Literatur (Auswahl)

AUER, CH.: Untersuchungen über die natürliche Verjüngung der Lärche im Arven-Lärchenwald des Oberengadins. Mitt. Schweiz. Anst. forstl. Versuchswesen, Zürich 1947.

AULITZKY, H.: Über die lokalen Windverhältnisse einer zentralalpinen Hochgebirgsstation. Mitt. Arch. Met. Geophys. Biokl. Serie B 6, 1955.

–: Über die Windverhältnisse einer zentralalpinen Hangstation in der subalpinen Stufe. Mitt. forstl. Bundesversuchsanst. Mariabrunn, H. 59, 1961.

BISAZ, O. und W. TREPP: Der Stazer Wald. Bündner Wald, Beih. 5, 1953.

BRAUN-BLANQUET, J.: Pflanzensoziologie, Grundzüge der Vegetationskunde. Wien, New York 1964.

BRAUN-BLANQUET, J. H. PALLMANN und R. BACH: Pflanzensoziologische und bodenkundliche Untersuchungen im Schweizerischen Nationalpark und seinen Nachbargebieten. Ergebnisse der wiss. Untersuchungen des Schweizerischen Nationalparks, 1954.

BROCKMANN-JEROSCH, H.: Baumgrenze und Klimacharakter. Ber. Schweiz. Bot. Ges. H. 26, 1919.

CAMPELL, E.: Der Tannen- oder Nußhäher und die Arvenverbreitung. Bündner Wald 4, 1950.

–: Der Wald des Oberengadins im Wandel der Zeiten. Festschr. 124. Jahresversammlung Schweiz. Naturf. Ges. St. Moritz, Chur 1944.

DÄNIKER, A. U.: Die Rundhöckerlandschaft von Maloja und ihre Pflanzenwelt. Chur 1952.

ENDERLIN, F.: Über die Verbreitung der Lärche in Graubünden. Schweiz. Ztschr. f. Forstw. 1929.

FURRER, E.: Probleme um den Rückgang der Arve in den Schweizer Alpen. Mitt. Schweiz. Anst. forstl. Versuchswesen, Zürich 1955.

–: Das Schweizer Arvenareal in pflanzengeographischer und forstgeschichtlicher Sicht. Ber. Geobot. Forschungsinst. Rübel, Zürich 1957.

GEIGER, E.: Das Bergell. Forstbotanische Monographie. Jahresvers. Naturf. Ges. Graubündens, Bd. 45. Chur 1901.

GROSSMANN, H.: Die Waldweide in der Schweiz. Diss., Zürich 1957.

GUBLER-GROSS, R.: Moderne Transhumanz in der Schweiz. Diss., Zürich 1962.

HOLTMEIER, F. K.: Die Waldgrenze im Oberengadin in ihrer physiognomischen und ökologischen Differenzierung. Diss., Bonn 1965.

–: Die „Malojaschlange" und die Verbreitung der Fichte. Beobachtungen zur Klimaökologie des Oberengadins. Wetter und Leben, H. 4, 1966 a.

–: Die ökologische Funktion des Tannenhähers im Zirben-Lärchenwald und an der Waldgrenze des Oberengadins. Journ. f. Ornithologie, H. 3/4, 1966 b.

–: Das Symposium „Ökologie der alpinen Waldgrenze" in Innsbruck. Erdk. Bd. XX, Lfg. 4, 1966 c.

–: Zur natürlichen Wiederbewaldung aufgelassener Alpen im Oberengadin. Wetter und Leben, H. 9/10, 1967.

KOSSINNA, E.: Die Dauer der Schneedecke in den österreichischen Alpen. Jb. DÖAV 1931.

MOSER, L.: Verbreitung und Bedeutung der Zirbe im italienischen Alpengebiet. Jb. Ver. z. Schutze der Alpenpflanzen und -tiere, 1960.

RIKLI, M.: Die Arve in der Schweiz. Neue Denkschr. Schweiz. Naturf. Ges., Bd. 44, 1909.

RÜBEL, E.: Pflanzengeographische Monographie des Berninagebietes, Bot. Jb. Bd. 47, 1912.

SCHLATTER, A. J.: Die Aufforstungen und Verbauungen des Oberengadins in den Jahren 1875 bis 1934. Schweiz. Ztschr. f. Forstwesen 1935.

SCHMID, H.: Die Oberengadiner Land- und Alpwirtschaft. Diss., Zürich 1955.

SCHREIBER, M.: Beiträge zur Biologie und zum Waldbau der Lärche. Centralbl. f. d. ges. Forstwesen, 1921 und 1923.

EUROPEAN SETTLEMENT VENTURES IN THE TROPICAL LOWLANDS OF MEXICO *

With 3 figures and 1 table

RAYFRED L. STEVENS

Zusammenfassung: Das Schicksal der Europäer-Siedlungen im tropischen Tiefland von Mexiko

Während des 19. Jahrhunderts haben sich verschiedene Gruppen nichtspanischer Europäer in der Tierra caliente Mexikos niedergelassen. Von den sechs lebensfähigen Siedlungen bestehen heute noch drei, alle im Staate Veracruz. Den größten Erfolg hatte die französische Siedlung (gegründet 1833) am unteren Rio Nautla. Die italienische Kolonie (1857) am nahe gelegenen Rio Tecolutla löste sich in den letzten Dekaden zum Teil auf. Als lebensfähiger erwies sich eine Ansiedlung italienischer Kaffee- und Zuckerrohrpflanzer (1833) bei Huatusco, wo eine hohe Geburtenrate die Wanderungsverluste mehr als ausgleicht. Die italienischen Siedler von Lombardia und Nueva Italia im Balsas-Tecalcatepec-Becken zerstreuten sich nach der Enteignung der Latifundien, auf denen sie gearbeitet hatten. Außerdem waren 13 weitere Siedlungen gegründet worden, die sich jedoch als nicht lebensfähig erwiesen.

In den sechs lebensfähigen Kolonien ist die Gewöhnung an die tropische Umwelt gelungen, wenn auch mit unterschiedlicher Schwierigkeit. Die Auflösung der Siedlungen und die Einschmelzung in die mexikanische Bevölkerung gehen auf nichtphysische Faktoren zurück: 1) politische, während der unsicheren Jahre der Revolution von 1910 bis 1921 und der folgenden Agrarreform; 2) wirtschaftliche,

* The author takes pleasure in acknowledging the generous financial support of the Alexander von Humboldt Stiftung toward the preparation of the final version of this paper. Special thanks are likewise extended to Don Arturo Meunier, of San Rafael, Veracruz, for information, orientation and repeated hospitality during several field trips.

und zwar a) die Konkurrenz einwandernder Indios und Mestizen, die billiger arbeiteten, und b) die Suche nach anderen wirtschaftlichen Vorteilen in Mexiko. Die gleichen Kräfte zerstörten auch andere landwirtschaftliche Gemeinden von Europäern im außertropischen Mexiko, wo allerdings einige religiöse Gruppen noch überleben, da sie sich mit ihrer besonderen Lebensweise von der übrigen Bevölkerung absonderten. Die französischen und italienischen Siedler im tropischen Mexiko richteten keine konfessionellen Schranken auf, und die Sprachschwierigkeiten wurden schnell überwunden. Diese Umstände wie auch ihre geringe Zahl lassen ihr Fortbestehen als besondere Gruppen auf die Dauer unwahrscheinlich erscheinen.

Die heute noch bestehenden europäischen Siedlungen im tropischen Tiefland Mexikos zeigen, daß dort Europäer fähig waren, die Schwierigkeiten der tropischen Umwelt zu überwinden. Dies gelang ihnen vor allem durch die Übernahme der Technologie, die sie vorfanden und die sie mit wenigen eigenen Änderungen anwandten. Im Gegensatz zu deterministischen Anschauungen und im Unterschied zu anderen, fehlgeschlagenen Kolonisationsversuchen läßt sich der bemerkenswerte Erfolg dieser Siedler nur dadurch erklären, daß sie sich mit Ehrgeiz, Anpassungsfähigkeit und Geschick in der tropischen Umwelt zu behaupten wußten.

Introduction

Attempts by Europeans to settle as working peoples in the tropical lowlands have met with repeated failure. Sinister effects of the tropical climate and its mysterious diseases were long taken for granted as causes. The oft-cited contrast, that settlers from Europe and their descendants have become the majority of the population in the temperate zones of three other continents, North America, South America, and Australia, was supposed to be a response to favorable climates similar to those of Europe. Such deterministic interpretations often ignored very real differences between the climates of the old and the new settlement areas. Later scholars, tired of ascribing patterns of human events to physical determinants, sought explanations in cultural forces, particularly technological and economic factors. Possibilistic interpretations turned attention away from the purely physio-psychological effects of climate and insisted that "Europe-across-the-seas" flourished in areas where soil and climate permitted productive agriculture based on the technology brought from the homelands. Further possibilities of adopting other crops and technology in the new lands – whether temperate or tropical – may have been overlooked by scholars seeking profound theories more easily than by settlers longing for a full stomach and quick profits. However well theorists may explain the general failure of European settlement in the tropics, there still remains the problem of accounting for some sporadic successes, like those here reviewed.

Of twenty European settlement ventures in the tropical lowlands of Mexico, three still survive, all in the State of Veracruz: French have been established along the Nautla River since 1833; Italians along the Tecolutla River since 1856 and on the lower, cloud-forested slopes of Orizaba since 1881 (see Fig. 1). For several generations these groups have withstood the ravages of tropical diseases and performed hard manual labor despite the supposedly enervating effects of the climate. They have achieved a noteworthy prosperity based largely on crops and technology which the immigrants had never known in Europe.

Previously, in Spanish colonial times, European migration to Mexico (then New Spain) had involved mostly individuals and families dispersed among other elements of the population, which to a great extent they exploited and by which they were partly absorbed. Generally this pattern continued after Independence was secured: immigrants were attracted more to commercial and mining activities, as entrepreneurs and supervisory personnel, than to agricultural pursuits. Not until the founding of the French colony near the mouth of the Nautla River was there a successful community of Europeans doing their own hard work in the tropical lowlands of Mexico. Somewhat belatedly, the government began to actively encourage such ventures in the hope of finding ways and means of incorporating the empty lands of the country into the commonwealth. This was a task requiring far greater numbers than these latter-day immigrations involved, albeit the achievements of the settlers are commendable when considered proportionately.

Already in 1821, before independence had been firmly secured, another group of European settlers of North American nationality started moving into the extra-tropical lowlands of the northeast of the country. By 1836 they had become so successful, doing not only their own work but also their own fighting, that they were able to proclaim the province of Texas as an independent republic. The ensuing chain of events cost Mexico still further territorial losses and dampened enthusiasm for promoting colonization along its frontiers and coasts, where most of the empty lands were situated.

Nevertheless, permits for colonization continued to be issued. Most of the promoters had the good sense to desist from their impractical schemes and many never inconvenienced the prospective colonits by actually bringing them to dismal area. In fact, many promoters left the country and never returned, having found elsewhere more personally profitable uses for the money advanced by the government for their "services".

During the early decades of independence, as *centralistas* and *federalistas* vied for control, colonization was generally left to the individual provinces or states. The first concerted attempt directed by the national government was carried out in the administration of President Ignacio Comonfort (1855–58), of which the Italian colony of Gutierrez Zamora on the Tecolutla River was a result. The Wars of the Reforma (1857–61) and of the French Intervention (1862–67) and other disorders obstructed further undertakings. Finally in the last quarter of the

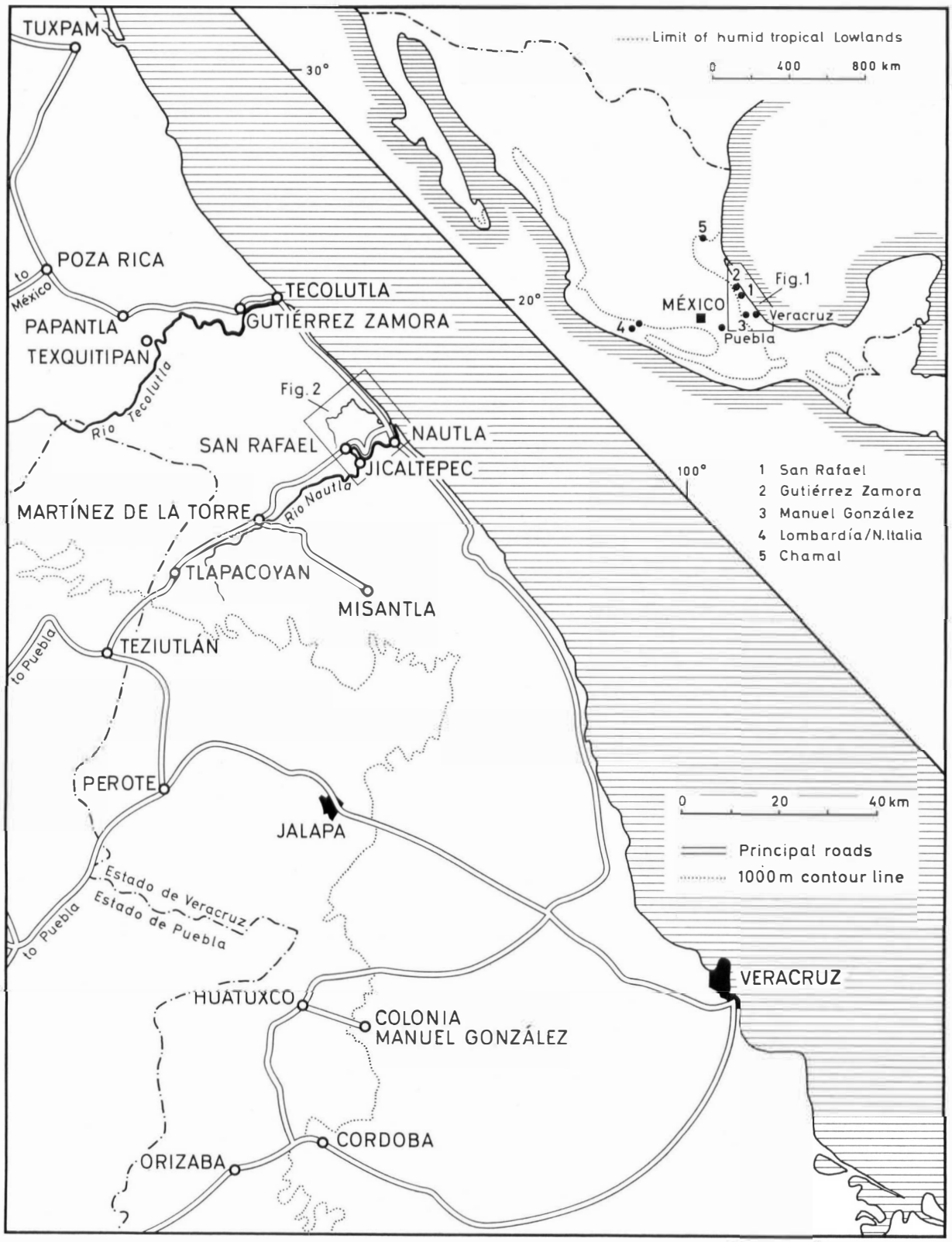

Fig. 1: General location of viable European settlements in the tropical lowlands of Mexico (inset) and the transportation network serving the surviving settlements in Veracruz State (main map).

19th century, under the rule of General Porfírio Díaz, the Government, having established internal order and a modus vivendi with foreign interests, fostered a number of official and private colonization ventures. Of the Government projects actually implemented in tropical lowland areas, only one survived: that of the Italians near Huatusco.

The State of Investigations

These experiments in tropical living have been little known outside Mexico and even there erroneous reports are still circulated about them. Perforce the investigator must rely heavily on interviews and field observation. Of the early history of the settlements, that of the French colony is the most obscure. The first published references are the brief notes of the Mexican geographer Don ANTONIO GARCIA CUBAS (1880), followed by some journalistic accounts at the close of the century. Excerpts from some of these and further comments were offered by AUGUSTE GÉNIN (1931). Much material for a history of the colony was destroyed when the French consulate at San Rafael was burned during the Mexican Revolution. It is remotely possible that some official documents on the establishment of the colony may yet be discovered in some archive at Mexico, Veracruz, Jalapa, Jalacingo or Misantla; or in France, at Dijon or Paris.

MOISÉS T. DE LA PEÑA, in his survey 'Veracruz Económico' (1946), discusses briefly the history and agricultural economy of the three colonies. In a later study, DE LA PEÑA (1950) includes a far more detailed account, based on field observations, interviews with elder colonists and some documents which he does not fully identify but which apparently included some official reports on the two Italian colonies. Unfortunately the shortage of precise references makes it difficult to evaluate DE LA PEÑA's work or to take up where he left off. Numerous contradictions and obvious typographical errors oblige one to use his writings with some reservation but, in view of the paucity of written sources in general, they can hardly be ignored.

A thorough account of colonization during the Díaz regime is presented by MOISES GONZÁLEZ NAVARRO (1960) in a short book based on official records and journalistic reports. The latter sound biased either for or against anything the government undertook. One finds in GONZÁLEZ NAVARRO's work ample documentary references, so lacking in that of DE LA PEÑA, and one misses what the latter did include: reporting and interpretation based on field observation.

An earlier report on the "European Colonies in the Tropical Lowlands of Mexico" was presented at the XVIII International Geographical Congress at Rio de Janeiro (STEVENS, 1956), based largely on personal interviews and field observations conducted in 1952 and 1956. An article by FRANÇOIS CHEVALIER (1947) and the second study by DE LA PEÑA (1950) were not known to me at that time. The present extended report is further based on two additional field trips, in February 1964 and August 1966, to gather up-to-date informations on the settlers and their changing land use practices. Professor ALBERTO MORI of the University of Pisa, Italy, accompanied me on the last trip and is preparing a study on these and other Italian settlement ventures in Mexico.

French Settlers Along the Nautla River

Environment

On the western shores of the Gulf of Mexico is a section of coastal plain strewn with alluvium, of limestone and volcanic origin, transported by the Nautla River system from the foothills and upper slopes of the Sierra Madre Oriental. Here at 20°14' North Latitude the climate of this coast is appropriately tropical-humid, with a relatively dry season (spring) and heavy monsoonal rains (late summer and autum), intermediate between the Am and Aw categories of KÖPPEN, or between V1 and V2a of the TROLL-PAFFEN classification. During the winter months stray polar winds and extra tropical cyclones bring overcast skies and low temperatures. Frost is scarcely known but occasionally near-freezing temperatures are critical, reducing the yields of some tropical fruits. Normally climate offers a year-round growing season for most crops and the faintly laterized and alluvial soils are generally adequate for sustained production.

Abandoned mounds attest thriving settlement along the lower Nautla before the coming of the Spaniards. Throughout colonial times the area remained very sparsely populated, returned to tropical forest and therefore ill adapted for cattle raising, the one enterprise for which the large landowners bothered to use these lands. Thus was the picture of the entire coastal area as described by ALEXANDER VON HUMBOLDT 1811, I 273): "... two ore three cattle stations, around which roam some half wild bovines, occupy spaces of many square leagues. A small number of powerful families, who live in the Central Plateau, own the larger part of the coast of the Intendencias of Veracruz and San Luis Potosi. There is no agrarian law which obliges these rich proprietors to sell their *mayorazgos*, although they persist in not wanting to turn to the plow themselves the immense lands they control; they treat their sharecroppers badly and kick them out of their haciendas at the slightest whim!" (translated).

Such was but part of the challenge awaiting the early French settlers.

Early History

In 1831 Stephan Guenôt, an ex-paymaster of the French Army, naturalized as a Mexican citizen,

purchased twelve square leagues of land around Jicaltepec, on the right bank of the navigable Nautla River. Returning to France, Guenôt organized a colonizing company at Dijon and recruited the first group of settlers 80 persons of all ages and sexes (some say 60, others 100). Nothing, not even housing, had been prepared for their arrival at the settlement site in 1833, in September, normally the rainiest month of the year.

Some credit Guenôt with trying to found an agricultural community along Utopian socialistic lines (*El Progresso de México*, 1898; GÉNIN, 1931). The venture, however, is described as purely capitalistic by DE LA PEÑA, (1946, 1950). The colonists were to work for the company under Guenôt's direction and later to have the opportunity to acquire land of their own. The plan was soon modified to a sharecropper basis, one-third for the company. In 1835 the second contingent of 124 colonists (some say 114) arrived from the Franche Comté. By 1836 dissatisfaction was so great that Guenôt was obliged to flee through the forest (*El Progreso de México*, 1898). DE LA PEÑA infers that he not only escaped with his life but also with his pockets well lined with somebody else's money.

However melodramatic it may have occured, Guenôt succeeded in bringing about two hundred of his countrymen to a desolate – soon to be histile – land where he left them in the lurch. During the Pastry War, 1838, refusal to fight against their homeland led to confiscation of the arms of the colonists. They appealed to the President, Antonio López de Santa Ana, who, impressed by their sense of loyalty, ordered the arms to be returned (*El Progreso de Mexico*, 1898).

A reorganized company dispatched a third group of colonists who arrived in 1840. Land title disputes and other difficulties continued and the company was soon dissolved. The settlers were now left entirely on their own meager resources which did not even include title to the lands they tilled. Some colonists were obliged to purchase the same plots two or three times from different parties claiming to be the legitimate owners. Others preferred to rent, for land could be rented cheaply from the *latifundistas* if it could be rented at all.

The colony was isolated from the population centers of the highlands. To the nearest inland trading centers (Misantla, Tlapacoyan, Teziutlán and Papantla) there were no roads, only trails and paths, quickly obliterated by the rank forest growth. Communication with the Port of Veracruz was much easier, some 150 kilometers along the beach or by small goletas which could cross the bar of the Nautla at high tide and navigate the fourteen kilometers upstream to the Jicaltepec settlement. Local transportation was facilitated by small boats plying the lower river course and its associated bayous.

Under these circumstances, subsistence had to be procured close at hand. The settlers, some of whom had been artisans in France, soon learned to cultivate the indigenous food crops: corn (maize), beans, squash, and chili peppers. To this diet they added items of their own tradition through fishing and livestock raising. At least one report indicates that they grew wheat in the 19 th century (GONZÁLEZ NAVARRO, 1960, p. 74).

Cash crops for the colony had to have a high value per unit of weight. Tobacco, vanilla, and cacao were valuable and light enough. To the Veracruz market the harvests were taken by pack train along the beach or by goletas, five of which were serving the colony in the 1850's. The settlers began to prosper and from time to time others of their countrymen were encouraged to join them.

Demographic Growth

The newly arriving settlers were haunted by yellow fever as they travelled from the Port of Veracruz in small vessels or walked along the beach to the densely forrested promised lands. Many died along the way and whole families were wiped out by tropical diseases during the early years. A flood in 1861 was followed by an epidemic (some say of cholera, others say yellow fever) which took a tremendous toll reported variously betweem 117 and 300 victims. Soon these losses in numbers were partly offset by another influx of French immigrants, this time from Louisiana, refugees from the War Between the States (1861–65). Sporadic immigration continued from various parts of France, Belgium and from the Italian colony on the nearby Tecolutla River. There has been very little new immigration in the twentieth century. A review of family names shows that, altogether, most of the settlers came from Departements in and around the Alps (MEUNIER, 1964).

The population of the colony was estimated at about 300 by GARCÍA CUBAS at the time of his visit in 1865 (cited by DE LA PEÑA, 1950, p. 202). This figure is consistant with reports of arrivals, the usually high birth and death rates and the recent epidemic. Estimates of the population at about 500 at the close of the century and "somewhat more than 500" a generation later are reported by GÉNIN (1931). A list of 77 different French family names published by DE LA PEÑA (1950, pp. 215–216) coincides closely with a list of 76 such names compiled for this study by Don ARTURO MEUNIER in 1964. Allowing that some families are quite numerous and that several families bear the same name, MEUNIER then estimated there were more than 1000 persons of French descent.

In recent decades there has been a great influx of other population elements, predominantly *mestizos*, a few as owner-operators of farms or business, the

majority, however, to work for the French, who now form less than half, possibly as little as a fourth, of the total population.

Land Tenure and Settlement Patterns

By the 1870's the land available for purchase or to rent around Jicaltepec on either side of the river had been occupied and the prosperity of the colony was beginning to stifle. The situation was remedied by a Mexican lawyer, Rafael Martínez de la Torre, who acquired a large tract of land on the left bank of the Nautla and subdivided much of it for sale at reasonable prices to the colonists. In appreciation of their benefactor the name of the chief community center on the left bank was changed to San Rafael (previously it had carried the somewhat gruesome name of "Zopilote", which is Spanish for "buzzard"). Soon San Rafael began to eclipse Jicaltepec, hemmed as was the expansion of the latter by *latifundios*. Another factor in this shift was the somewhat better quality of the left bank lands for the cultivation of vanilla, then the leading money crop of the colony.

The pattern of land tenure that soon developed is typical of riparian settlements dependent on water transportation: With water frontage at a premium, landholdings take the shape of long strips touching the river or a bayou (see Fig. 2). The imprint remains on the landscape today although water transportation is of little significance.

The area of concentrated French settlement lies between the Nautla downstream from Paso de Telaya, and the tributary bayous *(esteros)* Dulce, Tres Encinos and de la Puntilla. Here about 90% of the land is under French ownership and about 75% of the land owners, living in dwellings on their lands, are French (MEUNIER, 1964). A considerable number of farm owner-operators, however, live in San Rafael and commute to their holdings.

The construction of paved highways serving the left bank of the lower Nautla in the 1940's, without immediate prospects of such amenities for the right bank dwellers, led to still further shifting of the French settlers to the left bank area. In 1964, although more than five thousand hectares of right bank lands were still under French ownership, I was informed that only four French families had homes in that area. Already by the mid-1950's Jicaltepec had become a virtual ghost town, its few mestizo families occupying only a fraction of the sturdily built, but long since dilapidated, houses.

The Mexican Government policy of expropriating large landholdings (*latifundios*) and establishing communal holdings (*ejidos*), which was accelerated in 1938, has not affected the colonists directly, since most of their farms are small enough to be exempt. Besides, there were no indigenous or mestizo communities that could claim to have been dispossessed by the French settlers. Thus the two primary legal bases for expropriation have been lacking. However, the expropriation of nearby *latifundios* and their absorption into the *ejido* system has greatly reduced the amount of land subject to private ownership onto which the colonists might otherwise have expanded.

The following statistical table summarizes the ownership of land by the European settlers along the lower Nautla River in the 1940's, at the close of the period of isolation:

	Left Bank	Right Bank	Total	Less Latifundios and Minifundios
Area	13,010	6,988	19,998	13,384
owners	206	75	281	265
average	63	93	71	58
upper 10 %	72	300	125	120
upper quartile	36	112	71	50
median	15	45	17	17
lower quartile	7	10	7	8
lower 10 %	3	5	4	5

The larger size of holdings on the right bank is even more striking when we consider that more than one-third of the left bank lands were held by one partnership. The overall average of 71 hectares drops to 58 and the upper quartile from 71 to 50 when we disregard the *latifundios* (three holdings of more than 500 hectares) and the *minifundios* (13 holdings of two hectares or less), but other statistical highlights are not greatly affected. Recent trends involve both continual subdivision and consolidation of holdings, processes which in part are compensating one another so that the situation of the middle quartiles has probably changed little in the last twenty years.

This summary was prepared by the author from lists of landowners published, with little attempt at evaluation, by DE LA PEÑA (1950, pp. 215–16, 223). Since the municipio of Jicaltepec has been absorbed into the municipio of Nautla and San Rafael into that of Martinez de la Torre, an up-to-date statistical treatment of land tenure, or any other aspect of the colony, could be done only by the most detailed field work.

With increasing population succeeding generations have divided and redivided the plots. In search for purchasable farm land, many families have turned away from the settlement nucleus: some to the sugar cane area centering around the municipal seat of Martinez de la Torre; others to the nearby *municipios* of Misantla and Tecolutla; still others as far as Tuxpan, Veracruz; Loma Bonita, Oaxaca; and Tabasco. In these movements, preference for tropical humid lands is strong. Migration to the highlands mostly involves persons tempted or forced to give up farming altogether. In any case, those who migrate more than 100 kilometers tend to lose ties with the community. Thus land shortage is once again threatening the continued prosperity and cohesiveness of the colony.

Fig. 2: Land ownership in the lower Nautla River area. The situation here shown is that prevailing toward the close of the period of isolation of the French colony. Although there has been some infiltration of Mexican landholders since 1940, the area that had been exclusively French continues to be overwhelmingly so.
(Sources: From a landownership map of uncertain date by PIERRE PAYEN, probably based on maps of the Comision Geografica Exploradora (1902–1903); details were adjusted according to data obtained from aerial photographs, interviews and direct observation by the author.)

Changing Land Use Practices

Striking changes in land use in the French colony began in the 1940's with the opening of paved highways, one via Pachuca and Tecolutla, the other via Teziutlan, linking this coastal area with the highlands. The former mainstays of the local economy, cacao, vanilla, and tobacco, were gradually abandoned in order to devote the land and time to bulkier but more remunerative crops: bananas, maize, chili peppers, beans, and more recently, citrus fruits.

Vanilla (*Vanilla planifola*), indigenous to this area, had been gathered wild in pre-Columbian times to prepare a flavoring for cacao. The forests of Quilate, adjoining the French settlement area and extending toward Misantla, led in production in the early nineteenth century (HUMBOLDT, 1811, II). Some plants were taken to Europe, and at the botanical gardens at Liège in 1836 a technique of artifical pollination was developed by Charles Morren (1838, 1839). Since the plant pollinates with difficulty under natural conditions, this technique, brought to the colony around 1850, permitted enormous increases, up to five fold, in vanilla yields and made its cultivation immensely profitable (BRUMAN, 1948). The French colony led in the industry until at the and of the nineteenth century, that distinction migrated to Gutiérrez Zamora and Papantla. In the mid-twentieth century BRUMAN (1948) had concluded that the economic position of the Mexican vanilla industry was "basically sound". The high quality of its product commanded premium prices on the world market, despite increasing competition from the lower quality, cheap-labor producers of Madagascar and other French colonial areas. Gradually the neglected plantations of the latter returned to full production after the close of World War II. In the meantime, improved transportation had made the French settlers no longer dependent on light-weight cash crops. Resuming these developments, MEUNIER (1952) concluded: "To reëstablish vanilla culture in the colony, the price of vanilla has to go up or the price of bananas has to come down" (translated).

Cacao found along the Nautla its northernmost ecological margin. Cooler winters often caused the crop to fail completely. Fortunately such winters favored vanilla; conversely when in warmer years earnings from vanilla were slack, a better yield of cacao helped to balance the farmer's budget. Improved transportation enabled him to achieve a balance with other crops promising more reliable yields.

Tobacco was still planted as a catch crop in the early 1950's. Maturing under the overcast skies of autumn and early winter, the product was of good marketable quality and yields were reliable. However, with increasing costs of hand labor, for which its requirements are considerable, by 1964 tobacco had been almost entirely displaced by other crops more susceptible to mechanization.

Bananas find along the Nautla and Tecolutla rivers the region nearest to the capital of Mexico that has the proper combination of soil and climate for their production on a large commercial scale. When paved highways enabled the French farmers to utilize this geographic advantage, banana prosperity led some to experiment with monoculture. However, a few bad years, with low yields caused by exceptionally cool or dry weather, coupled with low prices, taught many of them a lesson. By 1952 they had returned to the habits of diversified farming that their forefathers brought over from the Old World, while planting crops mostly of New World origin.

Maize may be harvested twice a year from the same land but rotation with one or two other annual crops is usually preferred. It is a common catch crop between rows of young bananas or citrus plantations.

Difficulties of storing the grain under the high temperatures and humidity of summer are now overcome in two ways: 1) a dehydrating plant whereby the grain can be made less perishable; and 2) by trucking the harvest to cooler, drier warehouses at Perote and other places in the highlands.

The *temporal* maize crop is planted in June or July to take advantage of the generally more reliable (though often excessive) rains of summer and autumn. While the crop is maturing the days are getting shorter, skies are frequently overcast and temperatures are lower. Maturation is slow and the harvest may be delayed until December. Optimal meteorological conditions normally attend the *tonalmil* corn crop, planted from late January to early March. Plant growth is rapid as the days are getting longer and the skies are generally clear in the spring months. Although this is the driest season, soil moisture is usually adequate for the young corn and at the same time weeds and grasses are easy to control. By the time the more copious, *temporal* rains begin, in late April or May, the corn is large enough to fend for itself and to utilize the extra moisture as the ears form and mature. Ready for harvest in one-fourth less time than the *temporal* crop, yields of *tonalmil* maize are fifty to one hundred per cent greater; harvests of two tons per hectare without fertilizer are common.

Citrus presents perhaps the most striking change on the agricultural landscape from the mid 1950's to the mid 1960's. Oranges, grapefruit, and limes together ranked next to bananas in the acreage seen in my sample survey along the motorable roads in 1964. In 1966 further gains of citrus were noted. Banana plantation have been retired, partly because of Panama disease and *chamusco* infestations. Further, the chief competing areas are well to the south and more removed from cold-wave damage. Slightly more resistant to cold than bananas, citrus yields are not seriously affected by the winter temperatures of the San Rafael area, which thereby enjoys a decisive advantage over its main competitors, the frequently frostbitten orchards of northeast Mexico.

Other crops grown from time to time for cash or home use include various tropical fruits, beans and chili peppers. Papaya does better in dry years and provides a convenient balance when other harvests are short because of drought. Pineapple produces well but with its biennial vegetative cycle it is difficult to get the fruit to ripen in this area at any time but mid-summer when prices are low. Beans are planted as catch crops, often intercalated with other plants, not only for the value of the harvest but also as a soil improver. Sugar cane has been abandoned because of the low sugar content of the oversized stalks produced on these humid soils.

Forest acreage has been greatly reduced as more and more land was required for crops and pastures. Chicle and rubber *(Castilloa elastica)* were formerly tapped. These, along with trees producing wild fruits (mamey, mango, tamarind) and precious woods (mahagony, cedar, rosewood), are left standing when land is cleared for whatever purpose. They provide, together with the remaining forest areas, incidental income and a sort of capital reserve.

Beef cattle raising is a principal occupation for many of the larger landholders. This activity is not so conspicuous along the highway and navigable waters but it is the chief means of utilizing inaccessible areas and the frequently inundated or otherwise less arable lands. Pastures have been improved, with Para and Guinea as well as native grasses. Methods are efficient, the cattle of good marketable quality, and the breeding stock – Cebú (Brahma), Santa Gertrudis, and Charolais – from ranches of the French settlers are widely known.

Outbreaks of *aftosa* (foot-and-mouth disease) from 1947 to 1953 seriously handicapped the livestock industry of Mexico, particularly in this area. After an extensive campaign involving slaughter of afflicted animals, quarantine and vaccination, the disease has been controlled if not completely eradicated. From records provided in 1952 by inspectors of the *Comisión Mexico-Americana para la Eradicación de la Fiebre Aftosa*, I estimated the livestock population under French ownership at more than 6000 bovines and some 500 pigs. With the continued advancement in this activity it is probable that in the following fifteen years these numbers may have increased up to fifty per cent.

Labor Force and Its Deployment

The year-round growing season, permitting from two to four harvests per year, the development of tree crops and cattle raising, enable the French farmers to operate without greatly contrasting slack and peak-season demands for labor (see diagram, Fig. 3). Problems attendant with large numbers of migrant laborers and seasonal underemployment are thus reducible to a minimum, or can even be eliminated entirely. In actual practice, however, the seasonal underemployment of other regions of Mexico, where the growing season is limited by cold or drought, makes a migrant labor pool so easily available that the farmer has not so much incentive to adjust his operations to employ an entirely resident labor force.

During the early decades the French women often worked with their men in the fields, much to the horror of the local mestizo population who regarded the practice as an unchivalrous infringement on woman's rights. Artificial pollination of vanilla was regarded as respectable woman's work, at least for indigenous women. With increasing prosperity the French women accepted the customs of the country and ceased to work in the fields.

Most of the French farmers continue to do much of the hard manual labor on their holdings. Many have expanded operations so that their time is largely occupied with overseeing hired laborers. Altogether the French hardly make up more than a fourth of the labor force on the lands they own.

The accompanying diagram demonstrates the possibilities of seasonal deployment of as permanent labor force according to the land use practices at the close of the period of isolation in comparison with those of the mid 1960's.

Living Conditions

For a number of years the newly arrived settlers had to content themselves with makeshift housing, probably not too different from the *jacales* (shacks) occupied by the poorer mestizo families of nearby communities today. As soon as the struggle for existence would let them, they began to make brick and tile from the sandy clays in the area, excellent for these purposes and to construct spacious houses of the type that they had known in the old country. These are characterized by spacious verandas and bungalow roofs with Marseille-type of flat tile shingle. Many such houses are well preserved and still occupied in the colony today. More recent construction features flat roofs but the preference for verandas is firmly established.

Shallow wells adjacent to the house, or sometimes beneath the roof itself, supply water for domestic purposes. Windlasses are often replaced by pumping systems and plumbing has been installed in many houses. Drinking water is usually boiled or purchased in five-gallon jugs from an electro-purifying plant.

For three generations the colonists held tenaciously to the French language and customs. Intermarriage before the Mexican Revolution was seldom, partly because contacts with Mexicans were limited mostly to uneducated peons and house servants. From the latter, the French children learned Spanish early. As pride to the *jarocho* (Veracruz native) worker is no less important than salary, the servants objected hearing French on suspicion that something bad was being said about them. In order to retain their personnel,

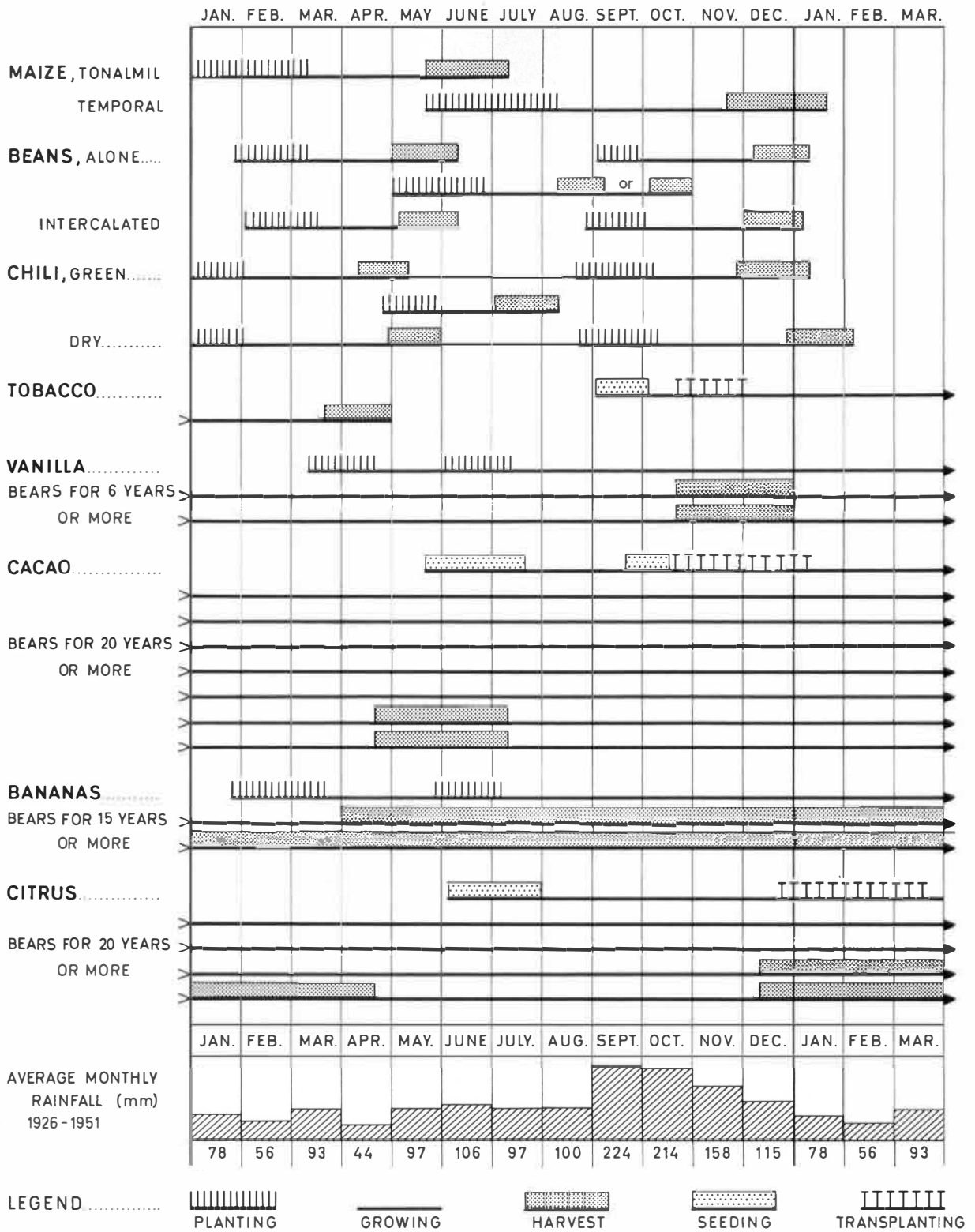

Fig. 3: The agricultural year at San Rafael, Veracruz. Common planting and harvest times and length of growing season for the principal crops

many families came to use Spanish more and more in the home. Some French words and accents are heard in the local use of Spanish. Years after the closing of the consulate a language teacher was maintained by the government of France but that practice has been discontinued. Very few of the younger generation today can sustain a conversation in French.

Well-to-do settlers have at times maintained their families in separate establishments in the highlands, at Teziutlán, at Puebla, or even at Mexico City. Usually the most compelling reasons for making such a move were the attractions of cultural amenities – schools, hospitals, social life, and prestige – and not simply to escape the tropical climate. Some of these incentives are less critical now. At the municipal seat of Martínez de la Torre, only 30 kilometers from San Rafael and regarded as within commuting distance, there is a hospital, a secondary school, and a preparatory school is being established.

While health and educational facilities have kept pace with rapid economic development during the last three decades, another important cultural amenity, social life, may have deteriorated. The transportation revolution and the pursuit of material wealth has reduced the colonists' mutual dependence and distracted them from the appreciation of one another. Such was the opinion expressed during the *carnaval* season of 1964 by some informants as they recalled nostalgically the close family ties and cordial sociability they had enjoyed during the isolation of bygone years.

Italian Settlers Along the Tecolutla River

Environment and Early History

The environmental conditions along the lower Tecolutla River resemble closely those described above for the lower Nautla area. Entering the Gulf of Mexico some 30 miles northwest of the Nautla, the Tecolutla flows through an area that in the nineteenth century was not nearly so empty as that which awaited the early French settlers. And yet a site far more isolated was first offered to the Italians who came in 1856 to establish the government-sponsored "Colonia Modelo" at Texquitipan, near Agua Dulce, 16 kilometers upstream from the head of navigation and about 10 kilometers southeast from Papantla, a predominantly mestizo community and trading center for the Totonac Indians.

> "At the outset, the Government was deceived ... in chosing the site of the colony, in the most infernal place known along the river Tecolutla, Espinal or Necaxa, for its climate, its inacessibility and unhealthiness ... regarded as ... the least habitable place for the natives themselves" (DE LA PEÑA, 1950, p. 217, translated).

There were 60 families, mostly from the Piamonte and other parts of northwest Italy, recruited through the consular offices of Mexico and the Republic of Genoa, by contract with Luis Masi. Transportation was provided and each colonist was promised 25 acres (10 hectares) or more according to the size of his family. As director of the project, Masi was to receive title to one-third as much land as was allotted to the settlers, in return for his services in "managing" the project. Each family was to receive a cow, work animals, tools, and a daily subsistence allowance of two *reales* (25 *centavos)* per person over 12 years old and one *real* for each younger member during the first year.

How much of this aid, beyond transportation, the colonists actually received, I have not been able to confirm. Two hundred lots had been allocated but not even temporary shelters had been constructed for them at Texquitipan. The time of arrival was the worst choice possible, September, the one month when both storms and yellow fever were in season. Local legend holds that a number of immigrants were drowned when the lifeboats capsized in which they were disembarking.

Unfortunately the selection included a number of city dwellers with a variety of occupations, as well as "vagabonds and several unemployed artists, who like the others saw in the deal a chance to take a paid vacation, see the world and seek a fortune, in anything but agriculture." (DE LA PEÑA, 1950, p. 217). Considered as naturalized Mexicans upon arrival, some of the motley group bolted immediately; others succumbed to diseases and the rest got away from Texquitipan as soon as a respite from malaria would let them. Among the deserters was the director himself, absconding with the remainder of the funds entrusted to him by the government (DE LA PEÑA, 1950, p. 217). At the end of four months not a single colonist was left at the site. Many went to the highlands, others were succoured by the authorities and well-to-do families at Papantla.

In 1857 twenty Italian families, endowed with greater determination or lesser alternatives than the rest, remained to settle at El Cristo, a healthier, more communicable site, some 30 kilometers from Papantla, on the navigable Tecolutla about 6 or 7 kilometers from its mouth. Floods, especially that of 1888, caused many of the colonists to rebuild their dwellings on higher ground, so that the center of the community shifted to Cabezos del Carmen, since renamed Gutiérrez Zamora.

Dispersed settlement with homes on their respective farms was preferred by many colonists until the turmoils of the Mexican Revolution (1910–21) drove them to the relative security of nearby towns or distant cities. Some continued to work or administer their holdings by commuting. Others sold out or became absentee landowners, entrusting the lands to administrators and peons or to sharecroppers.

Late in the nineteenth century the development of sandbars upstream from Gutiérrez Zamora gave it a decided commercial advantage as entrepôt for goods, not only for the local area but also for supplying

indigenous and mestizo communities of the *sierra* farther inland. Small ocean-going vessels could cross the bar at the mouth of the Tecolutla, where larger vessels waiting offshore could be loaded and unloaded by lighters. Gradually the sandbars moved downstream and finally ruined the landing at Gutierrez Zamora in the 1930's. But then it was not long until asphalt roads and motor trucks captured the hinterland of the Tecolutla waterway.

Demographic Progress

The 1860's brought more immigrants, ten French families from Louisiana, refugees of the war between the States. Sharing in this migration was perhaps the first and only appreciable early contact with the French along the Nautla. Another group of eight Italian families arrived, on private initiative, in 1880. Some sporadic immigration continued until the 1920's. Return migration to Italy involved a confirmed net loss of only one family, balanced by the assimilation of one Greek family to the colony. There has been some resettlement of families of French, Italian or mixed origin, in the Nautla area. Losses to internal migration within Mexico have been more considerable for the Gutiérrez Zamora colony than for the other two surviving colonies.

A total of 800 known descendants of the Italian settlers at Gutiérrez Zamora was estimated by DE LA PEÑA (1950, p. 223) without clarifying how many were still living in the area. He lists 26 Italian, 8 French family names as then present. In 1966 a prominent colonist estimated the number of resident descendants of Italians at possibly 500. This represented about ten per cent of the total population of the settlement area, where the colonists own most of the land; at the same time they control much of the commerce and local small industries.

Land Tenure

Fortunately for the Italian colonists the area where they settled had not already been monopolized by *latifundistas.* There was only one *latifundio,* much of the land was held in medium-sized *ranchos,* and there were extensive, unclaimed *tierras baldías* (empty lands). On the inland margins were lands vaguely claimed but not effectively occupied by the Totonac Indians.

The government policy of subdividing the empty lands and communal holdings of Indian communities and granting or selling them to private owners was carried out in this area in the 1880's and 1890's. President Díaz awarded each family of the colony a certificate of entitlement to free lands, which were later to be exchanged for appropriate titles plots varying in size according to location and quality, from 12 hectares at El Cristo to as much as 32 hectares in other, less favored localities.

Certificates of entitlement to free lands were likewise issued to the Indians, many of whom sold the documents, some while under the influence of alcohol, for as little as 10 pesos before the lands had even been surveyed. This justified the fears that had led the Indians to oppose the idea of private property in land in the first place. At their expense, the extent of land in the vicinity that could be bought and sold at reasonable or even ridiculously low prices was greatly increased. In reviewing this situation DE LA PEÑA (1950, p. 218–19) infers that some Italians thus, directly or indirectly, came into possession of former Totonac holdings. In fairness to the settlers, one must recall, as that author himself notes, it was not until 1885 that the Totonacs, in search of virgin lands for the vanilla culture, began to settle among the Italians. These circumstances of prior occupance perhaps account for the continued inaffectability of some of the larger Italian holdings to the agrarian reform laws.

Statistical information on land tenure among the colonists is not easily separable from the totals of the Mexican Census for the three municipios, Tecolutla, Gutiérrez Zamora, and Papantla, in which most of their lands are located. A list of 83 landowners of Italian, French and Greek extraction has been published by DE LA PEÑA (1950, p. 223), indicating the size of their holdings. From this source I have computed the following statistical analysis:

Total area reported: 15 376 hectares
Size of holdings:

average	185 hectares
largest 10%	545 hectares or more
upper quartile	180 hectares or more
median	51 hectares
lower quartile	20 hectares or less
smallest 10%	10 hectares or less

Data are not available for making precise statistical comparisons with the present situation. There has been continued subdivision of holdings among the heirs of succeeding generations and at the same time a tendency to consolidate as some of the heirs move away and sell out. To some extent these processes are compensating one another. Interviews and observations conducted for the present study indicated that the situation has not changed greatly during the last twenty years.

The land tenure pattern of the Tecolutla colony is still one of wide variation, with small holdings devoted primarily to crops, but with a predominance of medium sized farms and a few small *latifundios* devoted to crops and cattle raising, some entirely to the latter. Among the colonists most heads of families still residing in the area are farm owners, although many also have businesses in Gutierrez Zamora or Papantla. Absentee ownership, by families now residing in Mexico City or other distant places, is more common here than in the other surviving colonies.

Land Use

Land use capability in the lower Tecolutla area varies no less considerably than does the size of its small farms and *latifundios.* There are extensive

swampy areas, hardly usable except for grazing, and stretches of old beaches suitable for cattle raising or coconut groves. Hilly areas inland from Gutierrez Zamora are well-drained, often too dry for bananas, but well adapted to citrus, especially on the steeper slopes.

Thus the above statistical summary of land tenure (p. 269) may give a very misleading idea of the distribution of wealth. A small landholder with twenty hectares in bananas, citrus, and row crops, may enjoy a much greater income than another with two hundred hectares only fit for grazing. Of course many of the larger holdings include not only grazing land but also large areas of good land devoted to money crops.

Vanilla was long a mainstay of the Tecolutla colony and for half a century Gutiérrez Zamora vied with Papantla as the leading center of trade and processing of the product. For these purposes most of the raw vanilla from San Rafael since the turn of the century moved through Gutiérrez Zamora. From their new neighbors the early Italian settlers quickly learned to cultivate vanilla and added some innovations of their own, especially in processing techniques. Readily available seasonal labor provided by the Totonacs permitted a rapid extension of these operations and allowed the Italians to continue in the business for a time after the French at San Rafael had abandoned it in favor of other crops (see above, p. 265).

Increasing competition from lands with cheaper labor, and from synthetic flavoring, finally made the establishment of new vanilla plantations in Veracruz no longer profitable, in spite of premium prices for the high quality Mexican product. By 1956 most of the older plantations had also been abandoned. Some processors at Gutiérrez Zamora continued to operate by purchasing raw vanilla from the small, indigenous cultivators and the semi-wild production still gathered by the Totonacs in the recesses of the dank forests. For this semi-wild production, the Totonacs go through the forest and seek out the wild plants when in flower and pollinate them. Superstitious, according to DE LA PEÑA (1946), they then avoid the places until harvest time, for fear that looking at the plant would give it "mal de ojo" or "eye disease".

In 1966 a new chapter in the history of vanilla in Veracruz had begun. Determined to keep alive the family industry of producing fine vanilla extracts and liqueurs, señor ORLANDO GAYA (1966) was reëstablishing his own plantations on a scale large enough to supply his foreseeable needs for raw material. The semi-wild production was no longer adequate. What had happened to the small cultivators? Many had become discouraged after some of their number had been killed while defending their crops against robbers. The high value per unit of weight, the ease with which one can slip in and out of small plantings scattered here and there in the jungle, is too tempting for some personalities, who had rather be hunted for murder than caught stealing vanilla on a dark night. Yet the the large producer, by maintaining open clearings around the plantations, can, with a few well-placed guards, protect the harvest with a minimum of personal danger.

Choice of land uses around Gutiérrez Zamora is essentially the same as in the San Rafael area – only better because of the availability of more land. The owner has more latitude in developing the various possibilities. He may elect the most extensive land uses, coconut groves or cattle raising, or, thanks to the Totonac labor pool, vanilla cultivation, the most intensive of all local land uses since the elimination of tobacco in the last two decades. Cattle is generally regarded as the best business because of its lesser labor requirements, although it presupposes a large outlay of capital for land and breeding stock. The greater emphasis on cattle raising here than at San Rafael reflects not only the larger size of the holdings but also the extent of sandy and swampy tracts along the Tecolutla. Another contrast to be noted here is the somewhat earlier concentration on citrus fruits. Bananas, developed in both areas about the same time, seem to be retaining their importance around Gutiérrez Zamora.

Living Conditions and Assimilation

Gutiérrez Zamora is an elongated settlement on the left bank of the Tecolutla, the movement of its rectangular street pattern concentrating about a small plaza with the *Presidencia Municipial*, commercial buildings and a church standing by. Houses are of masonry, most of them stuccoed and at some time painted white, with overhanging eaves and roofs of burnt red clay Spanish-tile now mottled with fungus growth and weathering stains of the humid tropical climate. These features are to be found repeated hundreds of times in the small towns of the lowlands of Veracruz.

Hardly an aspect of the housing or other living conditions of the European settlers would set them apart from other local elements of the population with comparable economic status. Few of them today can speak any language but Spanish. Some oldsters have lost fluency in their own mother tongue. Most of the Italians at Gutiérrez Zamora belong to the same social club but not all of its membership is of Italian origin nor is it particularly concerned dedicated to preserving the Italian tradition. In contrast to the situation of the French settlers, whose contacts with Mexicans, until the 1940's, were largely limited to peons and other uneducated elements, the Italian settlers along the Tecolutla River came very early into contact with other population elements

whose economic and social levels were compatible with their own. De la Peña (1950, pp. 223–224) suggests, quite correctly, that these circumstances account for the rapidity with which the Italians are being assimilated.

Italian Settlers in the Lower Cloud Forest of Orizaba

Environment

To describe as "cloud forest" the area on the slopes of Orizaba near Huatusco which the Mexican Government allotted a group of Italian settlers in 1881, may cause the reader to wonder if this really belongs to a study of tropical lowlands colonization, for cloud forest is generally associated with *tierra templada* conditions. The site in question lies in a belt of rain forest squeezed between the wet-dry savanna climate area of the central Veracruz coast and the cloud forest proper. This belt, situated roughly between 700 and 900 meters, and therefore beneath the mean level of condensation, is far less often swamped in clouds than are the elevations immediately above it. Clouds coming in from the ocean generally strike the mountain sides at elevations of 900 meters and above, banking up against it, casting a "humid rain shadow" for a distance of ten or twenty kilometers back down the hill. Thus the settlement area enjoys the life-giving rains of a windward, tropical mountain location without having to undergo so often the inconveniences of zero visibility that afflict the zone of the cloud forest proper.

Soils have deeply weathered profiles, with reddish-brown topsoils underlain by distinctly reddish, though sometimes mottled, subsoils, probably intergrades between Red Podzolic and Reddish Brown Lateritic groups. They are young enough to be remarkably fertile for soils of their kind. Exhaustible under continued cropping, yet responsive to careful treatment, their main problems are the selection of proper fertilizers and the maintenance of a protective cover of vegetation, without which erosion quickly carves deep gullies into the hillsides.

This evergreen forest zone remained underdeveloped economically throughout Spanish colonial times and the early decades of independent Mexico, except for the immediate vicinities of Orizaba, Jalapa, Cordoba and Orizaba City, way stations along the two main routes connecting the Port of Veracruz with the highland centers. The less accessible areas in between were little used but for scattered sugar cane plantations and, in older clearings, pasture for cattle brought up from the adjacent savanna lands during the dry season. Later in the nineteenth century the coming of the railroad, together with an expanding world market for coffee, brought a general boom to the area where, between 750 and 1500 meters, soils and climate are excellent for producing a high-quality product. This accounts in great measure for the early and continuing succes of the Italian colony.

A Government Project

Part of a grandiose government venture which brought some 2,500 Italian immigrants, this is one of two surviving colonies of the six established, and the only survivor of three situated in the tropical lowlands. The first contingent of 84 families disembarked at Veracruz in October, 1881, and was immediately transferred by rail to Orizaba, out of danger of yellow fever. There and at Huatusco they were obliged to wait until temporary housing in the settlement area could be constructed.

A small village was built as an administrative center about three kilometers from Zentla, seat of the municipio fo that name. The village and colony itself were named Manuel González, after the then president of Mexico. Later the honor was extended to the entire municipio and the municipal seat was moved in 1887 from Zentla to the colony center.

Most of the settlers were from the province of Venetia, followed in importance by those from the Milano area and the Piamonte, a few from Tuscany. Unfortunately many of those recruited had had no experience at farming nor were disposed to learn. The later contingents (of the 2,500) had not been recruited altogether in Italy itself, but included additions from the Italian speaking vagrants of New York City. At an early opportunity they resumed their accustomed way of life, for which the government of Veracruz insisted in 1883 that they apply for beggars' licenses (González Navarro, 1960, p. 41).

Passage was paid from Europe. Each family was to receive a plot of land, a small but serviceable house, work animals and other livestock and implements. A daily subsistance allowance of 25 *centavos* for each family member aged 12 and above, and 15 *centavos* for each younger child was also promised along with medical service during the first year. The allowance was generous when we consider that the daily wage for rural peons throughout the country was usually two *reales* or less and that these are hard metal quotations before the devaluations and inflations of the twentieth century so vastly reduced purchasing power. These things were all provided in the form of a loan with repayment to begin with the first harvest. Most important, it seems the promises were kept in large measure (de la Peña, 1946, 1950; González Navarro, 1960). Already existing plantations of coffee and sugar cane were to be exploited collectively during the period of adjustment, thus giving the colonists a running start for paying off their obligations.

The total outlay was 199.529 pesos when the government closed the account in 1885. No interest was charged and only 35 % of the purchase price of the Land was payable in cash; the rest could be satisfied with the purchase of government bonds, then quoted at 35 *centavos* per *peso* of nominal value. Thus after meeting their obligations the colonists had still received a net subsidy from the goernment.

Demographic Development

The number of the early arrivals is variously reported between 435 and 503. There were some desertions, a few deaths – very few in comparison with the early experiences at the Nautla and Tecolutla colonies. Together with some later arrivals there were reportedly 654 Italians in the settlement area by the end of 1882. By 1884 only 391 Italians remained in the colony; in 1887 the number was down to 358 but increased again to 378 in 1895, at which time 46 Mexicans were living among them (González Navarro, 1960, p. 46). In 1904 when an envoy of the Italian government visited the colony, there were reportedly 424 persons of Italian origin (Rosi, 1904, cited by de la Peña, 1950, p. 125). Later demographic progress is more difficult to ascertain for, the colony's debts having been satisfied, the Mexican Government ceased to keep records, nor does the Mexican Census tabulate data on the ethnographic background of the population. During the Mexican Revolution, especially between 1914–17, for reasons of safety, there were further losses to internal migration. In 1950, de la Peña, (p. 229) supposed the number of persons of Italian origin, including those intermarried with Mexicans, to be nearly 1000. In spite of continued migration to the cities, it is possible that today the number may be even greater for, as one informant reported: "Hardly an Italian couple has less than eight children before they are through; though many move away, there are still many who stay."

Land Tenure

For the settlement the Government had purchased 1.355 hectares at an average price of 32,60 *pesos*, on which some plantations of cane and coffee were already established. The land was subdivided into lots varying from three to seven hectares and sold at prices from 16 to 35 *pesos* depending on quality. Many families acquired two or more such lots so that in 1904 the average family holding, reported by Rosi, was 15 hectares. Some colonists had acquired lands outside the original settlement area and a few boasted total holding up to 200 hectares and fortunes up to 100.000 pesos. Two generations later I was informed that most colonists had only one rancho, that the most common size was in the five to ten hectare range, and that very few were as large as 40 or 50 hectares.

Land Use and Transportation Problems

Local transportation difficulties long limited the choice of crops at the Manuel González settlement. During the early years good yields of maize and tobacco were obtained from virgin soils while waiting for new plantings of sugar cane and coffee, the main money crops, to come into production. Bananas were also grown, but for home consumption, to shade coffee and to feed livestock. Transport of the bulky perishable on mule back to nearest railheads (Coscomatepec, 30 kilometers uphill, or 38 kilometers downhill to Camarón, seven hours in either case) would have been too costly to meet competition from other producing areas on the markets of the highland cities.

At the close of World War II, during a period of high and rising prices, freight to the nearest railhead or paved highway, by muleback or, in the dry season, by truck over rutty, dirt roads, cost for bananas as mach as one-half, seldom less than one-fourth, of their value on delivery. Coffee was moved in the same manner for only two or three per cent of its value, tobacco for about four per cent. Similar costs of transporting maize equalled about one-fifth of its value; so that crop continued to be grown primarily for home consumption.

Sugar, marketed in the form of raw cones *(piloncillo)*, could bear the cost of transportation somewhat better than maize but less favorably than tobacco or coffee. Converted, however, into aguardiente, the transportation disadvantages of sugar cane as a money crop were negligible. Twenty-one known distilleries were operating in the colony in the 1940's according to de la Peña (1950, p. 226). There may have been many more clandestine operations. To enquire about the latter can secure, at best, only unreliable information, arouse suspicion on the part of informants, and produce further unproductive inconveniences to the investigator.

The paved highway between Huatusco and Conejos, completed about 1947, missed by a few kilometers the lands of the colony. On local initiative a gravel road was constructed to join Manuel González to the paved road system and paid for, at least in part, by tolls (discontinued by 1966). Smaller but transitable roads connect further with Zentla and other, more dispersed settlement communities.

Commercial fertilizers have come into general use following these improvements in transportation and as the last of the virgin lands began to be depleted. Formerly, coffee yields of less than six *quintales* per hectare were common, whereas "25 or 30 can be obtained from plantations properly cared for and with applications of fertilizers" (de la Peña, 1950, p. 227). In 1956 I found only some farmers using them, others resistant to the idea because of the costs involved. By 1966, however, it was commonly accepted: No fertilizers, no harvests *("Sin abono, no hay cosecha")*.

Bananas, once they could be brought to market economically in the 1940's, experienced a boom in the

1950's but they are currently out of favor as a cash crop. Having generally failed to respond to fertilizers, which stimulate luxuriant plant growth without corresponding increases in fruit production, bananas, at the same time, retard yields of coffee by depriving the trees of needed nutrients. Many farmers are establishing other shade plants, particularly c h a l a h u i t e *(Inga sp.)*, a leguminous tree that has already proved itself as a shader and soil builder in other parts of the coffee-growing cloud forest. A feasible alternative might be the manila hemp *(abacá)*, a plant kin to the banana but producing no edible fruit, rather cultivated for the fiber of its leaves.

T o b a c c o has been practically eliminated from the cropping program. Returns from the exhaustive hand labor it involves are considered inadequate in view of other alternatives.

M a i z e production is no longer sufficient to provide for local consumption.

S u g a r c a n e continues to hold its traditional place in the cropping program, this assured by its noted responsiveness to fertilizers and by a relatively stable domestic market. It allows a certain security to the planter whose cash income is subject to the wide oscillations of the world coffee market.

C o f f e e still remains, amid the changes, the leading money-maker.

Living Conditions and Assimilation

Planning for the Manuel González colony foresaw an active cultural life, providing for construction of a chapel and a school, as well as musical instruments for a band and a printing press for a local newspaper (GONZÁLES NAVARRO 1960, p. 39). Despite these facilities little remains of a distinctly Italian cultural heritage today. Among the survivals, *Polenta* and *mortadella* are still prepared as regular items of the diet.

Spanish quickly became the everyday language, it being hardly more difficult for the Italians to learn than the dialects of their fellow colonists from other parts of Italy. There has been considerable intermarriage with Mexicans. Not only mixed families, but also Lombards of the purest strains today think of themselves as Mexicans and when questioned about the colony refer to the Italians in the third rather than the first person. DE LA PEÑA (1950, p. 229) suggests that the rustic living conditions, among Mexicans of similar circumstances, has accelerated the assimilation of these colonists, albeit at a level considerably lower than that of their compatriots at Gutiérrez Zamora.

Housing in the Manuel González colony is by no means pretentious nor differs particularly from that of other inhabitants of the lower cloud forest area of similar economic status. Walls are of masonry or, in more modest circumstances, mud and wattle, covered by stucco; roofs are mostly of clay tile. This applies to homes in the villages and as well to the dispersed farm houses, where probably more than half the colonists live.

Maintaining living standards for increasing numbers in the last two decades has been made possible with greater harvests through the use of fertilizers. The leading crops, sugar cane and coffee, when well managed may earn net profits of one to two thousand *pesos* per hectare. Thus five hectares might adequately support a family by Mexican standards, and ten hectares could do so comfortably. There are still some gains to be made by improving methods, but the end is in sight under present circumstances. The younger generation must face the prospect of migrating in greater numbers than previously, or of accepting a lower standard of living, since opportunities for non-farm employment or for acquiring additional land in the area are limited.

Abandoned Settlement Ventures

Viable Settlements Arbitrarily Disbanded

L o m b a r d í a and N u e v a I t a l i a in the Balsas-Tepalcatepec Depression as previously clarified (STEVENS, 1956), were never colonies in the same sense as the above described settlements. Rather they were haciendas which after 1938 were absorbed into the *ejido* system of communal landholdings. Not only the Italian owners, but also most of their countrymen they employed, were forced to seek a livelihood elsewhere. In 1956 I found no Italians at Lombardía, only two, married with Mexicans, at Nueva Italia.

The hacienda owners had developed an elaborate irrigation system, involving a siphon across a deep ravine. But it seems that their main incentive was to grow rice on their own extensive holdings of fertile, volcanic soils, and that they shared neither water nor land with their countrymen who might have wished to set up small farms. The former hacienda lands lie within the planning area of the *Comisión del Tepalcatepec,* which is subjecting them to the further intensive irrigation development. The *ejiditarios,* beneficiaries of the Mexican communal system, have been accused of illegally renting their plots to private entrepreneurs equipped with modern machinery. Thus, instead of big landlords and small operators, there has developed a system with small landlords and big operators.

At nearby A p a t z i n g a n a group of Italians rented two haciendas in 1885, and were reported as successful in 1887 according to a newspaper account cited by GONZÁLES NAVARRO (1960, p. 54). Although I did not know this in time to inquiry directly during my visits (1954, 1956, 1966), in many conversations on the topic of Italian settlements with persons well informed about the area, no mention was made of the Apatzingan venture.

The Blalock Mexico Colony in 1903 was authorized by the Secretaría de Fomento to settle 100 families at El Chamal, in the tropical savanna lands of southern Tamaulipas. In 1908 there were 103 families mostly North Americans, in large part from Oklahoma (González Navarro, 1069, p. 71). Land title disputes caused many to migrate before the colonists won the case. Fifty-seven such families were still in the area in 1909. The settlers brought fine breeding stock and other improvements for the livestock industry and, with help of *peon* labor, raised crops of corn, beans, potatoes, vegetables, and established fruit orchards. During the Revolution most of the settlers left and few returned; only twelve families of North American origin were reported there in 1940 (de la Peña, 1950, pp. 251–253).

Other Abandoned Settlement Attempts

To spare a long discussion on negative results, information on thirteen other abandoned settlements is summarized in the accompanying table (p. 275) along with similar data for the colonies reviewed above. It would be interesting for some researcher to visit the areas of these abandoned colonies, to seek out any remaining survivors, and possibly ascertain more precisely why the ventures failed.

Benefits of the Colonization Ventures

The success of any colonization or settlement venture can be quite fully evaluated according to the viability of the community, the degree to which it achieves its avowed purposes, and the other, incidental benefits thereform. Viability or survival of the community itself may or may not necessarily be one of its main purposes. The outlook of the surviving settlements is deferred to the concluding section. First it is well to consider the experiments from the viewpoints of those to whom the benefits of colonization may be expected to accrue: a) the country of origin; b) the colonists themselves as a community; as individuals; c) the country of destination.

Benefits to the Countries of Origin – France and Italy

These colonies were all founded during a century when European countries were actively encouraging emigration, either to relieve population pressures, to remove persons dissatisfied with local conditions, or in order to secure for the home country certain desired resources or positions. Since hardly more than a couple of thousands of emigrants were involved, consequent relief of population pressures in France and Italy was insignificant. Trade between those countries and the settlement areas was likewise of little importance.

France had two occasions to seek geopolitical advantage from these migrations, during the short "Pastry War", 1838 (see above, p. 262) and the intervention in the 1860's on behalf of the ill-fated "Emperor" Maximilian. However, aid given at those times by the French colonists was inconsequential. Further, their situation was strategically unimportant to the main theaters of operations.

Italy received some benefit financially from the colonists by their remittances to relatives and from returnees with small fortunes. During the Italo-Ethiopian War, residents of Gutiérrez Zamora recall, the homeland sought to raise funds from their patriotic sentiments through its embassy.

The area was a liability rather than an asset to France during the unstable revolutionary years from 1910 to 1921, for many of the settlers then still retained French citizenship. A warship dispatched to evacuate them in 1914 found very few settlers who could sing correctly «La Marseillaise» and left with even fewer passengers. During the troubled times the French consulate at San Rafael was burned. As it was not reopened, most of the colonists thereafter no longer bothered to register their children as French citizens. A number of the men returned to France to fight during World War I. An attempt to recruit volunteers and solicit funds for the French resistance movement in World War II met with rather limited success.

One can correctly affirm, therefore, that the French and Italian colonies in tropical Mexico have been of no great benefit to the home countries, which, after all, have done little for the colonists.

Benefits to the colonists themselves may be seen from two viewpoints: as communities and as individuals. After having been astablished as cohesive communities for several decades the settlements now tend to become absorbed into the larger society of Mexico. Thus, insofar as preservation of distinctive social groups of their own kind be regarded as an objective, one must consider the experiments as doomed to gradual failure. As individuals, however, the survivors of the early epidemics and their descendants have prospered, many if not most of them to a far greater degree than they could have expected had they remained in the Old World.

Benefits to the Country of Destination – Mexico

Since less than one-tenth of one per cent of the population of Mexico can trace any ancestry to these colonists, they have been obviously of minor importance in populating the country. They did play a significant role as pathfinders in opening lands that were practically empty a century ago; but in comparison with the total present population of the then undeveloped Mexico their numbers are still very small.

Table: Summary of European Settlements in the Tropical Lowlands of Mexico

Year established	Nationality	Name; Organizer; Location	References: DE LA PEÑA (1950) pages	References: GONZÁLEZ NAVARRO (1960) pages	Number of Settlers [1]: highest report	Number of Settlers [1]: last report	Remarks
I. Surviving Colonies							
1833	French	Stephen Guenôt; Nautla River, Veracruz	200–217	35, 74–75	1200 P (1950)	1000 P (1964)	
1856/7	Italians	"Colonia Modelo"; Luis Masi; Tecolutla River, Veracruz	217–224	35	800 P (1950)	500 P (1966)	
1881/2	Italians	"Manuel González" Ministerio de Fomento; near Huatusco, Veracruz	224–230	37, 44–45, 49, 51	ca. 1000 P (1950)	1000 P+ (1966)	
II. Viable Settlements Arbitrarily Disbanded							Reasons for discontinuance:
before 1893	Italians	"Lombardía", "Nueva Italia" Daniel Cusi and, Luis Brosdhi Tepalcatepec area, Michoacan	–	54	no report	no report	expropriation
1903	North Americans	"Blalock Mexico Colony" "El Chamal", Tamaulipas	251–253	71–72	57 F (1909)	12 F (1940)	unclear titles, *Revolución*
III. Other Settlement Attempts							
1830 (1834)	French	Laisné de Villeveque; Tancochapa, Isthmus of Tehuantepec, Veracruz/Tabasco	192, 250	–	no report	no report	isolation, unclear titles
1857	French	"Colonia Eureka"; La Llave, Ozuluama/Veracruz	194, 250	–	no report	no report	no report
1881	Spanish (Canarians)	Yucatan	–	80	322 W (1882)	same	assimilation
1881	Germans (via San Francisco)	San Marcos, Acapulco, Guerrero	–	72–73	20 C (1881)	same	no report
1882	Italians	"Carlos Pacheco", Ministerio de Fomento; Mazatepec, Tlatlauquitepec, Puebla	237–241	37, 42, 44–46, 50	384 P (1882)	4 F (1940)	isolation
1882	Italians	"Porfirio Diaz"; Ministerio de Fomento; Las Estacas, Jojutla, Morelos	241–244	37–38, 40, 45, 49, 51	597 P (1882)	31 P (1908)	migration to other opportunities
1882	Spanish (Cubans)	Valle Nacional, Veracruz	77– 78	–	no report	no report	assimilation
1885	Italians	Apatzingán, Michocán	–	54	no report	no report	no report
1885	North Americans	Navolato, Sinaloa	–	33, 70	12 C (1900)	same	no report
1887	North Americans	Tapachula, Chiapas	–	54–55	62 P (1887)	same	no report
1887	North Americans	"Colonia del Pacifico"; Albert K. Owen; Topolobampo, Sinaloa	–	5, 11, 61–63, 108	251 C (1895)	10 C (1896)	„utopianism"
1887	Spanish (Cubans)	"Cid de Leon" Papaloapan area, Oaxaca	–	78	10 ? (1887)	same	assimilation
1895	North Americans	Metlaltoyuca, Puebla	253	11, 72	103 C (1895)	0 (1910–21)	isolation, Revolution
1895	Spanish (Cubans)	"Puerto Morelos", "Vega de San Jose", "Yalikin"; "Compania Colonizadora de la Costa Occidental de Yucatan"; Yucatan	–	78	120 C (1895)	120 C (1897)	assimilation
1904	North Americans (Puerto Ricans)	Tabasco	–	80	300 W (1904)	same	no report
1907	Puerto Ricans	"González Cosío", Laguna del Rosario, Tabasco	–	79	54 F (1910)	same	assimilation
	Puerto Ricans	Huimanguillo, Tabasco	250	–	no report	no report	no report

[1] C = Colonists; F = Families; P = Persons; W = Workers

The contribution of these groups as stimuli to regional development, however important locally, fell far short of the great expectations once held in the country for such schemes, particularly during the administration of Porfirio Díaz. These notions, no doubt, were partly inspired by reports of rapid progress in the opening of empty lands by European immigrants in Anglo-America, southern South America and Australia. But unlike the latter lands, the tropical lowlands of Mexico for the most part lay as sparsely settled strips near long-settled, densely populated regions. Implementation of the colonization schemes was too little and too late to attract from Europe great numbers of small farmers, who, by the last quarter of the nineteenth century, were becoming a steadily smaller percentage of the population of the old continent. Those farmers anxious to immigrate usually had more attractive alternatives – other empty lands with fewer riddles to solve or lucrative city jobs in "Europe-across-the-seas".

With the fall of the Díaz regime in 1910 active solicitation of European colonists for Mexico ceased. When Europe again was openly promoting emigration of displaced persons after World War II, Mexico was not very receptive, having become inceasingly concerned with accommodating its own rapid population increase. Therefore, in recent decades the development of the tropical lowlands of Mexico has mostly been the work of government-directed projects for *ejidos*, and of small, private entrepreneurs, predominantly mestizos and Caucasians descended from earlier (Spanish) immigration.

The planners of the Díaz regime did not altogether expect a mass movement of Europeans to populate empty areas. What was hoped for, was to establish communities with a more advanced technology and traditions of ingenuity who would find a way to farm those lands and set examples for Mexican farmers to follow. Reasoning behind such a settlement scheme was sound, but success was rather limited.

In the areas of tropical settlements here studied, as in other colonization attempts in the highlands, the Mexicans who moved in did so mostly to work for the Europeans. The former usually had neither the know-how nor the financial backing needed for farming like the latter. Besides, many European settlers weakened the force of the experiments by moving away to economic and cultural attractions in other parts of the country. Improved methods of livestock raising, notably the fine breeding stock, introduced by North Americans at El Chamal, Tamaulipas, remained in the area after most of the settlers dispersed. This is recognized laudably even by the hypercritical DE LA PEÑA (1950, pp. 251–253). One must concur with that author's observation that the three successful Veracruz colonies adopted the crops and technology of the local areas and, albeit they devised some improvements, the immigrants' rôle was largely that of apprentices rather than teachers in their new homelands.

Conclusion: Limits and Keys to Successful Settlement

Three colonies of Europeans have survived for several generations while doing hard manual labor under the humid tropical climate of Veracruz. This is in apparent contradiction to deterministic theories, advocated by ELLSWORTH HUNTINGTON, among others, which hold that physiological and psychological forces deriving from climate doom to failure the attempts of white peoples to settle permanently in the tropics.

In fairness to these theorists, one must not forget that the areas here studied are in the marginal tropics. Unpleasantly hot weather normally occurs only from mid-April through September, and even then not continuously; from November through February the weather is cool and often uncomfortably chilly. Even so, seasonal differences are not so great as to preclude that many settlers suffer from "tropical memory", common in areas where monotony of climate gives indistinct impressions of the passing of time.

Having observed these colonies at intervals during 15 years I am more optimistic about their prospects for continued survival than reported earlier (STEVENS, 1952, 1956). Although the colonists think of themselves as Mexicans today, their consciousness of having been French or Italian is still strong and apt to continue for generations to come, barring any developments that might arbitrarily disband them. The extent to which this ethnic self-consciousness reflects itself in the standard and style of living will probably become less and less pronounced; it is already an elusive theme to trace.

The patterns of the Veracruz colonies are essentially the same as those of other small groups of European peoples that settled in temperate climates of the highlands and extratropical regions of Mexico. As reported by NATHAN WHETTEN (1948) migration or absorption has been their fate except for a few religious groups whose peculiar ways of life make them exceptionally cohesive and relatively unassimilable into the Mexican population.

GRENFELL PRICE (1938) found that the common causes of failure by white settlers in the tropics were that they came too few in number to establish permanently viable communities and eventually migrated or became absorbed wherever and whenever forced to compete with other peoples who, willingly or of necessity, had a lower standard of living and therefore could displace the Europeans by underbidding them on the labor market. Farm wages in none of these settlement areas are great enough to retain

the Europeans as laborers. The dependence of the colonists on the labor of others, however it may account for the prosperity of those who can afford it, does not seem to explain the survival of the colonies themselves. Witness thereof is the overwhelming reliance of the Italians at Manuel González on their own labor.

The size of landholding available to a colonist seems to be the key factor in the individual decisions whether to remain in the area or to migrate. It does not necessarily have to be large enough to enable the settler to employ peons, but it must be large enough to provide full employment for him and the working members of his family. Birth rates are high enough that the colonies can maintain for a long time their numerical strength as long as everyone who desires to remain as a farmer has enough land to do so.

The successful European colonies in the tropical lowlands of Mexico hardly had any better advantages of environment, economic opportunity or technology than many of the other 17 settlement attempts which have failed. Where, then, lies the secret of success of these groups? What did they have or use that the others did not? How is it that they have achieved, with technology acquired in the new homeland, a standard of living generally above that of other elements of the population who some generations back were at comparable economic and cultural levels? The keys to success, if not demonstrable in the environment, economics or technology, alone or altogether, must be sought in the settlers themselves. The ambition to be a landowning farmer, the patience to withstand adversity, the readiness to try something new and the resourcefullness to make it work, were probably present in greater measure in the successful colonist.

Literature

Bruman, Henry: "Cultural History of Mexican Vanilla", in: *Hispanic American Historical Review,* Durham, North Carolina, August, 1948.

Chevalier, François: article in: *Boletín de las Alianzas Francesas de México.* Publicación bilingüe mensual, August, 1947.

Cuspinera Gonzalez, Juan L: Estudio preliminar sobre condiciones agrícolas y económicas del Municipio de Martínez de la Torre. Unpublished report in the archives of the Secretaría de Agricultura y Ganadería. México, 1943.

El Progreso de México. Seminario dedicado a la Agricultura Práctica, a la Indústria y al Comercio. Año VI, No. 251. México, December 22, 1898.

Garcia Cubas, Antonio: *Atlas Mexicano.* México, 1880.

Garcia Cubas, Antonio: *Diccionario Geográfico de México,* México, 1883.

Garcia Villareal, Cesareo: Unpublished report on the Municipio of Martínez de la Torre in the archives of the Secretaría de Agricultura y Ganadería, México, 1941.

Gaya, Orlando: Verbal information, Gutièrrez Zamora, 1966.

Génin, Auguste: *Notes sur le Mexique,* México: Imprenta Lacaud, 1908.

Génin, Auguste: *Les Français au Mexique du XVIe Siècle à nos Jours.* Paris: Nouvelles Éditions Argo. 1931.

Gonzales Navarro, Moises: *La Colonización en México,* 1877–1910. México, 1960.

Humboldt, Alexandre de: *Essai Politique sur le Royaume de la Nouvelle-Espagne.* 2 vols., quarto. Paris, 1811.

Huntington, Ellsworth: *Climate and Civilization.* 1915.

Huntington, Ellsworth: *Mainsprings of Civilization.* New York, 1945.

Köppen, Wladimir: *Grundriß der Klimakunde.* Berlin and Leipzig, 1931.

Meunier, Arturo: Verbal information, San Rafael, 1952, 1956, 1964, 1966.

Mori, Alberto: Article on Italian Settlers in México. In press.

Morren, Charles: "Sur la fructification de la vanille obtenue au moyen de la fécondation artificielle", *Comptes Rendus...* (Académie des Sciences, Paris), VI (1838), pp. 489–492.

Morren, Charles: "On the Production of Vanille in Europe", Annals of Natural History (London), Ser. 1, III (1839), 1–9.

Peña, Moises T. de la: Veracruz Económico. Jalapa, México. 1946.

Peña, Moises T. de la: "Problemas demográficos y agrarios", in: *Problemas Agrícolas e Industriales de México.* México, 1950, vol. II, No. 3–4, pp. 9–335.

Price, Grenfell: White Settlers in the Tropics. New York: American Geographical Society, Publ. No. 23, 1939.

Ricci, Juan: Verbal information, Gutièrrez Zamora 1966.

Stevens, Rayfred L.: *Some Geographical Aspects of Tropical Land Use in Martinez de la Torre Municipio, Veracruz State, México.* Master's thesis, Mexico City Collede (microfilm available), 1953.

Stevens, Rayfred L.: "European Colonies in the Tropical Lowlands of Mexico", in: *Proceedings* of the XVIIIth International Geographical Congress, Río de Janeiro, 1956.

Troll, Carl, and Paffen, K.-H.: Legende zur Karte: Die Jahreszeitenklimate der Erde. Beilage zur Erdkunde, Bd. XVIII, Heft 1, 1964.

Whetten, Nathan: *Rural Mexico.* Chicago: University of Chicago Press, 1948.