	1	Metal	2
		Stone	2
		Cement	4
		Unclassified	28
Total	552	Total	108
		Total Cars	998

* Source: Secretaria de Hacienda y Credito Publico, Direccion General de Inspeccion Fiscal, Estudios historico, economico, fiscales sobre los Estados de la Republica, III, Michoacan, Primer Tomo (Mexico: T.I.E.V., 1940), pp. 138-140.

occupied 174 cars, or approximately 17 percent of the total. The small number of cars involved in transporting livestock probably indicates a decline in the relative importance of the livestock trade from earlier times, but verification of this is not entirely possible because of the lack of other data.

By 1940 the population of Morelia had risen to 44,304,¹ and the city was on the verge of a population explosion. The asphalted highway westward from Mexico City had just reached it (1938) and many tributary paved roads were being planned and developed. The modern period of Morelia can be said to have begun when the highway arrived. In the quarter-century since then the city has ceased to be a "grand pueblo" and has become a "grand ciudad."

The Modern Era

Completion of the asphalted all-weather highway to Morelia from Mexico City in 1938,² and the subsequent extension of it westward to Guadalajara, marked the beginning of a new era in the city's development and functional structure. This highway and the many tributary highways subsequently constructed have provided all-weather routes between Morelia and most of the urban places of Michoacan, and have

¹Sexto censo general de poblacion, 6 de junio de 1940.

²For a discussion of the completion of this highway see Pablo C. De Gante, La ruta de occidente, las ciudades de Toluca y Morelia (Mexico: D.A.P.P., 1939), p. 5.

been directly responsible for the increased movements of people and commodities within the state and to other parts of Mexico. Morelia's hinterland was greatly expanded by the addition of this highway network and the city has grown in response to it.

Although the arrival of the railroad in 1883 was the first step in the modernization of transportation facilities, the advent of trucks and buses with their increased versatility has been the primary factor in the dynamic change in the city's character. The truck has made possible the rapid and relatively efficient transfer of products to and from regions inaccessible to Morelia prior to establishment of the highway system. The bus has performed a similar function with respect to people and has been significant in the transfer of products as well. Journeys that previously required days or even weeks were shortened to a matter of only hours or a day at most. There is, however, room for considerable improvement in the highway system, since many areas of the state still have very poor facilities or none at all, but progress is being made and plans exist for further expansion in the immediate future.

One of the most immediate affects on Morelia of the improved transportation system has been the influx of large numbers of people from the rural areas. These folk have come to Morelia not only to sell their wares, to shop and to enjoy the entertainment of the "big city," but in many cases to seek employment and take up residence. A rising population in rural areas, coupled with the increasing amenities of the

city, encouraged many to remain as permanent inhabitants. The population explosion, so typical of urban centers throughout Latin America, began here in the 1940's and by 1950 the population of Morelia had increased to 63,245.¹

Economic activity also expanded during the 1940's, but not at a rate sufficient to provide suitable employment for the large increment in population. Then, too, many of those who came to the city were illiterate and unprepared to participate in modern economic activities. Most of the newcomers sought employment in the services, in petty businesses, or in construction, but even these possibilities were quite limited. In most cases those who had left the country, because of the supposedly greater opportunity in the city, found themselves in conditions of poverty very similar to those from which they had come, and in some cases even worse. They had merely transferred their indigence from the rural to the urban area. Morelia possesses a number of peripheral "colonias" today made up largely of people in this classification. These poverty-stricken neighborhoods constitute one of the major problems of the city.

The retail function of Morelia, which has been so significant throughout the city's history, naturally expanded with the improvement of transportation facilities and with the increase in population. New types of retail businesses also came into being, such as those selling cars and trucks, as well as the parts and accessories for them. Shortly after

¹Septimo censo general de poblacion, 6 de junio de 1950.

the completion of the highway in 1938, a Ford dealership was established--Morelia Automotriz, S.A.,--and at the end of World War II in 1945 two additional dealerships located in Morelia--Motores de Morelia, S.A., and Autos y Camiones de Michoacan, S.A.,--for the sale of Chevrolet and Buick cars, and Chrysler cars and trucks, respectively.¹ Dealerships were also set up for the marketing of products of well-known foreign manufacturers, such as Du Pont, Goodyear, Sherwin-Williams, Zenith, etc. Many of these agencies included exclusive franchises covering large segments of the state, and in some instances the entire state. Some have opened branches (sucursales) elsewhere in the state, or have granted sub-dealerships, thereby becoming distributors themselves.

The increase in retail activity also had the affect of creating greater demands for services since many of those who came to shop remained in Morelia for several days, requiring lodging and boarding facilities, as well as entertainment places. Many of these establishments were congregated near the bus terminals that were located on the periphery of the central business district, and thus distinct "service districts" evolved which have persisted to the present time.

Manufacturing also expanded during the 1940's, as eight new plants were built representing several new lines of products. Two were opened shortly before World War II, Mex-

¹Information concerning these businesses was obtained by interview with company officials during the summer of 1965.

Clareol, S.A., for the production of clarifying compounds for oils, paraffin and insecticides, and Industrial "Trinidad," S.A., for the preparation of coffee. During the war, two bottling plants were established, Embotelladora Perisoda, S.A., and Embotelladora de Morelia (Coca-Cola), S.A. In the postwar period from 1947 to 1949 Cartonera de Morelia, S.A., La Voz de Michoacan, Industrias Quimicas de Mexico, S.A., and Lux Perpetua de Occidente, S.A., began the production of roofing materials and cardboard boxes, newspapers, chemicals and candles, respectively.¹ It is interesting to note that the plants constructed in the 1940's were not primarily for processing of the agricultural and forest resources of Michoacan, but were largely dependent on raw materials from outside the state, a condition which emphasized the growing importance of the truck and improved highway transportation facilities.

The trends that were established in the 1940's have continued to the present time. In-migration of peoples from the rural areas is still swelling the city's population and adding to the already severe problems of unemployment and inadequate urban facilities. The migrants generally settle in new colonias on the periphery of the city, but some further crowding of previously existing colonias is occurring. The city has, however, escaped the crowding of these poor people into the inner city which is so common in the large

¹Information concerning these eight plants was obtained by interview with company officials during the summer of 1965.

cities of the United States.¹ As a result, slum areas have not developed in the center of the city, but they are certainly prevalent in the out-lying portions of it.

The period since 1950 has been one of increased manufacturing activity, a substantial gain in the tourist industry, and continued expansion in retail and wholesale trade. Twelve manufacturing plants (distinguished here from the small ubiquitous hand-craft industries) have begun operations. These are listed in Table 7, along with their dates of establishment and major products. Each will be more fully discussed

Table 7.-Manufacturing plants established in Morelia, 1950 to 1965*

Name of Company	Date of Estab.	Product (s)
Congeladora Morelia, S.A.	1952	Frozen Strawberries, Ice
Heraldo Michoacano, S.A.	1953	Newspapers
Cia. Cerillera Moreliana, S.A.	1953	Matches
Bebidas Purificadas de Michoacan, S.A.	1953	Pepsi-Cola
Refina Sintetica, S.A.	1954	Chemicals
Fabrica "Alfa," S.A.	1957	Tile-Ironwork
Embotelladora Jarritos, S.A.	1958	Jarritos
Congeladora y Empacadora Nacional, S.A.	1959	Canned and Frozen Fruits
Oleaginosos de Morelia, S.A.	1960	Coconut Oil
Embotelladora Valle de Guayangareo, S.A.	1961	Grapette
Quimica Michoacana, S.A.	1962	Fatty Acids
Cartonera Duratecho, S.A.	1963	Roofing

* Sources: Interviews with company officials, Morelia, during the summer of 1965.

¹Interview with Jaime O. Sandoval, August 21, 1965, who said that at least 75 percent of the newcomers in recent decades have settled in the peripheral areas, and that very few older buildings in the center of the city have been sub-

in Chapter V, but it can be seen that new types of industries have developed since 1950, particularly in chemicals and food processing.

Although Morelia has not as yet been deluged by the flood of turistas that is sweeping over much of Mexico, their numbers are considerable and support a significant new basic industry which is certain to become a major economic factor in the years ahead. Morelia does not at the present time possess sufficient facilities to handle a large influx of tourists. Large capital investments will be necessary soon to provide adequately for the expected guests.

Retail and wholesale functions in Morelia have expanded tremendously in the past fifteen years. The adding of over 50,000 inhabitants since 1950 has in itself presented a sizeable new market for business, while improved transportation facilities, with the resultant increase in population mobility, have been influential in bringing large numbers of buyers and sellers to the city.

The rapidly rising numbers of automobiles, trucks and buses are carrying the city into the automotive age, and have resulted in the inauguration of new service functions and expansion of the old ones. Traffic problems are already in evidence and promise to become acute in the near future. Their presence indicates that Morelia has finally become a part of the modern era with all of its assets and liabilities.

divided into slum tenements, as is the case in the cities of the United States.

CHAPTER IV

GROWTH OF MORELIA

Growth of Population

Although Morelia (Valladolid) was founded in 1541, population statistics for the first two centuries of its history are very scarce. In fact, it was not until 1895 that a fairly reliable census was taken. Thus, figures utilized in this chapter for the period prior to that year are primarily estimates. These have of necessity been used to approximate population trends, since no better information is available.

The royal decree issued in 1537 by Princess Dona Juana la Loca, daughter of Queen Isabella of Castilla (Castile), which authorized the founding of a settlement in the Valley of Guayangareo, mentioned that there were more than sixty Spanish families residing in the vicinity, as well as nine religious men and numerous Indians.¹ Cook and Borah believe that the size of the Indian community at Guayangareo in 1568

¹A good discussion of the royal decree authorizing the establishment of Valladolid can be found in Jesus Amaya T., Cedulas Reales de 1537 y 1609 relativas a la fundacion de Valladolid hoy Morelia (Mexico: VII Feria Mexicana del Libro, 1956).

was about 310 persons.¹ It can, therefore, be concluded that several hundred people occupied the site in the valley when Valladolid was established in 1541.

By 1742 Valladolid possessed 4,000 families, according to Jose Bravo Ugarte² (Table 8). Ugarte also gives the 1793 population as 18,000,³ the same number as Manuel Padilla, writing in 1908, estimated were here in 1750.⁴ If these estimates are anywhere near accurate, Valladolid remained a city of around 18,000 persons during the latter half of the 18th Century.

At the beginning of the 19th Century there were still only 18,000 inhabitants, according to Juan Jose Martinez de Lejarza,⁵ but the total had increased to 20,000 by the start of the War for Independence.⁶ The fighting, which lasted for over a decade, was largely in central Mexico, and Valladolid became a prize for both the revolutionary and Spanish forces. The city changed hands numerous times, and the citizenry was subjected to terrible cruelties on several occasions. By 1814, as a consequence, only 3,000 persons resided in the

¹Sherburne F. Cook and Woodrow Borah, The Indian Population of Central Mexico, 1513-1610 (Berkeley: The University of California Press, 1960), p. 97.

²Bravo Ugarte, op. cit., p. 99.

³Ibid., p. 172.

⁴Padilla, op. cit., p. 468.

⁵Martinez de Lejarza, op. cit., p. 33.

⁶Romero Flores, Historia de la ciudad de Morelia, p. 11.

Table 8.-Population of Morelia, 1742-1965^a

Ref. No.	Year	Total	Ref. No.	Year	Total
(b)	1742	4,000 (families)	(n)	1877	25,000
(c)	1750	18,000	(o)	1882	23,835
(d)	1793	18,000	(p)	1895	33,890
(e)	1803	18,000	(q)	1900	37,278
(f)	1810	20,000	(r)	1910	40,042
(g)	1814	3,000	(s)	1921	31,148
(h)	1822	14,000	(t)	1930	39,916
(i)	1828	11,000	(u)	1940	44,304
(j)	1842	18,000	(v)	1950	63,245
(k)	1867	25,000	(w)	1960	100,828
(l)	1868	30,000	(x)	1963	109,144
(m)	1873	30,000	(y)	1965	116,692

^aSources: (b) Jose Bravo Ugarte, Historia sucinta de Michoacan, II, provincia mayor e intendencia, p. 99; (c) Manuel Padilla, "Morelia," Boletin de la Sociedad Mexicana de geografia y estadistica, p. 468; (d) Jose Bravo Ugarte, op. cit., p. 172; (e) Juan Jose Martinez de Lejarza, Analisis estadistico de la Provincia de Michuacan [sic] en 1822, p. 33; (f) Jesus Romero Flores, Historia de la ciudad de Morelia, p. 11; (g) Ibid.; (h) Martinez de Lejarza, op. cit., p. 30; (i) Romero Flores, Michoacan historico y legendario, p. 359; (j) George Folsom, Mexico en 1842, p. 92; (k) Gran almanaque Mexicano y directorio de comercio al uso del Imperio Mexicano, Año 1867; (l) E. C. Justo Mendoza, "Morelia en 1873, su historia, su topografia y su estadistica," p. 620; (m) Ibid.; (n) Secretaria de Economia, Direccion General de Estadistica, Estadistica sociales del Porfiriato, 1877-1910; (o) Juan de la Torre, Bosquejo historico y estadistico de la ciudad de Morelia, capital del Estado de Michoacan de Ocampo, p. 22; (p) Censo general de la Republica Mexicana verificado el 20 de octubre de 1895; (q) Censo general de la Republica Mexicana verificado el 28 de octubre de 1900; (r) Tercer censo de poblacion de los Estados Unidos Mexicanos verificado el 27 de octubre de 1910; (s) Censo general de habitantes, 30 de noviembre de 1921; (t) Quinto censo de poblacion, 15 de mayo de 1930; (u) Sexto censo de poblacion, 6 de marzo de 1940; (v) Septimo censo general de poblacion, 6 de junio de 1950; (w) Octavo censo de poblacion, 6 de junio de 1960; (x) Estimated by the Direccion General de Estadistica; (y) Estimated by the writer based on the national increase rate of 3.4 percent since 1960.

city.¹ In 1822, shortly after independence had been achieved, the number had risen, reaching 14,000,² but it fell to 11,000 by 1828.³ No explanation for this decrease could be found. The population level established in the late 1700's and early 1800's had been regained by 1842, however, when the total was listed as 18,000 by George Folsom.⁴

A substantial increase in the city's population occurred during the next few decades, despite the turbulence of the Maximilian era. In 1867, the last year of Maximilian's rule, the official almanac of the empire⁵ shows Morelia to have been a city of 25,000 persons. Justo Mendoza though lists the number as 30,000 in 1868,⁶ and gives the same figure for 1873.⁷ It is likely, therefore, that the population of Morelia during the late 1860's and early 1870's was between 25,000 and 30,000 inhabitants. A governmental report issued in 1956 covering the era of Porfirio Diaz indicated the population of Morelia at the beginning of this period as

¹Ibid., p. 11

²Martinez de Lejarza, op. cit., p. 30.

³Romero Flores, Michoacan historico y legendario, p. 359.

⁴Folsom, op. cit., p. 92.

⁵Gran almanaque Mexicano y directorio de comercio al uso del Imperio Mexicano, Ano 1867.

⁶Justo Mendoza, op. cit., p. 620.

⁷Ibid.

25,000.¹ Historian Juan de la Torre, in his book on Morelia written in 1883, states the number in 1882 as 23,835.² The preciseness of the figure implies an accurate count of the city's residents, although the author does not indicate how the figure was attained.

The first official census ever taken of Mexico was in 1895 by the Direccion General de Estadistica, and recorded Morelia's population as 33,890.³ This figure indicates that the estimates of the various writers in the late 1800's were relatively accurate, when a reasonable natural increase during several decades is taken into account. The second official national census, made in 1900, gave Morelia a total of 37,278 persons indicating a considerable increase during the previous five-year period.⁴

In 1910, at the beginning of The Revolution against Porfirio Diaz, the third national census listed Morelia as a city of 40,042, the largest figure recorded for the city up to that date.⁵ The decade that followed was a turbulent one. Many cities of Mexico lost population, including Morelia, as is shown by the results of the fourth national census

¹Estadistica sociales del Porfiriato, 1877-1910 (1956).

²Juan de la Torre, op. cit., p. 22.

³Censo general de la Republica Mexicana verificado el 20 de octubre de 1895.

⁴Censo general de la Republica Mexicana verificado el 28 de octubre de 1900.

⁵Tercer censo de poblacion de los Estados Unidos Mexicanos verificado el 27 de octubre de 1910.

conducted in 1921. At that time Morelia's population had fallen to 31,148.¹ Morelia's importance as a strategic point within the transportation system of central Mexico during the War for Independence from Spain, and during the revolution against Diaz, is attested to by the marked decrease in population in both of these violent periods of Mexican history.

The fifth national census, the one in 1930, was the most accurate up to that time.² It showed 39,916 people in Morelia,³ indicating a recovery to the 1910 figure. During the 1930's there was further increase to 44,304 registered in the sixth national census.⁴ The completion of the all-weather road from Mexico City to Morelia in 1938 was the major event of the period, and can be used to mark the start of an accelerating growth rate during the next two decades.

Between 1940 and 1950 the population of Morelia increased by almost 20,000 persons, to 63,245,⁵ and another 37,583 persons were added the following decade, raising the total to 100,828 in 1960.⁶ In other words, Morelia more

¹Censo general de habitantes, 30 de noviembre de 1921.

²For a discussion of the accuracy of Mexican censuses see General Census and Vital Statistics in the Americas (Washington, D.C.; U.S. Government Printing Office, 1943), p. 56, and Brand, op. cit., pp. 142-143.

³Quinto censo de poblacion, 15 de mayo de 1930.

⁴Sexto censo de poblacion, 6 de marzo de 1940.

⁵Septimo censo general de poblacion, 6 de junio de 1950.

⁶Octavo censo general de poblacion, 6 de junio de 1960.

than doubled its population in the twenty-year period from 1940 to 1960. This represented a greater increment than in the previous four centuries of the city's history! By 1963 the population was 109,144,¹ and it had reached an estimated 116,692 by 1965.²

In summary, Morelia was a city of between 15,000 and 20,000 inhabitants for most of the hundred-year period ending in 1850, with a major slump in size occurring as a result of the War for Independence. During the next ninety years, the total fluctuated between 20,000 and 44,000. In the twenty-five years following that (1940-65), the city's population grew about 70,000, or almost three times the total gain of the previous two-hundred years. This great growth in recent decades is part of the massive urbanization that has been, and is, taking place throughout Mexico and all of Latin America. A comparison of the growth of Morelia with other major cities of Mexico is discussed next.

Growth of Morelia and Major Mexican Cities

The pattern of urban development elsewhere in Mexico has been similar to that of Morelia during the present century. The greatest increases in population have occurred since 1940, with the decade of the 1950's showing the most

¹Estimated by the Direccion General de Estadistica.

²Estimated by the writer based on the 3.4 percent annual increase rate. This method is also used by the Direccion General de Estadistica to estimate population on a local or national basis.

significant absolute and percentage increases in Mexican history. A number of Mexican cities, however, have had increments far larger than those of Morelia (Table 9). In 1900 Morelia was the tenth largest city in Mexico, and it retained that position through 1910. But during the subsequent decade of The Revolution, Morelia's population diminished, while a number of cities actually had substantial increases. Although several other large cities also lost population, notably Puebla, Leon, San Luis Potosi, and Chihuahua, their size remained greater than that of Morelia. As a consequence, Morelia was Mexico's 16th largest city in 1921 and by 1960 it had fallen to 17th place.

The major reason for Morelia's lower ranking in 1960 was the phenomenal growth of the two major ports of the country--Tampico and Veracruz--and of some of the cities in northern Mexico (Table 9). In central Mexico only Aguascalientes and Gustavo A. Madero have moved ahead of Morelia since 1900. In the case of Aguascalientes this can be attributed to the establishment there of major repair shops for the National Railways of Mexico, while Gustavo A. Madero, a suburb of Mexico City, is a part of the rapidly expanding industrial complex of the Valley of Mexico. The increase in the size of Veracruz has resulted from its greater importance as a port as the Mexican economy and foreign trade expanded. Tampico's growth has been due primarily to the development of oil production and refining activities, although its port function has also become increasingly significant.

The most phenomenal growth, both relative to Morelia

Table 9.--Population growth of Morelia and other cities of Mexico, 1900-1960^a

City	(Figures in Rounded Thousands)							National Rank	
	1900	1910	1921	1930	1940	1950	1960	1900	1960
Mexico, D.F.	345	470	615	1,029	1,448	2,235	5,829	1	1
Guadalajara	101	119	143	180	229	377	734	2	2
Monterrey	62	81 ^b	88	133	186	333	601	5	3
Ciudad Juarez	8	N/A ^b	19	40	49	123	294	75	4
Puebla	94	101	96	115	138	211	285	3	5
Leon	63	57 ^b	54	69	74	123	226	4	6
Torreón	14	N/A	51	66	76	129	181	35	7
Merida	44	62	79	95	99	143	177	7	8
San Luis Potosí	61 ^b	83 ^b	57	74	77	126	174	6 ^b	9
Mexicali	N/A	N/A	7	15	19	65	172	-	10
Tampico	16 ^b	19 ^b	45	68	82	94	172	29 ^b	11
Tijuana	N/A	N/A	1	8	16	60	150	-	12
Chihuahua	30	39	37	46	57	87	145	17	13
Veracruz	29	45	54	68	72	101	137	18	14
Aguascalientes	35	45	48	62	82	93	123	11	15
Gustavo A. Madero	N/A ^b	N/A ^b	N/A ^b	N/A ^b	26	60	103	^b	16
MORELIA	37	39	31	40	44	63	101	10	17
Saltillo	24	35	40	45 ^b	49	70	95	21	18
Hermosillo	11	15	15	N/A	19	44	94	47	19
Durango	31	34	39	36	33	59	94	16	20
Nuevo Laredo	7	N/A ^b	15	22	29	58	93	103	21
Matamoros	8	N/A	9	10	16	46	93	69	22
Irapuato	20	21	21	29	32	49	83	24	23
Culiacan	10	14 ^b	16	18	22	49	82	52 ^b	24
Reynosa	2	N/A	2	5	9	34	74	-	25

^aSources: Anuario estadístico, various years.

^bData not available.

and percentage-wise, however, has taken place in the "gateway" cities of northern Mexico, namely Ciudad Juarez, Mexicali and Tijuana. Each of these cities was relatively insignificant in 1900, but has expanded tremendously, particularly since 1950.¹ Other cities smaller than Morelia in 1960 in northern Mexico such as Saltillo, Hermosillo, Nuevo Laredo, Matamoros and Reynosa have also shown great increases in recent decades.

In summary, Morelia's growth in population, particularly since 1940, has been significant, and has followed a pattern similar to that of most other cities of central Mexico. The city's relative size rank in Mexico, however, has declined primarily due to the phenomenal growth of the northern border cities. An increase of over 100 percent in a twenty-year period (1940-1960) is noteworthy, even if it is overshadowed by increases in cities in other parts of the country.

Growth of Morelia and Other Michoacan Cities

Morelia is the "primate city"² of the state of Michoacan, as is shown by Table 10. In 1900, at the time of the second national census, Morelia's population (37,278) was approximately three times that of the next largest city,

¹For a discussion of population changes in Mexico between 1950 and 1960 see Paul C. Morrison, "Population Changes in Mexico, 1950-1960," Papers of the Michigan Academy of Science, Arts and Letters, XLIX (1964), pp. 351-366.

²For a discussion of the primate city concept see Mark Jefferson, "The Law of the Primate City," Geographical Review, XXIX (1939), pp. 226-232.

Table 10.-Population growth of Morelia and other cities of Michoacan, 1900-1960*

City	1900	1910	1921	1930	1940	1950	1960
MORELIA	37,278	40,042	31,148	39,916	44,304	63,235	100,828
Uruapan	9,808	13,149	13,689	16,713	20,583	31,420	45,727
Zamora	12,721	15,116	13,863	13,207	15,447	23,397	34,372
Sahuayo	7,408	8,302	8,722	8,470	10,465	12,511	25,661
La Piedad	9,852	10,604	12,115	13,493	12,369	17,843	24,337
Zitacuaro	6,052	5,433	7,452	8,717	11,434	19,943	23,883
Zacapu	4,097	4,477	5,655	5,673	6,169	14,346	22,200
Apatzingan	2,875	1,739	1,330	1,883	2,080	8,358	19,568
Ciudad Hidalgo	3,873	3,958	5,213	6,048	7,594	9,928	17,155
Patzcuaro	7,621	6,875	7,748	8,150	9,557	10,327	14,324
Jacona	3,368	4,240	4,323	3,770	5,570	8,165	13,101
Yurecuaro	2,577	3,234	6,156	7,555	8,956	10,288	12,084
Jiquilpan	4,436	5,163	5,381	5,487	7,560	10,429	11,862
Puruandiro	7,733	8,899	8,441	8,108	8,643	9,713	11,480
Pureparo	6,156	7,177	8,807	7,153	7,132	8,024	10,093

* Sources: National Censuses of Population, 1900-1960.

Zamora (12,721), and no other place had as many as 10,000 persons. By 1910 two other centers, Uruapan (13,149) and La Piedad (10,604), had reached the 10,000 level. The Revolution caused a decrease in the population of Morelia, Zamora and a number of other places, but Morelia was still the state's major city. However, substantial increases occurred in some communities, indicating that their role in the conflict was minor or that they had actually profited by its activities.

The 1930 census showed there were still only four cities in Michoacan with over 10,000 inhabitants. Morelia (39,916) had practically recovered its size of 1910, however, and was well ahead of the second largest city, now Uruapan (16,713) rather than Zamora (13,207). During the 1930's, Morelia's population increased to 44,304; Uruapan, the second city, grew to 20,583, making it slightly less than one-half as large as the capital. During the same decade, two more cities passed the 10,000 level for the first time, namely Sahuayo (10,465) and Zitacuaro (11,434). It was during this period that the asphalted highway traversing Michoacan via Morelia from Mexico City to Guadalajara was completed. No doubt the growth of Zitacuaro, situated on the new highway at the eastern boundary of Michoacan, and of Sahuayo, on the highway at the state's western boundary, reflects the influence of the improved transportation facilities.

During the 1940's, Morelia and most other large urban places of Michoacan experienced substantial increases in population, following the trend throughout Mexico. Morelia's

population reached 63,245 by 1950, well above the 31,420 persons in the second largest city, Uruapan. Four additional cities, meanwhile, passed the 10,000 mark--Zacapu, Patzcuaro, Yurecuaro, and Jiquilpan--making a total of ten in this class. Zacapu and Jiquilpan were no doubt aided by their location on the paved highway connecting Morelia and Guadalajara, while improved roads to Patzcuaro and Yurecuaro helped their growth.

Rapid urbanization continued during the 1950's, with five more cities reaching the 10,000 level, and with substantial increments in the cities already this large. In fact, all of the centers of any consequence in the state increased in population with the exception of Angangueo, a mining town east of Morelia. This place declined from 7,401 inhabitants in 1950 to 5,019 in 1960. Although Morelia's percentage increase was exceeded by that of a number of other cities, its absolute growth of over 37,000 persons was largest. The 1960 census showed fifteen cities in the state to have population totals in excess of 10,000, with Morelia remaining in first place.

In summary, Morelia has prevailed as the dominant center of Michoacan during the 20th Century. Most of the urban places of the state have shown considerable population increments since 1900, with the major increases occurring since 1940 following improvement in transportation facilities. Hard-surfaced highways now connect most of the cities, while expanding cross-country use of the highway connecting Mexico City and Guadalajara has been responsible for new economic activity in the cities along its route. The political func-

tion of Morelia, coupled with the amenities of the large city, have tended to preserve Morelia's "primate" status.

Growth of Morelia, the Municipio and Michoacan

Since 1940, the population of Morelia has been increasing at a greater rate than the population of the municipio, the state and all of Mexico, thus presenting an outstanding example of the movement of people from the rural areas into the larger cities. The state of Michoacan, although showing a population increase in all but one decade since 1900, has steadily decreased in relative size in the republic as is shown by Table 11. In 1895 Michoacan possessed 7.2 percent of the Mexican population. By 1960 the figure had dropped to 5.3 percent, although the number of persons in the state had more than doubled during the interim. Morelia's population, however, tripled during the same period, as did that of all Mexico. By 1960, also, approximately two-thirds of the municipio's residents lived in Morelia. Barely more than half of them lived there in 1900.

The first decade of The Revolution (1910-1920) brought about a 22.2 percent decrease in Morelia's population, while that of Michoacan and of the nation decreased 5.2 and 5.4 percent, respectively. The city did, however, recover most of its loss in the 1920's, experiencing a growth rate more than twice that of the state and almost twice that of the republic. Since 1940, Morelia's growth rate has been considerably greater than that of either of these units. Then, too, the

Table 11.--Growth of population in Morelia, the Municipio, the State of Michoacan and Mexico, 1895-1960a

Year	Morelia				Municipio				Michoacan				Mexico	
	Pop.	% of Mun. Total	% of State Total	% Incr.	Pop.	% of State Total	% Incr.	Pop.	Urban %	% of Mex.	% Incr.	Pop.	% Incr.	
1895	33,890	---	3.8	---	---	---	---	887,008	---	7.2	---	12,632,427	---	
1900	37,278	55.2	4.0	10.0	67,683	7.2	---	935,808	---	6.9	5.4	13,607,259	7.7	
1910	40,042	---	4.0	7.4	---	---	---	991,880	---	6.5	6.0	15,160,369	11.4	
1921	31,148	45.4	3.3	-22.2	68,467	7.3	---	939,849	26.3	6.5	-5.2	14,334,780	-5.4	
1930	39,916	60.9	3.8	28.0	65,548	6.3	-4.3	1,048,381	26.3	6.3	11.5	16,552,722	15.5	
1940	44,304	57.1	3.7	11.0	77,622	6.6	18.4	1,182,003	29.7	6.0	12.8	19,653,552	19.0	
1950	63,245	59.2	4.4	42.8	106,722	7.5	37.5	1,422,717	32.1	5.5	20.3	25,791,017	31.2	
1960	100,828	65.8	5.4	59.4	153,481	8.3	43.8	1,851,876	40.6	5.3	30.2	34,923,129	35.4	

^aSources: National Censuses for various years. Percentages calculated by the writer.

^bCalculations not possible for lack of data.

^cFigures not available.

percentage of population in the state that is urban has risen to 40.6 percent. These facts indicate increasing migration from rural areas to the city, a common demographic phenomenon throughout Mexico and Latin America.

Place-of-Birth of Residents

The national censuses of Mexico do not record the place-of-birth of persons on a city basis, but do show it by states. It is, therefore, possible to make only an approximate determination concerning the origin of Morelia's population. The 1900 census did give the information by municipio, so that information for the Municipio of Morelia along with Michoacan data for 1930 and 1960 are shown in Table 12.

The data for the Municipio of Morelia in 1900 reveal that 92.6 percent of the population had been born within the state reflecting the greater stability of the Mexican populace at that time. Only 5.7 percent of the municipio's residents had been born elsewhere in Mexico, and the great majority of these had come from neighboring Guanajuato to the north, and from other states within the central region of the country. Poor transportation facilities evidently played a key role in maintaining a native-born Michoacan population in the Municipio of Morelia. The 154 foreign-born persons represented only 0.2 percent of the total.

In 1930, figures for the entire state, rather than for

¹For a discussion of the general divisions of Mexico used by the Mexican Government for statistical purposes see Jorge A. Vivo, Geografia de Mexico (Mexico, 1958).

Table 12.-Place-of-Birth of residents in the Municipio of Morelia, 1900, and in the State of Michoacan, 1930 and 1960*

Place-of-Birth	Municipio	Michoacan	
	1900	1930	1960
MICHOACAN	62,742	1,007,121	1,772,433
Jalisco	215	9,394	19,716
Guanajuato	2,613	15,635	15,952
Mexico (State)	179	6,420	7,744
Distrito Federal	31	891	4,347
Guerrero	40	2,096	3,537
Colima	38	201	3,165
Durango	121	286	2,863
Hidalgo	22	426	1,636
Sonora	1	121	1,427
Nuevo Leon	7	192	1,337
Veracruz	38	437	1,212
San Luis Potosi	63	270	848
Puebla	57	294	784
Aguascalientes	10	124	771
Zacatecas	29	236	759
Queretaro	144	1,271	679
Baja California (N & S)	0	29	669
Morelos	8	222	666
Oaxaca	29	231	627
Coahuila	1	133	612
Chiapas	1	44	540
Tamaulipas	11	138	471
Yucatan	0	30	437
Nayarit	19	78	374
Chihuahua	68	117	272
Sinaloa	4	164	264
Tlaxcala	1	28	128
Campeche	0	5	106
Tabasco	1	39	101
Quintana Roo	0	6	31
Foreign Countries	154	1,458	2,184
Birthplace Unknown	1,036	1,458	5,184
TOTALS	67,683	1,048,381	1,851,876
Percent born in Michoacan	92.6	96.1	95.7
Percent born other states	5.7	3.74	3.9
Percent foreign-born	0.2	0.14	0.12
Percent birthplace unknown	1.5	0.02	0.28

* Sources: National Censuses for various years. Percentages calculated by the writer.

the municipio, revealed a very similar situation. In fact, an even greater percentage of those residing in Michoacan in 1930 were born in the state than had been the case in the municipio thirty years earlier. Of the state's population 96.1 percent had been born within Michoacan, while 3.74 percent had come from other states (Table 12). Adjoining states, namely Jalisco, Guanajuato, Mexico, Queretaro and Guerrero, furnished most of these people, which emphasizes the importance of proximity for migration within a region possessing poor or inadequate transportation facilities. The foreign-born segment of the population remained insignificant (0.14 percent).

The 1960 census showed the situation very little changed. That year, 95.7 percent of the state's population had been born within the state and 3.9 percent in other states (Table 12). Again, the largest non-native groups had come from the bordering states, even though means of transportation had been greatly improved by this time. These figures reveal the relative lack of movement of people into Michoacan, especially so from any great distance.

It can be concluded, therefore, that the City of Morelia has been, and still is, populated primarily by persons born within the state. Most of the rest of its inhabitants are from nearby states. Inhabitants of foreign extraction are relatively few, although it is probable that the majority of Michoacan's foreign-born reside in Morelia. Table 13 shows the origin of the state's foreign-born population for two census years, 1940 and 1960. The table reveals that well

over one-half of these people originated in Spain and the United States. Those of Spanish birth comprised over one-

Table 13.-Foreign-born population of Michoacan
from selected countries, 1940 and 1960 *

Country	1940	1960
Spain	408	197
United States	126	1,430
Lebanon	36	34
France	29	43
China	13	14
Italy	10	17
Saudi Arabia	10	33
Great Britain	--	30
Cuba	--	26
Germany	6	49
Japan	3	12
Syria	5	--
Turkey	5	--
Others	52	299
Totals	703	2,184

* Sources: National Censuses, 1940 and 1960.

half of the total in 1940. By 1960, however, the Spanish-born had dropped to less than one-half the number in 1940. On the other hand, foreign-born from the United States had increased from 126 in 1940, to 1,430 by 1960, representing almost two-thirds of the residents from outside Mexico the later year. The increasing inter-relationships between the United States and Mexico are illustrated by this figure. It is possible that this increase in the United States-born portion of the population was due to the birth of children to Mexican migrant workers (braceros) from Michoacan while residing temporarily in the United States. Hundreds of workers leave the state each year for work during the harvest periods

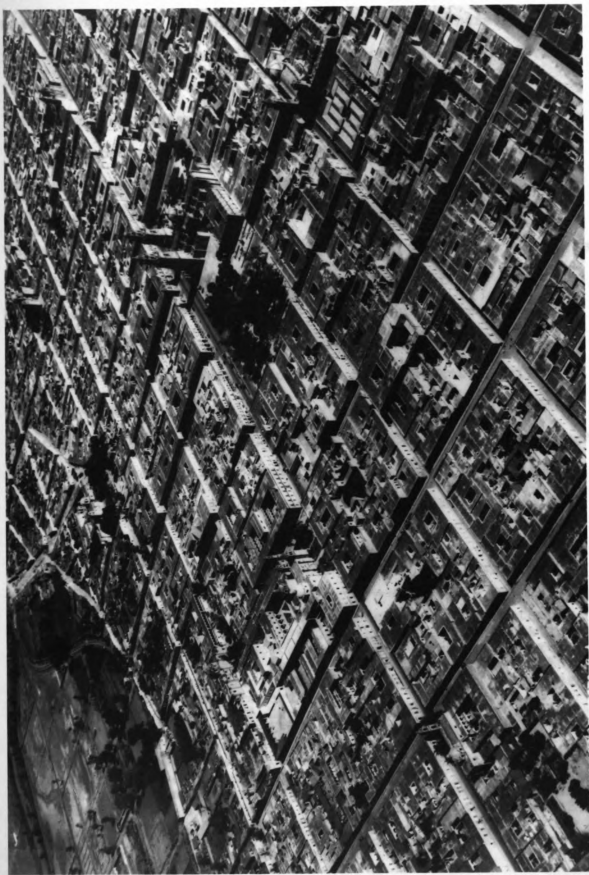
in the United States. This trend in Michoacan began during World War II and has continued to the present. No doubt many technicians and supervisory personnel from the United States residing in Michoacan have also increased the foreign-born total from the United States.

Spatial Expansion of Morelia

The present areal structure of Morelia is quite similar to that of other cities throughout Mexico and all Spanish America. Although variations in surface configuration have been primarily responsible for some differences that exist from city to city today, the basic internal structures of Mexican cities follow the rectangular-grid pattern system used by the Spaniards in the planning of urban places (Pl. IV). This system was explicitly outlined as a portion of the Laws of the Indies and in subsequent decrees which were drawn up to insure standardization in the development of colonial cities.¹ In most cases the cardinal directions were utilized for the orientation of the streets, while the cathedral and the ubiquitous central plaza (plaza central, plaza principal, or plaza mayor) on which it was located

¹For a discussion of these laws and their implementation see Dan Stanislawski, "Early Spanish Town Planning in the New World," Geographical Review, XXXVII (January, 1947), pp. 94-105; Dan Stanislawski, "The Origin and Spread of the Grid-Pattern Town," Geographical Review, XLVI (January, 1946), pp. 105-120; and Zelia Nuttall, "Royal Ordinances Concerning the Laying Out of New Towns," Hispanic American Historical Review, IV (November, 1921), pp. 743-753, and V (May, 1922), pp. 249-254.

PLATE IV



marked the center of the city. Streets were generally narrow, with abutting buildings of stone or adobe construction forming continuous walls immediately along their edges, or behind narrow bordering sidewalks.

Compactness was a rule as it afforded a maximum utilization of available land, ease of social communication and superior conditions for mutual defense of the community.¹ The choice of a hill or some other elevated site for a city's location was commonplace also, and undoubtedly was fostered by the defense motive, although adequate drainage was a factor as well.

Morelia's structure and site reflect these earlier considerations, but changes that have taken place since the end of colonialism, particularly in recent years, have brought about significant alterations in the internal structure of the city. Even greater changes appear certain to occur in the near future.

The cathedral and the central plaza still mark the

¹Martin E. Brigham, in his dissertation on Monterrey, makes the following statement which is applicable likewise to Morelia: "It is interesting to note the absence of numerous suburbs or satellite towns in the immediate vicinity of Monterrey [here Morelia could be substituted] . This is characteristic of many Latin American cities, in contrast with those of North America. A lack of population is an obvious explanation, but this is not entirely correct. There are two other reasons. The traditional Spanish settlement pattern favored the compact town, where people congregated in groups, for common defense and social life. Suburban living is also frequently associated with, and a result of, the middle class. Latin America has never had a large middle class." Martin E. Brigham, Monterrey, Mexico: A Study in Urban Geography (unpublished Ph.D. dissertation, Department of Geography, University of Michigan, 1951), p. 30.

focus of activity in Morelia, but modern transportation facilities, and the extension of domestic conveniences (electricity, telephone service, water and sewage lines) to outlying zones, are reducing the advantages of the center. Proximity to the main plaza is still a prestige factor, but is diminishing rapidly under the influence of improved transportation facilities and the general increase in economic well-being.

The first known plan (plano) or map of Morelia was drafted in 1794 under the auspices of Don Miguel la Grua Talamanca y Branciforte, Viceroy of New Spain (Fig. 4).¹ This plan divides the city into four principal sectors and shows the orientation of streets (they are not named) away from the cathedral and central plaza to be essentially the same then as today. Some street-pattern changes have taken place in the peripheral areas, but not many in the core of the city. It is impossible to determine from this map which blocks were actually occupied by buildings and people in 1794, and the same problem exists for other maps issued since 1794.

A map of the built-up area in 1798 is available, however, and shows the blocks that were at least partially occupied at that time (Fig. 5).² Although precise verification

¹The original copy of this map is preserved in the Museo Michoacano in Morelia and was viewed by the writer in the summer of 1965. The map appearing in this study was reproduced from a photostatic copy of a reproduction of the original map in the University of Texas Library.

²This map and the other three maps depicted in Figure 5 were made available to the writer by Sr. Francisco Amaya de

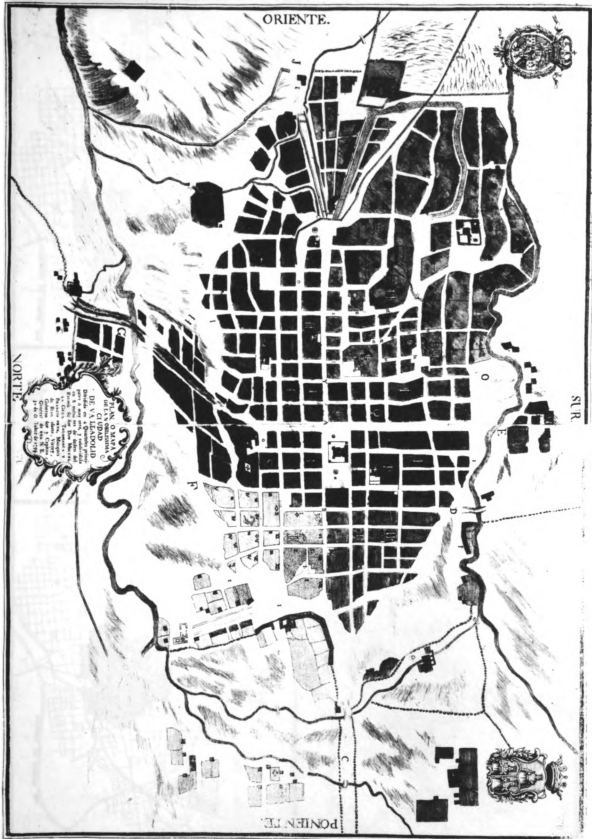


Figure 4

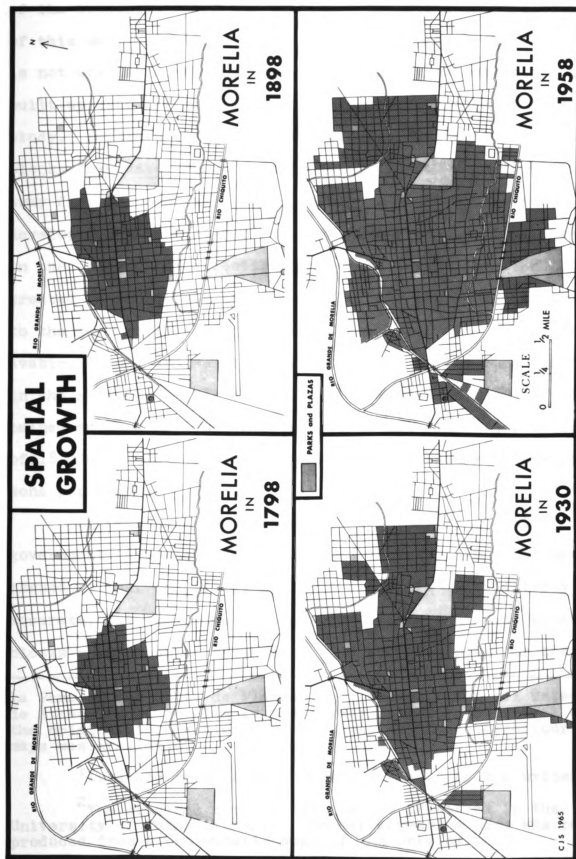


Figure 5

of the authenticity of information used in the construction of this map, as well as the other three appearing in Figure 5. is not available, an approximation of the areal extent of the built-up city can be made for the general purposes of this study. Accordingly, in 1798 the city contained 117 occupied blocks (manzanas) about evenly distributed in each direction away from the central plaza. There was a slightly greater development on the higher land eastward from the plaza than in the other three directions where the lower elevation created some problems of drainage. Then, too, orientation to the main road leading eastward from Morelia to Charo, Maravatio, Toluca and Mexico City could also have been a factor in the skewing in this direction. At that time the city contained an area of less than one square mile and a population of 18,000 (Table 8), giving it an average density of 154 persons per block.¹

An official map of Morelia was issued by the city government (Ayuntamiento) in 1869, this being the first map issued by that body (Fig. 6).² It seemingly is relatively accurate, but again does not give an indication as to which blocks were occupied or vacant. The basic purpose for the

la Pena of the Junta de Planeacion y Urbanizacion del Estado de Michoacan in Morelia in the summer of 1965. No source of the original information for the compilation of these four maps was available.

¹Area and persons per block calculated by the writer.

²The original copy of this map is preserved in the University of Texas Library. The map appearing here was reproduced from a photostatic copy of the original.



Figure 6

production of the map was to change the nomenclature of the city which had been officially designated in 1840.¹ Streets on the new map were named in honor of various independence war heroes, while the names of several plazas were also changed in a similar manner. A comparison of the 1869 map with that of 1794 (Fig. 4) indicates that the general pattern of organization was retained, although a number of blocks had been subdivided and, of course, some were added on the new plan. It is interesting to note on the 1869 map that sentry-houses (garitas) were located at each of the major entry points into the city from the north, east, south and west, indicating that the necessity for defense remained a factor in encouraging compact settlement. This practice was still followed in Morelia in 1965, but the functions of the sentries had changed decidedly.

By the year 1898 Morelia had almost doubled its population of a century earlier (Table 8), but spatial expansion during the same years did not keep pace with this increase, as is shown in Figure 5. Although some development occurred in the northwest toward the railroad that had arrived in 1883, the major spread was toward the southwest and northeast. The city added 33 new blocks during the period for a total of 150, and its area increased to about one square mile.²

¹Rafael Morelos Zapien states that Morelia has had three nomenclature changes since 1794 and that these appeared in 1840, 1869 and 1929. The writer was unable to find nomenclatures for 1794 and 1840. See Rafael Morelos Zapien, Guía para visitar la ciudad de Morelia (Morelia: Impreso en los Talleres Graficos, 1941), p. 12.

²Calculated by the writer.

The density of population was now about 233 persons per block.¹ These figures indicate rather conclusively that the built-up portion of the city had become considerably more crowded by the end of the 19th Century and that compact settlement was still characteristic. Growth of the city outward to compensate for the increased population was hampered by flooding and drainage problems on three sides, but no reason is readily discernible for the lack of expansion to the higher land on the east. Increasing distance from the main plaza could have been a factor. Possibly lands there were in the hands of wealthy landowners who were reluctant to relinquish them for urban development, but verification of this premise could not be found.

Although the population of Morelia increased very little from 1898 to 1930, and actually there was one period of decline (Table 8), the spatial growth of the city was considerable (Fig. 5). For the first time streets, at least, were laid out on low-lying land both northwest of the railroad and on either side of the Rio Chiquito despite the sporadic flooding in these areas. Some development also took place between the aqueduct and the road to Mexico City on the eastern edge of the city, as well as to the northwest. It is doubtful, however, whether much settlement had actually taken place in these new colonias by 1930. A pictorial map issued in 1934 by Justino Fernandez (Fig. 7)² shows that very

¹Calculated by the writer.

²This map was photostated at the University of Texas Library from a pictorial map contained in Justino Fernandez,



Figure 7

few buildings existed in the low-lying areas which were shown as being occupied on the 1930 map (Fig. 5). Even much of the indicated development in the northeast was not depicted on Fernandez' map. If the 1930 map is accepted as authentic, the area of the city then was about two and one-half square miles, but there is considerable room for doubting that it was this large. The important fact, however, is that for the first time in Morelia's history the compactness of settlement was broken, with the beginning of a trend of radial spread away from the center of the city. This has continued to the present. By 1930 the groundwork had been laid for the development of the lower lands along the Rio Chiquito and north of the railroad.

In the period from 1930 to 1958, and particularly in the post-World War II years, Morelia's spatial expansion was phenomenal (Fig. 5) and was accompanied by a similar growth in population (Table 8). Canalization of the Rio Chiquito and the Rio Grande de Morelia in the late 1930's finally opened up lands along their courses for occupance, although the problem of flooding was not completely eradicated. The major expansion in residential area resulting took place on either side of the old channel of the Rio Chiquito, but there was considerable extension south of the new channel. Growth also occurred between the railroad and the Rio Grande de Morelia largely in response to the establishment there of a num-

Morelia, su situacion, historia, caracteristicas, monumentos, nomenclaturas, con un plano pictorio de la ciudad (Mexico: Talleres de Impresion de Estampillas y Valores, 1936).

ber of manufacturing plants in the new industrial colony (Colonia Industrial). Similarly, settlement took place farther southwestward along the railroad, although this development came later than that just mentioned.

The total area of Morelia by 1958 had increased to approximately four square miles.¹ It seems apparent, then, that the excessive increase in population in recent decades has not been accompanied by an overcrowding of the older established part of the city, but has been absorbed largely by the development of new colonias on the periphery. Sr. Jaime O. Sandoval, a leading citizen of Morelia and an authority on the growth of the city since the 1930's, made the following statement, which has already been partially quoted previously (footnote p. 84), in an interview with the writer:

In the period from 1935 to 1965, approximately 75 percent of the people who have come to the city from the countryside have settled in the colonias surrounding the old core of the city. The density of population in the old sectors of the city has increased some, but the practice of turning old, substantial single-family residences into run-down apartment houses, that is common in the United States, has not been very significant in Morelia.²

Morelia's spatial expansion has, therefore, minimized some of the problems inherent with rapid population growth by preventing a "slumization"³ of the center of the city, but at

¹Estimated by the writer.

²Interview with Jaime O. Sandoval, Morelia, August 21, 1965.

³The writer proposes the adoption of a new collective term slumization for all the forces and processes responsible for creating blighted areas in urban places. Those operating within an older established portion of a city could be called inner-slumization, while those creating slums around the margin of a city might be called peripheral slumization.

the same time the rapid and extensive spatial expansion has created its own problems. Much of the new sections of the city lacks paved streets, public lighting, suitable housing, and adequate water and drainage facilities, because of the inability of the city to cope with the financial demands of such undertakings. Plans are being formulated to provide these basic necessities, and some progress is being made, but the continuance of growth encumbers the entire process.

Expansion of Morelia from 1958 to 1965 can be determined from Figure 8 which is a composite map of the spatial growth of the city from 1798 to 1965.¹ Although expansion in the last seven years has occurred in all peripheral areas of the city, that of major significance has taken place at its eastern and western extremities. These latter developments have been associated primarily with the building of homes for the upper-income class and represent a decided break with the traditional desire of such persons to live near the center of the city. Improved transportation facilities have considerably influenced this new trend in expansion.

In summary, Morelia began as a compact settlement, following guidelines handed down by Spanish authorities, and remained such a settlement throughout most of its history. Only in recent decades has a trend away from this condition

¹Information on the expansion of Morelia from 1958 to 1965 was obtained by the writer in the summer of 1965 during the land-use phase of this study.

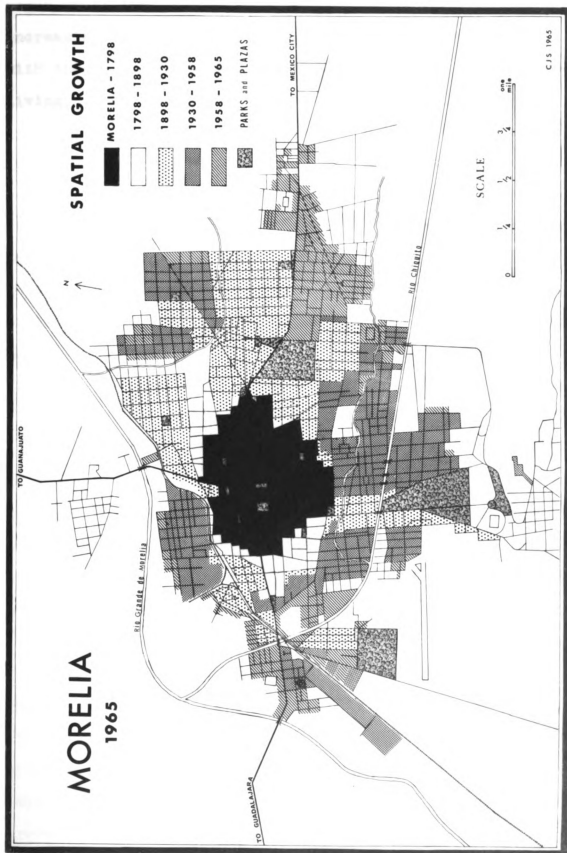


Figure 8

begun under the stimuli of transportation improvements and increasing incomes. This trend should continue, however, with the result being the expansion of suburbs and suburban living.

CHAPTER V

EXTERNAL RELATIONS OF MORELIA

Morelia is the most important central place in the state of Michoacan and ranks as one of the leading regional market and service centers in central Mexico. It is the main focal point of Michoacan, a position it has held since becoming the political capital in 1575. Extensive transportation improvements in recent decades, particularly the highways, have enhanced this focality and have been primarily responsible for the city's rapid growth. Many formerly isolated portions of the state are now connected to Morelia by all-weather highways, thereby becoming part of the city's expanded hinterland. Transportational developments throughout Mexico have further extended the market areas of Morelia's products and have opened up new sources of raw materials and products for the city's growing manufacturing and distributional industries, respectively.

The increasing mobility of the population, resulting particularly from highway improvements and the installation of a widespread public transportation system, have also had profound affects. Thousands of people now enter and leave Morelia daily by bus, automobile, and train. Many of these transients come to sell their wares in the local markets and to purchase items from the expanding variety of goods offered.

Many others come just to enjoy the entertainment and excitement of the "big city." Their numbers create great demands on the retail and service operations of the city and have been responsible for the establishment of many new businesses to perform these functions.

Morelia's most significant external relations are with its immediate local area, the remainder of Michoacan and the southern portion of nearby Guanajuato (the Bajio). More distant relationships include all of Mexico and extend into the United States and other foreign countries.

Since transportation developments in recent decades have been primarily responsible for Morelia's growth in population and economic activity, a comprehensive survey of these and the present facilities is presented next, together with an analysis of the traffic flow. This is followed by a discussion of the commercial ties with the immediate local area, the remainder of the state, other states, and foreign countries.

Transportation

The first phase in the modernization of Morelia's transportation facilities began in the 1880's with completion of the narrow-gauge railroad from Mexico City, and the subsequent extension of it to Patzcuaro, Uruapan and Apatzingan. A branch line extending northward from Acambaro to Celaya connected with the main east-west line of central Mexico running from Mexico City to Guadalajara, and allowed access to the main line northward to San Luis Potosi, Monterrey, Ciudad

Juarez and the United States (Fig. 1). The direct connection with Mexico City via Acambaro and Toluca facilitated the movement of goods and people to the main port of Veracruz, while Tampico could be reached through San Luis Potosi.

For fifty years thereafter the railroad served as the major carrier of manufactured goods, raw materials and people to and from Morelia. The narrow-gauge track was replaced with standard-gauge in 1912 and the overall service on the line was improved. Manufacturing plants established in Morelia during the period were located adjacent to the railroad and depended upon it for the transport of raw materials and finished products.

With completion of the asphalted highway from Mexico City in 1938, however, the second phase in the modernization of Morelia's transportation facilities was initiated. The subsequent extension of the highway westward to Guadalajara joined that city and numerous other previously isolated centers of western Michoacan to Morelia. The construction of asphalted "feeder" roads from the north and the south, primarily between 1945 and the mid-1950's, gave most of the urban places of Michoacan relatively rapid access to Morelia and to other parts of the state. Towns that had been accessible only under dry road conditions now became so in all types of weather. Improved road conditions also decreased travel time. By the late 1950's virtually every part of Michoacan was within one-half day's driving time of Morelia. The major exceptions to this were, and still are, the extreme southern localities of the state which even today lack

all-weather roads.

Because of the historical importance of Morelia's relations with the Bajio region of southern Guanaajuato, paving of the road from Morelia to Salamanca in the 1940's was of major significance. The all-weather road permitted larger quantities of goods and materials, as well as increased numbers of people, to move between Morelia and the heavily populated centers of that productive region. Traffic flow data are used to show the importance of this exchange later in the chapter.

The inauguration of regular air service in the late 1930's represented the third phase in the modernization of Morelia's transportation facilities. Morelia's midway position between Mexico City and Guadalajara was largely responsible for this innovation whose affect has remained relatively insignificant to the present time.

Despite the various developmental phases of Morelia's transportation facilities, one type of transportation of long standing, namely that by animals, has survived. Considerable quantities of agricultural products and various other materials are still carried or pulled to Morelia from the surrounding countryside by beasts-of-burden. Burros, mules and horses heavily-laden with firewood, charcoal, lumber, pottery, fodder and agricultural products are still driven to the city in large numbers by arrieros, although it is obvious that the significance of this means of transportation has diminished. Occasionally one even sees human porters making their way into the city, but the rural bus and the pick-up truck have

all but ended this endeavor.

The Railroad

The railroad no longer dominates the transportation system serving Morelia, although it remains an important part of it. The more versatile trucks and buses carry most of recent increases in cargo and passenger traffic, while the growing number of private automobiles has also had an adverse affect on railroad travel. As in the past, heavy, bulky raw materials and non-perishable manufactured goods enter and leave the city by railroad, although substantial quantities of these items now move by truck. Several hundred persons still embark and disembark daily at the railroad station, but this represents only a very small percentage of the total passenger flow in and out of the city.

Six passenger trains and two freight trains serve Morelia daily, although the city is not the terminal point for any of them. Four of the passenger trains operate between Mexico City and Uruapan--two eastward and two westward--; the other two between Celaya and Uruapan--one in each direction. The two freight trains operate between Uruapan and Acambaro where marshalling yards make up trains to the north and east. Service is fairly good on the passenger runs and time-tables are adhered to reasonably well. The freight schedules are somewhat less dependable, but an effort is made to assure the daily departures.¹

¹Interview with Salvador Rayas Mora, station-chief, Morelia railroad station, August 2, 1965.

An average of twenty-five persons embark on, and disembark from, each train on its arrival at the station in Morelia.¹ It can, therefore, be estimated that approximately 300 persons enter or leave Morelia by rail daily, a very small number compared to those who arrive or depart by other conveyances.

Freight entering Morelia by railroad at the present time consists mainly of the following items: wheat, sesameseed, cottonseed, sugar, oil and oil products, sulfur, iron ingots, coal, newsprint and a variety of manufactured goods. Outgoing freight includes many items that were important in 1938 (Table 6), such as vegetable fats and oils, wood products, turpentine, wheat flour, miscellaneous agricultural crops and animal products, but some entirely new ones, as for example, chemicals, metal scales, frozen strawberries and canned fruits, have been added. The cargo lists indicate that many of Morelia's functions of several decades ago are still important, and that a number of new activities have begun.

Railroad facilities within the city are rapidly becoming obsolete. The station (Pl. V, Fig. 1) is now inadequate to handle the present volume of railway freight, mail and passengers. Plans have been made to move the main track (Pl. V, Fig. 2) to a position roughly parallel to the Rio Grande de Morelia on the edge of the city where a new station is already under construction (Pl. V, Fig. 3).

¹This estimate is based on observations by the writer in the summer of 1965.



Fig. 1--Railroad station at Morelia is to be replaced by a new station on a different site.



Fig. 3--New railroad station under construction on the west edge of Morelia.



Fig. 2--Main railroad line through the city. Siding for El Hino, S.A., and other manufacturing plants at right.



Fig. 4--Highway and west entry point into Morelia. Circular structure is the Plaza de Toros (bull-ring).

The Highways

The present highway network of Michoacan consists of approximately 615 miles of asphalted roadways and an additional 735 miles that are hard-surfaced and usable all year.¹ These latter roads are primarily graveled and compare favorably with the farm-to-market graveled roads found in the Midwest of the United States. Although they are continuously passable, traffic on them moves at a much slower pace than on the paved highways. The state still has over 1,000 miles of dirt roads that are passable only in dry weather. Thus, during the rainy season (May to October) many communities are virtually isolated to motor-vehicle traffic. This is most true of the southern part of the state, although considerable areas even within the more densely populated and productive central and northern regions are likewise affected. Several communities within 30 to 40 miles of Morelia are isolated from the city for days following heavy rainstorms. These include Indaparapeo, Querendaro, Chucandiro, Huaniqueo, Acuitzio, Villa Madero and Tzitzio.

The government of Michoacan, in association with the federal government, has recently undertaken a bold new road-building program aimed at providing year-around service for those communities now served only by dry-weather roads. Routes presently being improved and work planned for the next

¹Information obtained from the Departamento de Transporte, Gobierno del Estado de Michoacan, Morelia, in the summer of 1965.

few years will more than double the existing mileage of asphalted roads, and will add considerably to the hard-surfaced total. In some instances, new, more direct roads are being built to permit faster travel. One such is under construction between Morelia and Uruapan, via Patzcuaro. When it is completed, the distance and driving time between these two cities will be cut by one-third.

Morelia has maintained, and strengthened, its position as the major focal point of Michoacan with the establishment of the improved highway network. The practice of primarily following old roadways and trails as the routes for the new asphalted and graveled roads has retained much of the former transportation pattern. Surface configuration was, of course, largely responsible for fixing the early pattern and has been of great significance in maintaining it. Morelia's function as the gateway for the movement of goods and people from central and southern Michoacan to the Bajio of southern Guanajuato, to the dry states in the north, and eastward to Mexico City has received a new stimulus as a result of the highway improvements. With completion of the projected network of all-weather roads to the Balsas Lowland and the isolated Pacific coastal area of the state, as well as a more direct route to the Pacific port of Manzanillo, Morelia should experience increased transportational activity and an expansion of the processing and distributional functions it performs.

Vehicle Registration

Road improvements have provided the stimulus for a huge expansion of motor traffic in Michoacan. Vehicle registrations during various years for the state and for Morelia attest to this increase (Table 14). In 1935, prior to

Table 14.-Vehicles registered in Michoacan in 1935, 1940, 1950 and 1960, and in Morelia in 1960 and 1964

Type of Vehicle	State of Michoacan ^a				Morelia ^b	
	1935	1940	1950	1960	1960	1964
Automobiles	926	1,794	3,369	6,832	2,222	2,913
Trucks	466	1,579	3,383	8,757	1,556	1,933
Buses	198	514	550	1,152	411	433
Motorcycles	14	58	70	302	116	240
Totals	1,604	3,945	7,372	17,043	4,305	5,219

^aSources: Figures for 1935, 1940 and 1950 from Anuario estadístico, various years; Figures for 1960 from the Compendio estadístico, 1961.

^bSource: Figures supplied by Jesus de la Mora y Alvarez, Jefe de la Sección Transportes, Departamento de Tránsito del Estado de Michoacan, Morelia, in the summer of 1965

construction of the first paved highway in the state, there were only 1,604 units registered, but in 1940, just two years after the highway's completion, the number had increased to 3,945 or by 146 percent. With the extension of all-weather roads throughout the state during the next two decades, motor vehicle registration reached 17,043 in 1960. Morelia's

registration alone that year was greater than the state total in 1940.

It is interesting to note that by 1950 there were more trucks than automobiles in the state, and that by 1960 the dominance of trucks was even greater. The growing importance of this vehicle and of buses as means of transportation in Michoacan is clearly indicated by the statistics shown in Table 14.

Although vehicle registration figures for Morelia could not be obtained for earlier years, those for 1960 indicate that the city possessed a significant percentage of all vehicles in the state at that time. Included were 32.4 percent of Michoacan's automobiles, 17.8 percent of its trucks, 35.7 percent of its buses and 38.4 percent of its motorcycles. The bus registration figure, which is somewhat higher than would be expected, includes not only buses used for urban service within the city, but also some of those operating between Morelia and other cities.

Traffic Flow

The relative importance of the various types of vehicles entering and leaving Morelia, and of Morelia's external relations with neighboring regions, can be at least partially determined by an analysis of traffic movements. Data available are limited, but the results of a traffic survey completed in November, 1964 have been obtained and appear in Table 15. Although the figures obviously are not completely reliable, they do provide the framework in which

some general conclusions can be made and are used here for lack of better information.

Table 15.-Average daily arrivals and departures of automobiles, buses and trucks, Morelia, November, 1964*

Vehicles	Morelia Total	Entry Point		
		East	West	North
Automobiles				
Arrivals	524	175	184	165
Departures	515	174	180	161
Buses				
Arrivals	205	44	75	86
Departures	193	44	66	83
Trucks				
Arrivals	494	147	180	167
Departures	492	150	169	173
All Vehicles				
Arrivals	1,223	366	439	418
Departures	1,200	368	415	417
Total Arrivals and Departures	2,423	734	854	835

* Source: Data furnished by Francisco Amaya de la Pena, Junta de Planeacion y Urbanizacion del Estado de Michoacan, Morelia, in the summer of 1965. Above figures calculated by the writer from the data obtained.

During November, 1964 the daily flow of automobiles, buses and trucks entering and leaving the city was 2,423 vehicles. The number of automobiles (1,039) exceeded that of either buses (398) or trucks (986), as would normally be expected. It is significant, however, that the combined total of buses and trucks (1,384) was considerably greater than that of automobiles alone. When the facts of Morelia's railroad traffic are remembered, the large number of trucks

rather decidedly indicates the dominance of that vehicle as a cargo carrier. Then, too, the size of the daily movement of automobiles and buses in and out of the city indicates a large number of persons being carried. If, arbitrarily, the number of passengers per automobile is placed at three, and that of buses at 35 (a conservative figure), it is found that 3,111 persons entered or departed Morelia daily by automobile in November, 1964, while some 13,930 others arrived or left by bus. Either total is many times the number of travelers using the railroad each day.

The origin or destination of most of the motor vehicles can be broadly determined by examining the traffic data for each of the city's three main points of entry which are oriented to the major directions of flow (Table 15 and Fig. 2). Vehicles passing the north entry point can be associated primarily with north-central Michoacan and the adjoining Bajio of southern Guanajuato. Those utilizing the east portal can be credited to eastern and southeastern Michoacan, although a substantial number are part of the flow between Morelia and Mexico City, as well as of cross-country traffic between Mexico City and Guadalajara. Although part of the traffic passing through the western gateway was also of the latter character, it is believed that most of it was between Morelia and points in western and southwestern Michoacan (Pl. V, Fig. 4). Thus, the heavy total traffic through the north and west entry points of Morelia in November, 1964 no doubt reflected the close relationships that exist between the city and the heavily populated Bajio to the north

and the major population concentrations in western Michoacan, although it in part resulted from traffic between these two regions. The more sparsely populated and less productive eastern and southeastern regions of the state, on the other hand, supported a smaller movement through the eastern point-of-entry, even though the volume was considerably influenced by Mexico City and other population clusters farther east.

The flow of automobiles, as would be expected, was greater in east-west directions than to the north. A considerable portion of the former represented movement between Mexico City and Guadalajara; most of the latter involved shorter distances and reflected a regional flow between Morelia and southern Guanajuato. If the cross-country portion of the east-west traffic could be separated from that of a regional character, a much more meaningful comparison could be made.

Bus and truck movements emphasize the importance of Morelia's relationships with the Bajio and western Michoacan even more than does either the total motor-vehicle traffic or that of automobiles alone. Approximately twice as many buses operated to the north than to the east, despite the influence of Mexico City. The figure was also substantially greater than that for the route west. Although some of the buses were involved in cross-country movements, most of them used Morelia as a terminal. Bus movements will be discussed in more detail later.

The greatest volume of truck traffic passed through the western entry point, and only a slightly smaller amount

through the northern one. The larger size of the movement of freight to and from these directions emphasizes Morelia's strong economic ties with western Michoacan and with the Bajío. The number of trucks using the eastern entrance was considerably smaller, but was still substantial, in large measure because of the influence of Mexico City, as was the case of automobile traffic.

The Buses

Since buses perform such a vital function in the external relations of Morelia, a more detailed discussion of the daily service is in order. Information was obtained primarily by interview with bus-line officials, ticket agents and drivers. However, the Junta de Planeacion y Urbanizacion del Estado de Michoacan initially provided a list of the lines and a map of the terminal facilities in Morelia.

Buses serving Morelia are of two general types--first-class and second-class. The first-class vehicles for the most part compare very favorably with the large Greyhound buses used in the United States, although equipment offered varies considerably from bus to bus. They primarily operate inter-regionally over long distances on a reserved-seat basis and utilize only the major paved highways of the country. Schedules are maintained and modern terminal facilities are provided in Morelia and other major centers along their routes.

Second-class buses are similar to the typical school bus found in the United States. They usually operate over

shorter distances than the first-class vehicles, and utilize all kinds of roads. Their service is basically intra-regional, although exceptions to this rule occur. The second-class bus connects smaller places with Morelia, and also fulfills a farm-to-market function, acting as a conveyor of both people and their goods. Terminal facilities are provided in some instances, but many second-class bus-lines are merely assigned a specific parking space (point-of-termination) on a street within the city. A small ticket and/or freight office is provided nearby in such cases, but other facilities such as restaurants, restrooms, waiting rooms, etc., are absent. Some of these conveniences, however, are provided by individual business establishments in the vicinity.

Morelia is served by sixty-one bus-lines, of which seventeen are first-class and forty-four second-class. These operate to and from eight major terminals and twenty-two terminal points located around the edge of the Central Business District (CBD) in groupings that are oriented to the direction of traffic flow (see Inset, Fig. 9). Some buses are through, entering one side of the city and leaving another, but most come in to and leave by the same route. Routes traveled avoid the congested heart of the city so as to eliminate as much traffic in that area as possible. Of the eight major terminals, two handle first-class buses exclusively, four only second-class vehicles, and two both classes (Pl. VI, Figs. 1 and 2). Each major terminal is used by two or more lines, but each of the twenty-two terminal points serves only a single second-class line (Pl. VI, Figs. 3 and 4). A

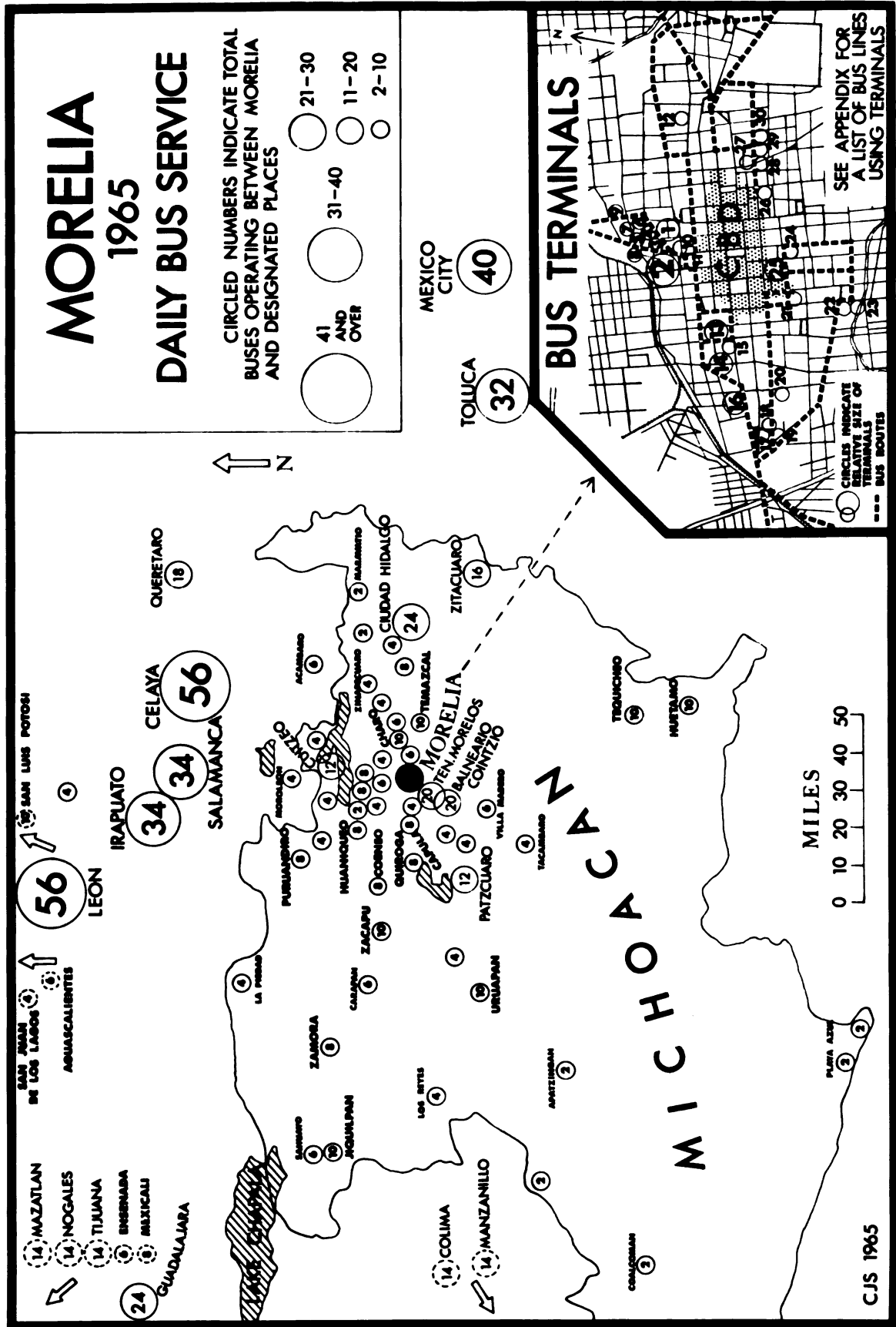


Figure 9

PLATE VI



FIG. 1--A first-class bus terminal.

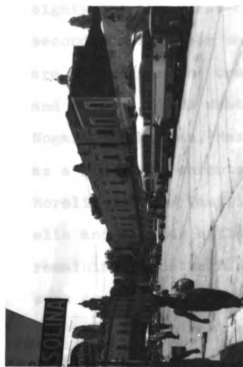


FIG. 2--The large bus terminal (center), for both first- and second-class vehicles, was formerly property of the church.



FIG. 3--One of Morelia's second-class terminal points, and three second-class buses.



FIG. 4--A second-class bus and its terminal point in wholesale produce district near Mercado de la Revolución.

total of 424 buses enter or leave Morelia daily.¹ Of these eighty-two are first-class vehicles; the remaining 342 are second-class. Over one-half (44) of the first-class buses are engaged in the cross-country traffic from Mexico City and points in the west and northwest, such as Guadalajara, Nogales, Mazatlan, Mexicali, and Tijuana, and utilize Morelia as a rest-stop enroute. Six first-class buses operate between Morelia and the Pacific port of Manzanillo, 16 between Morelia and various cities in Guanajuato (the Bajio), and the remaining 16 between Morelia and other cities in Michoacan, such as Patzcuaro, Uruapan, and Apatzingan.

Although most of the 342 second-class buses operate between Morelia and points in Michoacan and southern Guanajuato, 62 make daily runs between Morelia and other parts of central Mexico. Eighteen of these connect Morelia and Mexico City, while 10 others operate on the western route, eight to Manzanillo and two to Guadalajara. Of the rest, 18 go to Queretaro via Celaya, 10 to San Luis Potosi and six to Aguascalientes via Leon. These figures indicate that cross-country movements are less common on second-class buslines. Of the 280 buses with shorter runs, 124 operate between Morelia and various cities in Guanajuato (the Bajio predominantly), and 156 provide service within Michoacan.

The number of buses, both first- and second-class,

¹This total differs slightly from the previously-given one of 398 buses entering or departing Morelia daily in November, 1964, because of changes with time.

operating daily between Morelia and other places is shown in Figure 9. Virtually every part of Michoacan has such connections with Morelia, although the volume of service tends to decrease with increasing distance. Most small communities within fifty miles of the city have at least two buses daily each way, while the larger places have even better service. Bus communications with two of the largest towns, namely Uruapan and Apatzingan, are somewhat less than would be expected, however, probably due to the availability of more rapid train service. The number of runs to eastward points, such as Ciudad Hidalgo and Zitacuaro, is substantially greater than it would otherwise be, because of the influence of Mexico City traffic.

Most of the second-class buses operating from Morelia northward terminate in either Celaya or Leon. As can be seen (Fig. 9), these two cities have the greatest number of vehicle movements to and from Morelia, exceeding even Mexico City and Guadalajara. The importance of Morelia's external relations with southern Guanajuato is illustrated by these figures. The totals for Salamanca and Irapuato are also relatively high, reflecting the location of these places on the major routes to Celaya and Leon.

The greatest bus movements outside of Michoacan and Guanajuato, are eastward to Toluca and Mexico City, westward to Guadalajara and the port of Manzanillo, and to cities in northwestern Mexico. Although some service is provided to certain northern cities, namely San Luis Potosi and Aguascalientes, there are no direct connections to Monterrey,

Chihuahua, Durango, Torreon, Ciudad Juarez, Nuevo Laredo and other large centers. Direct service is also lacking to eastern cities such as Puebla and Veracruz, although these cities can be reached through the large terminals of Mexico City.

Air Service

Although air service began as early as the late 1930's, with construction of the present airfield (Pl. VII, Fig. 1) and establishment of an Italian-owned airline--Lineas Panini--to provide flights between Morelia and Mexico City, very little expansion in service has taken place.¹ As a result, the airplane plays an insignificant part in the city's external relations. Developments are underway, however, which will change this situation. A new airfield (Pl. VII, Fig. 2) is being constructed northwest of the city and applications have been submitted to the federal government for authorization to begin direct flights to a number of other cities.² Once the new airfield is in operation, and the additional flights have been inaugurated, the third phase in the modernization of Morelia's transportational facilities will be a reality.

Morelia is presently served by only one airline--Aerovias del Sur, S.A., which began operations in August, 1963. Two other airlines, Aeronaves and Reforma, held franchises

¹Interview with Ramon Aguilar Ferreira, manager of Aerovias del Sur, S.A., Morelia, August 4, 1965.

²Applications have been filed for a direct flight schedule between Morelia and Acapulco, and for a flight northward to Fresnillo in Zacatecas via Leon and Aguascalientes.

PLATE VII



Fig. 1--Airfield and terminal building southwest of the city has operated since the late 1930's.

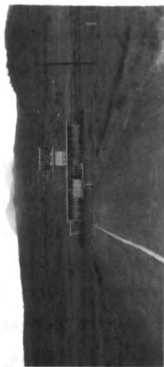


Fig. 2--New airfield and terminal building under construction west of Moravia in 1965.



Fig. 3--Arrieros driving their animals heavily-laden with firewood from the mountains to the south.



Fig. 4--View of Mercado de la Revolucion, with horse-drawn carts used by some campesinos in foreground.

from the mid-1940's to 1963, following the demise of Lineas Panini at the beginning of World War II. Aerovias del Sur, S.A., carries passengers, mail and cargo between Mexico City and Guadalajara, and provides one flight daily by DC-3 aircraft in each direction. Morelia functions as a stop enroute due to its midway position. Eastbound flights from Guadalajara stop at Zamora and Morelia and then go directly to Mexico City; westbound planes do the reverse, thereby providing Morelia air connections with Zamora, as well as Guadalajara and Mexico City. Aerovias del Sur, S.A., also operates a direct flight between Morelia and small cities to the south. Each day a C-45 aircraft flies roundtrip to Huetamo in Michoacan and Iguala in Guerrero, with stops along the way. Although no other scheduled flights are available from Morelia, the airline does provide additional service on a charter basis.

Animate Transport

Despite the increasing modernization of Morelia's transportation system, as represented particularly by the large numbers of buses and trucks now serving the city, considerable quantities of products are still moved by beasts-of-burden and by people. It is quite common to see one or two arrieros coaxing their burro, horse or mule trains toward the city bearing heavy loads of agricultural produce, pottery, handicrafted goods, wood products and other commodities (Pl. VII, Fig. 3). Freight from the forested and virtually roadless mountains to the south and southeast is trans-

ported to Morelia almost entirely on the backs of animals. From there, charcoal, firewood, and rough lumber make up the major cargoes, and, a seemingly endless stream of ladden animals can be seen entering the city throughout the day and even at night.¹

Agricultural products are mostly brought to the city from the surrounding valley farmlands. Fodder, corn, potatoes, green vegetables, tomatoes and poultry predominate. Although bus and truck cargo services are generally available, low levels of income prevent their use in some cases and tend to perpetuate the age-old means of transport by animals and men. Some of the "more prosperous" farmers (campesinos) utilize horse-drawn carts equipped with rubber tires to haul their produce to market and often are hired by their neighbors to carry merchandise back on the return trip (Pl. VII, Fig. 4). Some individuals possessing these carts are engaged in the transport business as their sole means of livelihood.

Commercial Relations

Although improved transportation in recent decades has been responsible for the expansion of Morelia's business activities and commercial-service area, the old established relationships with the immediate hinterland still remain significant. Many new markets and sources of raw materials have been opened up by the proliferation of high-

¹Some types of wood products must be brought into the city at night, because of the illicit nature of the cargo. Poaching on federal forest preserves is still practiced to a great extent in the forestlands of Michoacan and elsewhere.

ways and motor vehicles, but the older, nearby trade areas have also benefited. Large-scale businesses, based on distant suppliers, have become commonplace and in some instances are in direct competition with the more traditional small-scale ones. However, the daily influx of low-income people from rural areas has served to sustain many small locally-oriented businesses and has even been responsible for an increase in certain types of them.

The expanding availability of manufactured products from elsewhere in Mexico and abroad, together with a rising purchasing power, especially among the upper economic groups, has fostered the establishment of new retail and wholesale businesses handling high-cost items such as radios, television sets, automobiles, clothing and canned goods. These businesses have not, however, replaced the small-scale ones catering to the low-income inhabitants, but have actually been complimentary to them through creating a large, varied marketing center which attracts additional numbers of buyers to the city. The service establishments have particularly benefited from this influence.

The wholesale distribution of nationally-known products has become an important sector of Morelia's commercial relations. Most large firms selling these goods in Michoacan have an agent in Morelia whose territory includes a large part of the state, and in some cases, all of it. The agent maintains warehouse facilities in the city and provides for the transportation of merchandise directly to out-lying re-

tailers, or to subdistributors responsible for a designated portion of the agent's assigned territory.

Commercial exchange resulting from the manufacturing industries of Morelia forms an important part of the local economy also. Products made in Morelia are sold in virtually every part of Mexico and even in some foreign countries. Although the percentage of the city's labor force engaged in manufacturing is relatively small, only about ten percent, the income received from the manufacture, transportation and sale of such products furnishes a much more significant contribution to the support of the city. Wages paid in the factories of Morelia are well above the average for the city as a whole.

The imposition of modern large-scale businesses on the old traditional business community, along with the recent growth in manufacturing and its associated distributional activities, have created a complex set of commercial relationships between Morelia and an expanding hinterland. Categorization of activities and delimitation of trade areas are, therefore, quite difficult, even without the problems associated with obtaining precise statistical information. For the purposes of this study the city's commercial relations have been arbitrarily divided into three groups: (1) those with the local area, (2) those with the rest of Michoacan, and (3) those with other states and foreign nations.

Relations With the Local Area

The most numerous commercial relations are those in-

volving the exchange of goods and services with the immediate surrounding countryside. Large numbers of farm people (campesinos) come to the city each day to sell their products and to purchase goods in the local market-places (mercados). Others come to transact various types of business or to take advantage of the services that the city affords (bars, theaters, etc.). Much of the exchange involves small transactions and takes place in or near the four major public markets. However, a considerable number of businesses catering to this clientele have congregated in the vicinity of the second-class bus terminal points where most of these people enter the city.

A wide variety of products are brought to Morelia, but agricultural and forest products are dominant. The fertile farmlands of the surrounding valley and the Lake Cuitzeo Lowland to the north supply marketable surpluses of such crops as corn, beans, green peppers, potatoes, carrots, tomatoes, and a number of other vegetables. Significant quantities of fruit, particularly apples and pears, poultry and eggs, meats and dairy products are also furnished. Many of these items are brought to the city on second-class buses, on animals, in animal-drawn carts, or are carried by the campesinos themselves, while haulage by truck is not uncommon. Retailing is sometimes handled by the producers, but sales through established retail dealers in the city are becoming more and more common. Some dealers even provide pick-up service, but this activity is still not the usual one.

Forest products are brought to the city primarily from

the rugged mountain region to the south, and consist chiefly of firewood, charcoal, logs and rough-hewn boards. Burros carry almost all of the firewood and charcoal; horses and mules the logs and lumber. Motorized transport from the south is practically non-existent, due to the poor road conditions. Most of the wood products are sold to individual customers on a contract basis and seldom appear in the public markets. The previously-mentioned illicit nature of much of this commerce makes this procedure mandatory. The increasing availability of cheap oil products (particularly kerosene) is providing stiff competition to the firewood and charcoal producers, but the stream of heavily-laden burros entering the city is ample evidence that many customers still prefer the products of the forest.

Some handcrafted articles enter local commerce, although their total value is small compared to that from the farm and forest. Among the more significant products are woven cloth, wicker furniture, grass mats, straw hats, leather goods and a variety of pottery. The latter is found in abundance in each of the major markets and is usually retailed by the craftsman from makeshift stands or open displays on the street. Mass-produced manufactured goods compete strongly with the local products, but many residents still show preference for the latter. Some sales are also made to tourists who, obviously, prefer these items to machine-made ones as mementos of their travel. Since many of these articles come from the poorer villages, and their sale sometimes constitutes the sole source of outside income,

a substantial increment in the tourist industry would be beneficial to these villages and to Morelia as well.

Other Intra-State Relations

While retail transactions on a small scale dominate the trade between Morelia and the nearby countryside, commercial exchange with the more distant portions of the state assumes a somewhat different character. Wholesaling tends to replace retailing with increasing distance from the city, and transactions become less frequent, but on a large scale. Agricultural and forest products remain the major incoming items and they exhibit great variety, reflecting the diversity of environment found in Michoacan. These products are either sold to customers in Morelia, or are assembled there for shipment to markets outside the state. Substantial amounts serve as raw materials for the city's growing processing industries.

Products manufactured in Morelia and in distant centers comprise most of the merchandise of outgoing trade. Local factories produce such goods as carbonated beverages, canned fruits, vegetable oils, coffee, finished wood products, matches, roofing materials and candles, and usually handle the wholesaling of them as well. Outside manufacturers provide Morelia's wholesalers with a wide assortment of articles for distribution to other parts of the state. Among the most important of these are canned and packaged foods, alcoholic beverages, pharmaceuticals, petroleum products, cement, farm supplies (feeds, seeds, fertilizers,

etc.), tobacco products, electrical appliances, hardware and motion pictures.

Morelia's intra-state commercial activities, then, can be subdivided into three broad categories: (1) the retail marketing of manufactured goods, (2) the wholesale distribution of manufactured goods, and (3) the collection and processing of agricultural and forest products.

The Retail Trade Area

Delimitation of Morelia's retail trade area is difficult due to the absence of statistical information and to the general reluctance of merchants in divulging the extent of their markets. The problem is amplified by the variation in trade area from one type of merchandise to another. However, from information available, including that obtained during numerous informal interviews, an approximation of Morelia's retail influence can be made.

Generally, as would be expected, the volume of retail business diminishes with increasing distance from the city. A majority of the merchants interviewed placed a limit of 40 to 60 kilometers (25 to 37 miles) on their sales areas, while many related transactions to "Morelia and vicinity"--an even less definite delimitation.

The size and diversity of Morelia's retail market draws many distant buyers to the city. Those seeking a greater selection of merchandise, or specialty items not widely found, journey long distances to take advantage of the city's relatively large choice of goods. Then, too, Morelia's

attraction as the political, cultural and transportation center of Michoacan is responsible for bringing buyers to the city from all parts of the state. Their numbers tend to decrease with increasing remoteness of their homes, however. Several merchants dealing in specialty or luxury products (for example, pianos, furniture and appliances, photographic equipment) conceded that sales were made to customers in all parts of Michoacan on an occasional basis, but that transactions with buyers from the northwestern and extreme eastern portions of the state were rarest. Proximity to the larger markets of Guadalajara and Mexico City, respectively, is probably responsible for the meagerness of Morelia's retail business with those areas (see Fig. 1).

The most detailed delineation of retail sales areas was furnished by eight automobile, truck and agricultural machinery dealers¹ (Pl. VIII, Figs. 1 and 2). Each was asked to bound his sales area to the north, east, southeast, southwest, and west, and to list other similar dealerships in the state. The results are shown in Table 16. A comparison of this table to Figure 1 makes a number of generalizations possible.

Northward, the sales areas extend to the state bound-

¹Benjamin Gutierrez Romero, Morelia Automotriz, S.A.; Benjamin Arriola T., Motores de Morelia, S.A.; Benigno Aguilar, Willys de Michoacan, S.A.; Javier Davila Martinez, Distribuidora Dina de Morelia, S.A.; Javier Vaquero Arriaga, International Harvester, S.A.; Manuel Contreras Reyna, Equipos Agricolas e Industriales, S.A.; Ricardo Perez Ch., Automotriz Comercial y Agricola, S.A.; Antonio Galvez C., Maquinaria Agricola de Michoacan, S.A. All interviews were conducted in Morelia in the summer of 1965.

PLATE VIII



Fig. 1--Renault-Dina automobile dealership in Morelia.



Fig. 2--International Harvester truck dealership in Morelia.



Fig. 3--The Petroleos Mexicanos (PEMEX) storage plant in Morelia serves all of Michoacan.



Fig. 4--Morelia's Pepsi-Cola bottling plant is the third largest this company has in Mexico.

Table 16.-The directional extent of retail-sales area for eight automobile, truck and agricultural machinery dealers, Morelia, 1965*

Dealership	Directional Extent of Sales Area (By City)					Location of other Dealers in Michoacan
	North	East	Southeast	Southwest	West	
Morelia Automotriz (Ford)	Morelion	Ciudad Hidalgo	Huetamo	Ario and Tacambaro	Zacapu	Zamora Uruapan
Motores de Morelia (Chevrolet-Buick)	State-line	Ciudad Hidalgo	Huetamo	Ario and Tacambaro	Zacapu	Zamora Uruapan La Fiedad Jiquilpan Zitacuaro Apatzizingan
Willys de Michoacan (Willys-Rambler)	Morelion	Zitacuaro	Huetamo	Patzcuaro Tacambaro	Zacapu	Zamora Uruapan
Dist. Dina de Morelia (Renault-Dina)	Cuitzeo	Ciudad Hidalgo	(none given)	Ario and Tacambaro	Zacapu	Uruapan Zitacuaro
Internat'l Harvester (Trucks only)	Morelion	Ciudad Hidalgo	(none given)	Ario and Tacambaro	Zacapu	Zamora Zitacuaro
Equipos Agricolas e Industriales	State-line	Zitacuaro	(none given)	Playa Azul	Zacapu	(none given)
Automotriz Comercial y Agricola (Fordson)	State-line	Zitacuaro	Huetamo	Ario	Zacapu	Zamora Apatzizingan
Maquinaria Agricola y Michoacan	Morelion	Zitacuaro	Huetamo	Ario and Tacambaro	Zacapu	Zamora

* Sources: Interviews with dealers listed in footnote, p. 151.

ary or to Moroleon just beyond it. Dealers in cities such as Celaya, Salamanca and Irapuato restrict Morelia's market farther to the north. Eastward, each sales area reaches to Ciudad Hidalgo and in some cases all the way to Zitacuaro at the state's eastern edge. Further penetration is blocked by competitors in Toluca and Mexico City.

The sparsely populated southeast (represented by Huetamo in the table) is within the sales area of five dealers and probably is served by the remaining three also, although confirming information was not supplied by them. Morelia's retail command of this area is due in large part to the transportation pattern, since the only all-weather roads leading out of it join Michoacan's main east-west highway just east of the city.

All eight dealers place the western margin of their territories at Zacapu, and concede that dealers in Zamora, Uruapan and other cities supply the market beyond that limit. Southwest of Morelia their sales extend only to Arrio (Arrio de Rosales) and Tacambaro--a situation created by the road accessibility, as in the case of Huetamo.

Thus, on the basis of the information supplied by these eight dealers, the retail sales area of Morelia can be broadly delimited as the eastern half of Michoacan, or that portion of the state lying east of the longitudinal line passing through Zacapu. The primary factors responsible for this are (1) the influence of the state boundary, (2) the situation of competing retail centers in Michoacan and neighboring states, and (3) the orientation of the road

network which causes Morelia to have centrality so far as accessibility is concerned.

The Wholesale Distribution Area

Wholesaling dominates Morelia's intra-state commercial relations. At least thirty-seven distributors supply retailers, or other distributors throughout the state with a wide variety of goods. In addition, most local manufacturers, and a large number of retail establishments, perform wholesale functions in addition to their basic activity. The result is a complex set of relationships between Morelia and the remainder of the state.

Analysis of Morelia's wholesale trade areas is relatively easy compared to those of retail businesses, since many of the bigger dealers possess franchises covering all or a large part of the state. Morelia's position as the capital, largest city and transportation hub of Michoacan definitely enhances the operation of such franchises from here and should assure the city's continued supremacy as a wholesaling center.

Illustrating particularly well the holding of a statewide type of franchise are two companies handling completely different kinds of products, namely Nestle, S.A. (foods) and Petroleos Mexicanos (petroleum products). The Nestle company, with its main office and warehouses in Toluca, established the Morelia distributorship in 1955 to disseminate its products throughout Michoacan.¹ Trucks from the Morelia ware-

¹Interview with E. Pastran, manager of Nestle, S.A., Morelia, August 6, 1965.

house not only transport merchandise to retailers in the vicinity, but to subdistributors in other major cities who in turn supply retailers in their areas. All Nestle products marketed in the state must be obtained through the Morelia dealership.

The local branch of Petroleos Mexicanos (PEMEX), the government-owned oil monopoly, was established in Morelia just prior to World War II (following the expropriation of the foreign oil interests) to distribute gasoline, diesel fuels and oils (Pl. VIII, Fig. 3). Products are transported to this facility by pipeline from a refinery at Salamanca in Guanajuato and by truck or train from refineries in the Mexico City area. Retailers in Morelia and the immediate vicinity are serviced by small trucks directly from the plant. Larger trucks carry bulk products to agents in Zacapu, Patzcuaro, Uruapan, Apatzingan, Zamora, and Zitacuaro, who then distribute to retailers in their respective areas.¹ In the case of both Petroleos Mexicanos and Nestle, the state boundary limits the sales area, and excludes competition from agents selling the same products in neighboring states.

Examples of franchises covering a large part of the state are those held by the Morelia branch of Nacional de Drogas, S.A., and by the Agencia de Carta Blanca, S.A., drug and beer distribution firms, respectively. Nacional de Drogas is a subsidiary of McKesson-Robinson company of the United States. It was established in Morelia in 1957 and

¹Interview with Huberto Mercado M., sales officer for Petroleos Mexicanos, Morelia, July 23, 1965.

supplies medicines and cosmetics to the city and vicinity, and westward in Michoacan.¹ The eastern part of the state, from Ciudad Hidalgo eastward, is in the territory of the distributor in Toluca. Trucks from the Morelia warehouse transport merchandise directly to retailers and consumers in the western part of the state, thus eliminating subdistributors.

The territory of the Agencia de Carta Blanca, S.A., established in 1948, is almost identical to that of Nacional de Drogas, but the method of distribution is somewhat different. Beer comes to Morelia by truck from the Cuauhtemoc Brewery in Monterrey. Direct deliveries are then made to retailers in the immediate vicinity, while larger shipments are transported to subagents in Patzcuaro, Zacapu, Uruapan and Sahuayo for wholesaling in their areas.² The eastern part of the state is supplied from Toluca, as in the case of Nacional de Drogas.

Many local manufacturers perform distributional functions in addition to their primary activity. In fact, a majority of supervisory personnel interviewed stated that wholesaling comprised an important segment of company business. Since most manufacturing plants in Morelia produce goods for consumption in other states, as well as in Michoacan, only those directly engaged in intra-state distribution are considered here.

Topmost among manufacturers whose production is destined solely for the Michoacan market are the five bottlers

¹Interview with Juan Zamarron, manager of Nacional de Drogas, S.A., Morelia, August 4, 1965.

of carbonated beverages.¹ When asked to delimit their plant's distribution area, each of the plant managers outlined a different one. This emphasizes the complexity of Morelia's wholesale functions. Only one bottler--Pepsi-Cola--supplies the entire state with its product. The Morelia plant, the third largest of the parent company's sixty Mexican installations, directly handles distribution to retailers in the eastern half of the state, using a fleet of over 200 trucks (Pl. VIII, Fig. 4). Retailers in the northwestern and southwestern parts of Michoacan are serviced from warehouses located in Zamora and Apatzingan, respectively. Large trucks stock these warehouses from Morelia. Approximately 56,000 outlets throughout the state are served either directly or indirectly making this the most extensive distributional activity in Morelia.²

The second largest territory is that of the Jarritos plant. Distribution to retail dealers in Morelia and vicinity is handled directly by the plant, while twenty-five agents supply sales places in the rest of the state with the exception of the La Piedad and Zitacuaro areas. Those two peripheral sections, one in the northwest and the other in the east (Fig. 1), receive Jarritos from bottlers in Leon

¹Bebidas Purificadas de Michoacan, S.A., (Pepsi-Cola); Embotelladora Jarritos de Michoacan, S.A., (Jarritos); Embotelladora de Morelia, S.A., (Coca-Cola); Embotelladora Valle de Guayangareo, S.A., (Grapette); Embotelladora Peri-Soda, S.A., (Peri-Soda).

²Interview with Gustavo Michel Lopez, manager of Bebidas Purificadas de Michoacan, S.A., Morelia, July 23, 1965.

and Mexico City, respectively.¹

The Coca-Cola plant in Morelia claims all of the state as its distributional area, except the northwest quarter (west of Zacapu and north of Uruapan) which is supplied from Zamora. Three plants in neighboring Guanajuato, at Irapuato, Celaya and Leon, limit sales in that direction. Again, delivery to retailers in Morelia and vicinity is handled directly by the factory, while some 37-40 subdistributors supply those in the out-lying areas.²

Morelia's two remaining bottlers, Grapette and Peri-Soda, operate on a much smaller scale, and handle all phases of production and distribution. The extent of Grapette's sales area was placed at an approximate radius of 100 kilometers from the city,³ while that of Peri-Soda was given as "Morelia and the surrounding municipios."⁴

In summary, the wholesaling influence of Morelia extends into all parts of the state, but varies considerably from one type of product to another. Thus, precise delimitation of a wholesale trade area for Morelia is impossible, although it can be concluded that the city is, and should remain, the major center of this activity in Michoacan.

¹Interview with Salvador Sanchez Ramirez, manager of Embotelladora Jarritos de Michoacan, S.A., Morelia, July 23, 1965.

²Interview with Manuel Castaneda H., manager of Embotelladora de Morelia, S.A., Morelia, July 26, 1965.

³Interview with Pablo Villanueva, manager of Embotelladora Valle de Guayangareo, S.A., Morelia, July 26, 1965.

⁴Interview with Jesus Perea, manager of Embotelladora Peri-Soda, S.A., Morelia, July 23, 1965.

Collection and Processing of Raw Materials

The third of Morelia's intra-state commercial functions is the collection and processing of agricultural and forest raw materials. Since most of the resulting products are destined for out-of-state markets, discussion of their distribution will be reserved for a later section of this chapter. However, the actual assembling and processing of these materials constitute primarily intra-state activities, and, for that reason, are included here.

The diversity of physical environments in Michoacan is responsible for the wide variety of agricultural and forest materials available to Morelia. The city's processing relations with the hot lands to the south are dominantly oriented to the manufacture of edible oils from the cottonseed, sesame-seed and copra produced in abundance there. Three vegetable oil plants operate primarily with raw materials obtained from the districts of Huetamo, Apatzingan, and the coastal area near Playa Azul (see Fig. 1).

Tron Hermanos y Cia., S.A., a manufacturer of fats, oils, and animal feeds established in 1936, depends entirely on the Huetamo area for its supply of sesameseed and on Apatzingan for cottonseed. Some 5,000-6,000 tons of sesame-seed are trucked to this Morelia plant annually, while about one-half that amount of cottonseed comes by truck or train. Fats, oils and feeds produced are marketed throughout Michoacan, but the bulk of production moves out-of-state.¹

¹Interview with Manuel Perez Montana, accountant for Tron Hermanos y Cia., S.A., Morelia, August 9, 1965.

One of Morelia's oldest and largest manufacturers, Negociacion Industrial "Santa Lucia," S.A., produces vegetable fats and oils from sesameseed and cottonseed obtained in the same two districts listed above, as well as from soybeans and safflowerseed brought in from elsewhere (Pl. IX, Fig. 1). The milling of rice grown near Apatzingan is an additional intra-state activity. Raw materials from Huetamo are transported by truck, while those from Apatzingan come by truck and also by railroad.¹

The manufacture of coconut oil from copra produced in the coastal area around Playa Azul represents one of the city's newest industries and was made possible by the completion of a graveled road to Playa Azul in the mid-1950's. The absence of bridges over a number of stream channels hampers vehicular movements during periods of heavy rainfall, but, despite this obstacle, over 2,000 tons of copra are trucked to Morelia each year. Oleaginosos de Morelia, S.A., utilizes the copra in the production of coconut oil which is sold primarily to soap manufacturers in Toluca, Mexico City and Monterrey.²

A good example of Morelia's processing functions in connection with the fertile farmlands of northern Michoacan is the operation of Congeladora Morelia, S.A. This company, organized in 1952, packs strawberries for export to the

¹Interview with Felipe Torres Puente, manager of Negociacion Industrial "Santa Lucia," S.A., Morelia, August 10, 1965.

²Interview with Jose Diaz, manager of Oleaginosos de Morelia, S.A., Morelia, August 10, 1965.

PLATE IX



Fig. 1--Negociacion Industrial "Santa Lucia," S.A., manufacturer of vegetable fats and oils.



Fig. 3--Harinera Michoacan, S.A., the larger of two flour-milling plants in Morelia.



Fig. 2--Congeladora y Empacadora Nacional, S.A., a fruit processing plant.



Fig. 4--Industrias Quimicas de Mexico, S.A., manufacturer of carbon sulfite and insecticides.

United States and produces ice for the local market. The berries are grown on 5,000 acres of land near Zamora and are trucked to Morelia between mid-December and late June. During this period some 800 persons are employed in the plant. The berries are packed and frozen in thirty-pound containers and shipped to the United States by railroad. In the "off-season" ice becomes the major product and employment drops to only twenty-four persons. Although the plant's heavy employment during harvest time represents a boon to the local economy, the seasonal nature of its operations creates problems the rest of the year.¹

One of the most extensive of Morelia's processing functions is the milling of wheat which is produced throughout the temperate farmlands of Michoacan. Virtually every municipio in the northern half of the state grows some grain for the mills of the city. In recent years increasing amounts of wheat from northwestern Mexico (particularly Sonora and Sinaloa) are being milled in Morelia, but the supply from within the state is still significant. One of the oldest milling companies in Morelia, Compania Harinera de Lourdes, S.A., has been grinding wheat for producers in Michoacan since 1923. From that date until 1957, when a major plant expansion occurred, operations were on a small scale. Since the expansion, however, increasing amounts of wheat from Sonora and Sinaloa have been utilized. Completion of railroad connections with the northwest early in the 1950's,

¹Interview with Rafael J. Villalpando, manager of Congeladora Morelia, S.A., Morelia, August 11, 1965.

and of massive irrigation projects there, were largely responsible for this development.¹

The wooded mountains east, west and south of Morelia provide the raw materials for a number of forest-oriented industries that are basic to the city's economy. Pine is the major variety of tree exploited, although the oak and several other indigenous hardwoods are also utilized. Lumber, boxes, resin and turpentine are the most important products. Information supplied by two fabricators of lumber and boxes, and one producer of resin and turpentine reveals the nature of these processing functions.

La Compania Industrial Maderera "El Carmen," S.A., began operations in 1924 as a small lumber mill, but has experienced a number of expansions and now employs from 75 to 150 workers, depending upon the demand and the availability of raw material. Lumber continues to be the major product, but in recent years the making of wooden boxes and crates has become important as a result of increasing demands accompanying the growth of commercial agriculture. Both pine and oak are purchased primarily in the municipios of Morelia and Hidalgo, and are transported to the plant by truckers on a contract basis. Strict government controls and allotments of raw material sometimes hamper production.²

A somewhat smaller company, Comercial Maderera, S.A.,

¹Interview with Pastor Castro Tinoco, owner and manager of Cia. Harinera de Lourdes, S.A., Morelia, August 5, 1965.

²Interview with Eduardo Plaza Rubiano, manager of La Cia. Industrial Maderera "El Carmen," S.A., Morelia, August 3, 1965.

employs between 40 and 50 workers and specializes in the same products. Wood is obtained under government allotment in the municipio of Morelia and neighboring Villa Madero to the south, and seldom is transported more than 30 or 40 kilometers. While some of the production is marketed throughout northern Michoacan, approximately three-fourths of it is sold in the Bajio of southern Guanajuato.¹

The operations of El Pino, S.A., established in 1934 as a producer of resin and turpentine, encompass a much wider supply area than those of the wood fabricators. Over 1,000 collectors gather the raw material throughout the mountains of Michoacan on a full or part-time basis. A number of buying stations have been set up by El Pino at strategic points for receiving the raw material, which is then collected by company tank-trucks for transport to the plant. Money paid to the individual collectors is a major source of their income and in many cases the only source. Forty-five employees at the factory annually process over 5,000,000 kilograms (11,023,000 pounds) of materials into resin and turpentine destined for markets abroad.² The importance of the function performed by El Pino, S.A., as a collector and processor of forest products, is demonstrated by these statistics.

In summary, Morelia's influence as a collection point and processing center for agricultural and forest materials

¹Interview with Emilio Fernandez Lopez, manager of Comercial Maderera, S.A., Morelia, August 3, 1965.

²Interview with Guillermo Cuevas, manager of El Pino, S.A., Morelia, August 13, 1965.

extends into virtually every part of Michoacan. Recent improvements in transportation have strengthened ties with the traditional supply areas and have opened up new ones. Continued expansion of the state's all-weather road network and opening of new areas will undoubtedly have an important affect on Morelia's performance of these functions in the future.

Inter-State and Foreign Relations

The inter-state and foreign relations of Morelia are highly complex. Some local businesses receive goods directly from manufacturers in other states and foreign countries, but the bulk of incoming merchandise reaches the city via wholesale distributors located in other major cities of the country. Each of the businesses previously discussed in connection with the retail and wholesale trade areas actually is a part of this outside commerce. Even three of the five bottling plants, namely those distributing Coca-Cola, Pepsi-Cola, and Grapette, have foreign connections. However, the orientation of their basic activities necessitated their inclusion in the intra-state discussion. It can be concluded, therefore, that most large Mexican manufacturers and many foreign ones supply goods to the Morelia market, either directly, or indirectly through authorized agents. An examination of merchandise in the city's stores supplied ample evidence in support of this conclusion, although precise facts concerning the trade were not available.

Consequently, information obtained by interview concerning the markets, sources of raw materials and means of

transportation used by Morelia's manufacturers, provides the basis for the following discussion of the city's inter-state and foreign commerce. Graphic presentation of the data acquired is given in Figures 10 and 11. Industries utilizing primarily agricultural raw materials in the production of edible products are portrayed in Figure 10; those manufacturing non-food items from a variety of raw materials in Figure 11.

Study of these figures reveals the complexity of Morelia's inter-state and foreign relationships. Raw materials sources and the markets for finished products are scattered throughout Mexico and several foreign countries. Both trucks and trains are utilized in the transfer of overland cargoes. Shipments between Morelia and other points in central and southern Mexico are handled mostly by truck, while long-distance shipments to and from the northern states go primarily by railroad.

The most numerous relations are those carried on with nearby states in central Mexico, while a strong pattern of exchange exists with the northwest coastal states. Commercial ties with the northern plateau states and those of the south and southeast are very small in comparison. Foreign trade basically involves rail shipments to the United States, although one company, El Pino, S.A., also markets products in western Europe and the Far East. Imported raw materials destined for the factories of Morelia enter Mexico at Veracruz and are trucked overland through Mexico City. Their total volume, however, is insignificant compared to that furnished by domestic sources. A closer examination of the man-

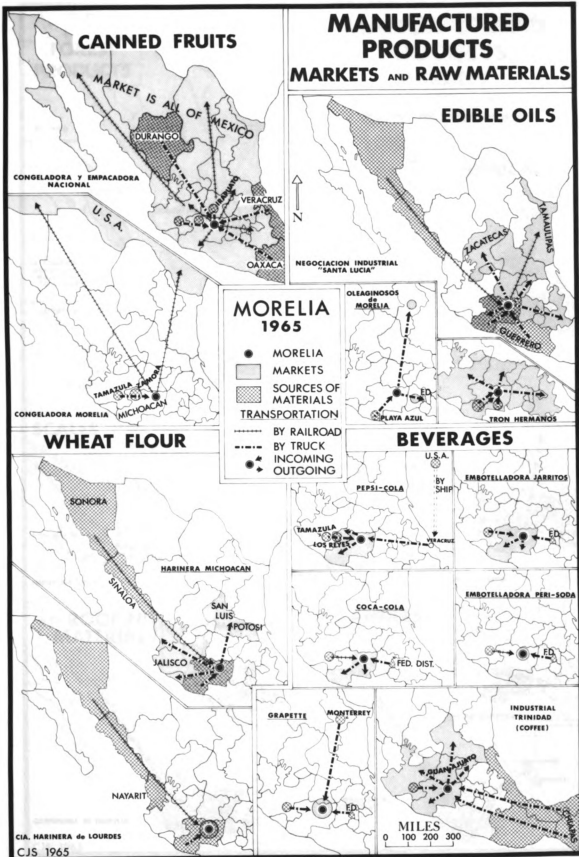


Figure 10

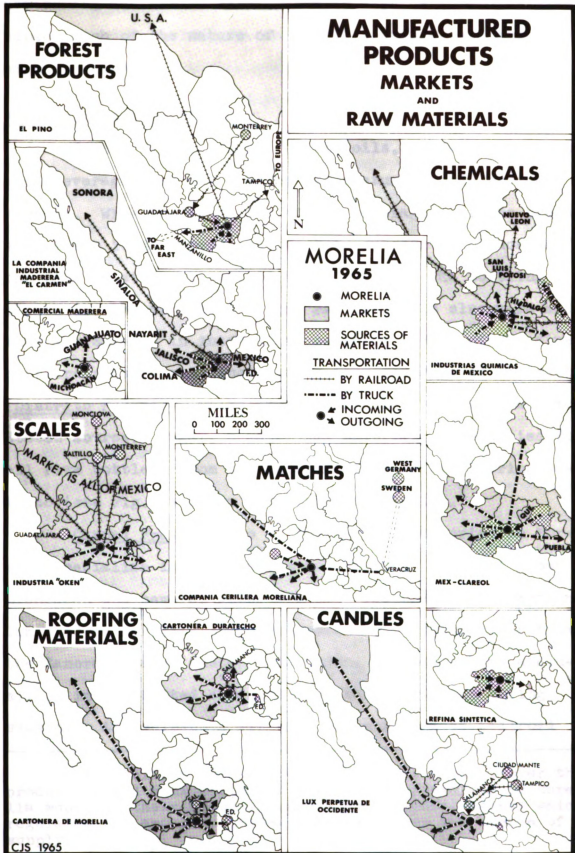


Figure 11

ufacturing activities illustrated in Figures 10 and 11 discloses much of the nature of Morelia's inter-state and foreign commerce.

Food-Related Manufacturing

Canned fruits, flour, edible oils, coffee and carbonated beverages are the leading manufactured foods produced in Morelia. With the exception of the beverages, plants processing these items depend upon markets outside of Michoacan for the sale of at least part of their output. The bottling plants do, however, secure some raw materials elsewhere and thus are engaged in inter-state commerce. Four of the five bottlers receive some ingredients from the Federal District (Distrito Federal), while one (Pepsi-Cola) relies on a United States source. Sugar, a major raw material, is supplied to all five bottlers from the Tamazula area of neighboring Jalisco (see Fig. 1) under government regulation.¹

Canned Fruits.--Two of the largest factories in Morelia specialize in the canning and freezing of fruit grown in Michoacan and several other states. The previously mentioned Congeladora Morelia, S.A., processes only strawberries from the Zamora area of western Michoacan, and sells them exclusively in the United States during the winter and spring seasons. All shipments are made in refrigerated railroad

¹The Mexican Government exerts rigid control over the production and consumption of sugar. Manufacturers in Morelia must buy their sugar through a governmental agency which regulates the amount allotted and designates the source of supply.

cars via Laredo and Nogales. Distribution is made throughout the United States with the heaviest sales in the states of the northeast and the Pacific coast region.

The Congeladora y Empacadora Nacional, S.A., also processes strawberries, as well as a variety of other fruits (Pl. IX, Fig. 2). The strawberries come not only from Zamora, but from Irapuato in the Bajio of Guanajuato. Other fruits handled are mangoes, pineapples and date-plums from Veracruz, pineapples and tamarinds from Oaxaca, and apples from Durango. All of these fruits are transported by truck to Morelia, but the canned and frozen products are shipped to markets throughout Mexico almost exclusively by railroad.¹

Wheat Flour.--The milling of wheat, one of the city's oldest industries, involves the inter-state movement of both raw materials and the finished product. Both of the city's mills utilize wheat grown within the state and also wheat produced in the northwest Pacific coastal states. Shipments from the latter area come by railroad, while trucks handle consignments from nearby farmlands. The larger of the two mills, Harinera Michoacan, S.A., sells its flour in Michoacan and in other states of central Mexico, particularly Jalisco, Colima, Nayarit and San Luis Potosi (Pl. IX, Fig. 3),² while the smaller plant produces for Morelia and neighboring municipalities.

¹Interview with Arturo Pastor, manager of Congeladora y Empacadora Nacional, S.A., Morelia, August 17, 1965.

²Interview with Miguel Cortez Gomez, employee of Harinera Michoacan, S.A., Morelia, August 12, 1965.

Edible Oils.--The procurement of raw materials and the manufacture of edible oils are primarily intra-state activities as previously indicated. However, marketing of the finished products is within the realm of inter-state commerce. Cottonseed and sesameseed oils are trucked to consumers throughout central Mexico and moved northward by truck and train to Zacatecas, San Luis Potosi and Tamaulipas. The less abundant coconut oil, manufactured by Oleaginosos de Morelia, S.A., goes by truck to manufacturers in Toluca, Mexico City and Monterrey to serve as a raw material in the soap-making process.

Coffee.--One of the most unusual manufacturing industries of Morelia is Industrial Trinidad, S.A., which is engaged in the production of sugared and plain-roasted coffee. The raw coffee is supplied by growers in Veracruz, Oaxaca and Chiapas. Sugar is secured under government allotment from the Tamazula area of neighboring Jalisco. Sales are mostly to wholesalers in Michoacan and Guanajuato, but they are also considerable to distributors in Queretaro, San Luis Potosi and Jalisco. Trucks provide the transportation in all phases of procurement and distribution.¹

Manufacturing of Non-Food Products

A variety of non-food products are manufactured in Morelia from raw materials originating in Michoacan and elsewhere. Three plants process forest products and an equal

¹Interview with Salvador Lopez M., owner and manager of Industrial Trinidad, S.A., Morelia, August 2, 1965.

number specialize in the manufacture of chemicals. Two establishments make roofing materials, while scales, matches and candles are the products of three individual firms. Distribution of these items is highly diversified, but there is a strong orientation to markets in adjoining states and states to the north and northwest (Fig. 11).

Forest Products.--The forest-oriented industries depend almost entirely upon raw materials sources within Michoacan and have, therefore, been discussed in relation to intra-state commerce. Sales of the finished goods, however, are consummated largely outside of the state. The bulk of the production of El Pino, S.A., consisting of turpentine and resin, is sold to customers in other countries. Nearly all of the turpentine is shipped by railroad to El Paso, Texas for further processing and distribution to markets in the United States. The resin is transported by rail to the ports of Tampico and Manzanillo for shipment to countries in western Europe and the Orient, respectively.

Some of the lumber and boxes, the two major products of La Compania Industrial Maderera "El Carmen," S.A., and Comercial Maderera, S.A., are marketed in Michoacan, but most of the output enters inter-state commerce. Customers in the virtually forest-less farmlands of southern Guanajuato purchase well over one-half of the total output of each company. The larger company, "El Carmen," also markets goods in the Pacific coastal states and as far eastward as Mexico City. Railroads handle the long-distance hauls, but give way to trucks on the shorter ones.

Chemicals.--Morelia's chemical plants manufacture a number of products based on nearby sources of vegetal carbon and on ingredients assembled from other states. The major markets are in central Mexico, although some sales are made to customers in the Pacific coastal states and northward as far as Monterrey in Nuevo Leon. Industrias Quimicas de Mexico, S.A., a producer of carbon sulfide and insecticides, has the most extensive sales area (Pl. IX, Fig. 4). Carbon sulfide is sold primarily to customers in the mining and synthetics industries of central Mexico and Monterrey. Insecticides are distributed throughout the central states and especially in the irrigated districts of the Pacific coast. Production is based on locally-made vegetal carbon and on sulfur obtained from the large deposits of Veracruz. Railroads provide for the transport of sulfur and for supplying distant customers. Trucks handle the short hauls.¹

Mex-Clareol, S.A., established in Morelia shortly after the expropriation of foreign oil properties in 1938, prepares compounds used in the clarification of petroleum products and in the manufacture of insecticides. Carbon is obtained in Michoacan and other raw materials come from Hidalgo (state). The nature of the materials from Hidalgo was not specified. Although Petroleos Mexicanos (PEMEX) is the major customer, a considerable portion of the output reaches other buyers in central Mexico and Nuevo Leon. Trucks provide all

¹Interview with Jose Lino Cortez, manager of Industrias Quimicas de Mexico, S.A., Morelia, August 6, 1965.

transportation to and from the plant.¹

The smallest of the chemical plants, Refina Sintetica, S.A., manufactures a general line of chemicals based on locally-supplied raw materials. The bulk of production is sold to manufacturers in the Federal District. Trucks provide all transportation, as in the case of Mex-Clareol.²

Roofing Materials.--Two plants, whose operations are almost identical, are engaged in the manufacture of oil-treated pasteboard roofing materials. Cartonera de Morelia, S.A., the larger plant, is the biggest manufacturer of pasteboard roofing in Mexico. Raw materials include waste paper obtained in Morelia and from the Federal District, and oil procured from refineries in nearby Salamanca, Guanajuato and Atzacapotzalco, D.F. The finished product is marketed primarily to low-income customers in Michoacan and neighboring states, but a significant proportion of sales is made in Nayarit, Sinaloa and Sonora.³ Cartonera Duratecho, S.A., gets its materials from similar sources, but, due to its smaller output, sells only to customers in Michoacan and the surrounding states.⁴

¹Interview with an employee (name not given) of Mex-Clareol, S.A., Morelia, August 6, 1965.

²Interview with Manuel Revuelta M., Refina Sintetica, S.A., Morelia, August 6, 1965.

³Interview with Norberto Canals, owner and manager of Cartonera de Morelia, S.A., Morelia, July 29, 1965.

⁴Interview with Fernando Voirol, manager of Cartonera Duratecho, S.A., Morelia, July 29, 1965.

Scales.--Industria "OKEN," S.A., manufacturer of metal scales, is the only large fabricator of metal goods in Morelia. The plant was established in 1935 to produce two to four small scales per day for the local market, but has since been expanded. Now it has a daily output of from 125 to 150 units and encompasses all of Mexico within its sales area. Raw materials are assembled from a number of distant sources. Iron ingots come by rail from Monterrey and Saltillo. Coking coal is also received by rail from Monclova, Coahuila. Copper and tin used in the plant's bronze-making division are purchased from fabricators in Mexico City, while small, pre-fabricated parts and cardboard shipping cartons come from both the Federal District and Guadalajara. Although all basic materials must be transported considerable distances, Morelia's market-oriented location within heavily populated central Mexico has been the factor primarily responsible for plant expansion during the past decade.¹

Matches.--Compania Cerillera Moreliana, S.A., is one of nineteen match-manufacturing plants in Mexico. Phosphorus, the major raw material, is imported from West Germany and Sweden via Veracruz, from where it is transferred overland in specially-constructed trucks. The other raw material, Kraft Paper, is produced in nearby Atenquique, Jalisco. Matches are marketed only in Michoacan, Colima, Nayarit and Sinaloa under

¹Interview with Samuel O. Johnson, manager of Industria "OKEN," S.A., Morelia, August 12, 1965.

government regulation.¹

Candles.--Lux Perpetua de Occidente, S.A., established in 1949 to manufacture candles for the Michoacan market, has expanded its production work-force to 100 employees and now supplies candles to buyers as far north as Sinaloa and Sonora. Paraffin, the basic raw material, reaches the plant by railroad tank-car from PEMEX refineries in Salamanca, Ciudad Mante, Tampico and the Federal District. Trucks transport the finished product to both the distant and nearby markets.²

¹Interview with Alfredo Chavez Tomeli, assistant manager of Compania Cerillera Moreliana, S.A., Morelia, August 18, 1965. The Mexican Government rigidly controls the production and distribution of matches. It, therefore, determines the exact sales area for each plant.

²Interview with Salvador Tena Mendoza, manager of Lux Perpetua de Occidente, S.A., Morelia, August 18, 1965.

CHAPTER VI

LAND USE IN MORELIA

To successfully complete an inventory of any city with 100,000 persons is quite an undertaking, but is considerably more difficult if the city is a foreign one. Differences in building construction and placement create obvious problems, while the dissimilarity in functional relationships within buildings, and within neighborhoods, add to the overall difficulty of accurate classification for mapping land use.

The contiguity of buildings in Morelia presented a major problem since only the street-facing wall of each building could be seen and this often did not reveal the true nature of the activity inside. Inaccessibility of the interior of city blocks, especially in the densely built-up sectors, usually made necessary classification of land use on a frontage basis only and obviously detracted from the overall validity of the survey in such areas. Building usages could have been more accurately determined if sufficient time had been available and if permission for access could have been obtained from individual property owners. However, because of the time-limitation factor, little attempt was made to gain access into such places. A complete

survey of all blocks and buildings in Morelia would require at least a year of intensive work.

The age of many buildings, particularly those in the older parts of the city, also created classification problems, since in many cases the present use represents a drastic change from the original one. In other words, the appearance of a building could not always be relied on to indicate the function it was performing. The conversion of former upper-class residences into business and/or manufacturing establishments, and the use of confiscated church properties for libraries, hospitals and governmental offices are examples of utilization changes which make mapping of land use difficult when based only on what can be seen from the street.

The multiplicity of functions within some buildings also presented a classification problem. Not infrequently residences also serve as places of business or as manufacturing plants. In zones of contiguous buildings only the function fronting on the street was observable except when by chance a view of the interior was obtained. This situation had undoubtedly led to an underenumeration of most land use types, particularly residences and small manufacturing establishments. However, allowing for this obvious discrepancy, the writer feels that the data collected and presented in the following pages do depict land use in Morelia as reliably as possible under the circumstances.

The classification of residential buildings into upper, middle and lower quality was particularly difficult. The common practice of allowing the exterior of buildings to deter-

iorate or remain in ill-repair, while maintaining the interiors, led to problems of accurate classification. First impressions many times had to be modified upon closer scrutiny of the properties. Then, too, the scarcity of windows in many cases denied even a cursory examination of building interiors, and further complicated the entire process.

In a number of instances buildings with solid walls facing the street, or with detached walls surrounding them, offered no good clues to their use. Impromptu interviews with passersby, or with people residing in the vicinity, often were necessary in order to categorize them. The validity of this procedure is obviously questionable, but it was used for lack of a better one.

Considering the problems indicated above, it is obvious that the surveying of a Latin American city, particularly one with over 100,000 inhabitants, can only approximate reality. John M. Ball, in his study of Tepic, summed up the situation very adequately when he wrote:

It soon becomes evident that urban land use mapping in a Latin American city is much less reliable than in cities of the United States, if Tepic is at all typical of the former. This is particularly true if reliance is principally on observation with only a minimum of interviewing. The result is a gross underenumeration of the business and home-industry functions of the city. However, such a survey is not without its value, in that the results may be more complete than are available from any other single source, official records included, short of a house to house census.¹

The writer concurs with this statement concerning another Mexican city. Many of the problems experienced by Dr. Ball

¹John M. Ball, op. cit., pp. 65-66.

were almost identical to those encountered in Morelia.

The Fractional Code Mapping System

As mentioned in the Introduction, a fractional code system was devised in the field to expedite the land use survey. As each new type of land use was encountered, a code letter and number were assigned which became the symbol for that particular use in all subsequent occurrences. A selection of symbols used in this study is shown in Table 17 below.

Table 17.-Selected land use symbols from the fractional code system utilized in the functional survey of Morelia, 1965*

Land Use Category	Symbols
Apartamentos (Apartment Buildings)	A-1
Abarrotes (Grocery Stores)	A-3
Abogados (Lawyers)	A-6
Armerias (Gunshops)	A-13
Bancos (Banks)	B-1
Cines (Motion Picture Theaters)	C-2
Carnicerias (Meat Markets)	C-4
Deportes (Sporting Goods Stores)	D-1
Dentistas (Dentists)	D-3
En Construcción (Bldgs. in Construction)	E-1
Farmacias (Pharmacies or Drugstores)	F-1
Gobierno (Governmental Buildings)	G-1
Hoteles (Hotels)	H-1
Iglesias (Churches and Church Property)	I-1
Residencias (Residences)	R-8
Upper-Class Residences	R-8u
Middle-Class Residences	R-8m
Lower-Class Residences	R-8l
Vacante (Vacant Buildings)	V-1
Vacante (Vacant Lands)	V-2

* Devised by the writer in the field, Morelia, 1965.

The capital letter portion of the symbol in each case corresponds to the first letter of the Spanish term for the type of land use recorded. The number following the letter represents the sequence in which each different use of the land using that letter was encountered. In the field it was soon found that the corresponding-letter system was easier to use than a system of symbols previously designed. And, too, the use of sequential numbers permitted an unlimited number of categories under each capital letter.

In the case of residences additional information concerning quality of residence was indicated by the use of lower case letters u, m and l for upper, middle and lower class, respectively. Thus, R-8 was the symbol for a residence, while R-8u indicated an upper-class residence. The number of floors in all buildings was plotted directly on the field map by the tiering method and, therefore, was not included in the symbolization. The relative spatial extent of all buildings, so far as could be determined, was also plotted directly on the field maps.

The construction of the land use maps appearing in this chapter was simplified considerably by employment of this symbol system and the sketching of floors and building sizes on page-size field maps. Of course, the segregation of single categories in the construction of the distributional maps was somewhat time-consuming, but a high degree of accuracy was possible due to use of the fractional code system in the field. Recording of the data in this manner will also make possible comparative studies of Morelia which

are planned by the writer for the future.

Residential Land Use in Morelia

Residential use occupies an overwhelming proportion of all developed land in Morelia. Of some 20,355 structures surveyed, 17,046, or 83.7 percent, were used primarily for residential purposes.¹ These were divided into three general classes--upper, middle and lower--for the purposes of this study. Categorization was based quite arbitrarily on criteria developed in the field and reflects building quality and overall condition rather than the economic status of the inhabitants. Table 18 summarizes the results of the residential field survey, while Figures 12-16 inclusive present data collected during the field count, and information received from the Junta de Planeacion y Urbanizacion del Estado de Michoacan.

As can be seen in Table 18, almost 70 percent of all residences in Morelia are lower-class, while upper- and middle-class dwellings comprise 13.3 and 17.4 percent of the total, respectively. The writer feels that the 69.3 percent figure for the lower-class dwellings is substantially accurate, while the upper- and middle-class percentages might fluctuate slightly with re-evaluation of the criteria used.

¹All data relating to land use in Morelia were collected by the writer during the land use survey except where specifically noted otherwise. The Junta de Planeacion y Urbanizacion del Estado de Michoacan in Morelia furnished most of the data not collected in the field count.

Table 18.-Number of residences by class in Morelia, 1965*

Class of Residence	Residences			Percent of Total
	Total	CBD	NON-CBD	
Upper-Class	2,271	130	2,141	13.3
Middle-Class	2,967	41	2,926	17.4
Lower-Class	11,808	12	11,796	69.3
Morelia Total	17,046	183	16,863	100.0

*Source: Fieldwork in Morelia by the writer, 1965.

In any event the line separating upper- and middle-class residences is certainly more arbitrary than that between the middle- and lower-class dwellings.

Upper-Class Residences

Upper-class residences are found scattered throughout the city, but the major concentrations occur near the central plaza, along Avenida Francisco I. Madero (the Mexico City-Guadalajara highway), and in the southeastern quarter of the city (Fig. 12). Recently, a significant number have also been constructed in a suburb on the Loma de Santa Maria de la Asuncion at the southern outskirts of the city. For most of history the rich people of Morelia considered a site along Avenida Madero, and on or near the central plaza, as absolutely essential to prestige. As a result, most of the elegant old residences are found near the heart of the city (El Centro). In the past twenty-five years, however, many upper-class structures have been built

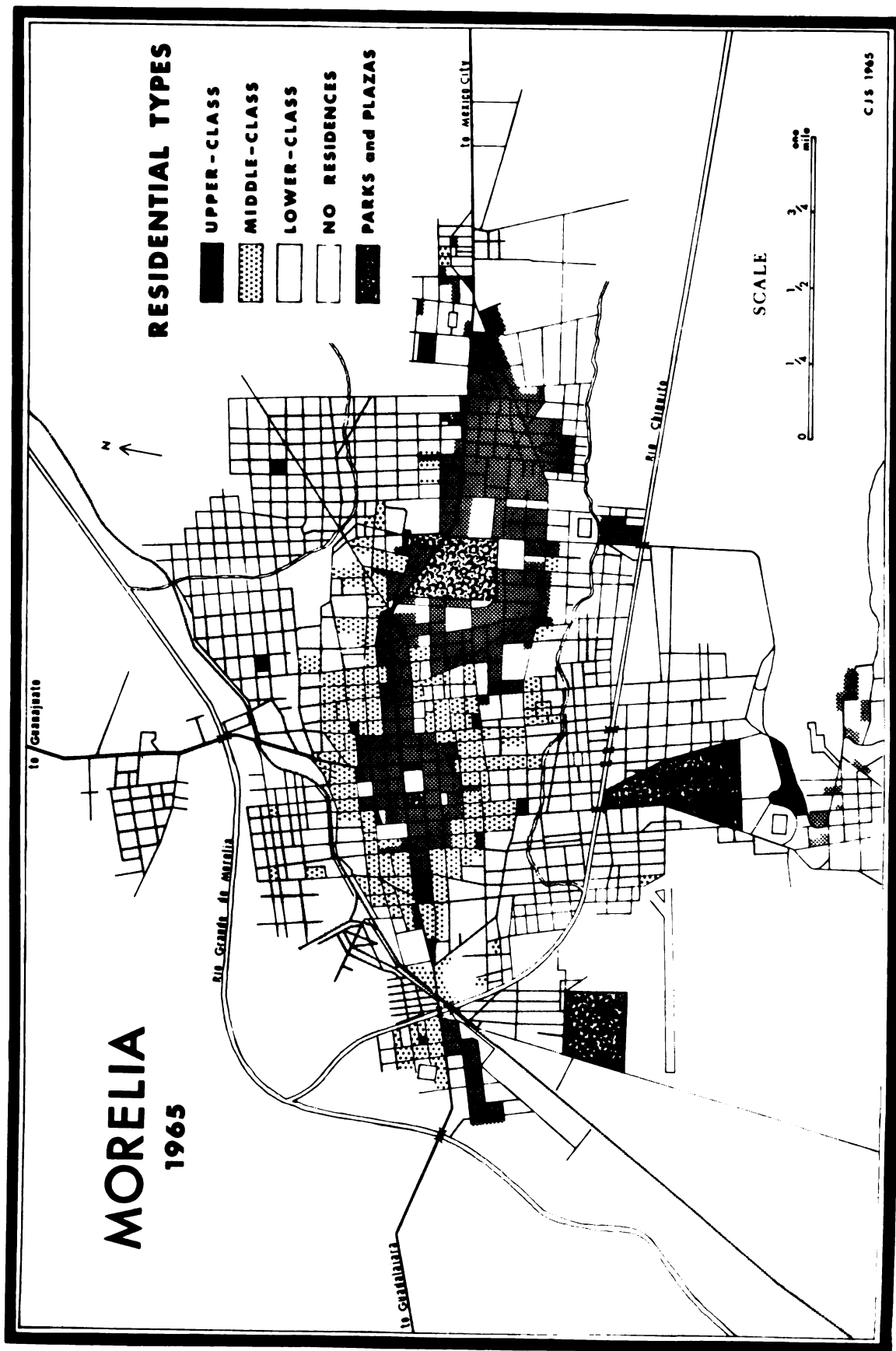


Figure 12

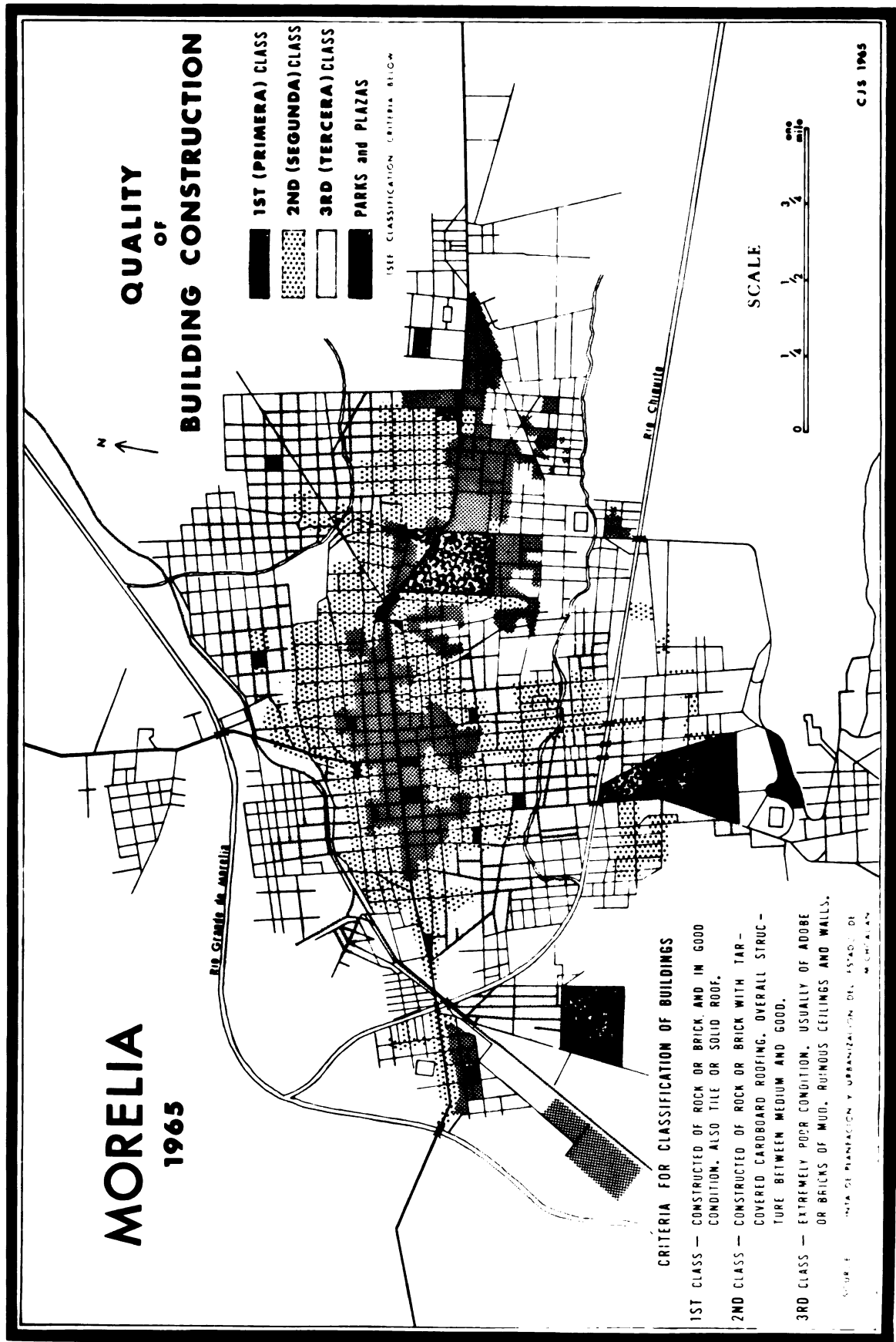


Figure 13

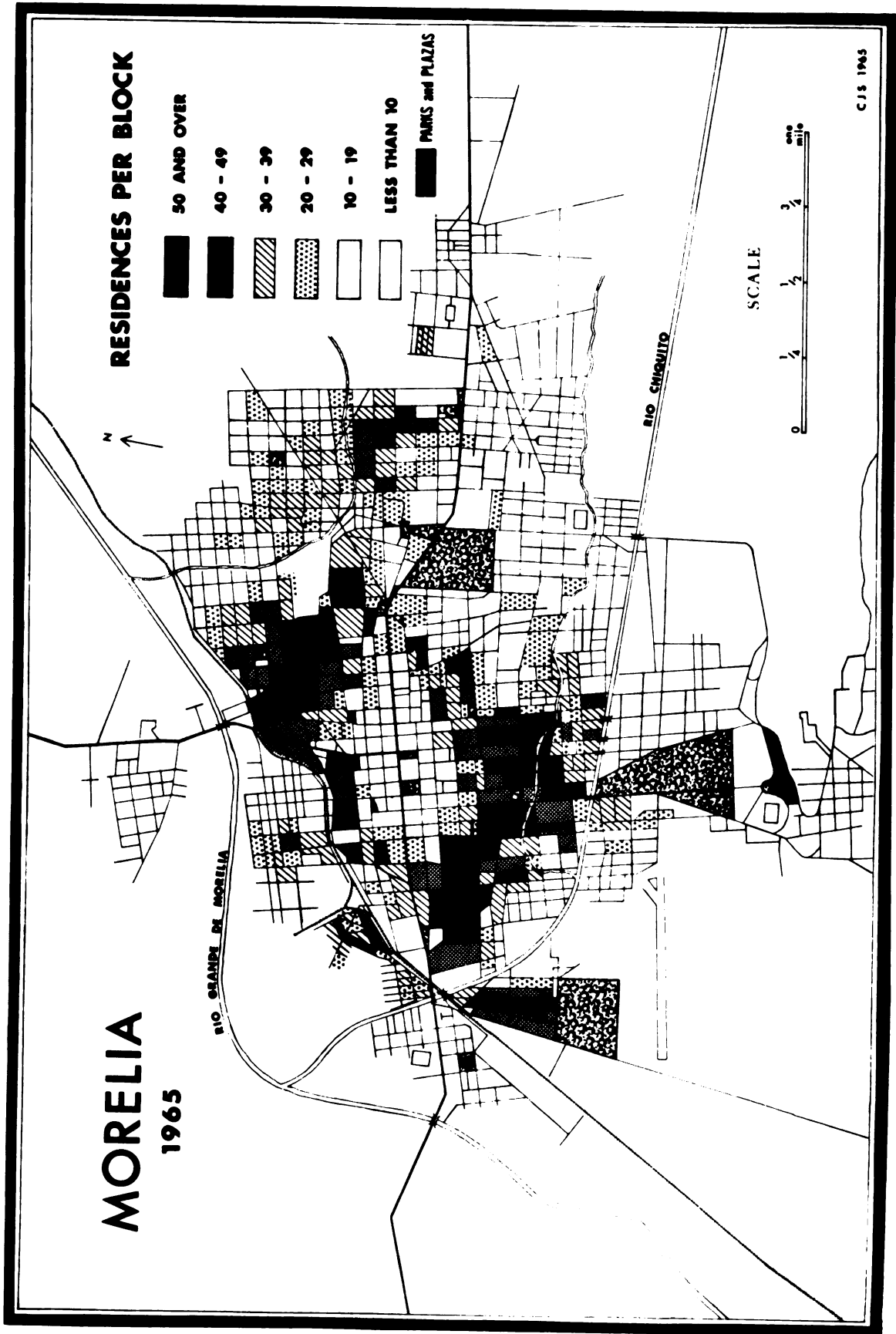


Figure 14

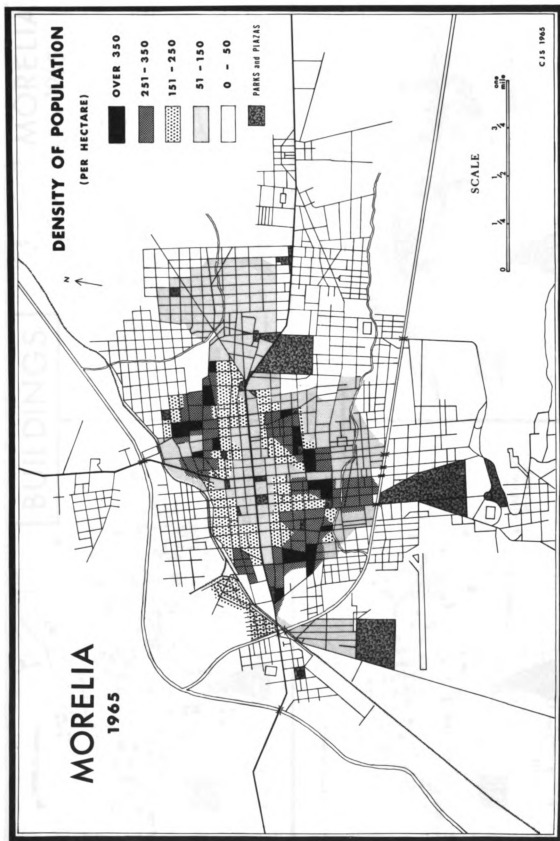


Figure 15

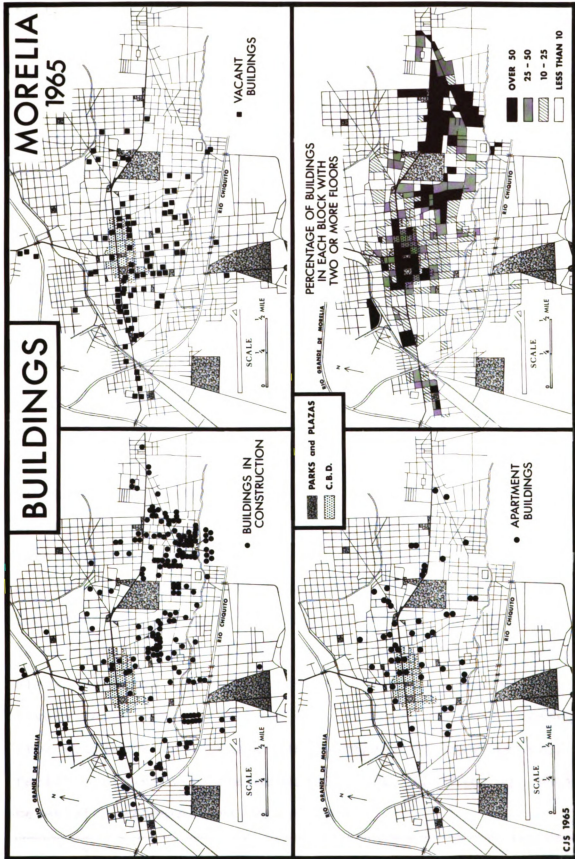


Figure 16

in the peripheral areas, marking a general trend away from the central plaza.¹ This is continuing as is shown by the concentration of such buildings under construction in the southeastern quarter of the city (Fig. 16). The upper-class residences, then, can be subdivided into the old and the new. Most of the old group in the heart of the city occupy relatively large plots of land, with a considerable number also possessing an upper story (Pl. X, Figs. 1 and 2). Two of the most basic criteria representative of upper-class dwellings in Morelia--large spatial extend and a second floor--are indicated by these old mansions. Relative abundance of wrought-iron grillwork and presence of garage facilities, formerly used for horse-drawn carriages, are other marks of grandeur they possess.

The new upper-class residences are found primarily along Avenida Madero in the eastern portion of the city, and in the six to eight block area south of it. A smaller concentration has evolved along, and south of, Avenida Madero at the city's western entrance not far from a newly expanding manufacturing area; another on the Loma de Santa Maria de la Asuncion south of the city. Most of these new upper-class dwellings are two-storied structures occupying relatively large parcels of land (Pl. X, Figs. 3 and 4). Wrought-iron grillwork in abundance and garages, or other parking facilities, are also characteristic (Pl. XI, Fig. 1), while television antennas are conspicuous.

¹Interview with Jaime O. Sandoval, Morelia, August 21, 1965.

PLATE X



Fig. 1--Old upper-class neighborhood near the center of the city.



Fig. 2--Former upper-class dwellings converted to commercial usage. University of Michoacan in the background.



Fig. 3--New upper-class residential area in southeastern Morelia.



Fig. 4--Upper-class residences on the Loma de Santa Maria de la Asuncion south of the city.



Fig. 1--New upper-class residence in southeastern Morelia.



Fig. 2--Upper-class apartment building recently constructed in southeastern Morelia.



Fig. 3--Old lower-class neighborhood several blocks north of the central business district.



Fig. 4--Lower-class dwellings in northeast Morelia. Original road to Mexico City on the left.

Although a few large apartment buildings, mostly upper-class, have been constructed in the past five or six years (Pl. XI, Fig. 2), the multiple-family dwelling is still the exception in Morelia. In fact, only 54 structures were categorized as predominantly apartment buildings, and these were found to be scattered throughout the city (Fig. 16).

The primary criteria, then, for determining an upper-class dwelling involved quality of construction and overall size of the structure and the plot of land it occupied, while secondary criteria included the presence of a garage or parking facilities, and the abundance of wrought-iron grillwork and other exterior adornments. Since building quality was used as a basis of classification in both studies, a close correlation was found to exist between the distribution of residences classified as upper-class during the field survey (Fig. 12) and those designated as being of first-class construction by the Junta de Planeacion y Urbanizacion del Estado de Michoacan (Fig. 13).

Overall size of structure as a valid criterion for upper-class status is shown by a comparison of Figure 12 with Figures 14, 15 and 16. Areas designated as upper-class (Fig. 12) correspond quite closely with areas possessing few residences per block (Fig. 14), areas of relatively low population density (Fig. 15), and those containing a high percentage of two-storied buildings (Fig. 16). Since a large amount of living-space per person is a common characteristic of upper-class residences everywhere, the high degree of positive correlation found in these maps confirms the results of

the field survey and the soundness of the criteria used in residence classification.

Lower-Class Residences

As in the case of upper-class dwellings, individual lower-class residences are found scattered throughout Morelia, although their proportional numbers are small in proximity to the central plaza and in the newly developed upper-class areas. The predominantly lower-class sections of the city are peripheral as is shown by Figure 12. These neighborhoods occupy the rocky heights in the north and northeast, as well as the low-lying lands adjacent to the Rio Chiquito and the railroad. Cheap land values have been largely responsible for this distribution. Since most of the city's recent newcomers have arrived with limited financial resources from rural areas, they have been forced to settle on low-priced land and live in makeshift dwellings of substandard quality. Many others, possessing no funds at all, have become "squatters" on vacant public or private land, and as such constitute one of the major economic and social problems of Morelia.

The oldest lower-class residential areas in Morelia are those immediately adjacent to the middle-class residences in the old core of the city (Fig. 12). From the central plaza outward, upper-class residences are succeeded by a narrow ring of close-spaced middle-class homes, which in turn gives way to even denser concentrations of lower-class dwellings. Lower-class structures in this older portion of the city are generally of better quality construction than those

farther out, but are, nevertheless, quite small and usually in a poor state of repair (Pl. XI, Fig. 3). The city's densest concentrations of buildings and population are found in this area (Figs. 14 and 15). Although living space per person is quite limited, most residents do enjoy electricity, water and sewage facilities, and streets are surfaced with asphalt, concrete, or cobblestones. Most dwellings consist of one or two rooms with their narrowest dimension fronting on the street. A small open area at the "back" of the house serves as a kitchen, work area and playground for the children. Window openings are scarce and seldom contain glass or ironwork. Building exteriors exhibit a deteriorated condition. Although some structures have a small upper story or loft, second floors are rare (Fig. 16). Dirt floors are common and furniture is at a minimum.

Newly-established lower-class dwellings on the periphery provide the city's poorest living quarters. Although they possess many of the characteristics found in this class of house in the older parts of the city, such as small size, dilapidated condition, few windows, dirt floors, etc., their overall quality is even poorer (Pl. XI, Fig. 4 and Pl. XII, Figs. 1 and 2). Then, too, virtually all of these peripheral residential areas lack hard-surfaced streets, water and sewage facilities. Public water faucets have been installed in recent years, but individual water service is still rare. Electricity is generally available, although many of the homes do not have it (Pl. XII, Fig. 1). The quality of the buildings is noticeably poorer in the out-lying areas (Fig. 13).



Fig. 1--Extremely poor dwellings on the northeastern periphery of the city.



Fig. 2--Lower-class residential area just south of the R10 Chiquito.



Fig. 3--Middle-class residential area northwest of the University of Michoacan.



Fig. 4--Middle-class residences three blocks northeast of the city's main intersection.

Adobe or mud-brick construction is the rule, with an occasional use of rock or tile. The keeping of animals and poultry (dogs, hogs, burros, chickens, etc.) is prevalent--a practice which indicates that many of these people are recent arrivals from rural areas.

Although the density of houses and population in these lower-class peripheral areas is much less than in those in the old core of the city (Figs. 14 and 15), actual living-space per person remains relatively little because of the small size of buildings. Unoccupied lots or fields usually are given over to the cultivation of corn or vegetables, or to the keeping of livestock and poultry. The prevalence of poultry and animal pens in these areas constitutes a serious health menace to all of the inhabitants of Morelia.

Middle-Class Residences

The middle-class residences of Morelia are located primarily in the old core of the city and form the transition zone between the ring of large upper-class residences near the central plaza and the peripheral band of small, crowded, lower-class dwellings bordering the old city and extending into newer occupied areas beyond (Fig. 12). Individual middle-class homes can be found in all neighborhoods, but their numbers are small compared to those of other classes. Most of the people occupying the homes in the transitional zone are office workers, small businessmen, school teachers and semi-professional persons who work in the central business district. Their income levels do not

permit ownership or renting of large dwellings in the central business district, but do make possible occupancy of smaller homes adjacent to it. A new middle-class area has developed recently at the city's western edge. This possibly indicates that, as in the case of upper-class living, a trend away from the center is beginning. However, the availability of middle-income jobs in the adjacent manufacturing plants is probably the main reason for this development.

As John Ball has pointed out in Tepic, middle-class homes are the most difficult to recognize, since they assume some of the characteristics of both the other two residential types.¹ In Morelia middle-class residences generally are much smaller than upper-class ones, but are distinguished from the lower-class structures more in terms of construction quality and overall condition than by size (Pl. XII, Figs. 3 and 4). Glassed windows, ornamental grillwork and well-kept exteriors are noticeable characteristics that serve to differentiate them from their lower-class counterparts. Middle-class homes also possess individual water service, sewage facilities, electricity and, not infrequently, a television antenna on the roof (Pl. XII, Fig. 4). Then, too, the overall condition of middle-class neighborhoods, with their clean, paved streets, better street lighting facilities and generally neat appearance, contrasts sharply with that of the lower-class sections. The paucity of garage or parking facilities, however, forms a basic criterion for distinguishing

¹John M. Ball, op. cit., p. 75.

middle- from upper-income residences.

In summary, although relatively distinct residential neighborhoods exist in Morelia, residences of each class can be found throughout the city. Quality of building construction diminishes toward the periphery with the new upper-class areas constituting the major exceptions. Densities of residences and population are light in the heart of the city, and on the periphery, but reach a maximum in the lower-class areas immediately around the middle-class transition zone. New buildings, most of which are residences, are being raised in all parts of Morelia, but the heaviest concentration of these is in the emerging upper-class area on the city's southeastern edge (Fig. 16).

Business Land in Morelia

The use of land for business purposes in Morelia is widespread and occupies a significant percentage of the city's built-up area. In a total of 20,355 buildings examined, no fewer than 2,413, or 11.9 percent, were found to contain some type of business activity. For the city as a whole, 4,273 businesses were listed (Table 19). This total includes 1,366 businesses in the four major public markets, 333 mobile street vendors and 165 merchants operating semi-permanent street stalls. As Mary Megee has written concerning Monterrey,¹ and John M. Ball has concurred with respect to

¹Mary Megee, op. cit., p. 47.

Table 19.-Number and type of business establishments
in Morelia, 1965^a

Type of Business	Total	CBD	NON-CBD
Grocery stores	655	20	635
Auto-truck repairs/parts/etc.	135	0	135
Restaurants	117	36	81
Medical Doctors	103	32	71
Meat markets	82	16	66
Clothing stores	77	68*	9
Refreshment stands (permanent)	70	2	68
Drugstores	68	32	36
Lawyers	67	30	37
Barbershops	65	13	52
Bars (cantinas)	58	10	48
Electrical appliance repairs	49	12	37
Shoe stores	44	39*	5
Beauty shops	42	9	33
Furniture/office equipment sales	38	26*	12
Wholesale distributors (misc.)	37	3	34
Farm outlets (milk, eggs, etc.)	35	7	28
Drygoods and yarn sales	33	15	18
Miscellaneous offices	27	11	16
Motorcycle-bicycle sales/repairs	24	4	20
Hotels	23	13*	10
Fuel oil-kerosene sales	23	1	22
Shoe repair shops	23	2	21
Parking lots/garages	23	0	23
Candy stores	21	10	11
Dentists	21	10	11
Paint stores	20	6	14
Posadas (inns)	18	5	13
Billiard parlors	18	5	13
Recreation centers	17	1	16
Fruit stores	17	4	13
Stationers/paper stores	17	9*	8
Gift shops	16	11*	5
Photo studios/film sales	16	5	11
Construction materials and offices	16	0	16
Electrical appliance sales	14	8*	6
Casas de huéspedes (inns)	13	3	10
Hardware stores	12	5	7
Architects and engineers	12	8*	4
Food distributors (miscellaneous)	11	1	10
Gasoline stations	11	1	10
Milk/ice cream stores	10	2	8
Watch shops	10	7*	3
Auto/truck sales	10	1	9
Banks	9	6*	3
Public baths	9	0	9
Jewelers	9	9*	0
Hat stores	9	7*	2

Table 19.-Continued

Type of Business	Total	CBD	NON-CBD
Sporting goods stores	8	6*	2
Bookstores	8	7*	1
Motels	7	1	6
Cement sales	7	2	5
Theaters (motion-picture)	6	4*	2
Gun shops	6	4*	2
Insurance company offices	6	3*	3
Charcoal-firewood sales	6	0	6
Native crafts sales	6	6*	0
Bazaars (used items)	6	1	5
Liquor stores	6	2	4
Musical instruments-records sales	6	5*	1
Morticians/funeral sales	6	5*	1
Radio stations	6	5*	1
Political party offices	4	2*	2
Glass sales	4	0	4
Farm machinery-equipment sales	4	0	4
Supermarkets	4	1	3
Opticians	4	2*	2
Loan company offices	3	3*	0
Medical-dental supplies	3	2*	1
Bottled gas sales	3	2*	1
Beer distributors	3	0	3
Tile (mosaico) sales	3	0	3
Lumberyards	3	0	3
General mechanics	3	0	3
Public toilets	3	3*	0
Furniture/office equipment repairs	2	0	2
Furriers	2	1*	1
Plumbers	2	0	2
Publicity offices	2	0	2
Miscellaneous others	13	4	9
Street vendors (mobile)	333 ^b	-	-
Street stalls (semi-permanent)	165	91*	74
Public markets (miscellaneous)	1,366 ^b	992*	374
Totals	4,273	1,679	2,261
Percent of total ^c	100.0	39.3	52.9

^aFieldwork by the writer.

^bEstimates of the Oficina federal de hacienda, Departamentos de ingresos mercantiles y de comercio e industria del gobierno del estado, Tesoreria Municipal, Morelia, 1963.

^cMobile street vendors comprise 7.8 percent of total.

* One-half or more of establishments in this business are located in the Central Business District.

Tepic,¹ "One of the first things that strikes the observer about business in Monterrey [or Tepic] is that there is so much of it."

This statement applies equally well to Morelia. Virtually every built-up block, with the possible exception of the newly developed residential areas, contains business establishments of some type. These range in size from small neighborhood refreshment stands and grocery stores, usually operated by the proprietor and his family, to large clothing or furniture stores, employing many people, in the central business district. Compared to cities of equal size in the United States, businesses in Morelia are far more numerous, but operate on a much smaller scale. Even the larger stores in the heart of Morelia do not compare with stores found in the regional marketing centers of the United States, either in terms of total employment or variety of merchandise offered. The general-merchandise department store, which is so typical of cities in the United States, is absent in Morelia. Of course, if each of the large public markets is considered as a single general-merchandise establishment, this would not be a true statement. However, these markets are made up of many merchants acting quite independently of each other, and should not be considered as one enterprise.

Throughout Morelia's history, proximity to the central plaza and the cathedral has been the most advantageous location for business activity and it still remains an important

¹John M. Ball, op. cit., p. 94.

factor (Fig. 17). In recent decades, however, the growing magnitude of business, and the introduction of many new types of enterprise, have brought about significant changes in the distributional pattern. Developments in transportation and related industries have been particularly instrumental in the increasing decentralization of business activities. Numerous establishments concerned with the sale and servicing of transportation equipment have been located on the major arterial streets away from the congested, high-rent central area, particularly along the truck and bus routes in and out of the city. At the same time the creation of bus terminal districts around the old business core has resulted in the growth there of retail and service businesses catering to the passengers.

Although businesses are found in all parts of the city, five fairly well-defined districts appear in Figure 17. Foremost among these is the old commercial core (the central business district or CBD) in the heart of the city. Some 39.3 percent of all business establishments are found here (Table 19); the proportion of Morelia's business volume would be much higher because this is the location of most of the city's largest business establishments. The central business district will be discussed in more detail later.

South of the CBD there is a grouping of businesses along Avenida Cardenas, largely in response to the growing population of the area (Figs. 14 and 15). Mercado Independencia, which is located here, is the smallest of the city's four major public markets and consists of temporary struc-

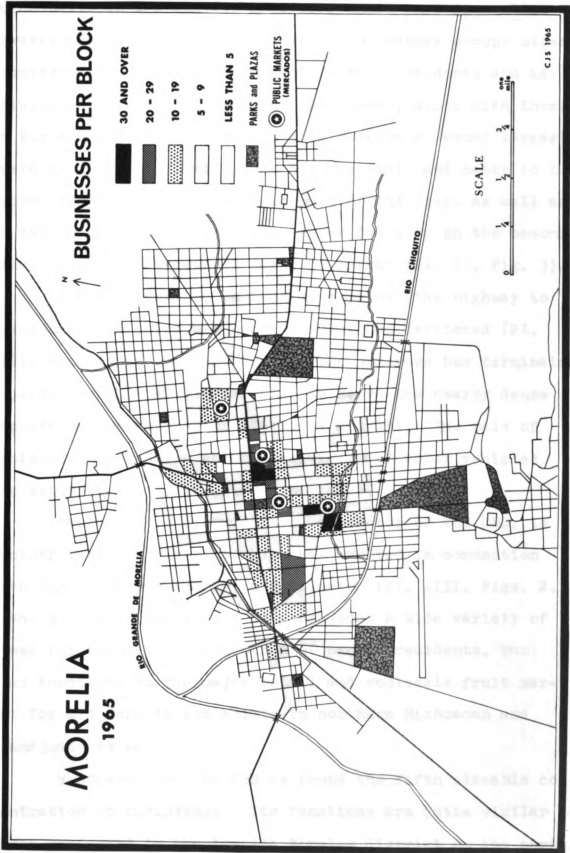


Figure 17

tures built in the eastern half of a small park (parque). However, a large number of permanent businesses occupy street frontage around the park and along Avenida Cardenas and adjoining streets. The permanent businesses, along with those in Mercado Independencia, make this Morelia's second largest business district. Establishments are small and cater to low-income inhabitants in the south part of the city, as well as to farm people (campesinos) who enter the city on the second-class buses with terminals near the market (Pl. VI, Fig. 3).

North of the CBD on Avenida Morelos (the highway to Guanajuato), a third business district has developed (Pl. XIII, Fig. 1) in conjunction with the numerous bus terminals located there (Fig. 9), and also to serve the nearby dense population concentrations (Figs. 14 and 15). The sale of vehicular accessories and the servicing of motor vehicles are activities of particular importance.

East of this district, and northeast of the CBD, is another business district which has evolved in connection with the large Mercado de la Revolucion (Pl. XIII, Figs. 2, 3 and 4). This market not only provides a wide variety of items for the daily consumption of nearby residents, but also functions as the major retail and wholesale fruit market for all Morelia and points in northern Michoacan and Guanajuato as well.

Westward from the CBD is found the fifth sizeable concentration of businesses. Its functions are quite similar to those performed in the Avenida Morelos district on the north. The numerous bus terminals (Fig. 9) provide a large market

PLATE XIII



Fig. 1--Business district on Avenida Morelos north of the central business district. Towers of cathedral show in the right background.



Fig. 2--Main building housing the old Mercado de la Revolution northeast of the center of the city.



Fig. 3--New Mercado de la Revolution under construction just east of the old market building.



Fig. 4--Fruit stalls on the street adjacent to the Mercado de la Revolution.

for many retail and service establishments, while the increasing numbers of motor vehicles passing through the area provide demand for businesses furnishing parts and repairs.

The Central Business District

In Morelia, as in most cities, determination of a precise boundary for the central business district (CBD) is difficult. Use of criteria such as number of businesses per block (Fig. 17), number of residences per block (Fig. 14), density of population (Fig. 15) and percentage of buildings per block with two or more floors (Fig. 16) do indicate the general area in which the business core is located, but do not delimit the district's actual boundary. The very use of the whole block as a unit of measurement leads to distortion since one part of a block can function quite differently from another.

After experimentation, it was decided that the contiguity of business land, beginning at the main business intersection (Avenida Madero with Avenida Morelos) and moving outward, would be the basic criterion for establishing the limits of the CBD in Morelia. The results of use of this method are shown in Figure 18. Although slight adjustments probably could be made to the boundary, the writer feels that the overwhelming majority of all central business functions are carried on within the designated area, and that most, if not all, land devoted to non-central business uses is excluded.

Thus determined, Morelia's CBD comprises an irregular shaped area covering approximately thirty city blocks, roughly three blocks wide and having an east-west axis (Figure 18). This orientation reflects the historic importance of Avenida Madero as the major business and transportation thoroughfare, as well as the advantages of close proximity to the cathedral and central plaza. In recent decades the increasing volume of business activity has forced an expansion of the CBD, especially towards the east, beyond Avenida Morelos. The construction of the large Mercado Valladolid in the early 1900's did much to draw the business area in this direction. There has also been an extension south beyond Mercado Hidalgo (Fig. 18). At the present time the densest concentration of businesses in Morelia lies between Avenida Morelos and the Mercado Valladolid. In fact, the Mercado Valladolid itself has been unable to accommodate demand for its facilities, which has resulted in the appearance of semi-permanent stalls constructed in the streets adjacent to it (Fig. 18). No other area in Morelia is as congested as that surrounding this market. Although businesses selling food and clothing are overwhelmingly the most numerous, virtually every kind of article used in the home can be purchased here. The major items of secondary importance include aluminumware, glassware, pottery, woven mats and baskets, blankets, furniture and flowers.

Avenida Madero, however, remains the most important business street of Morelia (Pl. XIV, Figs. 1 and 2). Several government edifices, notable among them the state capitol and

PLATE XIV



Fig. 1--Looking eastward on Avenida Madero toward the cathedral. Hotel Virrey de Mendoza on the right.

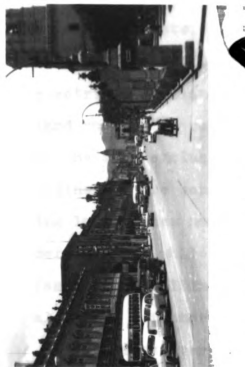


Fig. 2--Avenida Madero with edge of central plaza on the right. State capital rises behind the two buses in center.



Fig. 3--A corner grocery with roof patio for residence of the proprietor which is back of the store.



Fig. 4--One of four U.S.-type supermarkets in Morelia.

the federal building (the postoffice), occupy sites on Madero. These are in addition to those on or near the central plaza on other streets. Private businesses on Madero consist primarily of banks, loan companies, hotels, clothing stores, electrical appliance dealers, jewelers and pharmacies. High land values and rentals serve to restrict frontage on Madero to the more exclusive types of enterprise. Many of these businesses are housed in former upper-class dwellings. Growing land values have encouraged conversion of these to commercial use, while the strained finances of many wealthy families, resulting from losses during The Revolution, have also been a factor.

Almost every type of business activity carried on in Morelia is represented in the CBD (Table 19). The significant exceptions are those involving vehicular parts and repairs, farm machinery and equipment, construction materials (lumber, glass, tile, etc.), miscellaneous repairs, parking lots and garages, mule corrals and junkyards. Of certain types of enterprise, well over one-half of all establishments are located in the commercial core. Prominent among these are clothing stores, shoe stores, hat shops, furniture and appliance stores, gift and native crafts shops, paper and book stores, jewelers, sporting goods stores, banks, hotels and theaters. Large numbers of restaurants, bars, candy stores, medical offices, law offices and dental offices are also located in the CBD, but in each case over one-half of all establishments are found outside of its boundaries.

Distribution and Characteristics of Selected Businesses

As stated previously, almost every built-up block in Morelia, with the exclusion of the newly-developed residential areas, contains some type of business activity. The distribution and characteristics of specific types of business, however, differ widely. The most obvious similarity is the prevalence of small-scale operations in association with the proprietor's residence. Of course, there are exceptions, but the great majority of such establishments operate on a limited capital investment and occupy restricted quarters either attached to or part of a residence. It is probable, therefore, that the rate of business failure or turnover is quite large, but this could not be precisely determined during the short time in the field.

Food-Related Businesses

Food-related businesses comprise a high percentage of all establishments in Morelia. In fact, if one-half of all street vendors, street stalls and merchants in the four major public markets are listed as food-handlers, and this is a conservative estimate, well over 2,000 of the 4,273 businesses in the city are food-related (Table 19). Individual food stores (grocery stores and supermarkets) alone number 655 and are scattered throughout the city (Fig. 19). The 651 grocery stores (abarrotes) are small, individually operated business-places, usually attached to the owner's residence (Pl. XIV, Fig. 3). The four supermarkets (supermercados) resemble

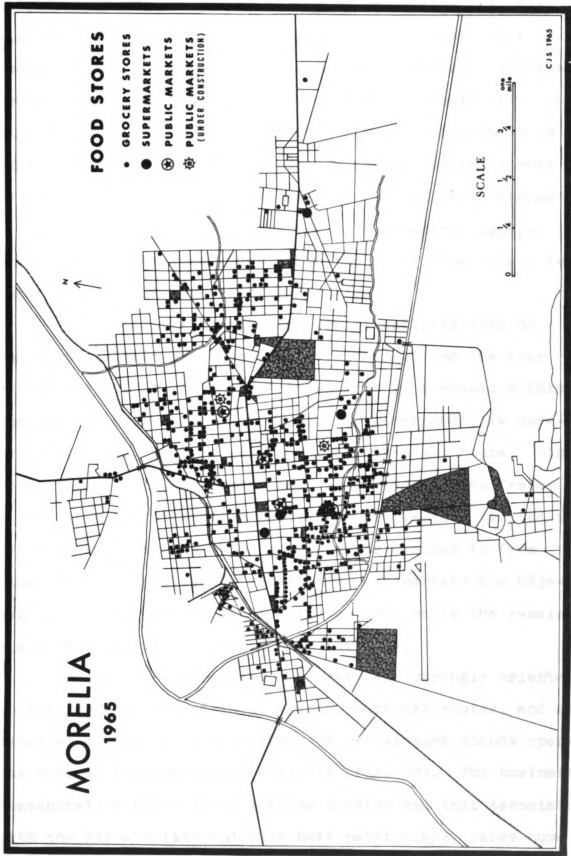


Figure 19

neighborhood grocery stores of the United States (Pl. XIV, Fig. 4). The small grocery stores carry a limited line of goods and cater primarily to low-income families. They are found in greatest numbers in areas of densest population (compare Figs. 12 and 15 with Fig. 19). The four supermarkets exhibit a wider variety of goods and are patronized almost entirely by upper-income inhabitants. Two of these stores are located on the edge of the CBD in the central upper-class residential area. The other two serve upper-class dwellers in the city's southeastern section.

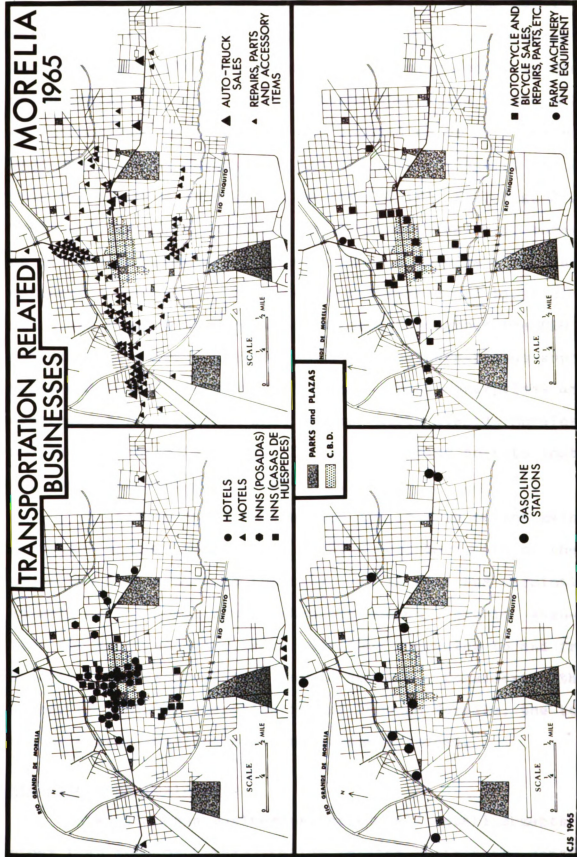
Meat sales in Morelia are almost entirely from 82 small specialized meat markets (carnicerias) and the four supermarkets (Fig. 20). Most fresh meat is consumed within twenty-four hours after slaughter; by government law unrefrigerated meat must be sold within forty-eight hours. Since most people feel that frozen meat is not as good as fresh-killed meat, refrigeration facilities are largely limited to the four supermarkets which handle meats brought in from other states. Eighteen of Morelia's meat markets are adjacent to the two public markets in the CBD, while the remaining 66 are distributed throughout the city.

Restaurants and bars (cantinas) are strongly oriented to the major public markets, transportational routes, and bus terminal districts, while permanent refreshment stands operate more as a neighborhood activity (Fig. 20). The business concentration north along Avenida Morelos and that associated with the Mercado Independencia have particularly large numbers of restaurants and cantinas. Just west of the Mercado

Independencia is the "red-light" district (Zona de Tolerancia) of Morelia in which 24 of the city's 58 bars are located. Other businesses associated with the bars in this district were not enumerated for obvious reasons.

Transportation-Related Businesses

Transportation-related businesses include those providing lodging for travelers, such as hotels, motels and inns (posadas and casas de huéspedes), and enterprises engaged in the sale, servicing and repair of motor vehicles (Fig. 21). Some 61 establishments provide living accommodations for transients, but vary considerably in location and quality of services furnished (Table 19). The 23 hotels and 7 motels generally cater to a more elite clientele, but some exceptions to this are in evidence. The largest and most exclusive hotels are situated on Avenida Madero in the CBD (Pl. XIV, Figs. 1 and 2). Lesser quality hotels are located several blocks north or south of Madero, but are in close proximity to the central business core. Six of Morelia's seven motels are on the outskirts of the city. Single establishments appear at the east, west and north entry points, while three occupy higher sites on the Loma de Santa Maria de la Asuncion to the south. The seventh is in the CBD. The 18 posadas and 13 casas de huéspedes usually provide meals in addition to lodging as a standard service and cater to a less exclusive clientele than do the hotels and motels. As a result, most of these are located on the edge of the CBD or in one of the bus terminal areas (Pl. XIII, Fig. 1).



A total of 173 businesses are engaged in the sale, servicing, and/or repair of motor vehicles, a figure which indicates Morelia's importance as a vehicular center in Michoacan (Table 19). Ten establishments specialize in the sale of automobiles and trucks and are located on or near the main east-west highway through the city (Pl. VIII, Figs. 1 and 2). Only one of these is situated in the CBD (Pl. XIV, Fig. 2). There are four farm machinery and equipment dealers; three on west Avenida Madero and one on Avenida Morelos at the north entrance to the city. Twenty-four motorcycle and bicycle sales and repairs dealers are scattered throughout the CBD and other parts of the city. Some 135 business-places supply parts and repairs for motor vehicles. These enterprises are congregated primarily on west Madero, north Avenida Morelos, and along Avenida Cardenas. It is interesting to note that not one is located in the CBD (Fig. 21).

The eleven gasoline stations are located on the main east-west highway, on Avenida Morelos northward, and on the major bus routes through the city. While some bus terminals, as well as the local intra-urban bus company, provide gasoline for their vehicles, many bus-lines operating to and from the city purchase fuel from retail dealers. Considering the number of vehicles operating in and through Morelia, the total of eleven gasoline stations is small indeed.

Miscellaneous Businesses

Miscellaneous businesses include all establishments other than food or transportation related businesses, personal

and professional services, and enterprises engaged in wholesaling activities. The number of operations for each type of business is given in Table 19, while their distribution is shown in Figures 22, 23 and 24.

Fifty-eight stores sell electrical appliances, furniture, office equipment, and musical instruments. Of these, 39 are located in the CBD, while most of the others occupy sites on its periphery. Most of the 51 establishments that repair or service these items, however, are found outside the CBD in both middle- and lower-class neighborhoods (Fig. 22).

Materials for the construction and maintenance of buildings such as hardware, paints, glass, tile, cement, lumber, etc., are provided by 65 business-places which are located primarily outside the CBD.

Shops dealing in gifts, native crafts, used household items (bazaars) and pottery operate in or near the central business district, or along the major east-west highway through the city (Fig. 22).

Wearing apparel (clothing, hats, shoes and furs) is sold in 132 retail stores of which 119 are in the CBD, making comparison before purchase easier (Fig. 23). Drygoods (cloth, yarn, thread, etc.) are the chief articles of merchandise in 33 stores. Over one-half of these are neighborhood establishments. The fact that many low-income families must still manufacture their own clothes helps explain this distribution. Shoe repair shops also are oriented to residential areas. Most jewelers, bookstores, stationers and watch shops, on the other hand, are in or near the CBD, as are also the city's

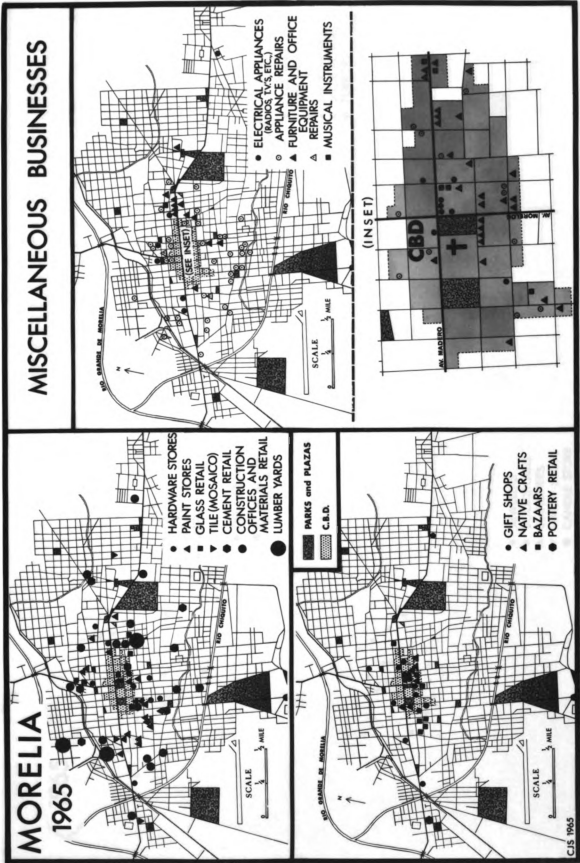


Figure 22

Figure 23

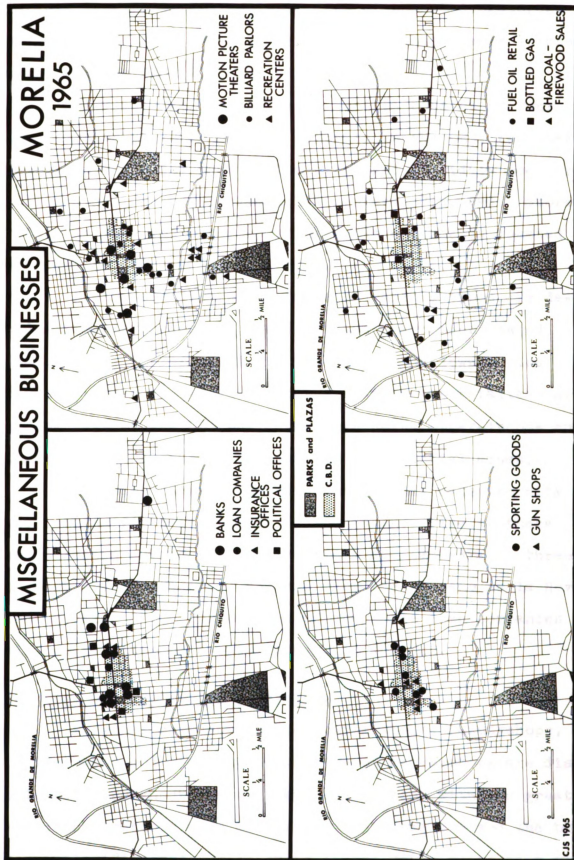


Figure 24

largest drugstores (farmacias). But of the 68 drugstores, slightly more than one-half are small establishments located away from the CBD (Pl. XII, Fig. 3).

Recreational businesses in Morelia consist of four large motion picture theaters situated in the CBD, two others nearby in the older part of the city, and 35 widely scattered billiard parlors and recreational centers (Fig. 24). Stores retailing guns and other sporting goods are mostly located in or near the CBD.

Businesses dispensing fuels of various types are decidedly market-oriented. Fuel oil and charcoal-firewood dealers are, therefore, found throughout the lower-class parts of the city, while the three bottled gas retailers are on the edge of the CBD where they can serve upper-income customers from the central business and residential areas.

The nine banks of Morelia undoubtedly make the city the leading financial center of Michoacan. Five of these are situated around the central plaza and cathedral; three on east Avenida Madero; and one near the Mercado de la Revolucion (Fig. 24). The offices of the three loan companies all occupy sites on Avenida Madero in the CBD.

Personal and Professional Services

Personal services include barbershops, beautyshops, public baths and photo studios. The 65 barbershops are distributed throughout the old part of the city with the greatest concentrations near the large public markets and the bus terminals (Fig. 25). Some shops in the CBD have as many as

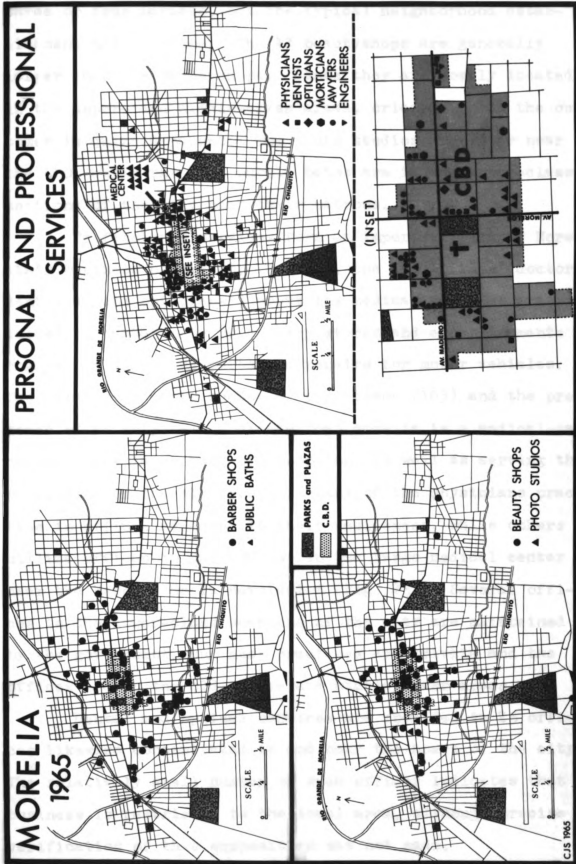


Figure 25

three or four barbers, but the typical neighborhood establishment has only one. The 42 beautyshops are generally larger than the barbershops. Since they are mostly located in the upper- and middle-class areas, orientation to the customer is quite apparent. The photo studios are in or near the CBD, while the nine public baths are in the lower-class sections of the city near their patrons.

Professional services form an important part of Morelia's business community. In fact, the 128 offices (doctors', dentists' and opticians') providing medical services are exceeded in number only by grocery stores and establishments engaged in supplying parts and repairs for motor vehicles. The relatively large number of physicians (103) and the presence of 16 hospitals indicate that Morelia is a medical-care center for a large part of Michoacan, as well as serving the population of the city proper. Many of the physicians practice in offices adjacent to their residences, while others utilize offices in the CBD, or in the large medical center near the Mercado de la Revolucion (Fig. 25). Several offices in the lower-class sections of the city are maintained by the government, but most practices are private and the offices are in the old upper- and middle-class areas.

Dental and optical services are provided in 25 offices likewise concentrated in and near the heart of the city. The relatively small number of such offices indicates that business is restricted to the local area, although precise verification of this supposition was not made.

The six funeral establishments not only provide burial

services, but also sell articles for interment to customers who are unable to afford complete services. Each business maintains a casket sales room in addition to its undertaking activities. The practice of embalming and elaborate funeral service so common in the United States is much less so in Morelia. Five of the six establishments are in the CBD and the other one is close by.

Law offices are also located primarily in the old core of the city. As in the case of the physicians, many lawyers conduct their business from offices associated with their residences, although some maintain offices in the CBD. Engineers operate under similar circumstances.

Wholesale Businesses

Wholesaling comprises an important and complex part of business activity in Morelia. Thirty-seven distributors scattered throughout the city handle a wide variety of merchandise for the local area and for distribution to other parts of the state (Fig. 26). Then, too, virtually every manufacturing plant engages in some wholesaling of its products, while some primarily retail establishments also perform distributional functions. Businesses shown in Figure 26 are solely engaged in the wholesale distribution of the products indicated.

It is interesting to note the paucity of wholesaling activity in the CBD, a condition quite similar to that in cities in the United States. It is also significant that no specific portion of the city can be delimited as the wholesale district, a condition quite unlike that in cities of

the United States. Further, the virtual absence of wholesale firms along the railroad seems to support the earlier statement made concerning the importance of truck transportation in the present economic activities of Morelia.

Food is the major item distributed by 15 of the wholesale firms. Six handle a diversified line of goods, four deal specifically in farm supplies (fertilizers, feeds, seeds, insecticides, etc.), and three in tobacco products. Cement, fuel oil, newspapers, motion pictures, paper sacks, metal products, drugs, poultry and furniture are the specialty items wholesaled by the nine remaining dealers.

Manufacturing Land Use

Morelia is not a major manufacturing city, although the fabrication of products does form an important segment of its economy. A few relatively large plants, as previously discussed in Chapter V, provide much-needed employment for some 2,000-3,000 workers on a full-time or seasonal basis, while over 300 small establishments furnish additional jobs, as well as many essential products for the local community. Factories are widely distributed, as is shown in Figures 27 and 28. The larger ones, which are generally engaged in the manufacture of products for sale elsewhere, are concentrated primarily along the railroad in the western and northwestern parts of the city and on its east side on or near the highway leading towards Mexico City. The smaller, more locally-oriented establishments are scattered through the old residential core, varying somewhat in location according to type of

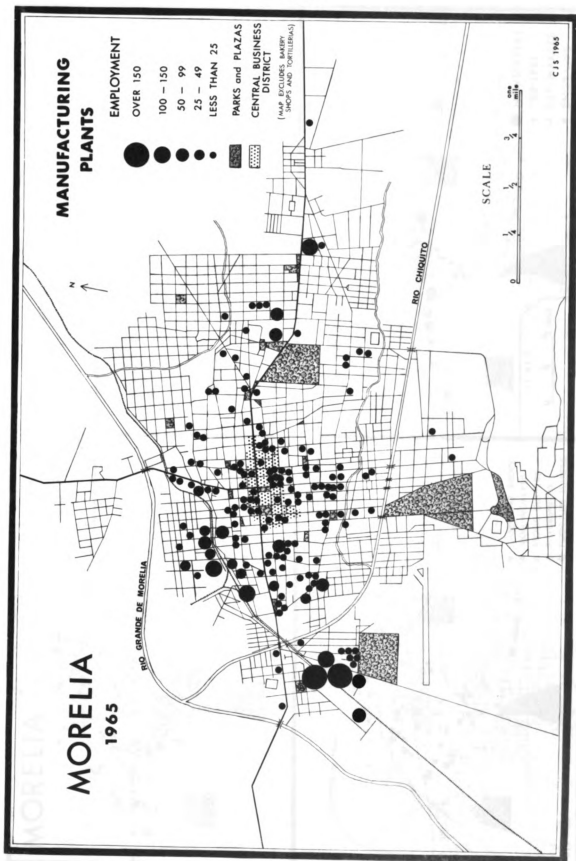


Figure 27

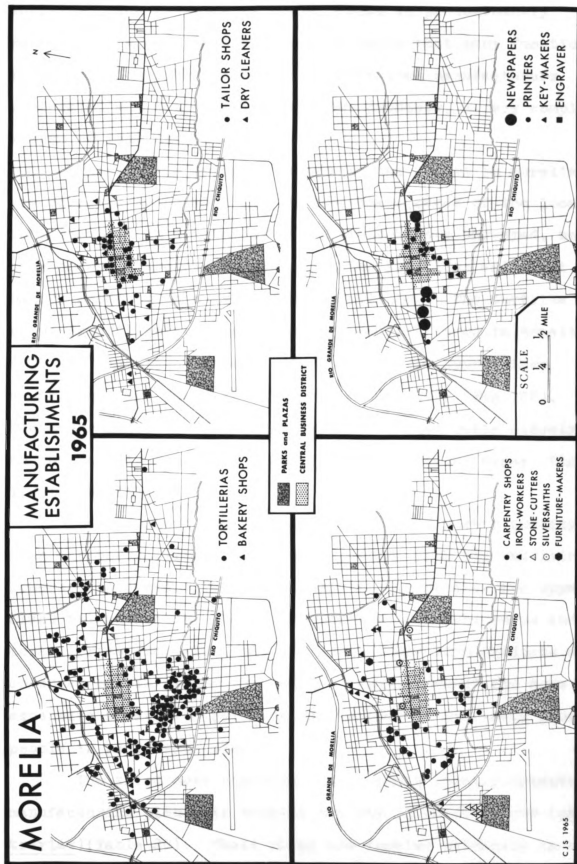


Figure 28

activity. The presence of these plants in predominantly residential areas leads to the conclusion that many function in association with residences. Since some manufacturers wholesale, and many retail their own products, a very complex system of land use exists.

The vast majority of manufacturing plants in Morelia are operated to provide for the immediate needs of the local inhabitants. In a total of 361 establishments surveyed, well over one-half are engaged in supplying tortillas and wheat bakery products on a daily basis (Table 20). The tortilla shops (tortillerias) are among the smallest firms in Morelia (Pl. XV, Fig. 1). Although few in number in upper-class areas, they are found in all parts of the city (Fig. 28). The major concentrations, however, correspond quite closely to the densely populated lower-class residential areas (Figs. 12, 14 and 15).

Bakery shops, which are bigger and of higher quality than the tortillerias, are largely absent from the out-lying lower-class areas. They are almost all in middle- and upper-class neighborhoods. This distribution of bakery shops and tortillerias indicates that while wheat and corn products are consumed by all classes of people, consumption of the more expensive wheat bake goods is rare among the extremely poor people in peripheral areas.

The third most numerous of the small locally-oriented manufacturing plants in Morelia are the 35 tailor shops (sastretrias)(Table 20). These shops are located primarily in or near the CBD in association with a residence or some type of

Table 20.-Manufacturing establishments in Morelia,
1965^a

Type of Establishment	Total	CBD	NON-CBD
Tortillerias	153	3	150
Bakery shops	41	5	36
Tailor shops	35	17	18
Carpentry shops	25	0	25
Iron-workers	19	0	19
Printing shops	17	7	10
Dry cleaners	16	1	15
Furniture-makers	7	1	6
Stone-cutters	6	0	6
Beverages	6	0	6
Newspapers	4	0	4
Wood products	4	0	4
Chemicals	4	0	4
Silversmiths	3	1	2
Key-makers	3	2	1
Vegetable fats and oils	3	0	3
Flour milling	2	0	2
Roofing materials	2	0	2
Fruit canning and freezing	2	0	2
Ice-making	2	0	2
Engraver	1	0	1
Metal scales	1	0	1
Coffee roasting	1	0	1
Candles	1	0	1
Matches	1	0	1
Tiles	1	0	1
Dairy	1	0	1
Totals ^b	361	37	324

^aSource: Fieldcount by the writer.

^bThis total includes only those establishments whose primary function is manufacturing. A number of other businesses manufacture products in addition to their basic activities. These include native-crafts shops (leather goods), candy stores (candy), milk-ice cream stores (ice cream), tile sales (tiles), shoe stores (shoes and other leather goods), construction materials sales (bricks, drainage pipes and tile), and funeral sales (caskets and other burial articles).



Fig. 1--A typical tortilleria located near Mercado Independencia.



Fig. 2--Pasteurizadora Valladolide, the only milk-processing plant (dairy) in Morelia.



Fig. 3--The new meat-packing plant (rastros) under construction southwest of Morelia.

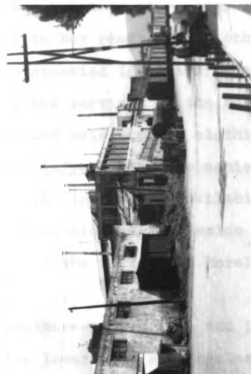


Fig. 4--Refina Sintetica, S.A., manufacturer of chemicals.

business (Fig. 28). They are patronized by people in all economic categories, including the "well-to-do." Many low-income inhabitants cannot afford to buy ready-made clothing and must rely upon the less sophisticated local craftsman. Those with higher income utilize the services of the better tailors, both because of the limited selection of clothing articles in local stores and, not infrequently, to achieve coveted individuality in dress. The increasing availability of mass-produced, inexpensive cotton clothing in Mexico threatens the livelihood of many of the tailors in Morelia and elsewhere.

Carpentry shops (25), furniture-makers (7), and iron-workers (19) are scattered in the lower- and middle-class neighborhoods and perform custom work for the local community (Fig. 28). The carpentry shops fabricate a wide variety of wood items, including furniture, doors, carts, etc., while the furniture-makers specialize in the manufacture of their products from wood, metals and plastics. The iron-workers also manufacture some furniture, but wrought-iron grillwork is their leading product. The six stone-cutters of Morelia fashion headstones for the local cemetery and are advantageously situated near its main entrance.

A variety of other small industries serve Morelia and the immediate vicinity. These include 17 printers, 16 dry cleaners, three silversmiths, three key-makers, one engraver, two ice plants and one dairy (Table 20). The presence of only this one small dairy--Pasteurizadora Valladolid--with less than 25 employees in a city of over 115,000 inhabitants, is

ample evidence that most of the people seldom consume scientifically processed milk products (Pl. XV, Fig. 2). Considerable quantities of raw (unpasteurized) milk and cheese are distributed door-to-door by vendors under very unsanitary conditions. Surprisingly enough, such deliveries are made in upper- and middle-class areas as well as in the poorer ones. A new meat-packing plant to serve Morelia and neighboring municipios is nearing completion just southwest of the city and will be one of the most up-to-date facilities of its kind in Mexico (Pl. XV, Fig. 3).

Of the city's 361 industrial establishments, only 22 provide jobs for 25 or more workers. Five of these, including the two largest, have significant seasonal variations in employment, due mainly to fluctuations in the supply of raw materials (Table 21). The two largest plants--Congeladora Morelia, S.A., and Congeladora y Empacadora Nacional, S.A.--, process strawberries and other fruits. In peak periods they account for over one-half of the total employment (1,500 of 2,872) in establishments with more than 24 employees, but drop to only 124 workers in the off-season. La Compania Industrial Maderera "El Carmen," S.A. (wood products), and Industrias Quimicas de Mexico, S.A. (chemicals), together range in employment from 125 to 215, depending upon market conditions, while employment at Cartonera de Morelia, S.A. (roofing materials) fluctuates between 25 and 79 depending upon the demand, as well as the availability of raw materials. The seasonal differences in employment by these five companies constitutes one of Morelia's most pressing problems.

Table 21.-Manufacturing plants with 25 or more employees, Morelia, 1965*

Name of Establishment	Product (s)	Employment	
		Maximum	Minimum
Congeladora Morelia, S.A.	Frozen straw-berries	800	24
Congeladora y Empacadora Nacional, S.A.	Canned and frozen fruit	700	100
Negociacion Industrial "Santa Lucia," S.A.	Vegetable fats and oils	150	150
Lux Perpetua de Occidente, S.A.	Candles	100	100
Bebidas Purificadas de Michoacan, S.A.	Carbonated beverages	100	100
La. Cia. Industria Maderera "El Carmen," S.A.	Wood products	150	75
Compania Cerillera Moreliana, S.A.	Matches	90	90
Industria "OKEN," S.A.	Metal scales	85	85
Mex-Clareol, S.A.	Chemicals	80	80
Cartonera de Morelia, S.A.	Roofing materials	79	25
Embotelladora de Morelia, S.A.	Carbonated beverages	75	75
La Voz de Michoacan, S.A.	Newspapers	68	68
Industrias Quimicas de Mexico, S.A.	Chemicals	65	50
Tron Hermanos y Cia., S.A.	Vegetable oils	63	63
Comercial Maderera, S.A.	Lumber and boxes	50	40
El Pino, S.A.	Resin and turpentine	45	45
Embotelladora Jarritos de Michoacan, S.A.	Carbonated beverages	40	40
Heraldo Michoacano, S.A.	Newspapers	30	30
Harinera Michoacan, S.A.	Wheat flour	26	26
Refina Sintetica, S.A.	Chemicals	26	26
Cartonera Duratecho, S.A.	Roofing materials	25	25
Industrial Trinidad, S.A.	Roasted coffee	25	25
Totals		2,872	1,342

* Sources: Interviews with plant officials, summer of 1965.

The limited development of large-scale manufacturing in Morelia obviously is detrimental to the city's economic well-being. The future seems to be promising, however, if consideration is given to the many assets possessed by the immediate area and the remainder of Michoacan. And, too, the increasing availability of investment capital throughout Mexico is making possible the construction of new plants in places such as Morelia where financing was heretofore a major obstacle to innovation and expansion.

A new paper-making plant under construction just west of the city well illustrates the advantages that Morelia possesses for industrial progress and attests to the availability of financing for promising projects. It is being constructed at a cost of 150,000,000 pesos (\$12,000,000) by Cia. Papelera de Occidente, S.A., a firm based in Guadalajara, and will produce Kraft Paper for sale in all parts of the republic.¹ When in operation, it will provide jobs for 300 workers, a considerable addition to the city's present employment total. Locations were considered in Chihuahua, Durango, Jalisco and at several other points in Michoacan before Morelia was finally chosen. The following factors influenced the choice:²

- (1) Larger quantities of softwood available. (Smaller quantities near other sites considered).
- (2) Abundance of electricity. (Michoacan produces more electricity than any other state).

¹Interview with M. Felipe Saleme, plant director for Cia. Papelera de Occidente, S.A., Morelia, July 29, 1965.

²These factors are presented verbatim as given to the writer by M. Felipe Saleme.

- (3) Abundance of good spring (manantial) water. (Poor water supply was a major factor in deciding against several sites in Chihuahua, Durango and even in Jalisco).
- (4) Location between Guadalajara and Mexico City. (There is good transportation to each of these large cities, and thus Morelia was superior to the others with respect to potential markets).
- (5) Availability of large labor supply. (The poor industrial development of Morelia, and of Michoacan as a whole, allows an ample labor supply).

Morelia's locational assets, as stated by Sr. M. Felipe Saleme, undoubtedly will serve to attract additional wood-based industries and others requiring large quantities of electricity and clean water. The midway location between the two largest cities of Mexico, which has been significant in many different ways in the past, will continue to be an important factor also.

Public and Quasi-Public Land Use

All of the remaining types of land use in Morelia are broadly categorized as public or quasi-public. These include the schools, churches, hospitals, governmental offices, public utilities, military installations, parks and plazas, and recreational facilities. Admittedly, a number of schools and hospitals are operated by private interests, but the degree of public control over such institutions is such that they assume a quasi-public character. On the other hand, the churches function as private organizations, although technically all religious properties belong to the government. The semi-socialistic structure of Mexican government and society, as set forth in the liberal Constitution of 1917, creates

many problems with respect to precise classification. Most institutions involving the public welfare are either operated directly by the federal or state governments, or are permitted to exist within the private sector only under the most stringent regulation.

The Schools

One of the best implemented provisions of the 1917 Constitution has been that dealing with mass education (see footnote, p. 74). Each year huge sums of money are expended by federal and state governments to operate existing schools and to build and staff new ones. The emphasis to date has been on primary education in an attempt to combat two age-old obstacles to progress--illiteracy and ignorance. Morelia, through sharing in these governmental expenditures, now possesses a fairly respectable school system, but one which is inadequate to handle the present rapidly expanding school population. Double- and triple-shifting of students are necessary in some schools in order to provide daily class instruction for all children. Then, too, some facilities designed solely for primary or secondary usage must function in both capacities. Private and church schools, which were specifically outlawed by the Constitution of 1917, continue to operate and have actually increased in numbers.

Morelia now possesses 100 educational institutions (Table 22). These range in level from the kindergarten (jardín de niños) to the state university (Universidad Michoacana de San Nicolas de Hidalgo). The 22 kindergartens, which en-

Table 22.-Schools in Morelia, 1965*

Type of School	Number			Total Enrollment
	Total	Public	Non-Public	
Kindergarten	22	14	8	1,587
Primary	47	31	16	19,665
Secondary	9	6	3	2,760
Preparatory	5	5	0	431
Normal	4	2	2	466
Special	8	4	4	142
Commercial	4	0	4	1,011
Totals	99	62	37	26,062
State University				5,500

* Sources: Number of schools was determined by field-count. Total enrollment was calculated from data made available by the Junta de Planeacion y Urbanizacion del Estado de Michoacan, Morelia.

roll 1,587 pre-school aged children, are concentrated primarily in the old core of the city, although several have been established in recent years in lower-class peripheral areas (Fig. 29). Thirteen of the kindergartens operate in conjunction with primary schools (primarias), or in private residences, and are not shown in Figure 29.

Forty-seven primary or elementary schools provide education for some 19,665 children in grades one through six (Table 22). The oldest schools are concentrated in the upper- and middle-class areas in the heart of the city, while the newer structures are scattered in the peripheral areas (Fig. 29). This locational pattern in part reflects the exclusive nature of primary education in the past and at the same time indicates the present efforts to provide



Figure 29

such training to all children, including those from lower-class homes.

Students who successfully complete the six years of primary school are eligible to attend one of the city's nine high schools (secundarias). These, with few exceptions, are located in the eastern half of the city in the upper-class neighborhoods (Pl. XVI, Fig. 1). That most students are, for one reason or another, unable to attend secondary school is shown by a comparison of enrollments at primary and secondary levels (Table 22). The latter, is only 14 percent as large as the former, indicating that still today only a small proportion of the children get more than a sixth grade education.

Those who finish high school, and intend to go on to the university, are eligible for an additional two years of preparatory study in one of the five preparatorias. In 1965 only 431 students attended the preparatorias.

Other schools in Morelia include four normal or teacher-training institutions and eight special schools. Among the latter are a music conservatory, a school of fine arts, two schools for adult education (not including a cultural institute), and four commercial schools offering studies in art, business and crafts.

The major educational institution of Morelia, of course, is the state university. It has an enrollment of approximately 5,500. The main campus is located at the northwest edge of the central business district (Fig. 18). There are three branches--two in the eastern part of the downtown area and one in the southeastern part of the city (Fig. 29). The



Fig. 1--Instituto Valladolid (center), a school for both primary and secondary students, located in an upper-class residential area just southeast of CBU.



Fig. 2--Santuario de Guadalupe, one of the oldest churches in Morelia. A building attached to the church houses a primary and a secondary school.



Fig. 3--New church under construction on west Avenida Madero. Small plaza (plazuela) in the foreground.



Fig. 4--The largest hospital in Morelia. It was built and is operated by the Instituto Mexicano del Seguro Social.

university is undoubtedly one of the leading institutions of higher learning in Mexico, with schools of medicine, biological sciences, law and social studies, physical and mathematical sciences, industrial engineering, dentistry, commerce, nursing and obstetrics, education and fine arts.

The Churches

From its initial establishment as the seat of a bishopric in 1580, Morelia has functioned as a major ecclesiastical center. Today, it continues that role as the seat of an even more extensive archbishopric covering Michoacan and parts of four neighboring states. Although provisions of the Constitution of 1917 stripped the Roman Catholic Church of its properties and economic undertakings, and greatly restricted its temporal activities, the Church's influence is still strongly felt. Religious celebrations, ceremonies, and the business of the archbishopric bring many people to Morelia who contribute to the local economy. Then, too, the old churches and other types of religious property constructed during the 16th, 17th and 18th Centuries attract large additional numbers of visitors who add to community income (Pl. XVI, Fig. 2).

The Roman Catholic Church exerts its most direct economic influence on Morelia, however, through the operation and maintenance of numerous church properties and an extensive building program. Currently, 29 churches are in use, including the great cathedral, 10 other large structures, and 18 smaller ones (Fig. 29). The cathedral and nine other

large edifices are located in the older part of the city and range in age from 200 years to 400 years. The only large new church was recently completed on the eastern outskirts of the city. The 18 smaller churches vary considerably in age and are oriented mostly to the lower-class neighborhoods. The two small churches located in the central business district are Protestant (Presbyterian and Baptist) and are the only non-Catholic churches in Morelia. The present construction of four large new churches is significant in that it marks the first time since Mexican independence from Spain that such an ambitious expansion has been undertaken (Fig. 29 and Pl. XVI, Fig. 3).

In addition to the places of worship just mentioned, the Roman Catholic Church maintains two hospitals, a number of schools, a residence for the archbishop, living quarters attached to the cathedral for over 120 clergy and a large seminary on the Loma de Santa Maria de la Asuncion just south of the city (Fig. 29). Although a precise monetary determination cannot be made, it is quite obvious that religious activities add much to the economy of Morelia.

The Hospitals

Morelia's importance as a medical center has already been established in the discussion of the 128 offices of professionals who provide medical, dental and optical services. The presence of 16 hospitals of a general and specialized nature, as well as the extensive research facilities in medicine, nursing, obstetrics, dentistry and the biological

sciences provided at the state university, further support this conclusion. The hospitals range in size from the large 120-bed general hospital, built by the Instituto Mexicano del Seguro Social (Pl. XVI, Fig. 4), to the sanitariums and the small asylums (special hospitals) supported by both governmental and non-governmental agencies. Eleven of the institutions are located in Morelia's eastern upper-class residential areas, one in the central business district, two just to the north and south of this district, respectively, and the remaining two in the western part of the city (Fig. 29).

Eleven of the hospitals were built prior to 1950. These include a maternity hospital, a medical center and clinic (previously mentioned in connection with professional services), two general hospitals (Red Cross and Roman Catholic), a military hospital for the 21st Military Zone, four sanitariums and two asylums. Since 1950, a considerable building program, sponsored by agencies of the state and federal governments, has added five modern, new facilities. These are the large general hospital and a regional hospital-clinic constructed by Seguro Social, a health center (Centro de Salud) and a children's hospital established by the Secretaria de Salubridad y Asistencia, and a hospital built for workers by the Instituto de Seguridad y Servicio Sociales de los Trabajadores del Estado. A progressive state administration under a young and enthusiastic governor--Agustin Arriaga Rivera--, working in conjunction with federal authorities, has been largely responsible for the modernization of hospital facilities and the extension of medical care to many

low-income people who were without it previously.

Governmental Offices and Agencies

The viceregal decree of 1575, which elevated Morelia (Valladolid) to provincial capital of Michoacan, stands out as one of the most significant, if not the most significant, of the factors determining the present morphology and functional organization of the city. As capital of a prosperous, growing state, and as seat (cabecera) of a rich municipio, Morelia has directly benefited through expanding governmental activities necessitated by rapid economic development, and a burgeoning population. Indirectly, its position as state capital has attracted numerous offices and agencies of the federal government which follows a policy of operating within a state from its capital city. Morelia, then, performs governmental functions on three different jurisdictional levels--local (municipal), state and federal. Plots of land under the various forms of governmental ownership and control are shown in Figure 30. That influence of governmental activity on the internal structure of Morelia is quite extensive is apparent from this map.

The local, or municipal, government (Ayuntamiento de Morelia) exercises jurisdiction over both the city and the municipio. This is quite different from the separate organization of city and county governments in the United States and is directly related to the old Spanish system in which a central community and the lands around it were organized into one administrative unit. Most municipal functions are

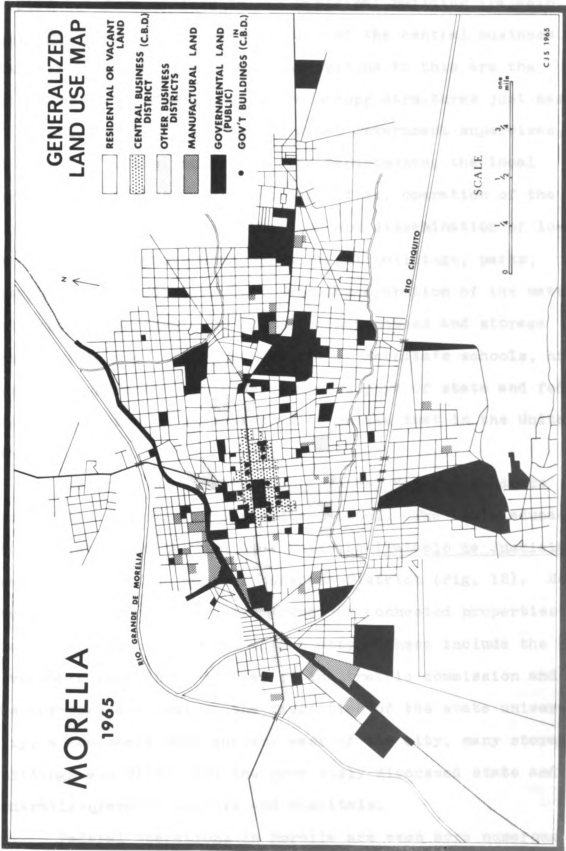


Figure 30

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carried out from offices in the municipal building (Palacio Municipal) located on the west side of the central business district (Fig. 18). The basic exceptions to this are the police and fire departments which occupy structures just east of Mercado Valladolid. The municipal government supervises, in addition to the police and fire departments, the local magistrates, a civil registrations office, operation of the four public markets, the collection and dissemination of local taxes, the maintenance of municipal buildings, parks, plazas, and the city cemetery, and the operation of the water and sewage department. A number of warehouses and storage areas are in use throughout the city. Morelia's schools, however, are under the supervision and support of state and federal authorities, a situation quite unlike that in the United States.

The state government (Gobierno del Estado) conducts most of its business in the state capitol. The state education building and the judicial building (Palacio de Justicia) are situated in the central business district (Fig. 18). However, a number of other state-owned or connected properties are in various other parts of the city. These include the governor's residence, offices of the traffic commission and the forestry commission, the facilities of the state university, a new state penitentiary east of the city, many storage buildings and sites, and the previously discussed state and federally-operated schools and hospitals.

Federal operations in Morelia are even more numerous than those of the state and possibly exert a greater economic

impact on the community.¹ Twelve major secretariats (departments) of the national government maintain staffs in the city which provide a variety of services to the entire state.² Many of the offices are located in the federal building (post-office) and at other locations in the central business district (Fig. 18), although numerous properties are used in other parts of the city.

One of the largest federal operations in Morelia is that of the Secretariat of Water Resources (Secretaria de Recursos Hidraulicos). This agency regulates water supplies and is currently engaged in a huge project to expand the state's acreage of irrigated lands. The Secretariat of Health and Assistance also encompasses an extensive program which includes direct and subsidized medical care, a malaria control department, and an agency to combat hoof-and-mouth disease (aftosa) in cattle. Two other secretariats, those of public education and communications and transportation, should be mentioned. The first provides funds for the staffing of schools and the building of new ones, while the second operates the postal and national telegraph services, and assists the state in building and maintaining its roads

¹Although Mexico constitutionally is a federal republic, the degree of control exerted on local communities and states by the central government is enormous if Morelia and Michoacan are representative of the nationwide pattern.

²These twelve secretariats are: agriculture and livestock, communications and transportation, public education, governmental, property and public credit, industry and commerce, public works, water resources, health and assistance, national property, labor, and national defense.

and highways. In total, federal regulation and financing reach into almost every sector of the state's economy. Since most of these activities are conducted from offices and agencies located in Morelia, the impact on Morelia and the city's functional influence on the remainder of Michoacan are of great significance.

Public Utilities

Public utilities in Morelia consist of a city-owned and operated water system, a municipally-commissioned electric company (Cia. Electrica de Morelia, S.A.), a telegraph office serving both a federal and a state system, and a telephone company (Telefonos de Mexico, S.A.) commissioned by the federal government. The city possesses no underground gas system, but bottled gas is furnished by commercial dealers to those who can afford it. Water is generally available throughout the city although direct service to individual residences in lower-class peripheral areas is rare. Public faucets supply such neighborhoods. Electricity has a similar distributional pattern, with many out-lying dwellings lacking service (Pl. XI, Fig. 4 and Pl. XII, Fig. 1).

Morelia's water system is modern and relatively efficient. The present filtration plant (Pl. XVII, Fig. 1) was completed in 1952 and was designed to accommodate an eventual population of 135,000 inhabitants. It is located on the Loma de Santa Maria de la Asuncion. Water comes to the plant by gravitational flow from Presa Cointzio (Pl. III, Fig. 3). After filtration, it reaches the city mains in a similar man-



Fig. 1--Main building of the Municipal Water Plant located on the Loma de Santa Maria de la Asuncion just south of Morelia.



Fig. 2--Substation of Compania Electrica de Morelia, S.A., which provides the city's electrical power.



Fig. 3--Jardin Morelos, a small park in eastern Morelia. Extensive repairs are in progress. 18th Century aqueduct in the background.



Fig. 4--Administration building and barracks of the 21st Military Zone headquartered in Morelia. Building also houses a military hospital.

ner. The gravitational distribution of water obviates the necessity for expensive pumping and makes the entire operation a very economical one.¹ The availability of water in large quantities and at very cheap rates constitutes one of the city's major assets for future development.

Electrical energy is supplied to Morelia by Compania Electrica de Morelia, S.A., which purchases its power from the federal electricity commission (Comision Federal de Electricidad, S.A.). Power is generated by three hydroelectric plants located just south of Uruapan,² and is transmitted to the company's Morelia substation by high voltage lines (Pl. XVII, Fig. 2).³ Service generally is good, although power failures did occur on several occasions during the summer of 1965. Like water, the availability of large quantities of hydroelectricity is an important locational asset of Morelia. With the completion of projects now planned for construction in Michoacan during the next few years, Morelia's position

¹Interview with Francisco Barbosa, chief engineer for the municipal water plant, Morelia, July 22, 1965. The plant was built in cooperation with the state government and the Secretariat of Water Resources. Cost of water to customers is the equivalent of 4.57 cents (U.S.) per 1,000 gallons.

²Planta Zumpimito, Planta Cupatitzio and Planta Cobano. Installed capacity of the three plants is 96,300 kilowatts.

³Interview with Emilio Diaz Carreon, general superintendent of Division Centro Occidente, Comision Federal de Electricidad, S.A., Morelia, August 13, 1965. The west central division, with its main office in Morelia, supplies 3,540,830 people in four states--Michoacan, Guanajuato, Colima and Guanajuato.

will be greatly enhanced.¹

Telegraph service in Morelia is operated jointly by federal and state agencies from a central office in the post-office building. The older federal network provides service to other major Mexican cities and to the larger towns in Michoacan, while the state system unites the smaller communities of the state to Morelia.

Telephone service is provided exclusively by Telefonos de Mexico, S.A. The Morelia office supervises operations in the city and most of the state with the exception of eastern border areas which are in the Toluca district. There are 2,500 telephones in the city, these being about equally divided between residential and non-residential users.² Calculations indicate that some 7.3 percent of all residences and 42.8 percent of non-residential establishments have telephone service.³

Parks, Plazas and Recreational Areas

In Morelia, as in most other cities of Spanish background, plots of land were set aside by early town planners

¹Planta Hydroelectrica del Infiernillo, located in the Tierra Caliente south of Morelia, when completed will have an installed capacity of 600,000 kilowatts, and will be the largest plant in Mexico.

²Interview with J. Modesto Esquivel S., manager of the Morelia branch, Telefonos de Mexico, S.A., Morelia, July 7, 1965.

³Included are 2,409 business establishments (other than street vendors, street stalls and merchants in public markets), 361 manufacturing plants, 100 schools, 32 church properties and 16 hospitals. There are 17,046 residences in the city.

and their successors as sites for social, recreational, and marketing activities. These were referred to either as parks (parques) or plazas, depending upon their functional orientation. Parks, some of which were referred to as gardens (jardins), were ornamental wooded grounds containing flowers, fountains, benches and walkways, and were intended for leisurely social and recreational usage. Plazas, on the other hand, were designed primarily as large public squares or open-air market-places and were, therefore, less ornamental.

The original parks, for the most part, still exist in Morelia, but their functions and physical conditions have changed significantly. Most have suffered in more recent times from lack of maintenance, and are in a deteriorating condition. Very few flowers now grow and the once-flowing fountains are dry. Because of these conditions, public usage is minimal. Some efforts are being made, however, to restore these parks to their original beauty (Pl. XVII, Fig. 3). One large park--Bosque Cuauhtemoc (Fig. 7)--in the eastern part of the city retains much of its earlier charm, but is being threatened by the construction of public buildings on its grounds. The largest park in the city is Parque Juarez located between the Rio Chiquito and the loma to the south. Originally a forest preserve, it is now being developed as a recreational area by the state forestry commission. Its natural beauty and accessibility should result in substantial use by the local citizenry and visitors as well.

Morelia's plazas have also undergone alterations. Two in the central business district were completely eliminated

when Mercados Hidalgo and Valladolid were constructed on their sites. The central plaza (plaza central or plaza principal) has largely escaped change of its physical appearance, however, and retains much of its former social importance. Although its earlier market-place function has been discontinued by governmental decree, its position as the social center of Morelia remains unchallenged. Large numbers of people crowd the plaza's walkways and benches daily, particularly during the early evening hours. On Sundays the throngs gather to converse, carry on romances, and enjoy the concerts regularly presented by local bands. During festivals and celebrations, both religious and otherwise, the central plaza becomes the focus of activities, as has been the situation for four centuries. One physical aspect of the central plaza is somewhat unique and deserves special comment. In most Mexican cities, as well as in other cities designed by the Spaniards, the main church or cathedral faces the central plaza. In Morelia the cathedral fronts on Avenida Madero and is actually situated in the plaza (Pl. IV). No satisfactory explanation for this deviation from the usual pattern could be found.

Recreational areas and facilities, other than parks and plazas, are utilized primarily for sporting events. Bull-fighting, the traditional sport in countries of Spanish background, is held in a modern bull-ring (Plaza de Toros) near the city's western edge (Pl. V, Fig. 4). Two soccer (futbol) stadiums accommodate large crowds of enthusiastic supporters attending inter-city contests, while almost every

vacant area serves as a playing field for young aspirants. Baseball, which is becoming increasingly popular, also is played in vacant areas, since no modern facility is as yet available. Several tennis courts can be found in association with the schools and private organizations, but courts open to the general public are lacking.

A large public sports area is being constructed by the state on the eastern edge of the city. When completed, it will contain a 25,000-seat soccer (futbol) stadium, a baseball stadium capable of seating 6,500, numerous tennis and outdoor basketball courts, a gymnasium and auditorium, and a social club. The completion of this elaborate sports park will alleviate many shortages in recreational facilities that now exist. However, the writer feels that the huge sum of money being spent could be better invested in more worthwhile public works. Included among needed projects are (1) cheap housing for low-income residents, (2) paved streets, sidewalks, and street lighting in peripheral lower-class neighborhoods, (3) water and electricity for all residences, and (4) drainage facilities and flood control in low-lying sections of the city.

Military Installations

The amount of land used for military purposes in Morelia is small. However, money spent by the several hundred army personnel stationed here, as well as payments made in the local community for goods and services, undoubtedly represents important sources of income for the city's civil-

ian population. The military installations include large barracks, a hospital, a housing complex for married personnel, and the administrative headquarters for the 21st Military Zone of Mexico (Pl. XVII, Fig. 4). The major function of the Morelia post is to preserve order within the 21st Zone, which is one of 33 such divisions in Mexico.¹ Activities in support of this mission comprise an additional regional influence emanating from Morelia.

¹Edwin Lieuwen, Arms and Politics in Latin America (Rev. ed.; New York: Frederick A. Praeger, Inc., 1963), p. 119.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Morelia is a city on the threshold of great change. Manufacturing and tourism, the two major catalysts responsible for the progressive growth of many other Mexican cities, have been slow to "invade" Morelia, but are beginning to do so on an increasing scale. Much of the city's present "charm" and "old world" atmosphere will be lost as material progress is made, but the economic well-being of its citizens will be improved.

Modernization, which began in 1938 with completion of the asphalted highway from Mexico City, has reached a high level of acceleration during the past decade. New residential areas, modern businesses, large-scale manufacturing plants, hospitals and numerous public schools have been, and are being, built. During the summer of 1965 the total volume of buildings and other facilities under construction was enormous (Fig. 16). No less than 225 buildings were being erected and most of these were high-quality residential structures. Other projects, both public and private, however, were also significant. Under construction were a new railroad station, an airfield, a meat-packing plant, four large churches and an olympic-sized sports area. Plans for the next few years include many similar projects as well as a new railroad line, a

large centralized bus terminal, various street improvements and a general "face-lifting" for the older buildings of the city. Then, too, several additions to existing manufacturing plants are projected, and one new plant--for making Kraft Paper--is now under construction. In the recent past Morelia has lagged behind many other cities of Mexico in the rapidity of change, but a tremendous acceleration of the process is expected in the coming years.

The maturation of Morelia from its founding in 1541 to the present time has been greatly influenced by a number of physical and cultural factors oriented to the local area and to outside regions. The selection of a site for the city by Viceroy Antonio de Mendoza was originally swayed by the fertile volcanic soils, adequate water supply, gentle slopes and mild temperatures of the valley. The decision in turn resulted from the Spanish desire for cattle-grazing and wheat-producing lands. And, too, the earlier avoidance of valley lands by the Tarascans, who preferred the forested slopes of nearby mountains, created an expanse of unpopulated land almost ideal for these economic pursuits. About a decade after the city's founding and the initiation of cattle and wheat encomiendas, the great demands for meat, bread and wood products in the mining developments to the north opened a large, new market for Morelia's products. The resulting increase in commercial activity brought about a sizeable expansion in the city's population and influence. As a direct consequence, Morelia (Valladolid) was made the provincial capital in 1575 and the seat of the bishopric in 1579--two of the most impor-

tant events in the city's 400-year history.

Throughout the remainder of the colonial period, growing population concentrations in and near Mexico City and Guadalajara enhanced Morelia's location as a midway service point between them. Expanding demands, particularly in Mexico City and other big eastern cities, created large markets for the agricultural and wood products of Michoacan, and Morelia became the processing and shipping center supplying them. Increased production in western and southern Michoacan enhanced Morelia's function as an assembly and distribution point for outgoing raw materials and returning manufactured goods from the east. Although non-agricultural and non-forest manufacturing were somewhat limited by restrictions imposed from Spain, the markets for Morelia's products brought great prosperity to the city. Many of the elaborate structures in evidence today were built during this period, and stand as ample evidence of a highly vigorous past economy.

Starting with the War for Independence in 1810, Morelia underwent a half-century or more of strife that resulted in little material progress and even one period of population decline. Because of its strategic location in central Mexico, the city suffered tremendously during periods of fighting. The general chaos restricted economic activities and discouraged development. Even the few industries that were initiated failed to prosper for lack of raw materials or from market losses due to poor roads and disturbed conditions.

The rise of Porfirio Diaz to power in 1876 marked the beginning of a new era (La Porfiriata) for Mexico and Morelia.

Internal peace and a general atmosphere conducive to economic expansion were established. Efforts were made almost immediately to improve the national transportation system. A railroad reached Morelia in 1883--a date which signifies the beginning of modern transportation service for the city. The telegraph and telephones also were installed. By the 1890's Morelia was connected to most other large Mexican cities by these means. Internal improvements, including an electrical street-lighting system and a public water system, were inaugurated. The external functions of Morelia--political, ecclesiastical, and commercial--increased due to population expansion in the areas served and to improved transportation facilities. The railroad made possible the rapid transfer of Morelia's traditional products to cities in the east, and also provided a more efficient means for supplying it with manufactured goods on the return trips. Despite the city's economic advancement during the period, however, the vast majority of the population failed to enjoy the fruits of progress--a situation which was widespread throughout the nation and led to the downfall of the Diaz regime.

In 1910 Mexico was thrown into a civil war (The Revolution) which lasted for a decade. Morelia again became a victim of military contests due largely to its strategic location. Economic progress halted; many activities actually ceased to function. The result was an inevitable decline in population. With the final overthrow of Diaz and the installation of constitutional government under the 1917 Constitution, Mexico began a period of relative tranquillity

which, with a few exceptions, has lasted to the present time.

During the 1920's many previously postponed internal improvements were made in the city. Streets were paved, a sewage system was installed and the existing water system was improved. A number of manufacturing plants were opened. In addition to those producing the traditional wheat-flour and wood products, one was established for the processing of vegetable oils, a new line in the city's industrial output. By 1930 the population had almost reached its pre-revolution figure.

During the 1930's several more manufacturing plants began operations, including the first metal products fabricator and a large producer of resin and turpentine. The latter was established to produce primarily for foreign markets and was the first such plant in the city. Population growth between 1930 and 1940 was rather small, however, indicating that economic progress had been slow during these years. The arrival of the paved highway from Mexico City in 1938 was the major event of the decade and can be used to mark the beginning of modern change.

Although Morelia's isolation was partially broken in 1883 with completion of the railroad from Mexico City, the expanding network of highways has become the "great emancipator." Growing numbers of trucks, cars and buses have given the city's population internal mobility and external connections undreamed of a few decades ago. Out-lying areas, which previously had been days or even weeks in travel time from Morelia, are now accessible in a matter of hours. Because of

this, retail and wholesale market areas, as well as sources of raw material supply, have been greatly expanded and diversified. Graveled "feeder" roads have further amplified accessibility. In response to these transportational improvements and the urban economic advances made as a result of them, a growing migration of rural people to Morelia has taken place. During the 1940's the city's population increase (18,911 persons) was greater than during any previous decade in history. Wholesale and retail functions expanded, new types of business came into existence and eight additional manufacturing plants were established--some representing completely new lines of fabrication.

The trend begun in the 1940's continued through the 1950's at an accelerated pace. The population increase (37,583 persons) was almost twice that of the 1940's. Business growth was significant. The addition of another eight new manufacturing plants, however, fell short of the number needed to provide jobs for the swelling population. Increasing unemployment developed, becoming one of the major problems to be solved. Internal improvements also went forward at a rapid pace, but at one which did not keep stride with population growth because financing of public projects is costly and funds were limited. At the same time, those portions of the city in the most dire need of improvement were being occupied by recently-arrived rural people who contributed little to the local treasury.

Since 1960, the trends established in the previous decade have continued. Although four new manufacturing

plants have opened, and retail and wholesale functions have expanded and have become more diversified, the high rate of population growth, involving primarily low-income inhabitants, continues to present the city with its major immediate problem and compounds many other older ones. Even without future in-migration, a considerable period of time and large sums of money would be required to materially better today's conditions. But movement from the countryside to the city is continuing.

The population increase of over 50,000 persons in the last 15 years has in itself created a large, new local market, however, while considerable improvements in mass public transportation have been responsible for a growing mobility of buyers and producers from an expanding hinterland. The rapidly increasing numbers of cars, trucks and buses moving in and out of the city give ample evidence that Morelia has finally become a part of the modern era.

Morelia's major functions in 1965 remain essentially the same as those performed in the past. The basic differences lie more in terms of magnitude of operations and extent of influence than in functional change. Morelia is still the political capital of Michoacan, but now serves a state growing rapidly in both economic endeavor and population. The city continues to serve as a major religious center, but now it is the seat of an archbishopric rather than the smaller bishopric of the past. Its higher education function, which began with the relocation of the Colegio de San Nicolas in 1580, currently entails the operations of a large

state university with extensive influence over a wide area. The early way-station function, fostered by the city's midway position with respect to Mexico City and Guadalajara, has expanded in response to the growing traffic between the two larger cities. Similarly, increasing cross-traffic between southern and western Michoacan and the prosperous lands in Guanajuato to the north, has added to Morelia's historic function as a collection and distribution point for this trade. Manufacturing activities have become more varied, although still strongly oriented to the processing of agricultural and forest products. Market areas and sources of raw materials, however, have expanded due to improved transportation and general economic progress. Retail and wholesale businesses have grown for the same reasons and because of population growth.

Although the morphology of Morelia has undergone some fundamental changes in recent decades, the city still retains much of its original pattern of land use and relationships of one part to another. The rectangular-grid street system established by the Spaniards during the colonial period remains largely unaltered except for deviations in newly-established peripheral colonias. Compactness of settlement, which was so important in earlier times, is no longer a necessity. Transportational improvements and rising middle- and upper-class incomes are resulting in a centripetal movement away from the congested heart of the city. The once fashionable residential locations on or adjacent to the central plaza and business district are increasingly being replaced by

those in high-class residential areas which are developing on the outskirts, particularly to the east and south. Suburbanization has not been significant in the past, but it certainly is an important trend of the present.

The mapping of land use in Morelia was an arduous task. The size of the city and the small amount of time available presented the basic difficulty, but building construction characteristics and the complexity of functional relationships within individual buildings and neighborhoods added to the problem. The contiguity of buildings, particularly in the old parts of the city, prevented access to the interior of blocks and usually required that land use classification be completed on a frontage basis only. This undoubtedly has led to an underenumeration of some usages. Then, too, many buildings with solid walls facing the street offered no clues as to their internal functions. Similarly, the age and outside appearance of many structures initially led to misconceptions as to internal use and condition, especially since present utilization quite often is considerably different from the past. The multiplicity of functions performed within some buildings was also troublesome. The common practice of maintaining business or manufacturing activities in conjunction with residences led to difficulties in determining primary functions. However, allowing for these pitfalls, the writer feels that his survey depicts land utilization in Morelia more accurately than any accomplished before, and that results of a longer, more thorough inventory probably would differ very little from those presented here.

Residential land in Morelia can be divided into three classes--upper, middle and lower--based primarily upon the quality and condition of the residential structures. Old upper-class homes are located in and around the central plaza and business district, while several new upper-class neighborhoods have recently developed in peripheral areas. Middle-class dwellings are restricted almost exclusively to the zone surrounding the old upper-class area in the heart of the city. Lower-class dwellings dominate in the next zone outward to the boundaries of the old city and in most of the new areas of growth beyond. The city's poorest neighborhoods, those occupied by recent rural migrants, are on the lower lands on the south and west and the rocky heights on the northeast margins of the city. These slums constitute one of Morelia's major urban problems.

Business establishments, particularly those of a retail nature, are widely dispersed and generally operate on a very small scale, although exceptions do occur. Almost 40 percent of the total, however, are found in the central business district, while there are four other sizeable concentrations nearby. Two of the secondary districts have grown up largely in response to bus terminal activity, and the other two have developed in conjunction with large public markets. The central district contains almost every kind of business found in the city, including two public markets and the largest retail establishments. Proximity to the central plaza still remains a major locational asset, although it is not as significant as in the past.

Grocery stores are the most numerous businesses in Morelia. Since they serve neighborhood areas, they are found in all parts of the city. Meat markets have a similar distribution. Other food-related establishments are oriented to the public markets and bus terminals. Transportation-related businesses have different locational patterns. Lodging facilities are situated primarily in and around the CBD or in the bus terminal districts. Establishments engaged in the retailing of automobiles and trucks have locations on Avenida Madero and the main east-west highway. Vehicular repair services are concentrated on west Madero and north Morelos. Gasoline stations occupy advantageous sites at the city's three entry points and on major arterial routes.

Stores retailing electrical appliances and furniture are mostly located in the central business district. Establishments servicing and repairing these items are in middle- and lower-class areas. Wearing apparel shops (clothes, hats, shoes, etc.) are also heavily concentrated in the CBD, while drygoods stores and shoe repair shops are more widely scattered through the adjoining middle- and lower-class neighborhoods. Gift shops, jewelers, bookstores, stationers, banks, loan companies, theaters, sporting goods stores and gunshops are other businesses largely in the CBD. Construction materials sales, recreational businesses and fuel retailers occupy widely scattered sites. Drugstores operate both in the CBD and in neighborhood locations.

Professional service offices are heavily concentrated in the old core of the city, and frequently function in con-

nection with residences. Personal service establishments are strongly oriented to the public markets and the CBD, although neighborhood locations are also numerous. Wholesale distributors occupy sites in various parts of the city, but are scarce in the CBD. Businesses engaged in wholesaling as a secondary activity (manufacturing plants and retail stores) follow a similar locational pattern.

Although manufacturing is a significant urban function in Morelia, production is relatively small in comparison to that of a number of other Mexican cities. Efforts now underway, however, should improve the situation. A large Kraft-Paper plant is being built and plans are being formulated to attract additional forest and agricultural oriented industries. Present establishments range in size from small individually-operated ones, such as tailor shops and tortillerias, to the large fruit-processing plants employing hundreds of workers. The small plants fabricate products to satisfy local demands and are wide distributed. Many operate in association with residences. Tortillerias are the most numerous. Their location in the densely-populated, lower-class areas indicates the importance of corn in the daily diet of low-income people. Larger, but less numerous, bakery shops are more widely distributed, and supply wheat-flour products to people in all income brackets. Morelia's largest factories, on the other hand, occupy peripheral locations and produce mainly for outside markets. Included are the fruit canneries, bottlers of carbonated beverages, wheat-milling plants and the manufacturers of chemicals, resin and turpen-

tine, matches, candles, wood products, vegetable oils and roofing materials.

Land used for public and quasi-public purposes in Morelia comprises a significant proportion of the city's total built-up area. Various governmental agencies either operate or regulate all schools, churches, hospitals, and public utilities, in addition to the parks and plazas, public recreational areas and military installations. The degree of control exercised by these governmental organizations greatly exceeds that found in cities of the United States and has resulted, in large part, from the provisions of the 1917 Constitution.

Morelia's school system, financed largely by state and federal funds and controlled by the state, is a fairly good one, but faces staggering problems in caring for ever larger enrollments due to the rapid growth of population. Schools at the primary level have received the maximum attention in recent years and are scattered in all sections of the city. Schools at higher levels are less numerous and are concentrated in the city's old core area. Primary education is now available to all, regardless of financial status, but the high schools, trade schools and preparatory institutions are attended by only a small proportion of all students completing the lower grades. A much smaller number still enter the state university which is located in Morelia.

Technically, churches are property of the federal government, but they still operate as private institutions. Activities associated with organized religion contribute

significantly to the local economy. Then, too, the historic importance of Morelia's many old churches serves as an outstanding attraction to tourists and travelers.

Morelia's hospitals provide a variety of general and specialized services. There are sixteen at the present time, serving people of the local area and from throughout Michoacan. Five relatively large hospitals have recently been built with state and federal funds. These modern institutions provide medical care to many people who formerly were without it. The hospitals, along with the large number of medical doctors practicing here, have established Morelia as the leading medical center in the state.

Governmental agencies operate on the local, state and federal levels. Local government exercises jurisdiction over the city and the municipio simultaneously. Offices are located in the city hall (Palacio Municipal), situated a block west of the central plaza, and at a number of other places in the city. State government occupies quarters in the state capitol. Besides numerous commissions and lesser agencies, the state maintains such institutions as the university, a new penitentiary, and many storage buildings. It also supports the local school system. Federal operations are extensive and are carried out by local representatives of twelve national secretariats. Many of these perform functions for the entire state and, therefore, help to extend Morelia's regional influence.

Public utilities include a water system which is municipally owned and operated, an electric company commissioned

to provide power and a telephone company organized by the federal government, and a telegraph system jointly operated by state and federal authorities. Morelia's water system is modern and rates are extremely low due to the complete gravitational flow of water from reservoir to consumer. The abundance of cheap water is a major locational asset for the attraction of new industry. The city's electricity supply originates at hydroelectric sources near Uruapan and is relayed overland by high-voltage transmission lines. Projects under construction in southern Michoacan will soon increase the supply available and will provide additional stimulus to Morelia's progress. Since electricity is sold throughout Mexico at the same regulated rates, its abundance and not its cost is a prime location factor. Morelia's current internal telephone system is limited, but plans call for the extension of service to many additional people in the near future. External service is adequate to meet the present-day volume of communications with other cities and regions both in Mexico and abroad.

Morelia has numerous parks and plazas. Most of these were set aside by the early Spanish town-planners as sites for social, recreational and marketing activities. Many parks are now in a deteriorated condition. Two plazas were eliminated earlier in the century by the construction of public markets on their sites. The central plaza and other smaller ones have lost much of their marketing activities due to governmental decree. The central plaza, however, retains its importance as the social center of Morelia.

Recreational facilities in Morelia include a bull-ring, two soccer stadiums and numerous vacant lots and fields used by young sports enthusiasts. An extensive modern sports complex is being constructed east of the city. In the opinion of the writer, however, the large sum of money required for its completion could be spent in far more beneficial ways. Use to finance alleviation of chronic housing, electricity, water and drainage shortages in lower-class neighborhoods are examples of some of these.

Prospect

The future of Morelia seems to be a promising one, although many current problems remain to be solved. The most severe are chronic unemployment and underemployment--shortcomings typical of urban areas throughout Latin America. Creation of additional manufacturing jobs seems to offer the best solution. Morelia's access to relatively cheap and abundant water and electricity sources and to the raw materials furnished by productive tributary farm and forest regions should encourage the location here of many new processing industries. The city's location in the populated heart of Mexico midway between the country's two largest urban concentrations is also a decided factor in favor of increased manufactural activities.

The attraction of growing numbers of tourists also offers a means toward improved economic conditions. The city's location again is a favorable factor, while its wealth of historical sites and the unexcelled beauty of the surround-

ing country are valuable assets. Additional service facilities will be needed, and when developed, will provide many jobs. Accessibility to out-lying regions must also be improved. Governmental road-building programs now underway or being negotiated are a step in the right direction, but must be expanded.

Internal conditions also pose acute problems. Improvements in housing, utilities and streets, particularly in the peripheral lower-class residential areas, represent the most pressing internal needs. Achieving these advances without a doubt will be the most challenging task for the immediate future. Public housing projects and slum clearance programs should be initiated at once, if the flood of in-migration from rural areas is not to cause a worsening of living conditions. Money used for projects such as the large sports complex should be diverted to these uses.

Efforts to regulate in-migration and control natural population increase through education and other means also are needed. A continuing growth rate comparable to that of the past 25 years obviously will complicate efforts made for improving the social and economic well-being of Morelia's people.

Despite the city's tremendous problems, it should continue to grow and prosper. The progressive legislation resulting from The Revolution and the Constitution of 1917 forms the framework in which much progress has been, and is being, made. Continued enlightened leadership on all governmental levels should permit rising standards of living for

the majority of Morelia's citizens and supporting improvement of the urban facilities.

APPENDIX A

PART I NOTES ON THE FIGURES

Figure 1. The Situation of Morelia. Base Map: Gobierno del Estado de Michoacan, Consejo de Planeacion y Fomento Economico del Estado, Carta General del Estado de Michoacan, 1963. Fractional scale not given.

Figure 2. The Site of Morelia. Base Map: Departamento Cartografico Militar, Secretaria de la Defensa Nacional, Morelia Cuadrangulo, 1959. Sheet No. 14Q-g (2). Scale, 1:100,000.

Figure 3. Climatic Data, Morelia, 1951-1958. Climatic chart drawn by the writer. Source of Data: Gabriel Ortiz Santos, "Agua potable para la ciudad de Morelia, Michoacan, 1960," Ingenieria Hidraulica en Mexico, enero-febrero-marzo, 1960, pp. 77-78.

Figure 4. Map of Morelia, 1794. This map was reproduced from a reproduction in the University of Texas Library, Austin, Texas. The original map is preserved in the Museo Michoacano, Morelia.

Figure 5. Spatial Growth of Morelia, 1798-1958. Base Map: Ayuntamiento de Morelia, Plano de la Ciudad de Morelia, 1963-1964, Ultima Edicion. Scale, 1:10,000. Although this was the original base map used, a number of corrections were made during the field-mapping to bring it up-to-date for final use. Source of Data: Junta de Planeacion y Urbanizacion del Estado de Michoacan. Original source of earlier data not available.

Figure 6. Map of Morelia, 1869. This map was reproduced from an original copy preserved in the Rare Map Collection at the University of Texas Library, Austin, Texas.

Figure 7. Pictorial Map of Morelia, 1934. This map was reproduced from the original map appearing in Justino Fernandez, Morelia, su situacion, historia, caracteristicas, monumentos, nomenclaturas, con un plano pictorio de la ciudad (Mexico: Talleres de Impresion de Estampillas y Valores, 1936).

Figure 8. Spatial Growth of Morelia, 1798-1965. Base Map: Same as for Figure 5. Source of Data: Junta de Planeacion y Urbanizacion del Estado de Michoacan (for 1798 to 1958) and fieldwork (for 1958 to 1965).

Figure 9. Daily Bus Service, Morelia, 1965. Base Maps: Michoacan - Same as base map for Figure 1. City of Morelia - Same as base map for Figure 5. Source of Data: Fieldwork and the Junta de Planeacion y Urbanizacion del Estado de Michoacan.

Figures 10 and 11. Manufactured Products, Markets and Raw Materials, Morelia, 1965. Base Map: Map in Tomas Zepeda, La Republica Mexicana, Geografia y Atlas (Mexico: Editorial Progreso, S.A., 1961). Source of Data: Interviews with company officials in Morelia, 1965.

Figure 12. Residential Types, Morelia, 1965. Base Map: Same as for Figure 5. Source of Data: Fieldwork.

Figure 13. Quality of Building Construction, Morelia, 1965. Base Map: Same as for Figure 5. Source of Data: Junta de Planeacion y Urbanizacion del Estado de Michoacan.

Figures 14 through 17 and 19 through 30. Base Map: Same as for Figure 5. Sources of Data: Fieldwork.

Figure 18. The Central Business District, Morelia, 1965. Base Map: Blue-printed copy of an untitled and undated street map of Morelia obtained from the Junta de Planeacion y Urbanizacion del Estado de Michoacan. Source of Data: Fieldwork.

PART II NOTES ON THE PLATES

PLATE I. Areal view of Morelia (Frontispiece). Source: Cia. Mexicana Aerofoto, S.A., Mexico City. Photograph taken in April, 1960.

PLATES II and III. Source: Photographs taken by the writer.

PLATE IV. Areal view of central portion of Morelia. Source: Cia. Mexicana Aerofoto, S.A., Mexico City. Photograph taken in 1932.

PLATE V and all subsequent plates. Source: Photographs taken by the writer.

APPENDIX B

PROCEDURAL SUGGESTIONS

In keeping with one of the three basic aims of this paper--to establish methods, techniques, meaningful goals, and other guidelines for comparable study of other Latin American cities--, the following annotated list of procedural suggestions is offered to urban geographers and others who undertake similar studies in the future:

(A) PRELIMINARY PREPARATION

- (1) A pre-fieldwork visit to the city. This permits the worker to (a) ascertain the city's basic problems and assets; (b) investigate the available local bibliographical sources; (c) secure preliminary materials such as maps, books, statistical data, etc.; (d) make useful personal contacts and acquaintances; and (e) tentatively decide on the overall advisability of the project and the prospects for its successful completion.
- (2) An inventory and review of available library materials on the subject and related subjects. This allows the worker to (a) assess the amount of research already done on the project city; (b) become aware of pertinent studies completed on other cities; (c) determine the types of information that will have to be obtained by personal contact and inquiry in the field.
- (3) Study of the city's historical background. Knowledge of the city's maturation and sequent occupation is absolutely essential to the understanding of its current internal structure and external functional relationships. This knowledge is also particularly helpful in the initial stages of the fieldwork as it makes possible an early and more expeditious assimilation of facts and relationships.
- (4) Study of the city's geographical hinterland. A thorough knowledge of the city's hinterland obviously is essential for analyzing regional relationships. It has other practical values also. During numerous interviews concerning trade areas,

for example, the writer found that his rather extensive knowledge of Morelia's hinterland (a) impressed interviewees and brought about better rapport with them; (b) facilitated the phrasing of complex questions involving various aspects of location; (c) resulted in the collection of more information than would otherwise have been possible.

- (5) Drafting of field base maps. The preparation of field base maps prior to going into the study area is a time-saving procedure and can be accomplished in a variety of ways. In this study the following recommended procedures were followed: (a) a recent street map of Morelia was divided into four sectors; (b) each sector for convenience was further subdivided into units of from 10 to 25 blocks each (units located in the crowded heart of the city contained fewer blocks); (c) each unit was then drawn in pencil on a sheet of standard-size bond paper; and (d) the units were systematically arranged in a loose-leaf book with a clipboard attached. The notebook-clipboard arrangement later allowed easy reference to, and storage of, completed maps, while the maps attached to the clipboard were easily handled during the fieldwork. The drafting in pencil made corrections in the field simple.

(B) FIELDWORK PROCEDURAL SUGGESTIONS

- (1) Initiate a general field reconnaissance early. The first week or two of the fieldwork should be used in becoming acquainted with the gross features and patterns of the city. Visits to public buildings, parks, plazas, public markets, local libraries and various types of residential neighborhoods reveal the general mood of the city.
- (2) Compile a tentative interview list. This should be started concurrently with the field reconnaissance and expanded during the early stages of the land use survey.
- (3) Prepare questionnaires prior to all interviews. An individualized questionnaire sheet should be prepared in advance for each type of interview. Once the interview has begun, time usually is limited. A well thought out list of questions permits the gathering of a maximum of information and minimizes the overlooking of basic kinds of information desired. Expansion of questioning also is expedited by the prior preparation of questions. An attempt should be made to

follow the prepared questionnaire as closely as possible, although this procedure will, of course, depend largely upon the cooperation of the interviewee.

- (4) Maintain an orderly typed card file of interview information. This allows for quick field reference to materials previously obtained and also enhances the actual writing of the paper later on. Each card should contain, in addition to the information obtained, such bibliographical data as name of interviewee, the institution or company name (where applicable), the interviewee's official position and the date of the interview.
- (5) Devise symbolization in the field for the land use survey. While ideas from surveys completed elsewhere can be incorporated, the land use symbols should be developed in the project city. Various methods can be used. For the one used in this study, see Chapter VI.
- (6) Visit the surrounding area by various conveyances. Short trips to surrounding villages, towns and rural areas by bus, car truck, etc., enable the worker to gain an appreciation of regional assets and liabilities. A ride in a crowded second-class bus can be quite an experience as well as an enlightening bit of field research. An airplane flight over the city and its hinterland obviously will be helpful.
- (7) Study local daily newspapers regularly. The daily reviewing of local newspapers reveals many basic problems of the community and often gives accounts of programs being devised or implemented to solve them.

APPENDIX C

DAILY BUS ARRIVALS AND DEPARTURES BY TERMINAL, CLASS OF SERVICE, AND CITY ENTRY POINTS USED, WITH PLACES OF ORIGIN OR DESTINATION AND INTERMEDIATE STOPS, MORELIA, 1965^a

Term. No.	Bus Routes	Buses		Class of Service	Entry Point Utilized		
	Places of Origin or Destination and Inter- mediate Stops	Arr.	Dep.		E.	W.	N.
1	Mexico City, Toluca, Zita- cuaro, Ciudad Hidalgo	5	5	2nd	10		
	San Luis Potosi via Leon	5	5	2nd			10
	Salamanca, Irapuato, Leon	14	14	2nd			28
	Aguascalientes via Leon	3	3	2nd			6
	Queretaro via Celaya	9	9	2nd			18
	Celaya	17	17	2nd			34
	Guana juato	1	1	2nd			2
2	Irapuato, Leon	2	2	1st			4
	Guana juato	1	1	1st			2
	Celaya	2	2	1st			4
	Various cities in the Ba- jio and northern Michoa- can ^b	25 ^c	25 ^c	2nd			50
3	Acambaro	2	2	2nd			4
	Querendaro, Zinapecuaro, Acambaro	1	1	2nd			2
	Querendaro, Zinapecuaro, Ucareo, Maravatio	1	1	2nd			2
	Ciudad Hidalgo, Balneario Atzimba	4	4	2nd	8		
4	Cuitzeo, Santa Ana Maya	2	2	2nd			4

Term. No.	Bus Routes	Buses		Class of Service	Entry Point Utilized		
	Places of Origin or Destination and Inter- mediate Stops	Arr.	Dep.		E.	W.	N.
5	Puruandiro	2	2	2nd			4
6	Tarimbaro, La Presa	2	2	2nd			4
7	Tarimbaro, Las Canoas	1	1	2nd			2
8	Villa Morelos, Puruandiro	2	2	2nd			4
9	San Agustin, Copandaro	2	2	2nd			4
10	Cuitzeo, Moroleon	2	2	2nd			4
	Cuitzeo, Huandacareo	2	2	2nd			4
11	La Piedad	2	2	2nd			4
12	Temazcal, Tequicheo, Huetamo	5	5	2nd	10		
13	Mexico City, Toluca, Zita- cuaro, Ciudad Hidalgo	3	3	1st	6		
	Guadalajara, Mazatlan, No- gales, Tijuana, Ensenada	3	3	1st		6	
	Apatzingan	2	2	1st		4	
	Zamora, Sahuayo, Colima, Manzanillo	1	1	1st		2	
	Patzcuaro	1	1	1st		2	
	Salamanca, Irapuato	1	1	1st			2
14	Mexico City, Toluca	4	4	1st	8		
	Guadalajara, Mazatlan, No- gales, Mexicali, Tijuana	4	4	1st		8	
	Colima, Manzanillo	1	1	2nd		2	
	Guadalajara	1	1	2nd		2	
	Uruapan	2	2	2nd		4	
	Mexico City, Toluca	4	4	2nd	8		

Term. No.	Bus Routes	Buses		Class of Service	Entry Point Utilized		
	Places of Origin or Destination and Inter- mediate Stops	Arr.	Dep.		E.	W.	N.
15	Zamora, Sahuayo, Colima, Manzanillo	3	3	2nd		6	
16	Mexico City	4	4	1st	8		
	Salamanca, Leon, San Juan de los Lagos	2	2	1st			4
	Zamora, Jiquilpan, Gua- dalajara	4	4	1st		8	
	Jiquilpan, Colima, Man- zanillo	2	2	1st		4	
	Patzcuaro, Tacambaro	2	2	1st		4	
	Zacapu, Carapan, Uruapan	3	3	1st		6	
17	Capula	4	4	2nd		8	
18	San Nicolas Obispo	3	3	2nd		6	
19	Tazicuaro (Taticuaro)	2	2	2nd		4	
20	San Miguel Tecacho	2	2	2nd		4	
21	Cerritos, Cuto, Huani- queo	4	4	2nd		8	
22	Tenencia Morelos, Bal- neario Cointzio	10	10	2nd		20	
23	Villa Madero	3	3	2nd		6	
24	Coeneo, Quiroga	4	4	2nd		8	
25	Lagunillas, Huiramba, Patzcuaro, Tingambato, Uruapan, Los Reyes	2	2	2nd		4	
	Zacapu	2	2	2nd		4	
	Patzcuaro, Apatzingan, Coalcoman, Tepalcatepec	1	1	2nd		2	

Term. No.	Bus Routes	Buses		Class of Service	Entry Point Utilized		
	Places of Origin or Destination and Inter- mediate Stops	Arr.	Dep.		E.	W.	N.
	Playa Azul, Melchor Ocampo	1	1	2nd		2	
26	Atapaneo	3	3	2nd	6		
27	Francisco I. Madero	2	2	2nd	4		
28	Charo	3	3	2nd	6		
29	San Lucas	3	3	2nd	6		
30	Charo	2	2	2nd	4		
Totals		212	212		84	134	206

^aSources: Interviews with bus drivers and bus-line officials, and the Junta de Planeacion y Urbanizacion del Estado de Michoacan.

^bActual cities could not be obtained.

^cEstimated by the writer.

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