Education in MEXICO

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PROGRAMS OF STUDY:

Higher Education

Foreword

EDUCATION IN MEXICO, one of the series of basic studies on education in the American Republics undertaken by the Office of Education, has been prepared with the interests of the following groups in mind:

(1) Persons working in the field of inter-American educational relations
(2) Those specializing in Latin American area and language studies
(3) Students of the history and philosophy of education
(4) Admissions officers of United States schools and colleges receiving applications from Mexican students
(5) United States students who contemplate a period of study in Mexico
(6) Visitors to Mexico who wish to undertake research on some phase of education or simply to observe clearly the various aspects of Mexican civilization
(7) Teachers who look forward to the development of exchange programs with Mexico.

So brief a treatment of a comprehensive and exceedingly complex subject can accomplish no more than bring out salient characteristics and problems in the light of enough background information to enable the reader to interpret the essential facts concerning education in Mexico today. We hope that this aim has been accomplished in the present bulletin.

The Office of Education is deeply indebted to the Secretariat of Public Education in Mexico, the National Autonomous University of Mexico, and many other institutions and individuals in Mexico who provided publications and official data; to the Embassy of Mexico in Washington, D. C., for cooperation in obtaining photographs; to the Education Division of the Pan American Union for the loan of materials and for careful reading of the manuscript and submission of valuable suggestions. The map of Mexico, which first appeared in Frank Tannenbaum's *Mexico: The Struggle for Peace and Bread* and Erna Fergusson's *Mexico Revisited*, is included through the courtesy of Alfred A. Knopf.

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PART I—Background Information

The Country

MEXICO, officially designated as Estados Unidos Mexicanos, is a Federal Republic of 29 States, 2 Territories, and a Federal District. It is the southernmost country of North America and the second largest Spanish-speaking nation of the world. Shaped like a cornucopia, it extends northwest through 18° of latitude, reaching a width of 1,623 miles along the boundary contiguous to the States of Texas, New Mexico, Arizona, and California. Its smallest section, the Isthmus of Tehuantepec, is 140 miles from ocean to ocean.

On the Atlantic side Mexico has 1,632 miles of coastline the lowlands of which vary from 10 to 150 miles in width. The Yucatán Peninsula, a broad limestone plain projecting northward, lies between the Caribbean Sea and the Gulf of Mexico. The Pacific Coast, counting that of the Gulf of California which separates Lower California from the mainland for a distance of 750 miles, has a total length of 4,130 miles. Its coastal strip is narrower on the whole than the eastern lowlands and somewhat less accessible to the capital, although the natural harbors are better on the Pacific side.

The land is one of extraordinary diversity. The Tropic of Cancer crosses the country near the center, but the climate is determined by altitude and rainfall as much as by latitude. There are four temperature zones ranging from tropical to cold, the *tierra caliente* at low elevations, mostly along the coast, the *tierra templada* at altitudes of some 3,000 to 6,000 feet above sea level, the *tierra fría* at levels roughly between 6,000 and 10,000 feet, and the *tierra helada*, or frozen land. The seasons vary, but in general there is a rainy season from June to October and a dry season during the rest of the year. In the central valley May is the warmest month.

The most distinguishing topographical feature is the high central plateau which lies between the eastern and western chains of the Sierra Madre, an extension of the great cordilleras forming the backbone of the American continents. This plateau, a vast semiarid to arid expanse of valleys, broken mountain ranges, and deep barrancas, constitutes about two-thirds of the country's area. Its basin elevations

vary from 6,000 to 8,000 feet in the south to 3,000 or 4,000 feet in the north, where the slope becomes more gradual. The landscape of the south central region is dominated by lofty peaks, many of volcanic origin, which rise precipitously as the Sierra Madre divides into its rugged lateral chains. Two of these majestic cones, Orizaba (18,700 ft.) in the State of Veracruz and Popocatépetl (17,887 ft.) in the State of Mexico, rank second and third highest among the mountains of North America. They, along with Iztaccíhuatl (17,343 ft.), adjacent to Popocatépetl, are snowcapped the year around.

Mexico's population growth has been accelerating in recent years. The 1950 census showed a population of 25,791,017 as contrasted with 19 million plus in 1940, 16 million in 1930, and 14 million in 1920. In 1954 the Dirección General de Estadística published an estimate for that year of 28,849,465 and predicted that the total would exceed 34 million by 1960. Although the majority live in rural areas, there is a great concentration of people in the capital and central States. The following cities have more than 100,000 inhabitants (1950 census):

City	Population
MÉXICO, DISTRITO FEDERAL	2,234,785
GUADALAJARA, GUADALAJARA	337,016
MONTERREY, NUEVO LEÓN	333,422
PUEBLA DE ZARAGOZA, PUEBLA	211,331
MÉRIDA, YUCATÁN	142,858
TORREÓN, COAHUILA	128,971
SAN LUIS POTOSÍ, SAN LUIS POTOSÍ	125,662
LEÓN, GUANAJUATO	122,726
CIUDAD JUÁREZ, CHIHUAHUA	122,566
VERACRUZ, VERACRUZ	101,221

Of the 149 additional cities with populations above ten thousand, 17 are located in the Federal District. While the country as a whole has a population density of 35 per square mile, the density in the central region is 105 as contrasted with 16 in the northern half of the Republic.

Historical and Political Development

PRE-CONQUEST PERIOD (B. C. TO 1521)

Mexico's past reaches into the Stone Age. There is evidence that nomadic hunters lived in the Valley of Mexico as far back as 10,000 years or more before the Christian era, and archeological discoveries are revealing more and more about the prehistoric peoples. Nothing is certain, however, about when they first appeared or where they originated, nor are there any clear links with the Mayas, Toltecs, Aztecs, Zapotecs, Mixtecs, Olmecs, Chichimecs, Tarascans, and others whose civilizations became known to the invading Spaniards in the 16th century. The most

advanced cultures so far known to have existed in Mexico were the Mayan in Yucatán, where the ruins of more than 50 of their cities remain, and the Toltec, dominant between the 7th and 11th centuries.

In 1325, after much wandering on the Mexican plateau, the Aztecs, or Mexica, built the city of Meshico-Tenochtitlán on a marshy island in Lake Texcoco, located a mile and a half above sea level at the southern end of the Valley of Mexico. The name was in honor of Mexitli, the god of war, and Tenoch, the priest who had guided them to the prophetic sign—an eagle clutching a serpent in its beak, perched on a cactus on an island in a lake. The sign is now the national emblem and appears in the center of the white stripe of the flag. When Cortés arrived the city was a fortified stronghold with a population of perhaps 300,000 and the Aztecs were exacting tribute from several other major provinces scattered over an extensive territory. Some tribes were resisting—a circumstance which aided the Spaniards—and others maintained complete independence. In all, the country presented a complex picture of diverse cultural groupings in which more than 200 different languages were spoken.

The Spaniards first learned of Mexico in 1517 through a reconnaissance force which landed in Yucatán and Campeche. From captive Indians they heard that two Spaniards, survivors of a shipwreck in 1512, were living among the Mayans. A year later Captain Juan de Grijalva made contact with the lost Spaniards and explored the coast from Yucatán westward, naming the land New Spain. In 1519 Hernán Cortés was commissioned by the Governor of Cuba to lead an expedition with the same pilot and some of the same soldiers who had thus gained knowledge of the country. He sailed with 11 ships and about 800 men under orders to explore, trade with the Indians, and spread the Christian faith. After preliminary scouting he established the port of Veracruz (Villa Rica de Veracruz, Rich Town of the True Cross) and promptly converted the venture into conquest of the Aztec Empire, a feat that changed the course of history in aboriginal Mexico and initiated an experiment of unprecedented scope in the transplantation of European institutions and ideas.

Aztec society was organized into well-defined classes, the religious and military occupying the favored position. Farmers, craftsmen, and builders supported the large army of warriors and the hierarchy of Aztec priests, who conducted ceremonial rites honoring their deities and rendered human sacrifice to the sun god of war, Huitzilopochtli or Mexitli. Montezuma II, their ruling chief since 1502, first greeted the Spaniards with princely courtesy and rich gifts. He is said to have been killed by his own men when the populace rose against the invaders, but Cuauhtémoc, the last Aztec chief, fought so valiantly in defense of his domain that he is today the prototype of the national hero. The size and splendor of Tenochtitlán with its great stone temples and palaces, its

Venice-like waterways, immense market, flowers and gardens, gold and silver ornaments, feather work, cotton, precious stones, strange food and medicinal plants excited the wonder and admiration of Cortés and his soldiers. Equally wondrous to the Indians were the horses and firearms of the Spaniards.

SPANISH COLONIAL RULE (1521–1810)

By 1535 the conquest was complete and the Spanish Crown established a Viceroyalty of New Spain with the seat of government in the City of Mexico, built on the ruins of the Aztec capital. With centralized authority and unity of Church and State, the line of royal command touched every phase of colonial life. Exploration and colonization proceeded with zeal as some of the ablest men in the realm of Charles V set about their work of Christianizing the Indians and exploiting the wealth of the land. During the course of three centuries the viceroys built up a feudal system of society, developed mines and agriculture, established a thriving trade with Spain, extended the frontier northward and westward from Louisiana to California, built thousands of churches, founded schools, and encouraged the arts. Many of the colonial cities and mining towns are important today, for as political centers they became the provincial capitals around which States were organized when independence was won.

American-born Spaniards as well as Indians came to have many grievances under the viceregal government. Only Spaniards born in Spain could hold office, industries competing with those in Spain were discouraged, goods sent to and from New Spain could be carried only by Spanish ships, taxes were burdensome, laborers in the mines and on the large haciendas and construction works were in virtual bondage. By the early part of the 19th century the protests against these abuses had grown to open revolt. The Grito de Dolores, a stirring appeal of Father Miguel Hidalgo y Costilla, priest of the village of Dolores in Guanajuato, touched off the armed revolution on September 16, 1810, a date since celebrated as national Independence Day.

NATIONAL FORMATION (1810–1910)

The struggle was to last 11 years. Hidalgo and Morelos, another priest who joined the movement, were executed by the royalists, but guerrilla attacks continued until 1821, when Agustín de Iturbide, appointed by the Viceroy to quell the uprising, joined forces with the revolutionists and proclaimed the independence of Mexico. This, however, was no real victory for the revolutionary leaders, since Iturbide in the role of emperor continued the traditional rule of vested interests—landed aristocracy, upper clergy, and monarchial Spaniards. Iturbide's

empire lasted less than a year and by 1824 the Congress had adopted a constitution defining the government as a representative, popular, federal republic. The flag of the Republic was also adopted with three vertical stripes of equal width: green for unity, white for religion, red for independence. England and the United States recognized the new country, and its first president, having abolished titles of nobility and freed the slaves, initiated measures designed to develop a democratic society.

Political independence was a milestone in Mexico's history, but efforts to create a new social and economic order met with many discouraging reversals. The long colonial rule had in no way prepared the people to govern themselves. Conservatives struggled to maintain a centralized authority while liberals advanced such ideas as separation of Church and State, abolition of *fueros* (legal privileges of the clergy and military) and of special taxes to support ecclesiastical institutions, conversion of large landholdings into small individual properties, reorganization of courts, State's rights, freedom of the press, universal suffrage, and many other far-reaching reforms. Confusion, banditry, economic depression, revolution, and general instability were the conditions under which governments rose and fell throughout the next half century. During the presidency of General Antonio López de Santa Anna, whose disastrous influence extended over 3 decades, Texas declared its independence from Mexico and later was annexed to the United States. This loss was followed by a bitter war with the United States, ending with the further concession of all the country's northwest territory from the Río Grande to Oregon.

In 1857 a new Reform Constitution was adopted and Benito Juárez, a Zapotec Indian respected for his integrity and democratic principles, acted decisively to reduce the temporal power of the Church and to guarantee individual liberties. The United States supported the Juárez Government, but England, France, and Spain sent an allied expedition to Mexico to protect their interests. England and Spain withdrew, however, when they learned of France's intention of placing the Archduke of Austria on the Mexican throne. The Mexicans resisted this effort of Napoleon III to reestablish a French colonial empire in the New World and their victory at Puebla on May 5, 1862, is one of the glories in Mexican annals. The French nevertheless occupied the capital, and the ill-fated empire of Maximilian and Carlota lasted until May 1867.

Juárez, having withdrawn to Querétaro and other cities to the north, was able to establish headquarters in El Paso del Norte, now Ciudad Juárez, and continue the resistance by sporadic guerrilla attacks. When, upon demand of the United States, French troops were withdrawn, Maximilian was left without resources. He was executed by a firing squad in Querétaro and Juárez returned to the capital to reconstruct the

Reform Government. The idea of a monarchy had at last been abandoned and Mexicans now worked with renewed hope and a nascent sense of national consciousness toward their political goal—United Mexican States governed by Mexicans under the Reform Laws and the Constitution of 1857. But the country was impoverished and the people were used to violence and disorder, so after the untimely death of Juárez in 1872 another 40 years were to pass before the task of freeing the Mexican masses was taken up again.

General Porfirio Díaz, a hero of the war against the French, was proclaimed provisional president in 1876—a turn of affairs that profoundly affected both internal development and foreign relations. Except for one interval (1880–1884), Díaz occupied the presidency continuously from that date to 1911. Under a banner of Peace, Order, and Progress, Díaz concentrated on economic growth and political reconciliation. He encouraged and protected foreign investments, reestablished credit, stabilized currency, paid foreign debts, opened banks, resumed mine production, surveyed agricultural resources, organized new industries, built railroads, drained the valley of Mexico, erected magnificent buildings, beautified the capital, provided free schools, and, in general, created an era of prosperity for the privileged classes. By means of a mounted rural police force, life and property were rendered as safe as in any other civilized country of that day.

SOCIAL REVOLUTION (1910 TO PRESENT)

The era of enforced peace, however, had not improved the lot of the Indians and working classes. Forty million acres of agricultural land were owned by 29 individuals and corporations, and while fabulous profits were accumulated by proprietors or sent out of the country, the landless peasants worked at wages so low that their debts bound them to their employers. Indian villages had been uprooted by the sale of communal lands, thousands of the natives had been killed or jailed, many workers were injured through lack of safety provisions in the mines and other hazardous enterprises, roads were few and poor, schools were wholly inadequate, child labor was common, living conditions were miserable. Thus a hundred years after independence the time ripened for revolution. The Díaz dictatorship was overthrown and in 1911 Francisco I. Madero was elected President on a platform of political reform.

Madero, an idealistic and sincere patriot, was assassinated before he could stabilize his government. Age-old resentments flared, fighting broke out in several parts of the country at once, the guerrilla chiefs Pancho Villa and Emiliano Zapata incited the people with the battle cry of "Land and Liberty," and a succession of presidents served short terms as the revolutionary leaders attempted unsuccessfully to con-

solidate their gains. The Revolution of 1910, at first a blind groping toward human rights and material betterment, differed from previous revolts in that the current of ideas moved away from the past and took shape as a social movement which continues to motivate the national life.

A new constitution, based on the unfulfilled reform Constitution of 1857, was promulgated on February 5, 1917, and this document, amended at intervals since, has endured as the basis of the Mexican Government. The Constitution of 1917 incorporates many of the ideals of the French and American revolutions and provides for advanced social reforms. It is not so much a code susceptible of immediate fulfillment as an expression of long-range purpose. Succeeding presidents—Obregón, Calles, Cárdenas, Alemán, Cortines, to mention some of the outstanding figures—have carried out the constitutional provisions more and more fully.

Government

The President, as chief executive and commander in chief of the armed forces, exercises broad constitutional powers. He is elected by direct popular vote, serves for 6 years, and may not seek a second term. A cabinet composed of 13 departmental secretaries, 2 directors of Federal agencies, and the Attorney General, is appointed by the President and responsible to him. The Secretary of *Gobernación* (Interior), in addition to administering his department, serves as liaison between the Federal and State governments and is in effect the deputy President for domestic affairs. There is no office of vice president.

The Congress is composed of 60 Senators, 2 from each State and the Federal District, elected for 6 years, and a Chamber of Deputies whose 162 members are elected for 3 years on the basis of population, 1 for each 170,000. The Congress is in session from September 1 to December 31 and functions during the recess through a permanent committee of 29 members chosen by the two Houses. Judicial power is vested in a Supreme Court of 21 members who have permanent tenure and who appoint the judges of the lower Federal courts for limited terms. The legal system follows Hispano-Roman traditions. Mexican civil law is unique in the legal remedy known as *amparo*, by which any person whose constitutional rights have been infringed may claim immediate access to the courts and full reparation.

The State Governments are similar in structure to the National Government. The Constitution of 1917 determines their organization and grants to the Federal Government certain powers of intervention in the States. State governors and legislators are elected by direct popular vote; the governors of the two Territories and the chief of the Federal District are appointed by the President. Although represented in Congress, the Territories and Federal District are dependent on the Federal

Government for their administration. Following the Revolutionary slogan "Effective suffrage, no re-election," Federal officials and State governors are ineligible for second terms and municipal officials may not serve consecutive terms. A constitutional amendment granting women full suffrage became effective in 1953.

Local government is carried on by a municipal council of citizens elected by popular vote for 2-year terms. The chief authority in local affairs is the Municipal President, sometimes elected and sometimes appointed by the council from among its members. The municipalities are both rural and urban and range in size from Mexico City, with 2½ million people, to places with fewer than 1,000 inhabitants. Theoretically the municipal and State Governments have a large measure of autonomy, but in practice the Federal Government is the dominant political force.

Political parties in Mexico before the Revolution were transitory, forming generally about military leaders, but since the Revolution a one-party system has prevailed. The official party, Partido Nacional Revolucionario (PNR) was created in 1929 by President Plutarco Elías Calles with its membership made up largely of important army chiefs. President Lázaro Cárdenas added to its membership with trade union and agrarian delegates and reorganized it under the name of Partido Revolucionario Mexicano (PRM), using the slogan "Democracy for Workers." With further broadening to include individual members and lower middle-class participation, President Manuel Ávila Camacho reorganized the party once more under the name of Partido Revolucionario Institucional (PRI) with the motto of "Democracy and Social Justice." In 1950 a long set of party principles was issued with an open invitation to membership to all citizens who aspire to realize the program of the Mexican Revolution, within the bounds of the Constitution, for the benefit of all the inhabitants of the nation.

Recent administrations have been stimulating civic consciousness, taking measures to ensure free and peaceful elections, and opening the way for the development of an opposition party. In the 1952 presidential elections more than 4 million people voted and, although PRI polled 85 percent of the total, there was a small vote cast for candidates of four other parties. Over 2,600,000 new women voters registered for the 1955 election of Deputies. The strength of PRI is explained by its ability to resolve internal differences through compromise and to show satisfactory gains toward social and economic betterment.

Geographical Factors

Scarcely a third of Mexico's surface can be classed as level, and half the land is deficient in moisture throughout the year. The water supply of

the other half varies from too much to too little. In parts of the *tierra caliente* rainfall is overabundant, up to 120 inches annually, while other sections of the country have sufficient water only during the summer. The latter areas, comprising roughly a third of the total, have a rainy season, often described as not very rainy, and a dry season that is very dry. Only a small portion, estimated by the Secretariat of Hydraulic Resources at 7 percent, can be counted on for regular agricultural production without irrigation.

The mountainous character of the terrain affects not only the climate but has a direct bearing also on the distribution of the people, on communication and transportation, economic resources and development, and the problem of unifying the Mexican nation. Regionalism is very marked in Mexico, and this must be attributed in part to geographic structure. The Sierra Madre is a major barrier which makes many sections of the country all but inaccessible. The ascent to the central plateau is somewhat less formidable from the East than from the West, but it is spectacular from almost any approach. The Pan American Highway, for example, upon leaving the coastal plain climbs 4,200 feet within a distance of 60 miles. The railroad from Veracruz to the capital rises 3,000 feet in 10 miles at the Maltrata incline. The western chain of the Sierra has a width of 100 miles or more and is surrounded in places by peaks well over ten thousand feet above sea level. Frequent earth tremors are caused by volcanic activity.

Much of the central plateau is not drained to the sea, the moisture escaping by evaporation, and in the Yucatán peninsula the drainage is underground. The rivers, because of the mountains, are rapid, frequently narrow, and for the most part unnavigable. The most important of the 34 flowing into the Gulf of Mexico or the Caribbean are the Río Bravo del Norte (Río Grande), the Pánuco, Papaloapan, Coatzacoalcos, Grijalva, and Usumacinta. The Pánuco reaches the Gulf at the site of Tampico and greatly facilitates commerce from the oil fields. It also drains the lakes of the Valley of Mexico, thus preventing the floods and malaria that used to plague the capital city. Large boats go up the Coatzacoalcos as far as an oil refinery located about 26 miles from its mouth, Puerto México. The Grijalva, rising in the State of Chiapas, is navigable for 90 miles. The Usumacinta, also in the Southeast, is 450 miles in length and furnishes nearly the only transportation, other than by air, along its course. The Gulf ports have to be dredged because of the obstructing sand bars. Tampico, Tuxpan, Veracruz, Puerto México and Progreso are the port cities with the liveliest trade.

The principal rivers of the Pacific slope are the Yaqui, Fuerte, Lerma, and Balsas. The Lerma, rising near the Nevado de Toluca, empties into Lake Chapala, from which rises the Santiago. The latter forms a waterfall with an 80-foot drop near Guadalajara and flows on through

deep canyons to the Pacific. Several rivers unite to form the Río Fuerte before emptying into the Gulf of California. The gorges cut by these rivers are said to rival the splendor of the Grand Canyon of the Colorado, being perhaps 2,000 feet deeper though not as wide. The mighty Colorado reaches its outlet in the Gulf of California through the Mexican part of the Imperial Valley and forms a delta which is very productive. The best natural harbor of Mexico is Acapulco, but the ports having railroad connections with the interior are more important: Guaymas, Mazatlán, Manzanillo, Salina Cruz.

The largest lake in Mexico is Chapala in the State of Jalisco. It is some 70 miles long and 20 miles wide. The only other lakes of any considerable size are Pátzcuaro and Cuitzeo in the State of Michoacán. The waters that remain of the lakes of the Valley of Mexico are now chiefly a tourist attraction—the Floating Gardens of Xochimilco.

Mexico's greatest wealth is in its rich supply of minerals and oil. The country produces over half of the world's supply of silver. It also has magnificent forests, and the variety of plant and animal life is as remarkable as the range in latitude, altitude, rainfall, and other geographical factors. The following chart lists the salient types of resources in relation to the land characteristics of the central and outlying regions of the country. Many of the foods used widely today are indigenous to Mexico: corn, beans, chili pepper, squash, avocado, pineapple and many tropical fruits, chocolate, vanilla, peanuts, cashews, and turkeys.

Table A. Resources and land characteristics, by region [1]

Central Region (14% of area, 48% of 1952 pop.)

State	*Capital*	*Elevation of Capital (feet)*	*Geographical characteristics*
Aguascalientes	Aguascalientes	6,260	Composed of 7 large basins and valleys separated by mountains, each with its own distinct Indian culture. Much of soil is formed on accumulation of volcanic ash and weathered lava flows. Streams feed from snow fields. Important mining centers produce silver, copper, mercury, antimony, tin, lead, semiprecious stones. Crops include corn, alfalfa, wheat, maguey (from which comes pulque, a popular drink), beans, chili, peanuts, quince, peaches, pears. Forests of pine, oak, ahuehuete (Mexican cypress), and semitropical trees. Warm mineral springs in Aguascalientes. Duck and other waterfowl plentiful; fish abundant in lakes.
Jalisco	Guadalajara	5,092	
Guanajuato	Guanajuato	6,837	
Querétaro	Querétaro	6,119	
Hidalgo	Pachuca	8,025	
Michoacán	Morelia	6,188	
México	Toluca	8,661	
Distrito Federal.	México	7,349	
Morelos	Cuernavaca	4,500	
Tlaxcala	Tlaxcala	7,388	
Puebla	Puebla	7,093	

[1] SOURCE: *Anuario Estadístico de los Estados Unidos Mexicanos 1951–52.*

Table A. Resources and land characteristics, by region[1]—Continued

State	Capital	Elevation of Capital (feet)	Geographical characteristics
North Pacific **(21% of area, 7% of 1952 pop.)**			Desert, bounded on east by rugged Sierra Madre Occidental, rolling tableland broken by canyons. Very hot on coast, winters mild and dry. People are remote from outside world. Occupations: cattle grazing, pearl fishing, mining (copper, gold, silver), farming (corn, wheat, sugarcane, oranges, olives, dates, vegetables).
Baja California, Norte.	Mexicali	Sea level.	
Baja California, Sur.	La Paz	42	
Sonora	Hermosillo	777	
Sinaloa	Culiacán	275	
Nayarit	Tepic	3,002	
North **(41% of area, 20% of 1952 pop.)**			Arid isolated high plateaus and basins, steep rocky slopes, timber on mountains, many varieties of cactus, desert flora, and fauna. Mining of silver, gold, copper, iron, lead, zinc, coal, mercury. Cattle raising and subsistence farming. Laguna District of Durango and Coahuila and State of Tamaulipas have commercial agriculture (long-staple cotton, wheat, corn, alfalfa, oranges). Tampico is center of oil industry.
Chihuahua	Chihuahua	4,632	
Coahuila	Saltillo	5,246	
Nuevo León	Monterrey	1,765	
Tamaulipas	Ciudad Victoria.	1,102	
Durango	Durango	6,315	
Zacatecas	Zacatecas	8,189	
San Luis Potosí	San Luis Potosí.	6,458	
Gulf Coast **(12% of area, 12% of 1952 pop.)**			Hot low plains, partly swampy, high humidity, frosts rare. Dense exuberant vegetation, some grasslands. Hundreds of varieties of trees, medicinal plants, flowers. Profusion of tropical birds, animals, insects, reptiles. Important for cabinet woods, guayule rubber, petroleum, chicle, rice, sugarcane, tobacco, bananas, pineapple, avocados, vanilla, cacao, coffee plantations on slopes of mountains, henequen and ixtle fiber plantations in Yucatán.
Veracruz	Jalapa	4,530	
Tabasco	Villahermosa	32	
Campeche	Campeche	16	
Yucatán	Mérida	29	
Quintana Roo	Chetumal	10	
South Pacific **(12% of area, 13% of 1952 pop.)**			Rugged surface, tropical heat, fertile valleys surrounded by mountains, forests of valuable woods. Occupations: agriculture, cattle raising, copper mining, weaving, pottery making, leather work, deep-sea fishing. Wildlife includes fowl, deer, mountain lions, brilliantly colored birds, turtles. Principal products: chicle, guayule rubber, castor beans, sugarcane, cacao, coconuts, figs, lemons, oranges dyewoods.
Guerrero	Chilpancingo	4,462	
Oaxaca	Oaxaca	5,069	
Chiapas	Tuxtla Gutiérrez.	1,738	
Colima	Colima	1,575	

[1] Source: *Anuario Estadistico de la Estados Unidos Mexicanos 1951–52.*

The People

Until recent years any description of the people of Mexico customarily started with the estimated number of pure Indians, persons of mixed blood (*mestizos*), American-born Spaniards (*criollos*), and Spaniards direct from Spain. Then followed an explanation of the two classes of society, upper and lower or rich and poor, with attention focused on the achievements of those carrying on the European tradition. Such descriptions no longer give an accurate idea of the Mexican people. Since the Revolution of 1910 the watchword has been *Acción Social*, and the promises of the Revolution are the constant preoccupation of all who find themselves in positions of responsibility. Through education, welfare and public-health programs, improved agriculture, upgrading of labor, better communication and transportation, industrialization, and every other means possible, the underprivileged and their children have been moving up the socio-economic scale.

So today the traditional stratifications of society are being reshaped. The emergence of an expanding middle class and the transitional progress of the Indian population toward integration into the national life are significant steps in the process of "forging the fatherland," as the Mexicans express it. This process is not visualized as one to Europeanize or Indianize, but rather to Mexicanize, to foster a mestizo culture, to apply the heritage of all Mexicans realistically to the task of working out their own destiny. The desire to dignify the Indian culture was expressed in 1953 when the nation's best artists and archeologists collaborated in the production of a magnificent pageant, "El Quinto Sol" (Fifth Sun), given under Government auspices in the new University Stadium. Twenty-five hundred dancers took part in a series of ballets based on Indian legends.

It has often been said that on the whole the Mexicans are more Indian than Spanish, and that is no doubt true, but both ethnically and culturally the Indian groups are exceedingly disparate and complex. They are scattered in remnants of tribes in nearly every section of the country, the largest concentration, about 94 percent, being in the central, gulf coast, and south Pacific regions. There are 56 groups, each with its own language. The following list, compiled from 1950 census data, shows the number and principal location of the groups having more than 8,000 monolingual members.

Some of the Indians live in a primitive state on ridges of mountains or in hidden valleys and hold to their own customs and beliefs and ancient lore. They are all the more isolated if they do not understand Spanish. The Tarahumaras, who have become known as swift runners, are semi-nomadic cave dwellers in the high Sierra Madre Occidental. Other groups or individuals become bilingual but keep their own customs and

Table B.—Principal Indian language groups

Major Indian group	*Monolingual population*	*States in which concentrated*
Chatino	8,259	Oaxaca.
Chinatec	15,702	Oaxaca.
Chol	18,898	Chiapas.
Huastec	17,276	San Luis Potosí, Veracruz.
Maya	50,912	Campeche, Chiapas, Quintana Roo, Yucatán.
Mazahua	16,254	México, Michoacán.
Mazatec	47,167	Oaxaca, Puebla.
Mexican or Náhuatl	212,813	Guerrero, Hidalgo, México, Morelos, Oaxaca, Puebla, San Luis Potosí, Veracruz.
Mixe	21,005	Oaxaca.
Mixtec	76,946	Guerrero, Oaxaca, Puebla, San Luis Potosí, Veracruz.
Otomí	57,559	Hidalgo, México, Puebla, Querétaro, Veracruz.
Tarahumara	8,166	Chihuahua.
Tarascan	9,796	Michoacán.
Tlapanec	12,234	Guerrero.
Totonac	54,333	Puebla, Veracruz.
Tzendal	31,856	Chiapas.
Tzotzil	44,103	Chiapas.
Zapotec	60,680	Oaxaca, Veracruz.

native dress and live in much the same manner as their forefathers, seldom leaving their community. A considerable number, however, use Spanish exclusively and have adopted modern standards of living. They own lands, operate businesses, wield political power, and live better than many urbanites. Many Indians appear to be Indian in speech only, while many mestizos are more culturally bound to the Indian way of life than to the mores of modern groups. Even in the same community there may exist a considerable range in wealth, status, and extent of modernization.

Any attempt to identify classes of people is therefore more related to economic opportunity and educational advancement than to racial characteristics. Mexico has every level of society from the citizens who rank among the world's great to those who live in abject misery. There is still a small aristocratic leisure class whose world fell apart when the Díaz regime ended. Large landowners, great merchants, important military families, industrial kings, and high political officials live in luxury and enjoy the usual prestige. Intellectuals, artists, professional people, independent ranchers and farmers, businessmen, bureaucrats, and various other educated and technically trained persons maintain a comfortable standard of living and receive the recognition which their talents earn them, but they have little leisure. They are solid citizens and productive, creative, enthusiastic leaders. Semi-skilled workers, venders, servants, small farmers, and unskilled manual laborers live more or less at the sub-

sistence level, but they have ambition and work hard without losing their love of color and music and fiesta. Those at the bottom of the cultural strata live in the direst straits without resources or hope. It is estimated that perhaps two million of the rural population are in the last category. Illiteracy and poverty and disease are closely allied, and for that reason the Government is redoubling its efforts to bring fundamental education within the reach of all.

After the first impulse of colonization by the Spaniards in the 16th century, there has been little foreign immigration. The 1950 census enumeration showed a total of 182,707 foreign-born residents. Of that number 83,391 were from the United States and 37,540 from Spain. Two thousand or more came from each of the following countries: France, Great Britain, Germany, Austria, Poland, Union of Soviet Socialist Republics, Italy, China, Lebanon and Syria, Canada, and Guatemala. The increase by immigration was counterbalanced, however, by Mexican emigration.

All but a very small percentage of the Mexican people are nominally Roman Catholic. Some 330,000 Protestants were counted in 1950 and there were about 130,000 in all belonging to other faiths. A small Jewish community of 17,000 is located in Mexico City, but about half of these people were Mexican-born, their parents having been Sephardic immigrants in the first decade of this century. The fact that the dominant faith is shared by nearly the whole of the Mexican people, in and out of public life, would appear to be a unifying force, but the centuries-old conflict regarding the political and economic power of the clergy has never been resolved. The problem has its roots in the colonial period and the events leading up to the Reform Laws and Constitution of 1857, as well as in connection with conditions producing the Revolution of 1910 and efforts to carry out the provisions of the present Constitution. Although Church and State have been separated and education made secular, this schism in Mexican life seriously affects many aspects of the country's social and educational evolution.

Economic Development

Economic conditions in Mexico are as varied and complicated as the social situation. The prevalent standards of living may be indicated by the sections of the Government census dealing with food, clothing, and housing. According to these data, 13½ million people (52 percent of the 1950 population) eat wheat bread and wear shoes, about 11½ million (44 percent) eat no wheat bread and wear homemade sandals or go barefoot. (Infants under 1 year of age account for the remaining number.) Corn and beans are the food staples. While many homes are comfortable to palatial, more than half of the 5½ million dwellings are primitive adobe or

reed structures serving only as elementary shelter. About 900,000 homes have running water, while 500,000 have no water service; 2½ million have a well or tank for rain water, 1½ million have a community water supply. About a fourth of the people live on *ejidos*, communal or cooperative farm villages with small individually worked plots. The *ejido* system, dating back to preconquest times, was instituted when the land monopoly of the Díaz regime was broken by expropriation and redistribution of some 76 million acres. About 62 percent of the land is still in large holdings, some of more than 2,500 acres, but the large haciendas and ranches are mostly in the north or other areas where the land is unsuited to small-scale cultivation.

The economically active population, according to official tabulations, numbers 8⅛ million. More than half the workers are engaged in agriculture, cattle raising, or fishing; 1⅛ million are employed as industrial labor; 684,000 are in commerce; 210,000 in transportation; 879,000 in service fields; and 355,000 in unspecified occupations. The per capita income averages about 2,250 pesos ($180 in U. S. currency) annually. Since the population is predominantly rural and too poor to provide a market for many things beyond the prime necessities, the nation's industries must depend largely for their outlet on the urban population. The Indians carry on their commercial transactions almost altogether in the markets, where a system of barter is used and little cash changes hands. One day each week the village square comes alive as the Indian families arrive to display their wares and exchange news. Some walk great distances up and down steep mountain trails, with men, women, children, and burros alike all heavily loaded.

These illustrations of economic conditions point to the difficult and numerous problems that confront the nation, but the whole picture must be viewed in contrast to pre-Revolutionary circumstances as well as in relation to modern Mexican ideals of material welfare. In the short space of 30 years, Mexico has moved with determination away from the semifeudal economy and the social order of privilege and peonage that had persisted into the twentieth century. The country is now in a decisive transitional stage in which possibly the tide has already turned in the direction of national prosperity.

Agriculture, although using the majority of workers, has not until recently produced the basic foods in sufficient quantity. In 1952 it was estimated that in order to overcome the scarcity the country would have to produce a minimum of 4½ million tons of corn, 1⅛ million tons of wheat, and 500 thousand tons of beans. The goal was reached in 1954–55, partly because rainfall was more abundant, partly because of increased irrigation, improved methods of cultivation, extension of the planted acreage, and a more liberal bank policy of agricultural credits. The increase in agricultural production, making Mexico self-sufficient in basic

foods, permitted storing a reserve of corn and beans, and yielded, in addition, more commercial or export crops, especially of cotton, coffee, and sugar. At the same time there was a surplus of 400,000 cattle for export.

The gain in agriculture is but one example of the impressive progress that is being made toward increased national production. In his annual report to the Congress in September 1955, President Adolfo Ruiz Cortines enumerated percentages of increase in electric power production, manufacturing industries, mining, pertoleum production, railway freight loadings, passenger traffic, and volume of retail sales. By means of a loan to the Mexican Government by the International Bank for Reconstruction and Development, 1 billion, 125 million pesos ($90 million) are to be utilized for electrification, rehabilitation and construction of seaports, and erection of plants to produce fertilizers. The national budget, the largest in history, provides for the extension of railway and highway connections in order to interlock all existing routes into an integrated, widely ramified system. These improvements in communication are considered to be an indispensable means of agricultural, industrial, and social progress, for they will bring material benefits to the country at large and tend to elevate the cultural standards among many hitherto isolated segments of the population.

Along with improvements in harbors, highways, and railroads, Mexico is opening up new air transportation to remote settlements. One such project, planned by Heli-Mex, S. A., will bring 208 villages in 3 southern states into a network which makes contact with the railroad and the Pan American Highway. A fleet of small planes and helicopters is already carrying passengers, cargo, and mail to jungles and mountains that are inaccessible by other means. This service, first started in order to carry the payroll safely and quickly to the oil fields, now uses 500 landing fields which have as yet few facilities. Some 28 subsidiary lines carry on intercity air service. The airport in México, D. F., which is ultra-modern, spacious, and complete in every way, is served internationally.

Increasingly aware of the importance of Mexico's mineral assets, President Ruiz Cortines recently recommended the creation of two Government agencies for their control and protection: the Superior Coordination Council, to have jurisdiction over non-renewable natural resources, and the Nuclear Energy Commission, with special jurisdiction over uranium deposits and other radioactive material. The Papaloapan Commission, established by Law in 1951, has a budget of 100 million pesos and a staff of 180 engineers and specialists to work in the Papaloapan River basin. This area includes about half the State of Oaxaca and parts of the States of Veracruz and Puebla. The Commission surveys the natural resources; directs the construction of dams and roads; organizes sanitation campaigns; and plans the development of education, agriculture, cattle raising, meat packing, etc., in the new communities that are

established. The Miguel Alemán Dam, now complete, irrigates up to 750 thousand acres. Some redistribution of the population will take place as a result of this and other large public works projects under way.

The 1955 budget also provides for the construction of several additional irrigation systems to extend the acreage of tillable soil and for the construction of new hospitals, clinics, and schools. The petroleum industry, nationalized in 1938, is expanding rapidly. Discovery of new oil fields is expected to halt the evils of deforestation and erosion by providing abundant fuel. Consumption of gasoline is increasing and a new refinery plant in the State of Guanajuato is producing all types of lubricating oils, which formerly had to be imported. Industrialization is somewhat concentrated in the capital, but Monterrey, Saltillo, Guadalajara, Aguascalientes, San Luis Potosí, and a few other cities are noteworthy for their manufactures and industrial growth. Mexico's movie industry, boasting four large companies, the Tepeyac, Churubusco, Clasa, and Azteca, has occupied first place among Spanish-speaking countries in recent years.

Although mechanized production is encouraged, particularly to utilize available raw materials, there is one field—that of the Indian handicrafts—in which efforts are being made to preserve the ancient ways. Large numbers of artisans, estimated at 3 million, still work at least part time at the same crafts which were the marvel of the early explorers: featherwork, textiles, blown glass, pottery, fiber goods, jewelry of silver and gold and semi-precious stones, lacquered objects, leather goods, wood carving, straw mats and baskets, and many other beautiful objects. The quality and unusual diversity of the folk arts have withstood the turbulence of centuries, and post-Revolutionary Mexico has come to have a fresh appreciation of the high place that popular arts should have in the developing culture. Throughout the Republic, especially in the large market in Oaxaca, the array of handicraft gives evidence of the artistry and creativity of the indigenous peoples. A small factory in Yucatán, utilizing native mahogany and other fine woods, is producing furniture for export, but the native crafts would deteriorate or cease altogether if put on a mass production basis. The maintenance of the handicraft industry is related also to the tourist trade, a major source of income for Mexico. The dollar value of tourism grew from 65 million in 1945 to 158 million in 1951.

Another significant outgrowth of the Revolution has been the labor movement. The Constitution prescribes an advanced code of labor standards. Minimum wages are fixed every 2 years by Government boards, though the wage may vary according to locality, and wages above the minimum are set by individual or collective agreement. Labor is organized in four principal national confederations and several independent national unions, all of which have close political connections.

The social security system, so far applying chiefly to urban workers, provides for compulsory insurance of employed persons against industrial accidents, sickness, disability, old age, and death. Federal low-rent housing and consumers cooperatives also help the worker to become economically secure. Although peonage still exists, in practice, hacienda workers are protected by laws requiring that they be paid a minimum wage and have adequate living quarters, schools, and a tract for subsistence farming and grazing of domestic animals.

Educational History

INDIAN EDUCATION

From the abandoned cities of the Mayas it is known that they were advanced in astronomy, mathematics, architecture, and the arts, but their civilization was decadent when the Spaniards arrived in Mexico and little is certain about their education. Organized public education appeared among the Aztecs during the rule of Chief Izcóatl, who died in 1440. Details of the strict discipline and subject matter of the system are set forth in the Codex Mendocino, now in the National Museum.

All Aztec life was subordinated to religious ritual. Being the chosen people of Huitzilopochtli, war god and symbol of the sun, which dies every night and is reborn every morning after triumphing over moon and stars, it was their duty to provide his food—human blood—so that the sun would not cease to give light. Even the public festivals, featuring music, dancing, gymnastics, and ball games, had a religious significance. The main purpose of education therefore was to prepare boys to be priests or warriors and girls to serve in the temples. Those who through lack of position or capacity could not enter the State schools received no formal education outside the home.

Up to age 15 the sons were taught by the father and the daughters by the mother according to methods rigidly prescribed for each year. Children of nobles and poor alike had a diet of corn tortillas (tlaxcalli), were bathed in cold water, wore scant clothing, slept on hard beds, and did light chores such as carrying water or carding cotton. At age 7 the boys learned the father's trade and the girls took up spinning. Laziness was punished at age 8 by pricking with maguey thorns, and in succeeding years also by tying the hands and feet, whipping, and subjection to the asphyxiating smoke of dry chili peppers. By age 14 the boy had learned to row a boat, fish, and gather wood and herbs. The girl could spin, weave, grind corn, bake tortillas, and cook. Both were given moral maxims to instill reverence, respect for parents, consideration of the poor and invalid, devotion to duty, and horror of lying and idleness. The

austerity of the training was to fit young people for the needs of this life.

At the age of 15 the boys and girls were consigned by their parents with many ceremonies and blessings to a State school preparing for the chosen career. Boys of the nobility entered the Calmecac to be trained for the Aztec priesthood. They were taught to speak courteously and with good rhetoric and to do complicated operations in a mathematical system based on the number 20. They offered prayers and sacrifices, learned sacred chants and hieroglyphic writing and reading, observed the stars, interpreted the calendar, studied local geography and historical events, and tested the properties of hundreds of plants. Following a routine of hard tasks for training the will to dominate the appetites and conquer pain, they ate frugal meals, slept on uneven ground in order to grow accustomed to fatigue, and finally dedicated themselves to the service of one of the major deities.

Middle-class boys entered the Telpuchcalli to train for a military career. The studies there were similar to those in the Calmecac and the discipline even more rigorous. Commissions were won by feats in battle. Those who obtained the surrender of 2 or 3 warriors could add colors and armor and pass to a higher rank of officer. One who captured an enemy chief became a Tiger, and with the capture of 3 chiefs he became an Eagle. The Mexicans believed that warriors killed in combat obtained the privilege of accompanying the sun in its victorious circuit each day; those who drowned would enter the paradise of Tláloc, the rain god.

Public education for women was also in two types of school, where they submitted to an exacting schedule of manual labor and penance. They were awakened, for example, at 4 a. m. to sweep the house and street. Since intellectual training was not considered important for them, they learned domestic duties, morals, singing, and dancing. Vows were taken for a variable number of years or permanently.

SPANISH TRANSPLANTATION

Colonial education had a different purpose, but in some ways it resembled the Aztec system. The physical conquest was carried out by the soldiers, the educational and spiritual by the missionaries. Pedro de Gante (Peeter van der Moere of Ghent), a Franciscan friar, established the first mission school in Texcoco in 1523, and later others in Tlaxcala and Mexico City, to teach the Christian religion, the Spanish language, and singing. The music classes were so successful that Fray Pedro wrote his kinsman Charles V saying his native singers would do him credit in the royal court. He and the other Flemish friars with him learned Náhuatl and wrote the Christian doctrine in the language of the pupils, adapting the method somewhat to the hieroglyphic forms already familiar to them. Noting that the Indians knew how to paint and had excellent vegetable colors, he added fine arts for the older students.

Soon also he included shoemaking, tailoring, carpentry, stonecutting, and other trades. From the thousand or more boys attending Fray Pedro's schools, 50 were selected for special training preparing them to preach on Sundays and build altars for worship to replace the Aztec idols and bloody rites. Many of these young men belonged to the vanquished nobility, but the transition to Christianity did not require much compulsion because the Mexicans believed that the fair god Quetzalcóatl would return one day to rule them, and he, like Cortés, had been opposed to human sacrifice. Moctezuma's fatalistic acceptance of the Spanish invasion as the fulfillment of this prophecy accounts for his wavering in the face of destruction.

The first archbishop of New Spain, Juan de Zumárraga, had a printing press established, and *Escala Espiritual*, the first book to be published in America, appeared in 1536. His own *Doctrina Breve* was published in 1544. Bishop Zumárraga wanted the Gospels and the Epistles of St. Paul translated into the Indian languages and made available to all the people. His ambition was to have in each bishopric a school for boys and a large monastery for girls. Through his efforts and the aid of the first viceroy, Antonio de Mendoza, the Colegio de Santa Cruz de Tlaltelolco was opened in 1536 with 60 boys between the ages of 10 and 12 drawn from leading families of the larger towns and provinces. Besides religion and manners, they were taught Latin grammar, rhetoric, philosophy, music, and indigenous medicine. Bishop Zumárraga also saw the possibilities for the silk industry where mulberry trees flourished and asked for Moorish Christians from Granada to teach the preparation of silk. In 1585 a treatise on silk culture was rewritten in Mixtec and printed for the Mexicans.

Many other important schools for Indians and mestizos were established in the first years of the colonial period and some of the most distinguished scholars of Spain and other European countries were the founders and teachers. The children of Spaniards and *criollos* were generally tutored privately or sent to Spain to study. The Academy of San Juan de Letrán, said to be the first normal school in America, was built to train mestizos for teaching. The students who showed little aptitude for classical learning were given vocational instruction. Augustinians and Dominicans as well as Franciscans were active in building churches, convents, hospitals, and schools. In 1580 Don Vasco de Quiroga, an Oidor of the Audiencia, opened the Real Colegio de San Nicolás Obispo in Michoacán, where he let the Indians govern themselves and learn arts and trades through a cooperative system of work. Instruction was in the Tarascan language.

As early as 1539 Fray Bartolomé de las Casas, known as the Protector of the Indians, took the initiative in the creation of a university for New Spain and Antonio de Mendoza joined in the petition. In 1551, only

30 years after the fall of Tenochtitlán, the University of Mexico was founded by royal decree of Charles V, who bestowed on it a subsidy of 1,000 gold pesos a year and all the privileges of the University of Salamanca, then at the height of its prestige. The Pope confirmed the decree and on January 25, 1553, the Royal and Pontifical University of Mexico was inaugurated by a solemn mass attended by the Viceroy, members of the Audiencia, and all high ranking representatives of the Church and Crown. Classes opened on June 3 with a prayer in Latin by Francisco Cervantes de Salazar, famous pupil of Luis Vives. The curriculum consisted of the "seven pillars of wisdom" of medieval universities—theology, scripture, canons, arts (logic, physics, metaphysics), laws, decretals, and rhetoric. Chairs of medicine and of the Otomí and Náhuatl languages were added some years later. A vivid picture of student life in the new institution is preserved in three dialogs which Cervantes de Salazar wrote in Latin for his classes. Under the title of *México en 1554* the dialogs were translated into Spanish and published in 1875. By the year 1775 the University had conferred 25,882 bachelor's degrees and 1,162 doctorates.

Another highlight in the educational achievements of the 16th century was the arrival of the Jesuits in 1572. Concentrating on higher and secondary education, they organized thorough classical studies in accordance with their *Ratio Studiorum* and sponsored many theatrical representations, literary academies, and public acts. Their influence was widely felt. At the time of the Society's suppression in the 18th century they left in Mexico 25 schools, located in the capital and in Pátzcuaro, Valladolid (now Morelia), Puebla, Oaxaca, Guadalajara, Veracruz, San Luis Potosí, and Guanajuato.

Education in the 17th and 18th centuries did not keep pace with the patterns set in the first years of colonial rule. After the initial heroic efforts of the missionaries, progress slowed. This was due in part to the economic policies and declining power of Spain, but also in large measure to the overwhelming nature of the task. The introduction of European diseases resulted in epidemics that depopulated whole provinces and Indian uprisings became frequent as the *encomienda* [1] system and newly opened mines took their toll. Primary schools were wholly inadequate in relation to the numbers to be educated, and subsidies for education were not increased as ever larger and larger shares of the wealth were sent out of the country, so schools established for the Indians and mestizos were gradually taken over by the Spaniards and *criollos*. It was soon decided, too, that higher education for the Indians would be dangerous. Consequently the Indians and mestizos, if admitted to the University, encountered many pretexts for denying them degrees. Ecclesiastical restric-

[1] Estate of land and inhabiting Indians granted by the King to Spanish colonists and to the Church for purposes of tribute and evangelization.

tions hindered the dissemination of scientific knowledge. Thus the build-up of dissatisfaction in educational matters paralleled that in other fields. The erudite Sor Juana Inés de la Cruz (1651–95), the greatest literary genius of the colonial era, discoursed on the inequalities and injustices of the system, and more than a century later another literary figure, José Joaquín Fernández de Lizardi (1774–1827), was satirizing the schools and propounding educational theories in his newspaper *El Pensador Mexicano* (The Mexican Thinker) and in his novel *El Periquillo Sarniento*, both of which provide an extraordinary picture of Mexican society on the eve of independence.

Toward the end of the colonial period, a significant new school, the Colegio de Minería, was opened through the efforts of the Mining Guild of New Spain and its Tribunal General. Although its permanent building, designed by the architect Don Manuel Tolsá, was not ready until 1814, the school opened in rented quarters in 1792 with 3 carefully selected professors and 8 of its 25 students present. By 1798 ten members of the first class completed the course and went out to selected mining centers (Guanajuato, Zacatecas, and Real de los Catorce) to begin their 2-year internship. In 1801, their dissertations having been turned in and accepted, they all passed the public examination and received the degree of *Perito de Minas*, Mining Expert. In the meantime new courses and additional professors were meeting the needs of an enlarged body of undergraduates. After many delays in purchases and shipments the school was furnished with the most up-to-date scientific equipment of the day, much of it specially constructed by the best artisans in Europe. The director of the school, Don Fausto de Elhuyar, who was made Director General of Mines in Spain after "the separation of the Viceroy from his command," was a well-qualified specialist in mining and an able administrator. The school was held together during the struggle for independence, even though military duty depleted its student body. So the new nation started with at least a nucleus of trained leaders in its most important industry.

INDEPENDENCE

During the early days of the Republic many plans were proposed for extending education to the masses and modernizing the methods of teaching. One of these plans went into effect in the schools organized by the English educator Joseph Lancaster, who went to Mexico in 1822 and formed a Society, Compañía Lancasteriana, "to give free primary education to the children and poor classes by means of schools established at its expense." The monitorial system dominated primary education until 1890.

Upon the adoption of the Constitution of 1824, and the State consti-

tutions, there followed extensive school legislation. The States were sovereign in educational matters, while the Federal Government legislated and administered the system of the Federal District and Territories. The States worked out detailed educational plans that appeared highly satisfactory on paper; systems were elaborated and programs of study were formulated with great care, but changes in the political situation kept rendering them ineffective. A school opened one year might be closed out the next, and a policy adopted by one executive might be dropped by his successor. Many of the elaborate plans drawn up were never executed.

Lack of provision for financing the systems created a serious problem. Later it was realized that the State would have to provide funds and teachers and there was a stir of activity to develop State normal schools. Zacatecas, San Luis Potosí, and Veracruz were the first to get a normal school started. The burden of providing schools was shifted in varying degree from the States to the municipalities. But the municipal governments made slow progress, since they were even poorer than the States, and only the larger cities had educational leaders capable of organizing and supervising the schools. Villages and towns either did nothing or failed to carry out the provisions of the State law. As time went on the States had to intervene more directly in local schools to see that all children were in school and that the length of term, courses of study, teachers' salaries, etc., were up to standard. For this reason the relationship between State and municipality was never well defined and no uniformity existed with respect to their proportionate assessments for the support of schools.

Benito Juárez saw clearly that popular education was the only guarantee that democracy would triumph in Mexico, and he came to believe that education is the duty of the State and should be compulsory, free, and secular. When the Reform Laws, placed in operation by executive order in 1859, were enacted by the Federal Congress 15 years later, the separation of Church and State was an accomplished fact, but the process engendered much hostility between ecclesiastical authorities and Reform leaders. It was not easy to change the time-honored custom of identifying the schools with the monasteries and convents and relying on the religious orders for teachers, nor was it easy in the following years to enforce the laws of the Reform. During the administration of Juárez, Gabino Barreda, who was strongly influenced by the positivistic philosophy of Auguste Comte, prepared new programs of study for the schools and succeeded in effecting a few changes. The founding of the National Preparatory School in 1867 was intended to bring scientific studies to the fore and prepare students effectively for modern life. Housed in the fine old Jesuit Colegio de San Ildefonso built in 1749, the school opened with 700 day students and 200 boarding students.

In the confused years preceding the Díaz regime educational advances were often lost in the background. Under the leadership of Joaquín Barranda and Justo Sierra, the control of primary education was centralized in 1891, the first Organic Law for compulsory free education was promulgated in 1893, and an Office of the Director General of Primary Instruction was created in 1896. Education in the Federal District made some notable advances and served as a pattern for the States. As a special feature of the first centennial of Mexican independence in September 1910, a National Congress of Primary Instruction was called. The data collected for that meeting were for urban primary schools only, since there was no system of rural education then, but the figures indicate that a start had been made toward a national system. The boys in school outnumbered the girls 4 to 1, and only about a fifth of the school-age population was receiving any education. The following table extracted from the report of the Dirección General de Instrucción Primaria compares the extent of primary education in the Republic as a whole with that in the Federal District.

Table C.—Mexican primary education in 1910

Area	Number of—			Source of support
	Children	Teachers	Schools	
1	2	3	4	5
Republic	889,511	22,009	12,419	States and municipalities
Federal District	112,078	3,532	671	Federal Government

Of the 671 schools in the Federal District, 436 were public, 235 private, and their cost in 1910 was 3½ million pesos. A plan to increase Federal support of education was announced just before Díaz left the Presidency, but was never carried out. He had allowed 300,000 pesos for the project, which was to establish elementary schools throughout the Republic to teach the indigenous races Spanish and arithmetic.

The University, having remained conservative and traditional and opposed to change, was closed and reopened several times between the years 1833 and 1865, when Maximilian closed it finally. As the demand for professional training grew, schools of medicine, dentistry, geology, and others were established independently and later integrated with the University when it was re-established in 1910 as the National University of Mexico and again reorganized in 1921. The National Library, Astronomical Observatory, Central Meteorological Observatory, Military

School, and Naval School were also founded during the period of independence preceding the Revolution.

Early in the course of independence a new type of school, the *instituto*, developed in the States as an outgrowth of the Jesuit schools. When the Jesuits were exiled in 1767 by decree of Charles III, their extensive libraries and schools and other properties in the leading cities of the country were confiscated. The theological work was placed under Church control and the other departments were continued or allowed to lapse, depending on the ability of the local government officials to keep them going. These schools had been popular in Mexico and the people wanted them continued. With independence and the influence of French philosophical ideas they were revived or reformed and eventually organized somewhat according to the plan of the National Preparatory School in the capital. Even before independence the younger generation in Mexico had been looking to France rather than Spain for inspiration, and French intellectual standards exerted a powerful influence. The French system of education took root more firmly during the reign of Maximilian and Carlota and persisted up to the Revolution and beyond.

By 1901 national educational affairs were under the control of the Secretaría de Justicia e Instrucción Pública. In 1901 a separate branch was created, the Subsecretaría de Instrucción Pública y Bellas Artes, which in 1905 was given full cabinet status with Justo Sierra as Secretary. After the adoption of the Constitution of 1917 this department of Government was again transformed and in 1921 it became the Secretaría de Educación Pública with José Vasconcelos as Secretary of Public Education. The building occupied by the Secretaría recognizes the ideology of the Revolution through a series of frescoes by Diego Rivera, begun in 1922 and consisting of 124 panels in all, depicting in bold and colorful outline Mexico's long road to freedom.

Having convinced the people that "to educate is to redeem" (*educar es redimir*), Vasconcelos launched an ambitious program which was further elaborated by Manuel Gamio, Moisés Sáenz, Rafael Ramírez, and other farsighted associates and successors. A great awakening in education swept the country. A nation was being formed, and in the work of formation the line between society and school was no longer sharply drawn. Rural education, cultural missions, increased budget, greater Federal participation, public secondary schools, reconstruction of the university, scientific research, technical training, agricultural and vocational schools, literacy, fundamental education, new normal schools, social action, liberty and books—these and many other ideas fell into a design of concentrated effort toward building a brighter future for Mexico.

The Constitution, Article 3, gives an explicit and idealistic prescription for the system of national education. The education given by the Federation, States, and Municipalities shall develop harmoniously all the faculties

of the human being and encourage in him at the same time a love of country and a consciousness of international solidarity. Being free of any religious doctrine and based on the results of scientific progress, education is to fight against ignorance and its consequences, slavery, fanaticism, and prejudice. It is to be democratic in the sense that democracy is a way of life rooted in constant economic, social, and cultural improvement of the people. It is to be national, paying attention to the nation's problems, the development of its resources, the defense of its political and economic independence, and the growth of an integrated national life. Personal dignity, family integrity, the social good, fraternity, and complete equality before the law are to be upheld.

For a third of a century new educators and citizens all over the nation have been applying their energies with fervor and imagination to a task that appears ever more challenging as the goal comes nearer. The obstacles, seeming at times insuperable, still loom large, but the movement has kept to its course and can be credited with tangible achievements. Literacy, which was no more than 30 percent in 1910, has been increased to better than 50 percent, and the comprehensive ideological changes of the social revolution have been brought about as much by education as by political and economic evolution. In contrast to pre-Revolutionary philosophy, education is definitely concerned with the welfare of the indigenous population and the development of rural areas, with practical and functional content, and with Mexican traits and values rather than European cultural models. Mexico's struggle for democracy is symbolized by the public school. The share of the national budget assigned to education increased from 8½ million pesos in 1910 to 712 million in 1955 and has more than doubled since 1950. The 1955 budget for education, exceeded only by that for the Secretariat of Communications and Public Works and the public debt, represents 12.5 percent of the total. It provides for the establishment of numerous new schools, the training of a large contingent of teachers, and a 27 percent increase in teachers' salaries. These facts alone attest the Government's determination to continue on an undiminished scale the work of popular enlightenment.

PART 2

PART II—Education

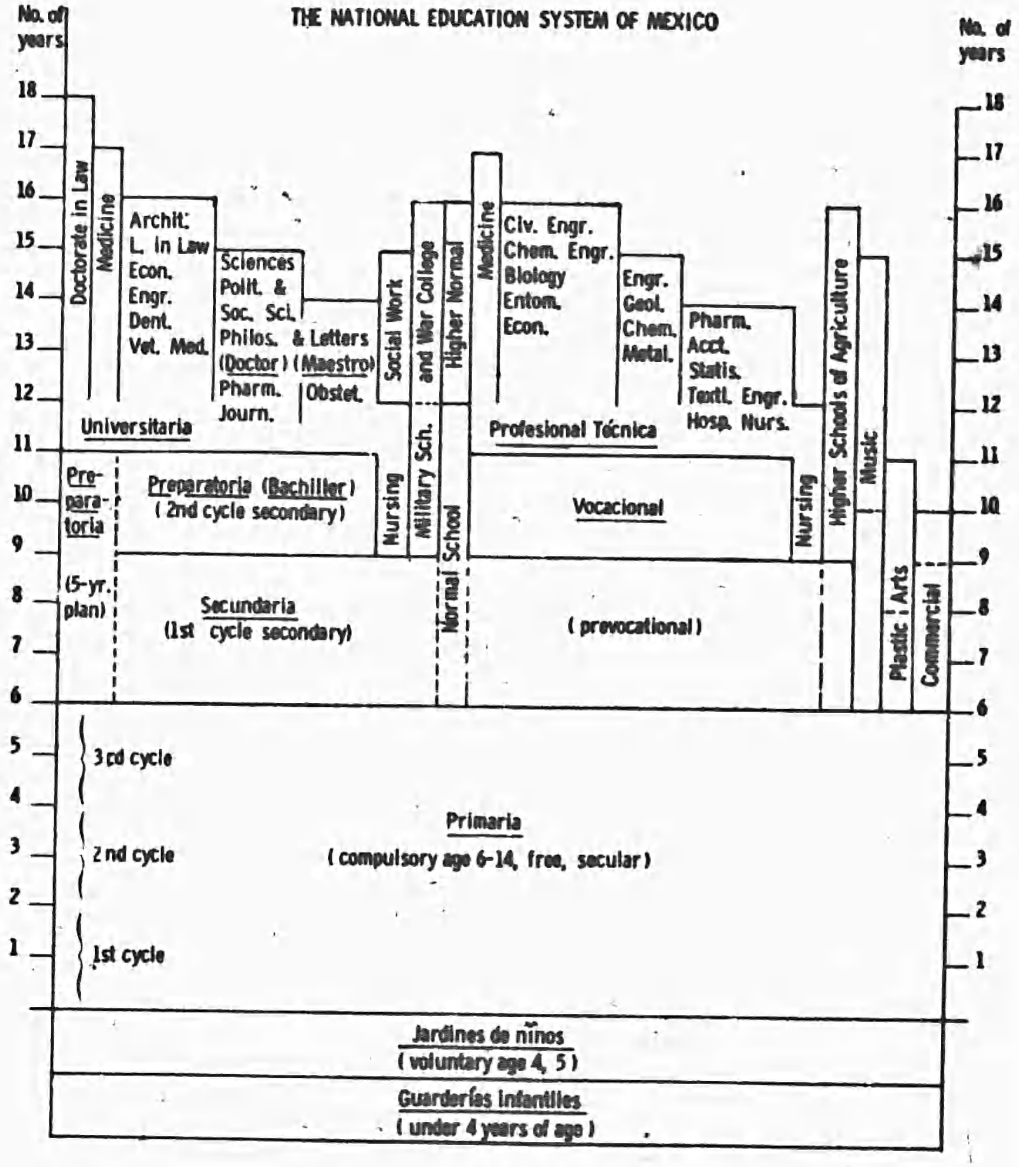
Organization and Administration

THE BASIC STRUCTURE of education in Mexico, after preschool, is *primaria* 6 years, *secundaria* 3 years, *preparatoria* 2 years, and *universitaria* 3 to 7 years. But there are many other educational paths, as set forth in the chart on page 28. After *primaria*, students may enter (instead of *secundaria*) the 5-year *preparatoria*, the 6-year *normal*, or a school of commerce, music, plastic arts, or prevocational studies. After *secundaria*, they may enter (instead of *preparatoria*) the professional cycle of the *normal*, a school of nursing, a vocational or military school, or a higher school of agriculture. The vocational schools, at the *preparatoria* level, normally lead into technical fields of specialization such as those offered in the National Polytechnic Institute.

Education is intended for all the people and is secular, free, and compulsory between the ages of 6 and 14, inclusive. Schools are Municipal, State, or Federal. States have the power to legislate in educational matters, within the framework of Federal regulations, and may administer their own schools unless they concede administrative control to the Federal Government. Technical direction, that is everything pertaining to objectives, programs of study, methods of instruction, examinations, and the like, is assumed entirely by the Federal Government. The Government has complete control, administrative and technical, over education in the Federal District and Territories and in the schools which it establishes and maintains in the States. It also exercises supervisory control over all private schools which offer elementary, secondary, or normal school training or education of whatever type or grade for workers. Private institutions wishing to offer education under any of these categories must have authorization of the Federal Government and their teaching must correspond in every way to the plans, programs, and methods of the official schools. The Government has the power to revoke such authorization at any time, and against such revocation there is no recourse.

Education in each State, except for Federal schools, is the responsibility of the Director General of Schools appointed by the Governor. The Director General in turn appoints a Director of Inspection and a Director

THE NATIONAL EDUCATION SYSTEM OF MEXICO



of Finance, who are professionally trained. Municipalities, the units of local government, establish and maintain schools, and the State authorities appoint and supervise the teachers. Most of the States have no special school tax, so the State Congress determines the amount of the State income to be used for education. This amount for the past several years has varied from 10 or 12 percent in a few States up to 43 or 44 percent in others. To alleviate deficiencies in the local and State systems, the Federal Government, since 1922, has been building schools throughout the country, and this has led to a dual system of education in the States. The Federal Government maintains an office in the capital of each State with a Director of Federal Education who, as representative of the Secretariat of Public Education, assumes control of all Federal schools within the State and has the duty also of coordinating Federal action

with that of local and State authorities. Federal inspectors supervise all the schools in the States that have signed contracts to federalize their schools. The schools designated as "federalized" are supported by the State and Federal Government; those known as "coordinated" are supported only by the State while being supervised by the Federal Government.

The principal Federal authority in education is the Secretaría de Educación Pública, whose highest official is appointed by the President and serves in the President's cabinet. Several other secretariats have jurisdiction over special types of education. Higher schools of agriculture, for example, come under the Secretaría de Agricultura y Ganadería and the military schools are under the Secretaría de la Defensa Nacional. Except for kindergartens, all forms of preschool education are administered by the Secretaría de Salubridad y Asistencia. The Nacional Autonomous University of Mexico administers the preparatory schools and national schools of music and fine arts and approves the institutions of higher education, except technical, in the States.

The Secretaría de Educación Pública (SEP) is an organization of about 78,000 employees, including teachers as well as administrative and other personnel. Besides the central office in the capital there is a field staff consisting of the State directors of Federal education and numerous zone inspectors. The main offices, departments, and institutions composing the Secretaría are listed as follows in the May–June 1955 issue of *El Maestro Mexicano*, the official organ of SEP.

Table D.—Major divisions of the Secretariat of Public Education

Secretary
Secretary to the Secretary
Under Secretary — *Chief Administrative Officer*
Technical Board of Education
President

- Office of the Director General of Administration
- Office of the Director General of Preschool Education
- Office of the Director General of Elementary Education in the Federal District
- Office of the Director General of Secondary Education
- Office of the Director General of Indian Affairs
- Office of the Director General of Higher Education and Scientific Research
- Office of the Director General of Social Action
- Office of the Director General of Juridical Affairs and Revalidation
- Administrative Committee of the Federal School Building Program
- Office of the Director General of Elementary Education in States and Territories
- Office of the Director General of Boarding Schools for Elementary Education
- Office of the Director General of Normal School Education
- Office of the Director General of Agricultural Education
- Office of the Director General for Literacy and Extra-School Education
- Office of the Director General of Audio-visual Education
- Office of the Director General of Physical Education

Table D.—Major divisions of the Secretariat of Public Education—Continued

Department of Special Instruction	Department of Libraries
Department of School Hygiene	Department of Building Maintenance
Federal Institute of Education for Teachers in Service	National Polytechnic Institute
National Institute of Anthropology and History	National Youth Institute
National Institute of Fine Arts	Higher Normal School
	Publicity Department

Preschool and Elementary Education

For years, a tenth or more of the Mexican children died before the age of 9, and infant mortality is still very high. To help prevent this loss the Secretariat of Health and Welfare is providing prenatal clinics, instruction in child care, nurseries for children of working mothers, free lunches, public health and hygiene classes, courses in nutrition, and many other services. These measures fall short of the minimum needs, particularly outside the capital, but they are making it possible for more children to reach school age in a state of physical health. Many of the large government and business offices maintain a *guardería infantil*, or day nursery, in which good medical and educational supervision is assured for young children.

The Secretariat of Public Education also recognizes the importance of preschool education and is working toward the objective of a kindergarten for every elementary school. The kindergarten was made an integral

NURSERY SCHOOL OF CENTRO "GENERAL MAXIMINO AVILA CAMACHO" IN MEXICO, D. F.

part of the national educational structure in 1942, but progress has been slow because of the greater need to provide adequate facilities for the school-age population. The first kindergartens in Mexico were opened in 1904. In 1955 there were 1,188 kindergartens with an enrollment of 150,000, which was an increase of 34,000 over the 1954 enrollment. Of the total number of establishments, 611 were Federal, 421 State, and 156 private. Children may enter at age 4 and may attend until they are 7. This schooling, however, is not a prerequisite for admission to the *primaria* at age 6. The program consists of activities centering about the home and community in miniature, with emphasis on health, recreation, and music. Civic consciousness is awakened through good housekeeping duties, cooperative play, dramatizations, the salute to the flag, partiotic songs, and celebration of special days. The observance of Corpus Christi, for example, includes the preparation of toy mules made of banana or other leaves and little wooden boxes of fruit and flowers which the children carry in a procession in imitation of the Indians in the market place. Mexican teachers have modified the methods of Fröbel and Montessori to a considerable extent, so that now the kindergarten is an institution fully adapted to the Mexican environment and national characteristics. Its general attractiveness and happy atmosphere are a tribute to the quality of leadership in the field of preschool education.

The major effort in education is given to elementary instruction because school facilities do not yet exist for half of the nation's school-age children. Until the minimal standard of sixth-grade schooling can be reached in the country as a whole it will be necessary to keep this need uppermost.

Elementary education is divided into 3 cycles of 2 years each. The main content of the total program is included in each cycle and amplified or intensified from one cycle to the next so that the child will be prepared as fully as possible if he leaves school before completing the sixth grade. The program of study is uniform throughout the Republic, all children studying the same material at the same time and at the same rate. The detailed instructions provided by SEP make it clear, however, that the teacher is free to use the method which he considers best for the particular group or school. The uniform programs represent the best thinking and experience of qualified teachers and supervisors, but in their presentation the teacher is to take into account the environment of the school (physical, economic, social) as well as the differing characteristics of the pupils. The aim is always to be the harmonious development of the child's physical, intellectual, ethical, esthetic, civic, social, and vocational needs and interests.

PROGRAMS OF STUDY

The subjects taught each year are language, arithmetic and geometry, science, geography, history, civics, drawing, music and singing, manual arts for boys, home economics for girls, and physical education. The

FIRST GRADE, ESCUELA CUAUHTÉMOC, MEXICO, D. F.

course of study lists general and specific aims for each subject, suggests activities to be used in teaching, and outlines by cycles and years the type and amount of subject matter to be taught. The language work for each year includes oral and silent reading, declamation and dramatization, oral composition, writing, written composition, vocabulary study, grammar, spelling, and creative activities. The mathematics course is divided according to the numerical and geometrical concepts and skills to be developed each year. The progression may be illustrated by comparing the work of the first and sixth grades.

FIRST GRADE [1]

I. NUMERICAL AND GEOMETRICAL CONCEPTS

1. Meaning of much, little, nothing, equal, larger, smaller, near, far, close, distant.
2. Meaning of unity and plurality.
3. Knowledge of quantities from 1 to 100 and the corresponding numerical symbols.
4. Knowledge of units of 1, 10, and 100.
5. Understanding of the plus, minus, and equal signs.
6. Meaning of one-half and one-quarter and the corresponding written fractions.
7. Knowledge of all the coins in use up to the peso.
8. Use of ordinal numbers up to tenth.
9. Use of Roman numerals up to XII.
10. Addition and subtraction of whole numbers up to 100.
11. Objective knowledge of the meter, decimeter, centimeter, liter, half liter, quarter liter; kilogram, half kilogram, quarter kilogram.

[1] *Agenda del Maestro*, Año de 1950 p. 444.

II. MEASURES OF TIME: years, months, weeks, days, and hours

III. Skills

1. Count in ascending order by ones, twos, fives, and tens to 100 and with ordinal numbers up to tenth.
2. Read any of the first ten ordinal numbers.
3. Write in symbols by dictation any quantity using one or two digits or any of the first ten ordinal numbers.
4. Use correctly the initial arithmetic and geometric vocabulary.
5. Read the hours, half hours, and quarter hours on the clock.
6. Master the 30 easiest fundamental combinations of addition.

0	6	0	2	7	0
2	2	3	1	0	4
1	5	4	3	0	4
7	3	1	5	5	4
1	6	2	7	0	5
0	6	2	2	8	0
3	3	1	5	3	7
0	1	2	4	6	1
2	4	8	2	1	3
4	3	1	5	4	4

7. Draw and measure straight lines, using the double decimeter.
8. Solve problems mentally for sums up to 20 and on paper up to 50.

SIXTH GRADE[2]

I. NUMERICAL AND GEOMETRICAL CONCEPTS

1. Clear and precise understanding of the following:
   - (a) System of enumeration with whole numbers.
   - (b) The Roman numerals most in use.
   - (c) The common fractions.
   - (d) The decimal fractions.
   - (e) The metric system, especially for weights and measures in practical use.
   - (f) Foreign weights and measures used in Mexico.
   - (g) The Mexican monetary system and the foreign coins used in the country.
   - (h) Denominator numbers used in calculating.
2. Precise understanding of the fundamental processes of calculating, using:
   - (a) Whole numbers.
   - (b) Common fractions.
   - (c) Decimal fractions.
   - (d) Denominator numbers.

[2] *Ibid.*, p. 455.

3. Conversion of foreign weights and measures to the national system. Knowledge of the old systems of measures still used in Mexico and their equivalencies with those in present use. The most usual money-changing operations.
4. Precise knowledge of the powers of numbers: square and cube. Extraction of square root.
5. The use of multiplication tables and tables of equivalencies.
6. Measurement of angles. Calculation of plane surfaces, including the circle. Finding areas and volumes of the most common geometric bodies, including pyramids, truncated cones, and the sphere.

II. SKILLS

1. Upon completing the sixth grade, students should have learned to prepare their assignments in the arithmetic manual and to consult mathematics books for solving problems presented to them from real life situations.
2. Carry out accurately and rapidly the following calculations:
   (a) The 4 fundamental operations, using whole numbers, common fractions, and decimal fractions. Mastery of the most frequent abbreviations used in calculating.
   (b) Change common fractions to decimal fractions and vice versa.
   (c) Change from the metric system and the Mexican monetary system to foreign measures and coin denominations in use in the Republic.
3. Handle with ease the multiplication tables, tables of equivalence, and the most common formulas used in calculating.
4. Handle with ease the geometric formulas most used in daily life.
5. Interpret or construct simple graphs of quantitative facts and phenomena and interpret and read construction drawings. Draw to scale simple plans and sketches.
6. Carry out calculations needed in daily living and establish the habit of proving the results.
7. Ability to analyze numbers and quantities.

Instruction in science is divided according to (1) man and the preservation of life, including study of the body and hygiene; and (2) man in relation to things, facts, and natural phenomena, including vegetable and animal life and meteorological and physical data. Elements of botany, zoology, physics, chemistry, and biology are introduced from the second grade on.

Geography gives general orientation in time, place, seasons, etc., in the first grade followed by the geography of Mexico in the second, third, and fourth grades, geography of the American continent in the fifth grade, and world geography in the sixth. The study of history in the first and second grades starts with the meaning of the national flag and coat of arms, the life of the first inhabitants of Mexico, the story of the founding of Tenochtitlán, biographies of Indian heroes, and the significance of national holidays. The third grade learns some local history

and takes up the discovery of America and the Spanish conquest. Colonial life and the period of independence up to 1917 are covered in the fourth grade. The fifth and sixth grades review the pre-Colombian era and the conquest and begin a comprehensive view of the modern world, extending their study to important historical events in Europe and the other American nations.

The program in civics is planned about the conduct of the child in the home, the school and the community, and his relations to the family, school companions, public services, and local and Federal Governments. The fourth grade learns about the individual rights guaranteed by the Constitution and how the Government functions. In the third cycle the new material centers on Article 123 of the Constitution, which sets forth the laws relating to labor. Throughout each year emphasis is placed on the development of habits of industry, punctuality, cooperation, responsibility, courtesy, and other characteristics of good citizenship. Patriotic themes and observances of special days are used to instill a love of country. Along with great national figures like Miguel Hidalgo, José María Morelos, Benito Juárez, Francisco I. Madero, Sor Juana Inés de la Cruz, and others, the children study the biographies of George Washington, Abraham Lincoln, Simón Bolívar, Antonio José de Sucre, José de San Martín, and other outstanding heroes of American independence.

Drawing occupies a prominent place in the school program both as an aid to learning in other subjects and as a means of self-expression and development of the child's capacity to observe and appreciate form, proportion, and color harmony. Music and singing also contribute a great deal to the life of the school and afford enjoyment along with training in rhythm, esthetic taste, and ability to read music and sing or play simple compositions.

The manual arts activities are chosen by the boys with the guidance of the teacher, who considers the aptitude of the student along with the resources of the community and the equipment of the school. The following are among the possibilities:

Paper cutting, pasting
Plaster and clay modeling
Weaving with fibers: straw, palm, reed, jute, ixtle
Brush making
Pottery making
Carpentry
Bookbinding
Printing
Shoemaking
Tanning
Saddlery
Tinshop
Toyshop
Preservation of fruits and vegetables
Horticulture
Arboriculture
Raising silkworms, bees, rabbits, pigs
Fish culture

The objectives of the manual arts program are (1) to encourage manual work as a means of learning; (2) to exercise the functions and skills that

SIXTH-GRADE STUDENTS IN CARPENTRY SHOP OF THE ESCUELA "CENTRO REVOLUCIÓN" IN MEXICO, D. F.

work demands; (3) to channel the excess and spontaneous energies of the child; (4) to establish habits of order, precision, and attention; (5) to develop sensory and motor coordination; (6) to awaken interest and encourage observations useful in other studies; and (7) to develop a liking for manual activity and provide vocational orientation.

The classes in home economics for girls are intended to provide the most necessary knowledge of home management so that those who receive no further schooling will not have to learn entirely by experience how to plan meals, do the marketing, cook, sew, care for children, attend the sick, and solve household economic problems. The first- and second-grade girls learn by playing house, making doll clothes, preparing juices and salads for refreshments, and arranging seeds and foods according to basic classifications. In the third and fourth grades they prepare soups and roasts, cook vegetables, wash dishes, embroider table cloths, care for a child under 1 year of age, follow directions for giving medicines, and learn the dangers of relying on home remedies. In the fifth and sixth grades they bake, make simple desserts, prepare chocolate and coffee, and finally serve a complete meal. They knit sweaters and socks; make clothes for a child of 2; begin to use the sewing machine, wash, mend, dye, and iron various types of garments; embroider a bedspread; learn how to bathe and dress an infant; practice first aid; and make budgets for food, clothing, recreation, school supplies, and savings.

Physical education in the first cycle begins with marches, dancing, free play, trips, and excursions, fiestas, and games involving imitation, rhythm, and singing. In the second cycle these activities are continued and gym-

nastic drills and sports are begun. In the third cycle military drills are added and students participate in interscholastic games of volleyball, basketball, and softball.

The urban schools for the most part maintain the full offering of three cycles of studies, but in the rural areas many schools have only four grades or fewer. Those which have all six grades are often designated as model schools or *centros escolares*, serving as a pattern for others in the area. The Escuela Chapultepec, for example, is a model school for elementary education in the Lomas de Chapultepec in the capital. It is attended by 475 children under the guidance of 10 teachers—6 women and 4 men. Rich and poor study there without distinction of economic or social class, children of high officials and outstanding businessmen with children of manual laborers. The building is modern, with 12 well-ventilated classrooms. Behind a beautiful garden on the lower floor are three wide patios used for playgrounds and special programs. The classrooms are well equipped and all is order and cleanliness. The dining room accomodates 100 children and is comfortable, spacious, and light. At 7 o'clock each morning breakfast is served to 70 children. Those who can do so pay 20 centavos, those who cannot pay receive the meal free. The breakfast consists of a quarter liter of milk, 2 sandwiches (one of ham and one of marmalade), a fruit in season, and once a week a boiled egg. The school director, aided by the Parents' Association, gives the poorer children 2 or 3 pesos on Fridays to supplement their home diet over the weekend. On the upper floor of the building are several conference rooms, the library,

SIXTH-GRADE COOKING CLASSES OF THE ESCUELA "REPÚBLICA DE CUBA" IN MEXICO, D. F.

and the assembly room, where the director and staff meet once a week to study and discuss educational problems of the school. The active Parents' Association helps greatly in creating a civic spirit.

CENTRO ESCOLAR "FELIPE CARRILLO PUERTO" IN MÉRIDA, YUCATÁN.

SCHOOL YEAR

The school year is 10 months in length and is regulated according to the climate, with one schedule, Type A, applying to the *tierra templada* and another, Type B, applying to the *tierra caliente*. Schools operating on the "A" calendar begin in February and end in November with vacation periods of 10 days in May, 10 days in September, and during the months of December and January. Those on the "B" calendar begin in September and end in June with vacation periods of 10 days for Christmas, 10 days for Easter, and during the months of July and August. The total number of school days per year is about 190. Some schools have tests scheduled every 3 months and others every 6 months. All of the *primarias* are required to observe the following special days with appropriate ceremonies. Classes are dismissed for the legal holidays (marked with an asterisk) and for Teacher's Day.

In addition to the observance of important dates in the civic life of the nation there are many special days of local or religious significance that influence the school activities. Every village celebrates the seasons, the new year, the patron saint, the carnival season, Easter, and Christmas, and many have festivals and ritual dances dating back to the pre-conquest period. In the State of Michoacán, for example, during the latter part

of June the music and art classes prepare for processions to celebrate the planting of the crops. Gaily decorated oxen with large loaves of bread hung on their horns are followed by girls in Tarascan dress carrying on their heads trays filled with fruits to symbolize the dinners that the women carry to the men in the fields. On June 24, St. John the Baptist's day, flowers are thrown into the swimming pool and fountain, and water sports and contests are featured. On all Souls' Day and All Saints' Day, November 1 and 2, dapper toy skeletons with plumed hats decorate the classrooms, while skulls and bones made of bread twists appear in the

Table E.—National holidays and other special days

*February 5	Promulgation of Constitutions of 1857 and 1917
February 14	Anniversary of the Death of Vicente Guerrero
February 22	Anniversary of the Death of Francisco I. Madero
February 24	Flag Day and Arbor Day
March 18	Economic Independence (1938)
*March 21	Birth of Benito Juárez
April 2	Siege and Fall of Puebla
April 7	World Health Day
April 14	Pan American Day
April 19	Pan American Indian Day
April 27	Soldier's Day
April 30	Children's Day
*May 1	Labor Day
*May 5	Victory over the French in Puebla (1862)
May 8	Birth of Miguel Hidalgo y Costilla
May 10	Mother's Day
May 15	Teacher's Day
May 21	Anniversary of the Death of Venustiáno Carranza
July 4	Independence of the United States
July 14	Fall of the Bastille
July 17	Anniversary of the Death of Álvaro Obregón
July 18	Anniversary of the Death of Benito Juárez
July 30	Anniversary of the Death of Miguel Hidalgo y Costilla
August 13	Fall of Tenochtitlán
August 15	United Nations Victory Day
August 20	Defense of Churubusco
August 21	Homage to Cuauhtémoc
*September 1	Opening of Congress
September 13	Homage to the Child Heroes (killed in war with U. S.)
September 15	Anniversary of the National Hymn
*September 16	Declaration of Independence (1810)
September 27	Consummation of National Independence
September 30	Birth of José María Morelos
*October 12	Discovery of America
October 24	United Nations Day
October 31	World Savings Day
*November 20	Beginning of Revolution of 1910
December 22	Anniversary of the Death of José María Morelos

* Legal holiday.

lunchroom. Before Christmas the classes enact the *posadas* (inns), marching with candles and singing carols to commemorate the search of Joseph and Mary for lodging. Also during the Christmas season they make *piñatas*, jars filled with sweets and trinkets and decorated with colored tissue paper in the form of angels, sheep, stars, turkeys, or other seasonal figures. December 28, the Day of the Innocents, corresponds to April Fool's Day in the United States.

TEACHING METHODS

Besides the programs of study, SEP publishes a list of the approved textbooks for the various grades and subjects, from which the school may choose those best suited to its needs. Many children, however, are unable to buy textbooks and the schools generally lack adequate library facilities, so the prevailing method is for the teacher to dictate the lesson material or have it copied into notebooks. The children then memorize the notebook materials for their examinations. Although activities and socialized recitations are encouraged, the classes are large, with 50 or more students in each room, and the classroom procedures tend to remain formal. When the school director or supervisor or any visitor appears at the classroom door all the children rise and remain at attention until the teacher gives the signal for them to be seated.

One of the most popular activities is the annual exhibition of handwork done in the manual arts and home economics classes. Children and teachers also enter with zest into various contests, such as drawing, spelling, declamation, mental arithmetic, and sports. Puppet shows, movies, pictures, maps, and other audio-visual materials are prepared for teachers by the Dirección General de Educación Audiovisual of SEP, and this office also conducts a School of the Air over a television station in the capital. School parades and public programs are planned for Flag Day and United Nations Day. On Arbor Day the children participate in tree planting ceremonies. The national goal for 1955 was to plant 19 million trees, 2½ million of which were to be fruit trees.

Each year the schools have a patriotic theme, such as the life of Miguel Hidalgo, the flag, or the national anthem, which motivates the work in art, music, civics, and other subjects and culminates in a national contest or other public recognition of excellence. One such program took place on September 14, 1955, when 18,000 school children sang the national anthem at the National Palace in the presence of the President of the Republic. The Secretary of Public Education awarded insignias reading "Himno Nacional, Lo canté en su centenario" to 13,000 of these same children who had participated in a similar ceremony in 1954, the centennial of the song.

Examinations are comprehensive. The questions are prepared for

each grade and subject by the Instituto Nacional de Pedagogía and sent out by SEP to the zone inspectors for distribution to the teachers. The teachers also receive precise directions for giving the tests, including time limits, a key for scoring, and a scale for grading. The test results, along with the pupil's average grades during the year, are the basis for promotion. The grading system is on a scale of 0 to 10, 10 being the highest mark, with 6 required for passing. Some schools use the percentage system with 60 the passing mark. The children who fail in one major subject, such as arithmetic, may review during vacation and try the examination a second time. Those who fail two major subjects, such as language and arithmetic, must repeat the grade. The following sample from a science test for the third grade is illustrative of the type and scope of the examinations.

Choose one: Plants breathe principally by means of _____. the stalk? the leaves? the flowers? the roots?

_____ is a vertebrate. a fly? a spider? a fish? a worm?

The act of expelling air from the lungs is called _____. inspiration? expiration? respiration? transportation?

The pancreas gland is part of the _____ system. circulatory? respiratory? digestive? renal?

The heart of all mammals has _____. one cavity? two cavities? three cavities? four cavities?

Identify: stomach, large intestine, small intestine, pancreas, esophagus, lungs, liver, heart, pharynx, trachea

Name: a ruminant animal
the larva of an insect useful in industry
a reptile useful to agriculture because of its diet of insects
a fowl that provides meat and eggs
an insect that breeds in stagnant water

Locate: the glands that produce saliva
the organ that produces bile
the organ that produces gastric juices
the organs that purify the blood
the organ that produces the voice

Select the picture which represents (1) boiling, (2) solidification, (3) evaporation, (4) melting, (5) condensation.

Most of the elementary schools have cooperatives in which the children learn to carry responsibility in economic and civic affairs. Students buy their books, paper, and supplies in the cooperatively owned store in the school and some join handcraft cooperatives or cooperative gardens to raise and sell vegetables. Upon payment of his share, ranging from 25 centavos to 5 pesos, the child receives a certificate, a list of the members' rights and obligations, and a stamp book which serves as his record of purchases. The pages of the book are arranged according to the denomi-

nations of the stamps for amounts of 5, 10, 20, and 50 centavos and 1 peso. To administer the cooperative, the members elect councils and committees of students, teachers, and school employees for a term of 1 year. At the end of the year, the profits, that is the difference between the cost and sale price of the articles less deductions for operating costs, are distributed according to a plan agreed on by the members. Generally the distribution is somewhat as follows:

5 percent for social welfare—school pharmacy, first aid, etc.

10 percent for reserve capital to cover losses

10 percent for maintenance and improvement of the space used by the cooperative

15 percent for cultural activities of benefit to the school, such as the school library, teaching material, supplements to the budget

60 percent for distribution on a pro rata basis to the members of the cooperative, who surrender their stamp books for cash dividends

The students may vote to use the cash dividends for sports equipment, school excursions, or other projects of educational value.

Certain schools, as designated by SEP, also operate a school savings plan in which all the children must participate unless they are financially

SECTION OF SCHOOL PARADE CELEBRATING SECOND CENTENARY OF THE BIRTH OF MIGUEL HIDALGO Y COSTILLA, FATHER OF THE COUNTRY

unable. Each pupil receives a coupon book for keeping the record of his savings, which earn 4 percent interest annually.

TYPES OF SCHOOLS

The policy in Mexico is to maintain separate schools for boys and girls, beginning with the third grade. In districts having too few children

for separate buildings or teaching staffs the schools are designated as *mixtas*. These are mostly rural. The rural schools have a daily schedule of 6 hours, 4 in the daytime with the children, 2 at night with adults. The urban primary schools follow a program of 5 hours a day distributed in a morning and afternoon session. For lack of enough buildings many urban schools are conducted in two shifts, from 8 to 12:30 and from 1 to 5:30, each with a different director and staff of teachers. The girls may attend in the morning and the boys in the afternoon or vice versa, and frequently there is also an evening session from 6 to 9 for adults.

Each school under Government supervision is assisted by a Parents' Association. Although these groups have no jurisdiction over the technical aspects of teaching, they interest themselves in over-all planning and transmit recommendations or complaints to the school director. Parents' Associations are not permitted to assess membership dues, but they frequently make voluntary contributions or raise money through fiestas, concerts, special sales, and the like, to provide needed equipment and teaching materials. If two schools occupy the same building there are two associations of Padres de Familia. The main work of each association is carried on by an executive board composed of the officers, elected annually, and one voting member for each year that the school has been in operation. Detailed regulations governing the Asociaciones de Padres de Familia were put into effect in 1949 by President Miguel Alemán.

The general classifications of schools are urban and rural. The private schools are *incorporadas*, approved and supervised by SEP, and may also be urban or rural. For children who live at a distance or cannot afford to attend the regular day schools there are *internados*, or boarding schools, which are supported by one of the welfare departments of the Government, by public or private charitable institutions, or by individuals. An example of an individually supported boarding school is the Instituto Científico Educacional in Coyoacán, with an enrollment of 48 girls, which combines the official program for *primaria* with special music instruction. The students spend the afternoons practicing in the Orquesta Infantil, which has distinguished itself for artistic performances in different parts of the Republic and in the United States. The private foundations, such as Mier y Pesado, Rafael Dondé, Luz Bringas, Agustín García Conde, and Nidjei Israel, maintain *internados* whose total enrollment in 1950 was 105,495. Since the boarding schools also take day students, however, only about a third of this number lived in the school. The Centro Educativo Rafael Dondé, for example, an *internado* for girls offering studies from kindergarten through the first cycle of secondary, has 150 boarding students out of a total enrollment of 1,500. Boys are accepted up to the third grade.

Another type of school is called "Article 123" because it is provided

under the terms of the section of the Constitution dealing with labor. Every agricultural, industrial, or mining enterprise located at a distance of three or more kilometers from a town must provide housing, school, infirmary, and other community services. A school must be established if there are as many as 20 children, and a teacher must be employed for each group of 50 or fraction over 20. In a school having fewer than 10 teachers the director of the school also teaches. The company provides the building, furniture, equipment, library, books, and teachers' salaries; SEP assigns the teachers and supervises the instruction.

There are a number of special schools or auxiliary institutions. For the mentally retarded but educable children there is the Escuela para Anormales e Instituto Médico Pedagógico at Parque Lira, Tacubaya, D. F., which accommodates 375 children from the kindergarten through *primaria*. Its facilities are greatly in demand and are being expanded. In 1953 the school received 18,000 applications for admission. The school day is from 8 to 6 with two shifts of teachers. Three meals a day are served at the school. The Instituto Nacional de Pedagogía, which carries on extensive research in educational psychology, uses the Escuela para Anormales as one of its laboratories. This Instituto maintains a testing and counseling service for exceptional children. There are also Federal Schools for the blind and the deaf and dumb.

Problem children who are not mentally retarded may receive instruction and guidance at the Centro de Orientación Psicopedagógico in Lomas de Chapultepec, also in the Federal District. This center provides consultative services to parents and teachers and maintains an up-to-date library of professional books. Some of the children are boarding students

BOARDING SCHOOL FOR ORPHANS, FUNDACIÓN MIER Y PESADO, MEXICO, D. F.

and others come from their homes or other schools for classes or special instruction.

Boys and girls who are detained by the police for creating disturbances on the streets or elsewhere are taken to the Clínica de la Conducta, which is under the jurisdiction of the Department of Social Welfare in the Secretaría de Gobernación. They are given a hearing before a juvenile court and their case is studied by a group of three professional people—a doctor, teacher, and lawyer—who decide whether the child's home situation warrants returning him there or whether he should go to the Casa de Orientación or a Casa Hogar. The first is a correctional institution, one for boys and one for girls, and the second is a combination foster home and boarding school. The Government maintains 6 *casas hogares*, 3 for girls and 3 for boys. Since all of these schools are very crowded, some religious groups are also permitted to operate *casas hogares*, the Government paying for the food and clothing of the children. This represents considerable relaxation in the enforcement of Constitutional provisions restricting the participation of religious organizations in education. The Clínica de la Conducta collaborates with SEP and the Secretariat of Health and Welfare in organizing volunteer groups who can give time to social work. Since the number of professionally trained social workers is inadequate, many teachers and parents are active in part-time social service.

Mexico has a number of schools which are sponsored by British, French, German, Italian, or United States citizens, or by other foreign groups. In all cases these schools are required to provide as a minimum program the official elementary school course for Mexican schools and to employ qualified Mexican teachers for the work in the Spanish language and for civics and the history and geography of Mexico. In the student body Mexican children are generally in the majority. Some of these schools also include secondary-school curricula, but above the sixth grade they may follow their own programs of study. One or more elementary schools sponsored by United States citizens and organizations may be found in the following cities. Full information concerning their organization and administration is available from the Inter-American Schools Service of the American Council on Education, Washington, D. C.

Anáhuac, D. F.
Chihuahua, Chihuahua
Colonia Dublán, Chihuahua
Durango, Durango
Guadalajara, Jalisco
Guanajuato, Guanajuato
Guayaneo, Guerrero
Mérida, Yucatán
México, D. F.
Montemorelos, Nuevo León
Monterrey, Nuevo León
Navojoa, Sonora
Pachuca, Hidalgo
Puebla, Puebla
Querétaro, Querétaro
San Luis Potosí, S. L. P.
Tampico, Tamaulipas
Teapa, Tabasco
Torreón, Coahuila

STATISTICAL DATA

A relatively high number of children who enter the first grade drop out of school before completing the *primaria*. In the Federal District in 1953 the number beginning the first grade was 141,304, while the number beginning the sixth grade was 50,353. Sixty-five percent of the children who enrolled in the first grade stayed in school and were promoted to the second grade. Approximately 75 percent of the initial groups composing the second, third, fourth, and fifth grades stayed in school and were promoted to the next higher grade. Of the number starting in the sixth grade, 84 percent graduated. The figures published by the Office of the Director General of Elementary Education, SEP, are as follows:

Table F.—Progression of primary school pupils in the Federal District, 1953

Number of children—	Total	First grade	Second grade	Third grade	Fourth grade	Fifth grade	Sixth grade
1	2	3	4	5	6	7	8
Enrolled	512,619	141,304	100,595	86,472	73,560	60,335	50,353
Dropped	55,273	20,626	10,395	7,808	7,010	5,628	3,806
Net enrollment	457,346	120,678	90,200	78,664	66,550	54,707	46,547
Average attendance	429,032	113,566	85,212	70,509	63,116	52,187	44,442
Present for examination	439,545	113,542	86,939	75,939	64,577	53,251	45,297
Absent from examination	17,801	7,136	3,261	2,725	1,973	1,456	1,250
Promoted	376,684	92,302	75,498	64,782	54,959	46,777	42,366
Not promoted	62,861	21,240	11,441	11,157	9,618	6,474	2,931

Although there are a few rural schools in the Federal District, these figures mainly reflect the situation in urban schools. A tabulation made 2 years earlier for rural schools shows the same trend. The number of children beginning the first grade in rural schools was 1,383,367, while the number beginning the sixth grade was 9,499. Of the children who started to school in the first grade, 62.4 percent stayed in school and were promoted to the second grade. Of the number starting the sixth grade, 80 percent graduated.

The rural schools try to emphasize practical work, but the chief difference between urban and rural schools is in the number of grades provided. In 1951, 3,659 out of the 5,289 urban schools had 6 grades, while only 580 of the 19,365 rural schools had the full 6-year program. The distribution of urban and rural schools according to the number having first

grade only, 2 grades, 3 grades, 4 grades, 5 grades; or 6 grades is shown in the following tabulation from the official census report.

Table G.—Number of urban and rural primary schools and number of grades provided, 1951

Number of grades	Number of—		Total
	Urban schools	Rural schools	
1	2	3	4
First grade only	68	1,428	1,496
Two grades only	213	6,910	7,123
Three grades only	308	7,491	7,799
Four grades only	679	2,560	3,239
Five grades only	362	396	758
Six grades	3,659	580	4,239
Total	5,289	19,365	24,654

The sudden decrease in numbers for rural schools after the fourth grade has been reached can be explained partly by the fact that students may enter practical schools of agriculture after completing the second cycle of the *primaria*. It must be considered also that the development of schools in rural areas has taken place almost entirely since 1922. When several hundred new schools a year are being opened, they can get started with the first grade and try later to add to the program as it becomes necessary or possible.

Supervision of elementary education in 1954 was carried out by 10 Zone Chiefs of General Inspection, 32 Federal Directors of Education, and 482 Zone Inspectors, who worked in cooperation with the State governments in supervising the 40,000 teachers in the *primarias* distributed throughout the country. The Federal District was subdivided into 59 zones having a total of 962 elementary day schools (674 public, 288 private), and 138 elementary night schools. The President's annual State of the Union message delivered on September 1, 1955, reported an increase of 4,481 primary teachers in the Republic and new construction under way on 80 additional schools. The total enrollment in *primaria* was 2,407,000. But the President stated that nearly 3 million still lack educational opportunity. The amount of the national budget allocated to elementary education for 1955 was 331 million pesos, an increase of 107 million over the 1954 expenditure for *primaria*.

Fundamental Education and Literacy

Along with its effort to provide schools for children up to 15 years of age, the Mexican Government has been promoting literacy campaigns, cultural missions, fundamental education projects, and other means of assimilating the Indians of the country into the stream of national life. Since education must go hand in hand with economic betterment and political consciousness, the creation of higher standards of living and community development is the primary objective of the adult educational program. *Alfabetización* concerns itself first with practical living and second with reading, writing, and arithmetic, for in the backward and primitive communities the most elementary techniques of existence have to precede literacy. Going to school means staying away from productive work, and hunger must be appeased before book learning has any appeal.

ESCUELA RURAL "SANTA LIBRADA" NEAR CIUDAD VICTORIA, STATE OF TAMAULIPAS, BUILT IN 1952.

The teaching of reading and writing is itself not a simple accomplishment among isolated heterogeneous peoples who speak only their native languages and who have little incentive to learn. But to produce an integrated nation—to amalgamate the valuable elements of indigenous cultures and provide some articulation with the civilization of modern Mexico—is a task infinitely more difficult. The new has to be adopted voluntarily and assimilated slowly. Old folkways and beliefs that perpetuate disease and poverty can be abandoned only gradually as scientific methods prove their worth and win confidence. Even when outside influences change outward forms, the basic attitudes remain.

CULTURAL MISSIONS

The cultural mission, an institution sent to the people to help improve their ways of living, first came into being in 1923 with headquarters in a small Indian town in the State of Hidalgo. Soon others were organized, and after several years of experimentation they became traveling missions rather than stationary establishments. Their work was outstanding. In the mid-thirties, however, the Secretary of Public Education reported with discouragement that the missions, then serving about 451 villages a year, would require 156 years merely to visit once all of the 72,161 rural communities of the nation. For a time the program was abandoned, but in 1942, with a good-sized budget and renewed enthusiasm, the cultural missions were reorganized to include 30 rural missions in 22 States, plus 2 missions for workers and a number of teacher-education institutes. Other missions have been established since, and mobile medical units have been added to the Cultural Missions Fleets that make contact with communities that are accessible to the highways. In 1955 there were 73 cultural missions, 41 of which were in rural areas.

The rural cultural mission is made up of about a dozen persons who are prepared to offer services in the most important phases of family and community living. Always included are a social worker, a nurse, and teachers of agriculture, carpentry, masonry, trades and industries, mechanics, metal work, music, plastic arts, and the like. The chief of the mission is a professionally trained educator who has a thorough knowledge of rural life and its problems. The zone of operation of a particular mission is determined by the SEP Office of Literacy and Extra-School Education on the basis of social and economic conditions, available resources, distances between communities, and communication facilities. Working democratically and in cooperation with the community leaders, each mission formulates its own plan of work according to the needs of the area. The activities vary, but such endeavors as the following are generally reported:

Construct elevated cooking places
Install corn grinders
Demonstrate preparation of balanced meals
Start flower and vegetable gardens
Introduce suitable drinking water
Make clothing
Build furniture
Carry on a vaccination campaign
Clean wells
Organize sanitary brigades
Construct buildings for domestic animals
Teach seed selection and introduce new crops
Plant trees
Combat plant diseases and pests

Open and repair roads
Construct school buildings, playgrounds, and open-air theaters
Establish maternity homes
Organize choral, dramatic, and athletic groups
Encourage fairs, contests, bands, orchestras, and dancing groups.

The mission's duty to provide recreational facilities is continually emphasized. One of the bulletins issued by SEP says in part:

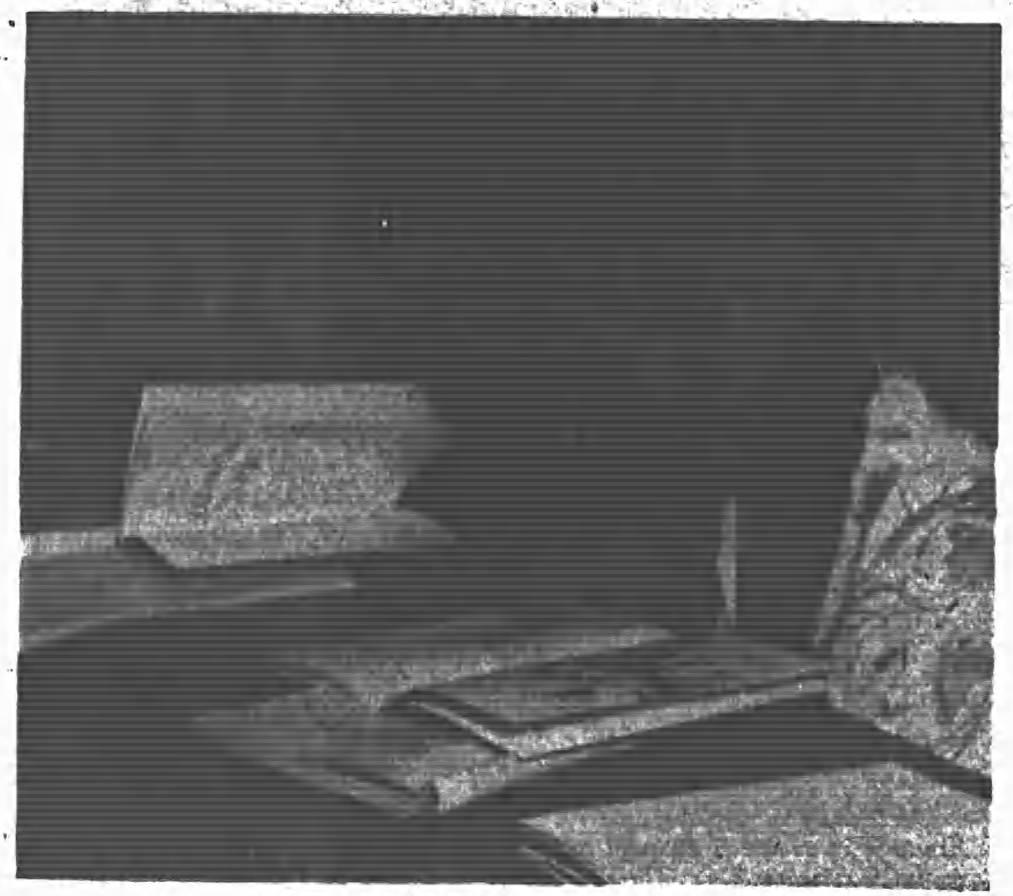
> Since the horizon of rural life is so limited and lacking in opportunities, our Department believes it is most urgent for the missions to enrich it, at least to the extent of stimulating social and recreational life. Rural life, which is now mostly an animal-like existence, would thus acquire some spiritual value; the monotony of existence would be broken, even if only temporarily, and a new feeling of joy would be born within the people, leading them to love life and be hopeful. * * * When we speak of recreation we naturally refer to social and recreational activities that are wholesome. Many leisure-time activities are undesirable, such as gatherings in saloons or canteens where intoxicating drinks are sold and where cockfights, gambling, and similar diversions are practiced. * * * It is not sufficient merely to bring people together. In order to socialize them we must replace their self-centered thoughts and feelings with altruism and mutual understanding. Then the people would not think, feel, or act as isolated individuals but as integral members of society. The feeling of belonging to the same group would be socially useful, for the great tasks of the future must be realized by people who are moved by a common feeling. Recreation not only socializes the people but unites them culturally.

PILOT PROJECT

An undertaking even more comprehensive than the cultural mission is the Mexican Pilot Project in Basic Education. It was begun in the fall of 1949 when a team of educators and specialists moved into the Santiago River Valley in the State of Nayarit to create in the area a new pattern of living. The project includes the establishment of schools and medical facilities, better housing, more productive agricultural methods, and new industries. At the same time that these services are being developed the people are to be brought up to a high level of democratic participation in community affairs.

LITERACY CAMPAIGNS

Slowly but surely the percentage of illiteracy in the country is being reduced. When the first literacy campaign was organized the plan was to teach all citizens to read and write within 3 years. Much was accomplished, but the situation was like that of having to run faster in order not to move backward. Although a million people learned to read, the reduction in illiteracy was offset by the increase in population. So it was necessary to give a new push to the program. Soon after the cultural missions were reestablished, a fully organized national literacy campaign



LITERACY GROUP IN MEXICO CITY.

was again initiated. In 1944 President Ávila Camacho put into effect the Ley de Emergencia, an "each one teach one" requirement whereby every person from the fifth grade up who could read and write must teach another person or pay for the instruction.

The literacy program is promoted through Patronatos Nacionales de Alfabetización, whose purposes are as follows: (1) to create public opinion favorable to literacy; (2) to obtain funds for instruction through private donations and public programs; (3) to found as many centers as possible for the instruction of persons over 14 years of age and as many schools as possible for children between the ages of 6 and 14 who do not attend the *primaria;* (4) to cooperate with SEP in distributing money for the rural and indigenous population; and (5) to recognize outstanding service in reducing illiteracy. Each *patronato* consists of a governing board with a president, secretary, treasurer, and several members. Those who compose the *patronato* register with SEP and take the oath of office in public ceremonies conducted by the Director General for Literacy and Extra-School Education.

Under the *patronato* system thousands of new literacy centers have been established. In 1954 the number had risen to 19,637, and in the

Federal District a special register was opened for fifth- and sixth-grade pupils who signed up to participate in the campaign to teach an illiterate adult to read and write. In 1953–54, 218,000 were made literate; in 1954–55, 304,000, so that illiteracy has been brought finally below a figure of 50 percent. Some official estimates are as low as 42 percent. Three hundred rural libraries were being constructed in 1955, and in indigenous zones there were 2[illegible]oordinating centers cooperating with SEP and the Instituto Nacional Indigenista to improve living conditions among the Indians. Of the 4,400,000 pesos spent for literacy in 1954–55, private initiative furnished 1,800,000. Many projects, undertaken jointly by SEP and the Secretaría de Agricultura y Ganadería, are furthering work on reforestation, soil conservation, care of domestic animals, home industries, water supply, control of epidemics, and other essentials.

The teaching material provided for the literacy campaign was a 109-page *Cartilla*, 10 million copies of which were published in 1944. This book begins with instructions to the teacher and some preliminary work on recognition of sounds and syllables followed by words and sentences to read and write. The last section contains connected reading on such topics as Health, The Family, The Land, Cuauhtémoc, Juárez, The Constitution, Who are the Mexicans? We are Free, and The Symbol of the Fatherland.

Since it is easier to impart useful knowledge in the mother tongue, as Fray Pedro de Gante demonstrated in the sixteenth century, several bilingual books have been prepared and used with marked success. A *Cartilla Maya-Español* is used with monolingual Indians in Yucatán, Campeche, and Quintana Roo. The *Cartilla Tarasco-Español*, which is similar in content, is used in Michoacán. The *Cartilla Otomí-Español* was prepared for monolingual groups in Hidalgo, the valley of the Mezquital, and part of the State of Querétaro; the *Cartilla Náhuat-Español* is for the State of Puebla. In the Tarascan region an illustrated 8-page newspaper is printed entirely in Tarascan except for a half-page summary in Spanish. Anthropologists are working with linguistic and pedagogical specialists under the direction of the Instituto de Alfabetización para Indígenas Monolingües, a subdivision of the Dirrección General de Alfabetización y Educación Extraescolar, to produce similar *cartillas* for the other major Indian language groups. The ability to read the mother tongue leads to the acquisition of the Spanish language with less resistance, so, after the ability to read Spanish is established, the people are given additional readers and a periodical called *Cuaderno de Cultura Popular* dealing with subjects of economic interest, such as sugar cane, agricultural credit, and methods of irrigation.

The problem of providing simple and interesting reading material for people who have learned to read is being met with the assistance of the Latin American Fundamental Education Press of the Organization of

American States, which has published inexpensive booklets, and charts, dealing with subjects of value to new readers in the rural districts. The following are among the titles available: Vamos a leer (Let's read), La tuberculosis, Defiende tu suelo, La casa rural, Agua pura, La viruela (Smallpox), Crédito agrícola, Bueno y barato (Good and inexpensive), Trabajemos juntos (Let's work together), Eres libre (You are free), Cuidado con la leche (Care of milk). Other booklets contain biographies and stories of great leaders. That on Quetzalcóatl has special appeal for the Mexicans.

GENERAL INTEREST

The extent of public interest in education and the general trend in the States may be judged from a sampling of news highlights which appeared during the 1955 school year in Mexican newspapers and periodicals.

Baja California Sur: School savings accounts amounted to 223,797 pesos. Primary education increased markedly because of the new agricultural colony in the Santo Domingo Valley. The territory has 6 school zones, a total enrollment of 14,625 children, and the following schools:

22 urban Federal	1 urban Article 123
5 semiurban Federal	2 semiurban Article 123
145 rural Federal	4 semiurban incorporated

Colima: 278 students from the Escuela Nacional de Maestros spent 15 days in Colima taking part in school programs, sports activities, folklore festivals, and concerts. One theater performance portrayed the history of the National Anthem.

Durango: 42 percent of the State budget was used for education. Literacy committees taught 12,821 persons to read in 1,068 centers. There were 642 primary schools with 1,688 teachers and 67,975 pupils, 3,144 of whom finished their primary education.

Guanajuato: The school budget increased from 3,469,559 pesos in 1949 to 6 million in 1955; enrollment increased from 60,950 in 1949 to 104,314 in 1955. 70 modern school buildings were constructed.

Laguna Region: 25 school plots (parcelas), growing cotton, wheat, alfalfa, corn, beans, earned 2 million pesos with a net gain of 1½ million distributed as follows:

40 percent for educational development
25 percent for agricultural development
10 percent for the reserve fund
25 percent for bonuses to pupils and teachers

México: 4,180 adults studied in 726 literacy schools sustained by 726 *patronatos* and a Government contribution of 343,280 pesos. In the 1,344 primary schools (472 State, 834 Federal) there were 184,361 pupils and 3,545 teachers. The State budget for primary education was raised to 5,077,572 pesos. Of the 63 kindergartens, 29 were supported by the State with 356,868 pesos.

Nuevo León: One or more new schools were built in each town in the State.

Sinaloa: School cooperatives earned 83,973 pesos; school savings accounts amounted to 190,140 pesos. Padres de Familia contributed 315,513 pesos to the schools, and social activities sponsored by the teachers and pupils netted 139,644 pesos. 94 schools were repaired, 22 new ones completed, 27 still under construction. The total State expenditure on education was 22,428,966 pesos.

Zacatecas: Of the 16,284 adults enrolled in 332 centers, 12,690 became literate. Of the 29,932 primary pupils, 17,848 were promoted to the next higher grade and 1,721 completed their primary education.

Secondary and Preparatory Education

PREPARATORIA

Secondary education in Mexico comprises those studies between *primaria* and *universitaria* or *profesional técnica*. (See chart, p. 28) It consists of a single 5-year course, the *preparatoria*, or of a 3-year basic program called the *secundaria* which may be followed by any one of several types of course.

The traditional academic program is given in the 5-year *preparatoria* or in the 2-year *preparatoria* which follows *secundaria*. These plans of study are shown in Table 2, pp. 98 and 99. The certificate which the student receives upon completion of either program is the *Bachiller de Ciencias* or the *Bachiller de Humanidades*, depending upon the requirements of the professional school which he plans to enter. The National Preparatory School, established in 1867, is administered by the National Autonomous University of Mexico and still serves as the model for other *preparatorias* in the Federal District and States. The National Preparatory School has actually become four schools, each with its own director working under the jurisdiction of the Director General of Preparatory Instruction in the University. School No. 1 and School No. 4, founded in 1953, both offer the 2-year plan of studies and require for admission the certificate of graduation from the *secundaria*. School No. 2 offers the 5-year plan of studies, requiring for admission the certificate of completion of the *primaria*. No. 3, a night school founded in 1923, offers all the plans of study and, in addition, some special work in stenography, bookkeeping, and office organization.

Most of the *institutos* in the States have programs similar to those of the National Preparatory School and several of the State universities and institutions of higher education in and outside the capital maintain preparatory schools which follow the same plan of studies. By meeting the standards and complying with the regulations set by the National University these institutions may be "incorporated" with the National

Table H.—Schools in the Federal District incorporated with the National Autonomous University of Mexico

Name	Location
Instituto Nacional de Cardiología	Avenida Cuauhtémoc, No. 300
Colegio "Franco-Español"	Avenida de los Insurgentes, No. 1967
Universidad "Iberoamericana"	Avenida de los Insurgentes, No. 1967
Facultad de Química "Berzelius"	Avenida de los Insurgentes, No. 1519
Instituto Pedagógico "Anglo-Español"	Avenida Morelos, No. 30
Colegio Alemán "Alexander von Humboldt"	Benjamín G. Hill, No. 43
Escuela de Enfermeras del Instituto Mexicano	Barcelona, No. 32
Escuela "Benito Juárez"	Bolivia, No. 33
Colegio "Franco-Inglés"	Calzada Melchor Ocampo, No. 193
Instituto "Vasco de Quiroga"	Calzada de Tacubaya, No. 26
Universidad Militar "Latino-Americana"	Carretera al Desierto de los Leones, Kilómetro 20
Academia "Hispano Mexicana"	Colonia Juárez
Colegio "Tepeyac"	Colonia Lindavista
Instituto "Patria" (Sección de Bachilleratos)	Colonia Morales-Polanco
Colegio "La Florida"	Colonia Nápoles
Instituto Femenino "Mexicano"	Colonia San José Insurgentes
Colegio "Cristóbal Colón"	Colonia San Rafael
Colegio "Groso"	Colonia San Rafael
Instituto "Tecnológico de México"	Colonia San Rafael
Colegio "Hispano-Americano"	Colonia Santa María la Ribera
Instituto "Juventud"	Santa María la Ribera, No. 72
Colegio "Israelita de México"	Colonia del Valle
Centro Universitario "México"	Colonia del Valle
Universidad "Motolinía"	Colonia del Valle
Instituto Mexicano "Universitario"	Durango, No. 355
Escuela de Enfermeras de la Cruz Roja	Durango y Monterrey
Escuela "Preparatoria del Magisterio"	Fresno, No. 15
Instituto "Miguel Ángel"	Gabriel Mancera, No. 1232
Escuela de Enfermeras del Instituto Mexicano del Seguro Social	Hospital de la Raza
Colegio "Ignacio L. Vallarta"	Lomas de Chapultepec, D. F.
Colegio "Madrid"	Mixcoac, D. F.
Colegio "Montserrat"	Pedro Antonio de los Santos, No. 62-B
Escuela Comercial Francesa	San Cosme, No. 33
Academia Militarizada "México"	Tacubaya, D. F.
Instituto "Luis Vives"	Tacubaya, D. F.
Universidad "Femenina de México"	Tacubaya, D. F.
Escuela de Enfermería "Marillac"	Tacubaya, D. F.
Colegio Israelita "Yavne"	Tacubaya, D. F.

University. Tables H and I give the name and location of the schools both in the Federal District and outside which in 1954 maintained an incorporated status.

Table L.—Schools outside the Federal District incorporated with the National Autonomous University of Mexico

Name	*Location*
Escuela de Enfermería del Sanatorio Palmore	Chihuahua, Chihuahua
Escuela Preparatoria de Torreón "Carlos Pereyra"	Torreón, Coahuila
Instituto "Lux"	León, Guanajuato
Universidad Autónoma de Guadalajara	Guadalajara, Jalisco
Colegio "Cervantes"	Guadalajara, Jalisco
Colegio "Nueva Galicia"	Guadalajara, Jalisco
Instituto "América"	Guadalajara, Jalisco
Instituto de Ciencias	Guadalajara, Jalisco
Colegio "Aquiles Serdán"	Guadalajara, Jalisco
Instituto "Antonio Plancarte"	Morelia, Michoacán
Escuela de Enfermería "Dr. J. L. Coppedge"	Morelia, Michoacán
Colegio "Labastida"	Monterrey, Nuevo León
Escuela de Enfermería del Hospital Muguerza	Monterrey, Nuevo León
Escuela de Enfermería y Obstetricia de la Clínica y Maternidad "Conchita."	Monterrey, Nuevo León
Colegio Mexicano de Monterrey	Monterrey, Nuevo León
Colegio "Excelsior"	Monterrey, Nuevo León
Instituto "Oriente"	Puebla, Puebla
Instituto Mexicano Madero	Puebla, Puebla
Escuela Preparatoria de Tampico	Tampico, Tamaulipas
Escuela de Enfermería de Tampico	Tampico, Tamaulipas
Instituto de Ciencias y Tecnología de Tampico	Tampico, Tamaulipas

SECUNDARIA

The elementary education provided in the *primaria* in Mexico has been terminal for most students and the *preparatoria* has always stressed a theoretical classical type of education given in the university atmosphere and under the tutelege of the university faculties. It has been customary for parents who could afford it to send their children to private schools, and the children from poorer families had to leave school to work, so there was never much demand for public secondary schools. As a part of the educational awakening of the post-Revolutionary period, however, a great effort has been made to build a new type of secondary school, one that would extend upward the work of the *primaria* and more nearly meet the needs of all the students, articulating at the same time with other types of preparation following the basic 3-year cycle. In the early twenties Mexico sent a team of educators to Columbia University to study secondary education and soon afterward began establishing public secondary schools. By 1926 there were four and they were crowded. John Dewey, who visited and lectured in Mexico that year, spoke approvingly of their activity method and observed that the educational pattern is sure to change if pupils do not have to deal with materials so isolated from their experience that memory is their sole reliance.

The program of studies for the *secundaria* is given in Table 1, p. 97. Students under 15 years of age may enter the day schools and those over 15 who are working in factories, stores, and offices may take the night classes. The evening students omit the directed study, manual arts shopwork, and physical education, since their employment substitutes for such activities. There are two types of schedule in the day schools. One is continuous from 8 to 3:30 with 50 minutes for lunch at school; the other has two sessions, 8 to 1 and 3:30 to 5:30. The continuous schedule was adopted after business and government offices abandoned the custom of taking a daily siesta, or noon rest. As in the case of the primary schools, boys and girls attend separate schools, although the semi-urban schools in the States are sometimes *mixtas*. In the girls' schools the students frequently adopt uniforms, each class wearing a different color, such as pink for the first year, blue for the second, and maroon for the third. Each school has an association of Padres de Familia and a Sociedad de Alumnos, students' association, which sponsor exhibitions, lectures, and concerts, and assist with school activities. Committees are formed to promote punctuality, neatness, and civic responsibilities. As in the *primaria*, the classes are motivated by patriotic themes, contests, festivals, assemblies, school museums, audio-visual materials, music, drawing, dancing, dramatizations, and occasional excursions and parades. The directed study periods are intended to reduce the amount of home study and to encourage collateral reading and give practice in using reference books, maps, charts, graphs, and the like. Examinations are scheduled three times a year before the vacation periods.

When the student finishes *secundaria* he may take the 2-year *preparatoria* if he wishes to enter the university, or the 3-year professional cycle of the *normal* if he wishes to be a teacher, or a vocational school for various kinds of technical courses. The military school, schools of fine arts, commercial studies, agriculture, and nursing are other possibilities. If he does not continue school, it is expected that the basic secondary education will equip him better than the *primaria* had done for becoming a useful worker and a responsible citizen.

The *secundarias*, which are under the direction of SEP, are trying to build up full-time teaching staffs. Formerly it was the custom for teachers to distribute their time among several schools, but with the addition of school lunches, vocational counseling, medical and dental services, directed study, school clubs, athletic contests, etc., it has been necessary to keep at least part of the teachers in the school throughout the day. These teachers are called *maestros de planta*. Teachers are assigned classes only in their field of specialization.

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SPECIAL SCHOOLS

For students with a particular vocational interest who need to start earning a living sooner than would be probable in the *secundaria* program there are schools aimed more directly at prevocational training; others serve the special needs of the delinquent, physically handicapped, or mentally retarded. Most of these schools include some of the academic subjects of the *secundaria* program of studies, such as language and arithmetic. Students who wish to study music or plastic arts may enter the national schools in these fields, which are under the administration of the National University, or one of the schools of fine arts or applied arts and crafts under the direction of SEP. There are schools of *corte y confección* to teach dress designing, pattern making, sewing, and tailoring. Commercial schools offer a 3-year course in typing, shorthand, bookkeeping, office practice, and practical business subjects. Other establishments train beauty operators and hotel service personnel.

STATISTICAL DATA

The new type of secondary school, which is the one given greatest support by the Government, has been handicapped by the lack of funds and trained teachers and by academic sentiment unfavorable to drastic changes in the university preparatory method of instruction. With large classes and many part-time teachers, the theory of the new program sometimes fails to materialize in actual practice. Nearly half the students who enroll in the *secundaria* drop out of school or fail the year's work, as shown in the data concerning the number of students enrolled and promoted in each of the classes of the 1950 school year. (Table J.)

The number of schools has increased steadily. Starting with 4 in 1926, the number grew to 199 in 1940, 241 in 1945, 455 in 1952, and 524 in 1955. The distribution according to the type of school may be noted in the tabulation for the years 1945 and 1952. (Table K.)

A report from the School Statistics Department of SEP shows that in 1950 there were in the Republic 275,196 persons under 25 years of age who had completed between 7 and 9 years of schooling and 154,596 who had finished one of the grades between the 10th and 12th. An additional 88,000 joined these ranks from the secondary and preparatory schools that year when 73,361 students were promoted in the lower secondary institutions and 14,810 were promoted or graduated at the upper secondary level. Nearly half of the students in the first group were taking commercial, prevocational, or special studies, while about a fourth of those in the higher group were in a vocational school. Boys outnumbered girls 2 to 1 in the *secundaria* and 5 to 1 in the *preparatoria*. In 1955, there was a total enrollment in all *post-primaria* schools, except professional,

Table J.—Progression of secondary school students (3-year plan) in the Republic, 1950

Area, by year	Number enrolled	Number promoted	Percent remaining in school and promoted
1	2	3	4
FEDERAL DISTRICT	38,890	19,892	51
First year	17,516	8,133	.....
Second year	13,149	6,230	.....
Third year	8,225	5,529	.....
STATES AND TERRITORIES	27,089	15,886	58
First year	13,804	7,395	.....
Second year	8,479	4,841	.....
Third year	4,806	3,650	.....
REPUBLIC	65,979	35,778	54
First year	31,320	15,528	.....
Second year	21,628	11,071	.....
Third year	13,031	9,179	.....

of 106,600 students. The National Youth Institute (Instituto Nacional de la Juventud), an organization to give young people a sense of responsibility through participation in civic tasks, and in sports, economic, and cultural activities, reported 66,000 affiliates in 1955, an increase of 42,000 over the number in 1954. These figures highlight the fact that secondary education has developed slowly through the years and that it still is serving but a small part of the youth of secondary school age. When contrasted with earlier enrollments, however, and viewed against the background of the millions who have not completed schooling up to the sixth grade, they give evidence of a significant change in the nature and direction of Mexico's secondary school program.

Vocational Education

Another new turn in educational endeavor which came as the direct result of the Revolution is the development of vocational education. There had been a few schools of industrial arts for Indians in the colonial

period and a few *Escuelas de Artes y Oficios* during the presidency of Porfirio Díaz, but vocational training had not been considered an important part of the national system of education. Increasingly since the early twenties, however, the Government policy has been one of encouragement and promotion of schools which will add to the number and proficiency of the economically active population.

Table K.—Number and type of secondary schools in Mexico (3-year plan), 1945 and 1952

Type of school	Number of schools	
	1945	1952
FEDERAL DISTRICT:		
Secundaria, day	19	27
Secundaria, night	13	17
Incorporated	49	99
Special, *externados*	6	9
Special, *internados*	1	8
Fine Arts	2	.....
Total	90	160
STATES:		
Secundaria, day	30	41
Secundaria, night	2	2
Secundaria, *internado*	6	7
Coordinated, day	17	65
Coordinated, night	9	29
Federalized	.....	1
Incorporated, day	69	107
Special, *externados*	14	21
Special, *internados*	4	22
Total	151	295
REPUBLIC—Total	241	455

AGRICULTURE

The program of the schools of agriculture is 5 years in length beginning with the fifth grade, organized in 3 cycles. The first cycle, *curso complementario*, covers 2 years and is very similar to the third cycle of *primaria* with the addition of 25 hours a week of practical work pertaining to agriculture, cattle raising, and derived industries. The second cycle, *curso agrícola*, also covering 2 years, concentrates on practical

agricultural activities; the care of domestic animals; dairying; conservation of meats, fruits, and vegetables; care of bees; rural construction; and the like. Classes are held 3 hours a week in arithmetic, science, and language and 2 hours a week in drawing, rural economics, bookkeeping, agriculture, tinshop, carpentry, and blacksmithing. Physical education and pre-military training are also included. In the fifth year a differentiated program is offered according to the aptitude and interest of the student. This is called the *curso preparatorio* leading into a higher school of agriculture or the study of veterinary medicine. In this cycle the student may choose one of the following programs: aviculture, agricultural mechanics, dairying, fruitgrowing and horticulture, apiculture or agricultural industry.

Since the students in the agricultural schools are on Government scholarships they are under strict observation during the first 3 months, and those who do not seem capable and interested are asked to withdraw. To remain in school the student must pass all his studies and take no more than 3 days off during the school year. In an emergency he may be absent for 15 days, but that does not excuse him from any examinations. The students take turns for their vacation in order to keep the practical activities going. There are 251 days in their school year. The daily chores begin at whatever hour is customary in the community and the schedule is arranged somewhat as follows: 8 hours for sleep; 2 hours for cleaning rooms, making beds, dressing, physical education; ½ hour for breakfast; 4½ hours for classes; ½ hour for personal grooming; 2 hours for dinner and rest; 3 hours for classes or activities; 1 hour for planning sessions and discussions; 1 hour for supper; 1½ hours for study and recreation. Students keep a notebook in which they record systematically their observations and practical work.

The schools of this type (table L), had a total enrollment in 1952 of 2,022. They operate under the general supervision of the Dirección General de Enseñanza Agrícola of SEP.

One of the main problems connected with the agricultural schools is to get graduates to return to their communities and apply their knowledge, since they lack opportunity and land on which to establish themselves in farming. To help solve this problem the Government has been establishing agricultural colonies composed exclusively of students who finish their studies in the agricultural schools. The Government supplies the land and equipment and arranges for credit through the Bank of Agricultural Credit over a period of 5 years until the farming enterprise can reach full production. Apparently this plan is working very successfully. One such colony, the "Guía del Porvenir" in Zongolica, Veracruz, is made up of 20 practical agriculturalists working under an adviser from SEP, who are profitably engaged in raising guayule rubber, bananas, lemons, corn, beans, and sesame seeds. Of the 513 students who finished the *ciclo*

preparatorio of the 12 agricultural schools in 1951, 83 were located in agricultural colonies and 83 others were given scholarships to continue their studies in higher schools of agriculture or to teach in the agricultural school at Roque, Guanajuato.

There are 3 higher schools of agriculture, which are under the Secretaría de Agricultura y Ganadería, one each in Saltillo, Coahuila, and Ciudad Juárez, Chihuahua, and the National School of Agriculture at Chapingo in the State of Mexico. The course of instruction in these schools is 7 years in length, the last 4 years being at the professional level. The National School of Agriculture offers degree work in 6 fields: agricultural engineering, phytology, agricultural economics, parasitology, forestry, and irrigation.

Table L.—Name and location of Federal agricultural schools (SEP, 1952)

Name	*Location*
Emiliano Zapata	Champusco, Puebla
General Plutarco Elías Calles	El Quinto, Sonora
Gildardo Magaña	Guaracha, Michoacán
Doctor José G. Parrés	Huichapan, Hidalgo
J. Guadalupe Aguilera	J. Guadalupe Aguilera, Durango
Miguel Angel de Quevedo	La Huerta, Michoacán
José Urbano y Fonseca	Reyes Mantecón, Oaxaca
Ingeniero Luis Marín Sandoval	Ríoverde, San Luis Potosí
Licenciado Gabriel Ramos Millán	Roque, Guanajuato
Ingeniero Waldo Soberón	Santa Teresa, Coahuila
Ingeniero Ernesto Martínez de Alba	Xocoyucan, Tlaxcala
Pedro Cortazar Llano	Pacana, Jalisco

ARTS

Students who have completed the *primaria* and have artistic talent may choose a special school of music, art, theater, dancing, or other field. The Escuelas Nocturnas de Arte offer night classes in music, plastic arts, theater, and dance. Studies preparatory to a professional career in music or plastic arts are available at the National School of Music or the National School of Plastic Arts, both under the administration of the National University. The Secretariat of Public Education supervises studies in the National School of Fine Arts and the Escuela de Pintura y Escultura, which offers a 5-year course in painting and a 5-year program in sculpture. These schools are entirely free and open to both sexes and some of Mexico's leading artists are members of their teaching staffs.

The Escuela de Danza prepares students for teaching careers in dancing, ballet, and choreography. The Escuela de las Artes del Libro gives a 3-year course in book format, engraving, and bookbinding. The Instituto Cinematográfico Teatral y de Radiotelevisión, established in 1951

by the National Association of Mexican Actors, gives a 3-year course in dramatic acting, voice training, and history of the theater. Its school year is from February 15 to November 15, and classes meet Monday through Friday from 4 to 9 p. m. Students with *primaria* schooling who are 15 years of age and pass the entrance examination are eligible for training under the guidance of professional actors. This school also offers special courses for children who are 8 years of age or older.

Outside the capital the larger cities provide similar opportunities for education in the arts. An unusual school in Morelia, Michoacán, is known as the Instituto de los Niños Cantores. Founded in 1949 as a dependency of the School of Sacred Music of the Morelia Cathedral, the Instituto offers the regular *primaria* plan of study along with concentrated training in music and foreign languages. The boys are admitted at the age of 7 or 8 on the basis of audition tests and live in the dormitory which occupies the site of the old Conservatory of the Roses, established in 1743 and said to be the first conservatory of music in America. Discipline is strict and the school day is about 10 hours long, but the achievement is in proportion. The Niños Cantores sing regularly in the Morelia Cathedral, which supports the school, and have given concerts in many other cities of Mexico as well as in Central America and the United States.

COMMERCE

Commercial schools offer 3-year curricula stressing shorthand, typing, bookkeeping, and office practice, with Spanish, English, arithmetic, civics, and some other subjects of the *secundaria* included. A few offer 4-year programs. These schools are largely private and attract about twice as many girls as boys. The promotion record is somewhat higher than in other schools at the secondary level. The following enrollment and promotion data are from *Anuario Estadístico, 1951–52.*

Table M.—Progression of students in post-elementary vocational education, 1951

Type of school	Number enrolled			Number promoted			Percent of total number promoted
	Boys	Girls	Total	Boys	Girls	Total	
1	2	3	4	5	6	7	8
Commercial	8,248	15,531	23,779	6,001	11,379	17,380	73.0
Pre-vocational	1,681	302	1,983	708	140	848	42.8
Vocational	4,557	361	4,918	2,583	89	2,672	54.3
Special	5,870	10,205	16,075	3,391	6,748	10,139	63.0
Total	20,356	26,339	46,755	12,683	18,356	31,039	66.4


San Diego
Tijuana
Ensenada
Mexicali
U N I
El Paso
Ciudad Juárez
Nogales
Nogales
GULF OF CALIFORNIA
SONORA
CHIHUAHUA
Hermosillo
Chihuahua
Navojoa
Hidalgo del Parral
Topolobampo
Culiacán
DURANGO
Durango
Magdalena
Sta Margarita
La Paz
TROPIC OF CANCER
Mazatlán
PACIFIC OCEAN
San Blas
Tepic
C Corrientes
REVILLA GIGEDO ISLANDS
San Benedicto
Socorro
Clarión
Manzanillo
MEXICO
STATUTE MILES
Capital of Country
Capitals of States
International Boundaries
State Boundaries


STATES
Baton Rouge
New Orleans
Austin
Houston
San Antonio
Galveston
Laredo
Nuevo Laredo
Corpus Christi
GULF OF MEXICO
Brownsville
Matamoros
Monterrey
TAMAULIPAS
Ciudad Victoria
SAN LUIS POTOSI
Tampico
Progreso
Mérida
YUCATAN
QUINTANA ROO
Bay of Campeche
Campeche
CAMPECHE
Veracruz
Córdoba
Orizaba
Tehuacán
TABASCO
Villahermosa
Belize
BRITISH HONDURAS
Gulf of Honduras
Oaxaca
Tuxtla Gutiérrez
OAXACA
CHIAPAS
GUATEMALA
Puerto Barrios
Salina Cruz
Gulf of Tehuantepec
Huehuetenango
HONDURAS
Quezaltenango
Tapachula
Guatemala
EL SALVADOR
San Salvador
R W GALVIN, Cart

TRADES AND INDUSTRIES

The Federal and State schools for technical education are under the jurisdiction of the Instituto Politécnico Nacional, also a major division of SEP. Operating under this system are 31 schools which offer training at one or more educational levels from *primaria* through professional studies. There are 8 professional schools in the Instituto Politécnico Nacional and professional work is offered in certain fields by 5 of the Institutos Tecnológicos in the States. In the capital there are 5 vocational schools of *preparatoria* level, 5 *escuelas tecnológicas* at the *secundaria* level (pre-vocational), and the Escuela Wilfrido Massieu. Outside the capital are 6 technological institutes, and 6 special schools located as follows:

Name	*Location*
Instituto Tecnológico de Guadalajara	Guadalajara, Jalisco
Instituto Tecnológico de Durango	Durango, Durango
Instituto Tecnológico de Coahuila	Saltillo, Coahuila
Instituto Tecnológico de Orizaba	Orizaba, Veracruz
Instituto Tecnológico de Ciudad Madero	Ciudad Madero, Tamaulipas
Instituto Tecnológico de Celaya	Celaya, Guanajuato
Escuela Industrial Femenil	Saltillo, Coahuila
Escuela S. Valdés Galindo	Saltillo, Coahuila
Escuela de Ciencias Químicas	Saltillo, Coahuila
Escuela Aguanueva	Aguanueva, Coahuila
Escuela Antonio Narro	Roque, Coahuila
Escuela Federal de Industrias Textiles	Río Blanco, Veracruz

Other technological institutes are under construction in Puebla, Veracruz, Uruapan, Mérida, and Oaxaca.

Instruction in the technological and industrial institutions includes a great variety of work. The younger students may enter, instead of the regular *secundaria*, a prevocational school which will orient and prepare them for the *vocacional* or equip them for employment, at the same time including an academic program basically the same as the *secundaria*.

There are three types of training open to older persons who have completed only *primaria* or the rudiments of reading, writing, and arithmetic: (1) Technical Preparation of Youth, for adolescents over 15 years of age who have no work experience but nevertheless have to earn a living in industry, (2) Workers' Training, for persons employed in industry who need more technical training to become proficient on the job, and (3) Reeducation of Adults, for workers who want to enter a different or more remunerative line of work. These studies all include practical work leading to one of the following certificates:

3-year course	3-year course
Accounting Assistant	Automotive Expert Mechanic
Automobile Mechanic	Bookkeeping Assistant
Cabinet Maker	Dressmaker
Carpenter	Electrical Installation Mechanic
Compression Pump Mechanic	Electrical Installation Technician
Correspondence Clerk	Lathe Mechanic
Electrician	Naval Telegraphy Expert
Forger and Solderer	Nurses' Aide
Foundry Worker	Sugar Mechanic
Internal Combustion Mechanic	Thread Chief
Mason	Turner Mechanic
Mechanic	Veterinary Aide
Plumbing Installation Mechanic	Weaving Chief
Tool Machine Mechanic	

Two types of training are available to persons who have finished the *secundaria* or its equivalent: (1) Subprofessional, for persons who hold intermediate positions between the workmen and professional directors of industrial enterprises; and (2) Vocational, for students planning to enter professional courses of the Instituto Politécnico Nacional or other technological institutes. The subprofessional studies are generally 3 years in length, although in certain fields the training may be for 1, 2, or 4 years. Upon completion of the subprofessional course the student receives one of the following certificates:

Table N.—Subprofessional certificates from vocational schools and technological institutes (SEP, 1953)

1-year course	2-year course
Master in Weaving	Master in Spinning and Weaving
Master in Yarn Preparation	Topographical Assistant
3-year course	
Chemical Assistant	Naval Pilot
Construction Assistant	Naval Radio Operator
Dietitian	Oil Well Driller
Drill Technician	Optometrist
Geology Assistant	Radio Technician
Hospital Aide	Service Foreman
Industrial Dressmaker	Service Mechanic
Industrial Technician	Siderurgical Technician
Master in Home Economics	Technician in Coal and Its Derivatives
Medical Secretary	Technician in Control of Apparatus
Metal Assayer	Technician in Refrigeration and Air-Conditioning
Mining Foreman	Wood Technician
Naval Mechinist	
4-year course	
Bookkeeper	Mechanic
Electrical Communications Technician	Mechanical Technician
Electrical Technician	

The schools which are designated as *vocacional* have 2-year programs preparing for admission to professional courses in one of the following fields: chemical engineering, mechanical and electrical engineering, civil engineering and architecture, textile engineering, biological sciences, pharmacy, and social and economic sciences. The professional schools are listed with other institutions of higher education, page 66.

Counting students in the professional courses, the Instituto Politécnico Nacional and its affiliates imparted technical education to 24,000 students during the 1955 school year. Its budget was 40 million pesos, 9 million more than in 1954. Through extension programs as well as regular courses it is helping to increase the nation's pool of skilled and semi-skilled industrial labor. The Instituto Politécnico Nacional uses its facilities and specialized personnel also to conduct research concerning the resources and industrial needs of the various regions of the country. Such investigations, particularly those dealing with foods, metals, and textiles, provide the basis for overall planning of the technical program under the supervision of SEP and help determine how effectively the educational institutions are meeting the need for workers and specialists in the nation's growing industries.

In addition to the vocational education provided in Government schools there are varied offerings in technical studies available in private institutions. An outstanding example of private initiative in this field is the Instituto Tecnológico y de Estudios Superiores de Monterrey, a modern school financed by businessmen of Monterrey, offering vocational,

INSTITUTO TECNOLÓGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY, STATE OF NUEVO LEÓN.

subprofessional, and professional courses. It has an enrollment of about 2,400 students, 700 of whom are from out of town. Night courses are conducted for some 600 of the city's industrial workers.

The Universidad Obrera de México, a center for the cultural advancement of workers in the capital, was established in 1936 by Vicente Lombardo Toledano, a well-known labor leader. This school has no academic requirements for admission and gives no diplomas. Courses of many types are available as well as lectures, exhibits, concerts, sports, educational excursions, clubs, and theater productions. The subjects range from arithmetic, Spanish, geography of Mexico, and other *primaria* studies to economic theory, Mexican problems, philosophy, labor law, and international relations. A number of practical courses in homemaking, child care, plastic arts, and trades are included in the offering.

MILITARY

Military training, under the Secretaría de la Defensa Nacional, is available to young men who have completed *secundaria* with good grade averages. The basic 3-year course leads to the rank of lieutenant and includes with the military subjects some of the academic studies of the *preparatoria*. The Colegio Militar, founded in the 19th century, has an enrollment of about 700 cadets in its basic course. After the 3-year course students may specialize in engineering, medicine, aviation, or other fields. Also in the capital are the Escuela Médico Militar, the Escuela Militar de Meteorología y Mecánicos Especialistas, and the Escuela Superior de Guerra, which offers advanced professional training for officers. A new school, Escuela Militar, was built in 1951 in Cuernavaca. The Escuela Militar de Aviación is located in Guadalajara and the Escuela Naval in Veracruz. The latter trains officers for the expanding merchant fleet and naval reserve. Mexico is divided into 10 military zones. The commanders in these zones direct the armed forces in public service work, such as narcotics control, public health campaigns, reforestation, control of hoof and mouth disease, and housing projects.

Teacher Education

KINDERGARTEN AND PRIMARIA

Teachers are prepared for the kindergarten and *primaria* in the *escuela normal*, which offers a 6-year program in 2 cycles of 3 years each. The plan of studies in the first cycle is approximately the same as for the *secundaria;* the second cycle consists largely of professional training. The plan of studies for the professional cycle is given in Table 3, p. 100. Students in training to become nursery school or kindergarten teachers make certain substitutions in the professional cycle so that they devote

more time to materials and methods for young children, but their program is very similar to that of the *primaria* teachers. A kindergarten and *primaria* are annexed to the *escuela normal* to serve as practice schools.

Students who plan to teach physical education take the professional cycle in the Normal School for Physical Education. Their plan of studies includes physical measurement, tests of physiological proficiency, first aid, history of physical education, physical therapy, organization and administration of physical education programs, and 2 years of music, Spanish, English, and science. In addition to the theoretical subjects, the students have 25 hours a week of physical exercise in the form of calisthenics, sports, and military training. During the second year they do practice teaching 5 hours a week in an elementary school and during the third year they practice in a secondary school.

After completion of the regular professional cycle, students who wish to specialize in the teaching of atypical children observe in the Escuela para Anormales or other special school and practice under the guidance of professors and medical advisers in the Escuela Normal de Especialización and of the Instituto Nacional de Pedagogía. The latter, a research center in educational psychology, testing, and statistical analysis, helps teachers to work out methods best adapted to the social medium in which they teach. The *Revista del Instituto Nacional de Pedagogía* is an important publication in this field. The Escuela Normal de Especialización, established in 1943, offers 2-year courses in each of three fields, for the mentally retarded, blind, and deaf and dumb. Enrollments in 1951–52 were 337, 173, and 73 students, respectively, in these special programs.

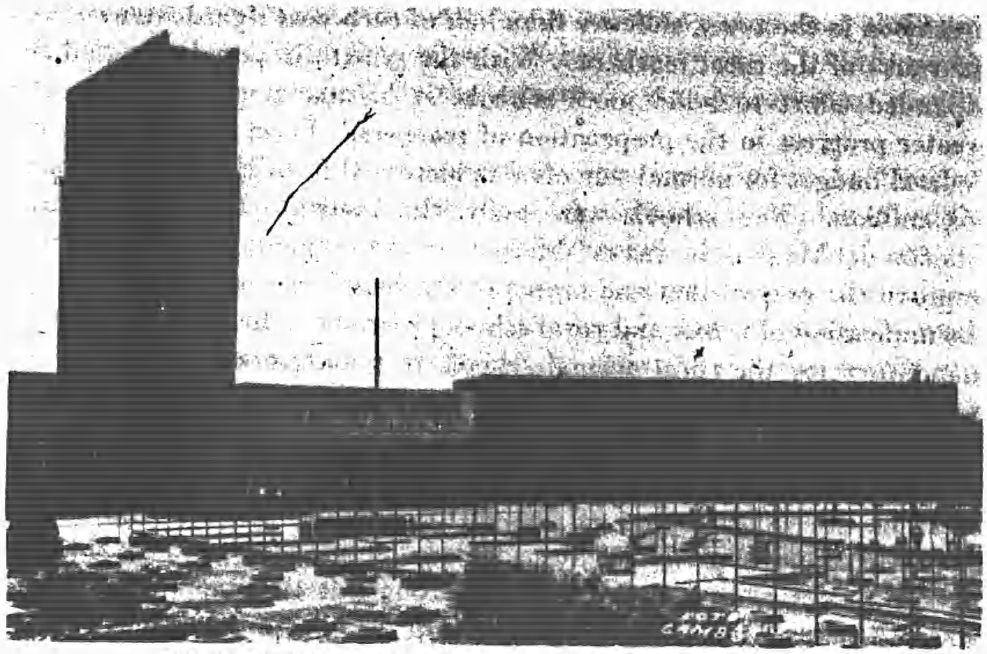
Rural teachers receive essentially the same preparation as the urban teachers, although there is more emphasis on practical studies in agriculture, stock raising, and rural home industries. Students in rural normal schools are generally supported by Government scholarships. Those coming from a 4-year *primaria* may regularize their training by preparatory work in the *normal*. Teachers in service who have not had an opportunity to complete their normal school training may take correspondence courses given by the Instituto Federal de Capacitación del Magisterio, established in Mexico, D. F., in 1945. In-service training is also available in connection with the cultural missions.

The hope of the Revolution's ideal of universal education is built around the training of rural youth. The first normal school for rural teachers was opened in 1922 in Tacámbaro, Michoacán, with a 2-year program, and slowly year by year other schools were established. The greatest difficulty was to get and hold new recruits for rural teaching. The city-bred teachers either refused to take positions in remote areas or lacked the experience needed to make their teaching practical. The rural students who attended a normal school in an urban center preferred

to stay on in the town, so fewer than half of each year's graduates entered the ranks of the rural teachers. With the growth in population and the expanded effort to build more schools, it became imperative to make greater progress in the preparation of teachers. From 1944 to 1954 the Federal budget for normal schools was increased from 1½ million pesos to 16½ million. New schools were built, the Instituto Federal de Capacitación del Magisterio was established, and other measures were taken to improve the preparation and status of teachers. One such measure was the unification of urban and rural school programs. In 1946 it was made mandatory for the rural normal schools to maintain a 6-year program, and since that time the rural teachers have come to feel more a part of the profession.

Another part of the plan was to make Teacher's Day an important occasion. Schools are not in session on that day and elaborate ceremonies are held to give recognition to worthy service and make the profession attractive to young people. Throughout the Republic, Government officials and civic leaders pay tribute to outstanding teachers in the schools, identifying them with the social work of the Revolution in their double role of educator and exemplary citizen, and hold up as examples the lives of famous Mexican teachers of the past, such as Hidalgo and Juárez. In the capital, the President of the Republic awards the Ignacio Manuel Altamirano medal to teachers with 50 years of teaching experience. Twenty-one teachers received the medal in 1955 and others were given diplomas for shorter periods of service, 30 teachers having completed 30 years of service in the *secundaria*. In 1954, a statue of Enrique C. Rébsamen, a teacher of the nineteenth century in Jalapa, Veracruz, who worked for national unity through education, was placed in a corner of the patio of the Secretariat of Public Education. As a result of these efforts there has been a gratifying increase in the number of elementary school teachers. In 1945 there were, in all, 45 normal schools with an enrollment of 5,664 students; in 1955 there were 71 normal schools with 22,635 students, and 6,852 rural teachers had finished their preparation by means of the correspondence courses of the Instituto Federal de Capacitación del Magisterio.

The largest normal school in the country is the Escuela Normal de Maestros in Mexico, D. F. It has four departments, one for men, one for women, a mixed evening school, and the Escuela Nacional de Educadoras for kindergarten teachers. It occupies a magnificent building on Ribera de San Cosme which was constructed during the administration of President Manuel Ávila Camacho. In Mexico City also there are 9 private institutions (*incorporadas*) with normal school departments: the Cristóbal Colón for boys, the Hispano Americano, which is *mixta*, and the following for girls: Anglo Español, Comercial Francesa, Instituto Morelos, Miguel Ángel, Montferrat, Simón Bolívar, and Manuel Acosta.



ESCUELA NORMAL DE MAESTROS, MEXICO, D. F.

Outside the Federal District the Federal system of normal schools includes 18 rural normal schools, 3 Federalized *mixtas* in Ciudad Victoria, Pachuca, and Oaxaca, 3 Federal schools in La Paz, Mexicali, and Morelia, and 20 *incorporadas*. The State normal schools are located in Campeche, Coahuila, Colima, Chiapas, Chihuahua, Durango, Cuanajuato, Guerrero, Jalisco, México, Morelos, Nayarit, Nuevo León, Puebla, Querétaro, San Luis Potosí, Sinaloa, Veracruz, Yucatán, and Zacatecas. There are municipal and private normal schools in 9 cities. Two-thirds of all the normal schools in the Republic are centered in and around the capital, while a few States have no institutions for teacher education.

In 1954 the Dirección General de Enseñanza Normal of SEP called a congress of normal school directors and teachers to discuss education and the great national problems. Representatives of all the normal schools, Federal, Federalized, State, and incorporated, attended along with representatives of the dependencies of the Secretariat of Public Education, the universities of the Republic, and of the State governments. One of the problems receiving special attention was how to enlist the participation of all social sectors in the educational effort.

FUNDAMENTAL EDUCATION AND LITERACY

Another opportunity for teacher education of the type needed in cultural missions, workers' projects, rural schools, literacy centers, community development, and the like, is UNESCO's Centro Regional de Educación Fundamental para la América Latina (CREFAL), located at Pátzcuaro, Michoacán. It is supported and administered by UNESCO, with the Organization of American States providing fellowships, and the

Government of Mexico furnishing housing and maintenance. When Jaime Torres Bodet, former Secretary of Public Education in Mexico, was director general of the United Nations Educational, Scientific, and Cultural Organization, he suggested the Pátzcuaro site for a pilot project in UNESCO's worldwide attack on illiteracy in order to share with the other American republics Mexico's experience in rural education. Ex-president Lázaro Cárdenas gave his Quinta Erendira, named for a heroic Tarascan princess, for the center's headquarters, where some 85 Mexican teachers and Government employees work with specialists from other countries in the training of teachers and other community workers.

The quota of students from Mexico is twice that of other countries, and 21 villages of the area are participating in the community education projects. The fundamental education experiment at Tzintzuntzan (Place of the Hummingbird), the ancient Tarascan capital, is supervised by the Museo de Artes e Industrias Populares and is carrying out with international cooperative effort many of the handicraft ideas that Don Vasco de Quiroga introduced there in the sixteenth century. The Spanish edition of *Fundamental and Adult Education*, one of UNESCO's bulletins, is published by CREFAL.

The teams of students who come to CREFAL work for 19 months, which are divided into 3 periods of 6, 9½, and 3½ months, according to the nature of the activities. The first period of 6 months is primarily one of orientation and classwork. The studies are divided into sections pertaining to the home, health, recreation, economics, and basic knowledge, and include such subjects as social anthropology, sociology, psychology, pedagogical principles, doctrine of fundamental education and literacy, and Mexican history, geography, and education. During this period also the students receive orientation in the production and use of filmstrips, films, printing, drawing, puppetry, and the theater. They work a part of each day at photography, weaving, tailoring, ceramics, apiculture, aviculture, or carpentry. During the second period, 9½ months, the students go in teams of 5 into the communities scattered along the lake, on the islands, and in the sierra. They live in the community to which they are assigned and produce materials as needed in their work. The last period, 3½ months, is spent in reviewing experiences in classroom, shop, and community, and in visiting educational institutions such as the cultural missions, normal schools, the Papaloapan River basin project, the pilot project in basic education in Nayarit, and the work of the Instituto Nacional Indigenista in Chiapas and Hidalgo. In seminars the students analyze the theory of fundamental education in the light of their experience in the communities and in the last 10 weeks prepare a thesis and take examinations. When the work is completed the trainees receive a diploma of Specialized Teacher of Fundamental Education.

SECUNDARIA

Teachers who have graduated from the *escuela normal* or received the *bachillerato* from the preparatory school and who have taught successfully in the *primaria* for 4 years may enroll in the Escuela Normal Superior for work preparing them to teach in the secondary school. The Escuela Normal Superior, which is under the control of the Secretariat of Public Education, is free and its graduates are guaranteed placement in the secondary schools. If he prefers, the teacher may enroll instead in the Faculty of Philosophy and Letters of the Universidad Nacional Autónoma de México and work for the degree of *maestro* in the subject or subjects which he plans to teach in the secondary school. An illustration of the specialized studies in a subject field is given in Table 16, p. 118. Upon completion of the *maestro* degree in language, history, plastic arts, geography, or other subject, which takes 3 years, he may take an additional year for the *Maestro en Ciencias de la Educación*. This rounds out preparation equivalent to the 4-year program of the Escuela Normal Superior. The plan of study for the degree in education is given in Table 11, p. 110.

In the higher normal schools, located in the Federal District, Saltillo, and Monterrey, the course is for 4 years and comprises both academic and professional training taken at the same time. The teachers preparing

STUDENT TEACHERS PULLING POSTERS FOR LITERACY CAMPAIGN.

Table O.—Academic requirements for secondary school teachers of mathematics and civics (Escuela Normal Superior, 1954)

Mathematics Teacher

I. Subjects of the specialty:
   1. Supplementary arithmetic
   2. Supplementary algebra
   3. Supplementary geometry
   4. Supplementary trigonometry
   5. Descriptive geometry
   6. Analytical geometry and differential and integral calculus I
   7. Analytical geometry (differential equations) II
   8. Numeration, graphic and mechanical calculus
   9. History of mathematics

II. Four related subjects selected by the student and approved by the director of the school

III. Cultural background subjects:
   1. A modern language (English, French, or German) I
   2. A modern language (English, French, or German) II
   3. Theory of scientific knowledge and methodology
   4. Advanced Spanish

Civics Teacher

I. Subjects of the specialty:
   1. World history
   2. Mexican history
   3. Sociology
   4. Economic theory
   5. History of economic doctrines
   6. General theory of law
   7. Public law
   8. Private law
   9. Constitutional law
   10. International law
   11. History of political ideas
   12. Economic and social problems of Mexico

II. Two related subjects selected by the student from those available in the term and approved by the director of the school.

III. Cultural background subjects:
   1. Ethics
   2. A modern language (English, French, or German) I
   3. A modern language (English, French, or German) II
   4. Advanced Spanish

for assignments in secondary schools may specialize in the following subjects: Spanish language and literature, physics and chemistry, biological sciences, geography, plastic arts, English and French, mathematics, civics, world history, and Mexican history. The *normal superior* also offers training courses for normal school teachers, educational directors and supervisors, and a doctorate in education. The required professional training includes courses in psychology and education of

adolescents, vocational guidance and experimental educational psychology, history of secondary education, specialized teaching methods in the chosen field, and general methods. Students who have not graduated from the *normal* are required to take also a year's course in the science of education, general history of education, and the history of education in México. A kindergarten, *primaria*, and *secundaria* are operated as experimental and practice schools in conjunction with the *normal superior*.

In tables O and P are examples of the programs in academic subject fields.

Table P.—Academic requirements for education specialists (Escuela Normal Superior, 1954)

Course for Education Specialists

I. Subjects covered by the specialty:
   1. Advanced child psychology
   2. Specialized course in the history of education in Mexico
   3. Characteristics and instruction of adults
   4. Psychology in vocational training
   5. Comparative education
   6. Philosophy of education
   7. Organization and administration of schools and school systems
   8. School hygiene
   9. Experimental psychology
   10. Techniques of teaching the basic subjects
   11. Techniques of teaching the physical and natural sciences (1 semester)
   12. Techniques of social science teaching (1 semester)

II. Three subjects selected from the following for further specialization:
   Sociology applied to education
   Specialized course in extra-school education
   Theory and practice of pre-school education
   Technique of school inspection
   The teaching of handicapped students
   Educational statistics
   School legislation
   Children's literature
   Any other special subject related to education in Mexico

III. Cultural background subjects:
   1. History of philosophy
   2. Educational and social problems of Mexico
   3. Modern language (English, French, or German) I
   4. Modern language (English, French, or German) II
   5. Advanced Spanish or Greek and Latin etymologies

Students who have completed their course work in the Escuela Normal Superior may teach on a certificate of *pasante* in any school above *primaria* and below university level. To receive the degree of *maestro* or *doctor* they must take a professional examination within 3 years of the date of completion of the course work and present a thesis on some phase of secondary school teaching. Doctoral candidates must do orig-

inal research for the thesis. The Normal Superior can grant the specialized degrees in education, but the *maestro* and *doctor* in subject fields are conferred by arrangement with the National Autonomous University of Mexico. The following grading scale is used.

10 Excellent
9 Very good
8 Good
7 Fair
6 Minimum for passing
5 Failure, with the right to take a make-up examination (examen extraordinario)
4, 3, 2, 1, 0 Failure (Course must be repeated.)

Since the first class of the Escuela Normal Superior in Mexico, D. F. left the school in 1939, the distribution of its graduates by subject fields has been as follows:

Specialization	*Number of graduates, 1939–53*
Spanish language and literature	157
Physics and chemistry	17
Biological sciences	142
Geography	111
Plastic arts	24
English	36
French	12
Mathematics	91
Civics	86
History and Civics	82
World history	54
History of Mexico	32
Normal school teachers and educational technicians	128
Total	972

In 1953 the total enrollment was 882 in the regular session and 703 in the intensive winter course given during December 1952 and January 1953.

Since the higher normal schools have been established only recently, there is a lack of duly qualified teachers for the *secundaria*, so members of the liberal professions as well as holders of the higher normal school diploma are employed for part-time teaching in secondary schools. To encourage teachers to take advantage of short-term refresher courses and extension work, the acquisition of a specialist qualification in any secondary school subject entitles the teacher to a step up in seniority and a salary increase.

The student of the Escuela Normal Superior use the facilities of the Escuela Normal de Especialización and of the Instituto Nacional de Pedagogía in the same way as the *primaria* teachers for consultation on special problems and during their specialization in the education of re-

tarded or handicapped children. There is also the Museo Pedagógico Nacional, established in 1946, with an excellent collection of books, documents, and codices illustrating education in Mexico from pre-Hispanic days to the present. The Museo works in cooperation with the Escuela Normal Superior and the other specialized teacher education institutions to make the study of educational developments more vivid and effective. Teachers may go there to prepare instructional materials, look at the exhibits, watch pedagogical demonstrations, and use the library and historical archives.

All secondary school teachers of the same subject belong to a Specialist Academy, which functions under the guidance of the several directors of subject fields in the Office of the Director General of Secondary Education of SEP, for carrying on research and providing guidance on teaching problems in the subject. The Academy plays no part in questions of school administration. The meetings are held monthly and attendance is compulsory for all teachers in Governmental and private schools alike. Academy decisions, to be valid, must be approved by 50 percent plus one of the members present.

STATUS OF TEACHERS

The public-school teachers in Mexico are Government employees and as such have their salaries paid by the Federal or State Government, by a combination of the two, or by the Federal Government and a municipality or private group. The candidates for teaching posts are classified according to their qualifications and experience, and appointment is made by the education authorities on the basis of this classification.

According to a report issued by SEP in 1954, the legal obligations of secondary teachers are as follows. Those of *primaria* are similar.

1. To be of good behavior on and off the school premises.

2. To be punctual at classes, not to dismiss classes without the prior permission of the school director, and to provide valid reasons for absence or tardiness.

3. To conform to the syllabuses in force.

4. To prepare lessons conscientiously and to teach their particular subjects in the perspective of the complete syllabus.

5. To devise and set the requisite question papers for regular and special tests.

6. To keep accurate attendance rolls and to submit monthly mark lists within 3 days of the date of the tests concerned.

7. To belong to the appropriate academy and attend its meetings.

8. To guide and advise their pupils in all their affairs, particularly school matters, with the achievement of self-reliance as the goal.

9. To maintain discipline among pupils in and out of the classroom and to share with the administrative staff the responsibilities relating to this important feature of school life.

10. To report, when so directed, on the application, conduct, progress, and spirit of service of pupils and on other characteristics they feel to be important, and to suggest means of securing improvement.

11. To teach their pupils to study and, after informing the school director, to seek the cooperation of parents or guardians in securing improved progress.

12. To attend assemblies, sporting competitions, social meetings, and, in general, all group activities connected with the school carried on by the pupils on or off the premises, so far as his hours of work permit.

13. To plan excursions and educational visits in connection with subjects taught in class, to share in organizing them and act as teachers in charge.

14. To cooperate in ensuring the absolute cleanliness and neatness of all school premises and the preservation and proper use of school furniture and materials.

15. To proffer to the school director any suggestions they judge conducive to the efficiency and improvement of the school.

16. To submit requests for leave of absence or resignations through the director of the school.

17. To report as requisite to their supervising staff teacher on the more serious problems, disciplinary or otherwise, arising in their classes, more particularly in the case of pupils holding back the class by their incapacity, lack of application, unpunctuality, or bad behavior.

18. To attend punctually all meetings called by the school director on special examinations or routine tests of progress for which they may be appointed, and to discharge all other tasks assigned them by the Secretariat of Public Education or the school.

19. When so appointed, to act as local directors of study for classes in their subject.

Maestros de planta, or full-time staff teachers, have the following obligations in addition:

1. Over and above their normal hours of class work, to carry out the additional hours of general educational service to which they may be committed by the terms of their appointment.

2. To keep under their direct supervision the group or groups of pupils allotted to them with a view to guiding them in their school and out-of-school activities, assisting them with their difficulties and dealing with their requests.

3. To scrutinize the monthly and terminal marks of the pupils in their group or groups with a view to suggesting the steps needed to deal with those failing in one or more subjects.

4. To assist the school authorities, when so required, in solving problems of organization, discipline, and supervision within the school.

The vocational supervisors and teachers of shopwork have the added duty of taking precautions to avoid accidents, being responsible for the proper use and maintenance of machinery, tools, and material, and of submitting statements of account and other information on the financial position of the shop. The nonteaching assistants in the schools work

directly under the school director for supervisory duties on the school premises. They report absences of teachers in good time for temporary arrangements to be made for the classes affected, escort pupils required to attend any official proceedings taking place outside the school, and supervise pupils during the study periods when no teacher is available. Those who have professional qualifications are used as assistant teachers for laboratory work and supervised study periods and may conduct visits and excursions or other educational activity.

The inspectors and directors of education in particular zones or sectors and the school directors work a 36-hour week. The secondary teachers who are *maestros de planta* have 18 hours of classes and 5 hours of other duties if they belong to class A. The Class B staff teachers have 16 hours of classes and 4 hours of other duties; teachers in Class C have 14 hours of classes and 3 hours of other duties; those in Class D, 12 hours of classes and 2 hours of other duties. The other categories include class instructors serving simply as teachers of a particular subject; shop supervisors responsible for ensuring satisfactory vocational training; shop instructors responsible for the teaching and control of pupils; laboratory and shop assistants; and teachers of drawing, modeling, dancing, and physical education. The beginning teacher in secondary school starts with 6 hours of classes a week.

Detailed classifications governing salaries at every level of the educational system are set up for all types of employees from officials in the Secretariat to janitors and other nonprofessional workers in the schools. Salaries for secondary school administrative positions, for example, ranged in 1954 from 951 to 1,317 pesos a month; staff teachers received from 801 pesos a month in Class D to 1,295 pesos in Class A; and teachers paid by the hour received from 35 to 59 pesos per hour. Salaries of elementary school teachers are somewhat lower. Adjustments in the scale (*escalafón*) are made on the basis of efficiency, merits and demerits on the job, preparation, length of service, and other considerations listed in the regulations.

Teachers all belong to the Sindicato Nacional de Trabajadores de la Educación (SNTE), which is a member of the Federation of Unions of State Employees, though not of the General Confederation of Workers and Peasants. Every school has a branch organization of the Sindicato for the study, advancement, and defense of the common interests of educational workers. One of the rights secured by the teaching profession is the Civil Retirement Pensions Law, which gives old-age, disablement, and retirement benefits. Retirement is permitted, though not required, at age 55. The pension rate is calculated in terms of length of service according to a table starting at a basic rate of 40 percent of the last salary for a minimum of 15 years of service and rising to a 100 percent pension for 30 years of service. Teachers may also obtain loans up to

20,000 pesos on their homes, short-term loans, medical service, and sick leave. Through an agreement between the Sindicato and SEP, the medical facilities include the setting up of well-equipped modern sanatoriums providing hospital services and special treatment.

National Autonomous University of Mexico

When the Real y Pontificia Universidad de México was reconstituted in 1910 by Justo Sierra, it became the National University of Mexico under the new Secretariat of Public Instruction and Fine Arts, and its purpose was stated as follows: "The University shall be based fundamentally on scientific research, its educational action to result from the scientific action of select groups of Mexico's intellectuals who cultivate the pure love of truth, possess the tenacity of daily effort to discover it, and believe that the criterion of science and the best interest of the nation ought to combine in the soul of every Mexican to create the type of character destined to crown the great work of popular education." The motto which Justo Sierra gave the University was "In the love of science and of country is the public weal."

The next 10 years were filled with uncertainty in the University, as elsewhere, but with the triumph of the Revolution it was reorganized in 1920 with José Vasconcelos as its Rector, a post which he held until the following year when President Obregón named him Secretary of Public Education. The motto was then changed to "Through my race the spirit will speak." In 1929 the University was granted autonomy, and in 1945 its structure was again modified under the terms of a new Organic Law promulgated by President Manuel Ávila Camacho on December 30, 1944. Under this law the National Autonomous University of Mexico is a public corporation, separate from the State, with full legal authority, and its purposes are (1) to impart higher education for professional careers, research workers, university professors, and technicians useful to society; (2) to organize and carry on research, principally with respect to national conditions and problems; and (3) to extend with the greatest possible amplitude the benefits of culture.

The structure of the University, as defined in 1954, includes 17 teaching faculties and schools and 15 research institutes, as follows:

Table Q.—Components of the National Autonomous University of Mexico (Anuario General, 1954)

INSTRUCTIONAL INSTITUTIONS:

I. Faculty of Philosophy and Letters
II. Faculty of Sciences
III. Graduate School
IV. Faculty of Law and Social Sciences
V. National School of Economics, including the Institute of Economic Research

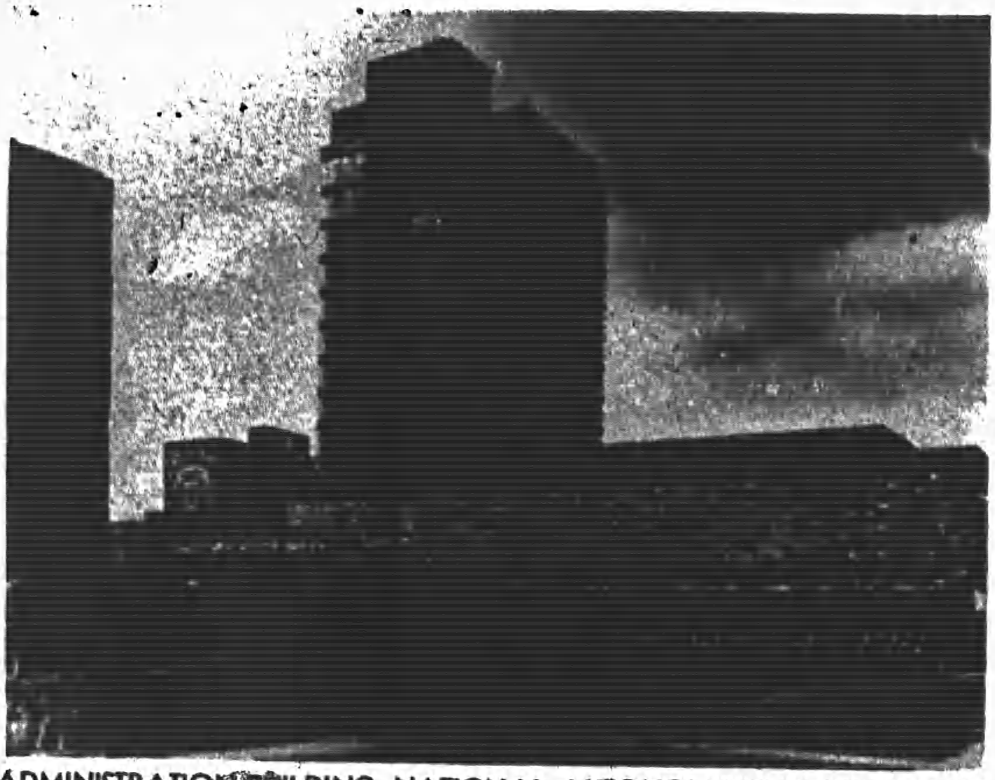
VI. National School of Commerce and Administration
VII. National School of Medicine
VIII. National School of Nursing and Obstetrics
IX. National School of Odontology
X. National School of Veterinary Medicine and Zootechnics
XI. National School of Engineering
XII. National School of Chemical Sciences
XIII. National School of Architecture
XIV. National School of Plastic Arts
XV. National School of Music
XVI. National Preparatory School
XVII. National School of Political and Social Sciences

SCIENTIFIC AND HUMANISTIC RESEARCH INSTITUTES:

I. Institute of Mathematics
II. Institute of Physics
III. Institute of Chemistry
IV. Institute of Geology
V. Institute of Geography
VI. Institute of Geophysics
VII. Institute of Biology
VIII. Institute of Medical and Biological Studies
IX. Institute of Social Research
X. Institute of Historical Research
XI. Institute of Esthetic Research
XII. Institute of Comparative Law
XIII. Center of Philosophical Studies
XVV National Astronomical Observatory
XV. National Library

The University extension work, courses for foreign students, and official relations of the University with other teaching and research centers are handled by a special technical head in the office of the Rector. Although free from political control, the University receives a substantial annual subsidy from the Federal Government. The size of the student body in 1955 was about 23,000. Classes are in session from March through October with 3 vacation periods of 10 days each in April, May, and September.

For 400 years the University was housed near the Zócalo, the center of the ancient Tenochtitlán, in buildings which were constructed on the ruins of Moctezuma's palaces and temples. In 1953, its quadricentennial year, the various faculties and schools and institutes of the University began moving to the spacious and spectacular new University City in the Pedregal, the site of a large lava flow that had once been regarded as wasteland. The architectural plan, daringly modern and functional, harmonizes the buildings, courts, stadium, roadways, and walls with the earth colors and textures in a way that carries the imagination back over Mexico's pre-Hispanic and colonial heritage. Particularly striking is the library building, with its gigantic exterior mosaics depicting in the style of Aztec picture writing the history of the ideas and the forces of good and



ADMINISTRATION BUILDING, NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO, SHOWING LIBRARY IN BACKGROUND.

evil dominating Mexican life. These unique stone murals, designed and executed by the Mexican architect and painter Juan O'Gorman, accent the artistry of the huge building project. Even the rocky surface of the campus, while providing atmosphere, will be transformed as the new plantings of trees and flowers blend with the scrub bush and grass constituting the natural vegetation of the lava bed.

With the move away from the center of the city, one of the problems of long standing in the University, the need for a full-time faculty, has become more serious. Traditionally most of the professors have regarded their University appointment as essentially honorary and have devoted their professional life to private practice, writing, or other means of livelihood. As a start toward building a faculty devoted exclusively to teaching and research, the University provided in 1954 for the creation of 50 full-time professorships with salaries attractive enough to interest competent scholars and to obviate the necessity for outside employment. A change is expected to occur in student life, too, for the traditional pattern will be altered by the construction of dormitories and ample facilities for swimming, dancing, band practice, theater arts, sports, and other activities. The Olympic Stadium has a capacity of 100,000 spectators. Expanded science laboratories, teaching by television, and various scholastic innovations also mark the beginning of a new chapter in the National University's venerable history.

STADIUM, NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO

The degrees offered at the National Autonomous University of Mexico are listed below according to the number of years required in the plan of studies leading to the degree. Unless otherwise stated, the number of years is based on the *bachillerato* for admission. The sample programs of study included in the present bulletin are indicated by a note referring to the table by number.

Table R.—Degrees offered at the National Autonomous University of Mexico (Anuario General, 1954)

Degree	*Number of years required*	*Faculty or school*
Midwife	2 after certificate in Nursing.	Nursing and Obstetrics.
Accounting Assistant	3 after *secundaria*	Commerce and Administration.
Consul	3	Political and Social Sciences
Master in Archeology (*see* table 6)	3	Philosophy and Letters, in cooperation with the National School of Anthropology and History.
Master in Geography	3	Philosophy and Letters.
Master in History (with major in General history, Mexican history, or Plastic arts).	3	Do.
Master in Letters (with major in classics, Spanish literature, modern literature, or dramatic art) (*see* table 16).	3	Do.
Master in Philosophy	3	Do.
Master in Psychology	3	Do.
Metallurgical Chemist	3	Chemical Sciences.
Nurse (*see* table 25)	3 after *secundaria*	Nursing and Obstretics.

Degree	Number of years required	Faculty or school
Social Worker (*see* table 23)	3 after *normal* or certificate in Nursing.	Law and Social Sciences.
Topographical engineer and geodesist.	3	Engineering.
Actuary	4	Sciences.
Astronomer	4	Do.
Biologist	4	Do.
Chemist (*see* table 8)	4	Chemical Sciences.
Doctor in Letters	4	Philosophy and Letters.
Doctor in Philosophy	4	Do.
Experimental Physicist (*see* table 21).	4	Sciences.
Licentiate in Diplomacy	4	Political and Social Sciences.
Licentiate in Journalism	4	Do.
Licentiate in Political Sciences (*see* table 22).	4	Do.
Licentiate in Social Sciences	4	Do.
Master in Mathematics	4	Sciences.
Master in Physics (*see* table 21)	4	Do.
Master of Science in Education	4	Philosophy and Letters.
Pharmaceutical Biological Chemist.	4	Chemical Sciences.
Physicist (*see* table 21)	4	Sciences.
Architect (*see* table 5)	5	Architecture.
Chemical Engineer	5	Chemical Sciences.
Civil Engineer (*see* table 13)	5	Engineering.
Dental Surgeon (*see* table 9)	5	Odontology.
Economic Zootechnician	5	Veterinary Medicine and Zootechnics.
Geology Engineer	5	Engineering.
Licentiate in Law (*see* table 17)	5	Law and Social Sciences.
Licentiate in Economics (*see* table 10).	5	Economics.
Master in Plastic Arts	5 after *primaria*	Plastic Arts.
Mechanical and Electrical Engineer (*see* table 14).	5	Engineering.
Mining and Metallurgical Engineer (*see* table 15).	5	Do.
Petroleum Engineer	5	Do.
Public Accountant and Auditor (*see* table 4).	5	Commerce and Administration.
Zootechnic Veterinary Doctor (*see* table 24).	5	Veterinary Medicine and Zootechnics.
Physician-Surgeon (*see* table 18)	6	Medicine.
Doctor in Law (*see* table 17)	7	Law and Social Sciences.
Singer	7 after *primaria*	Music.
Instrumentalist (piano, violin, or other).	8 after *primaria*	Do.
Composer (*see* table 19)	9 after *primaria*	Do.

The Graduate School of the University was organized in 1946 to give specialized courses not available in the Faculty of Sciences or in the Faculty of Philosophy and Letters. There are 7 divisions: Nursing, Geology and Geodesy, Engineering, Medicine, Music, Odontology, and Chemistry. Graduates of universities and scientific schools, professors, research institute scholars, and others wishing to do research in these fields are eligible for admission.

A Summer School for Foreign Students was founded in 1921 to acquaint non-Mexican students with the language, history, art, and other aspects of Mexican civilization. There are four departments administered by the Faculty of Philosophy and Letters: Spanish Language; Spanish and Ibero-American Literature, History and Social Sciences, and Plastic Arts. When the Summer School was approved by the United States Veterans Administration for study under the terms of Public Law 246 and Public Law 550, the studies were extended to fall, winter, and spring sessions. The credit system has been adapted to that of United States colleges and universities in order to facilitate the transfer of credits. For students with a United States college degree, work is offered toward a Master of

FACULTY OF MEDICINE, CIUDAD UNIVERSITARIA, MEXICO, D. F.

Arts degree with requirements approximately equivalent to those for the Master's degree in a graduate school in the United States.

The research activities of the University would seem to Justo Sierra like a dream fulfilled if he could witness the progress now being made in all branches of science and the humanities. While the National Astronomical Observatory and the Comisión Geológica (now the Institute of Geology) and a few other research activities have been in continuous operation since the 1880's, most of the institutes have come into being since 1929 and in the last decade particularly. These institutes carry out extensive programs of research and publication, make scholarships available to students, cooperate with many national and international institutions, and serve as valuable adjuncts to the various teaching faculties and schools of the University. Some of the important periodicals edited in the institutes are the *Boletín de la Sociedad Matemática Mexicana*, *Revista Mexicana de Física*, *Anales del Instituto de Biología*, *Boletín del Instituto de Química*, *Boletín del Instituto de Estudios Médicos y Biológicos*, *Revista Mexicana de Sociología*, *Anales del Instituto de Investigaciones Estéticas*, *Boletín del Instituto de Derecho Comparado*, *Investigación Económica*, and *Boletín de los Observatorios de Tonantzintla y Tacubaya*. The Periodical Library (Hemeroteca Nacional), which has been independent of the National Library since 1944, has an extensive collection of newspapers and magazines dating from the *Gazeta de México* in 1728.

The National University is a member of the Union of Latin American Universities, with headquarters in Mexico, D. F., where its official organ, *Universidades de Latinoamérica*, is published. The University is represented on the Administrative Council of the International Association of Universities. It asserted leadership nationally in 1950 in the formation of the National Association of Universities and Institutes of Higher Education in the Mexican Republic to facilitate collaboration on problems of unifying programs of study and financing higher education.

Other Institutions of Higher Education

STATE UNIVERSITIES AND INSTITUTES

Fourteen of the States of Mexico support a university and Jalisco maintains two. Although the offering in the State institutions is limited in comparison with that of the National University, the programs of study and the degrees correspond closely to those of the Universidad Nacional Autónoma de México. Preparatory schools are annexed to the universities, as at the National University, and many also provide normal school departments, extension courses, and various types of subprofessional training for workers. The professional schools nearly always include

UNIVERSITY SUMMER SCHOOL STUDENTS ON ARCHEOLOGICAL FIELD TRIP TO TEMPLE OF QUETZALCOATL, TEOTIHUACAN.

law and medicine. The following list indicates the principal fields of study available in the State universities.

Table 5.—Professional fields of study in the State universities

Institution	*Fields of Study*
University of Chihuahua, Chihuahua, Chihuahua.	Pharmacy, Nursing, Obstetrics, Music, Medicine, Engineering, Law
Popular University, Colima, Colima.	Pharmacy, Commerce, Nursing
University of Guanajuato, Guanajuato, Guanajuato.	Law, Engineering, Chemical Sciences, Economics and Commerce; in Celaya: Nursing and Obstetrics; in León: Medicine, Nursing and Obstetrics
University of Guadalajara, Guadalajara, Jalisco.	Law, Medicine, Engineering and Architecture, Chemical Sciences, Dentistry, Economics and Commerce
Autonomous University of Guadalajara, Guadalajara, Jalisco.	Law and Social Sciences, Medicine, Dentistry, Engineering, Architecture, Economics and Commerce, Chemical Sciences, Nursing and Obstretics
University Michoacana of St. Nicholas of Hidalgo, Morelia, Michoacán.	Law, Medicine, Dentistry, Pharmacy, Engineering, Commerce, Fine Arts
University of Morelos, Cuernavaca, Morelos.	Commerce and Administration, Nursing and Obstetrics
University of Nuevo León, Monterrey, Nuevo León.	Law and Social Sciences, Medicine, Dentistry, Chemical Sciences, Engineering and Architecture, Plastic Arts, Music, Nursing

Institution	Fields
University of Puebla, Puebla, Puebla.	Law and Social Sciences, Medicine, Dentistry, Nursing and Obstetrics, Engineering, Chemical Sciences and Pharmacy, Economics and Administration
University of Querétaro, Querétaro, Querétaro.	Law, Engineering, Chemical Sciences, Commerce, Nursing and Obstetrics, Music
University of San Luis Potosí, San Luis Potosí, San Luis Potosí.	Law, Medicine, Dentistry, Nursing and Obstetrics, Chemical Sciences, Engineering, Commerce and Administration
University of Sinaloa, Culiacán, Sinaloa.	Law and Social Sciences, Chemical Sciences, Topographical Engineering, Physical and Mathematical Sciences, Commerce and Administration, Nursing
University of Sonora, Hermosillo, Sonora.	Pharmacy, Nursing and Obstetrics, Commerce
University Veracruzana, Jalapa-Enríquez, Veracruz.	Law, Nursing and Obstetrics, Social Work
University of Yucatán, Mérida, Yucatán.	Law, Medicine, Dentistry, Nursing, Chemical Sciences, Topographical and Hydrographical Engineering, Pharmacy

The newest of the State universities is Chihuahua, inaugurated in January 1955. It was formed by creating three new schools, Law, Medicine, and Engineering, and by incorporating a number of the existing schools of a preparatory and semiprofessional level in Chihuahua City. The forerunners of some of the universities were the Jesuit schools established during the colonial period. The oldest perhaps in America is the University Michoacana whose antecedents go back to Don Vasco de Quiroga's school (founded in 1540) in Pátzcuaro, which was moved to Valladolid (Morelia) in 1580. Padre Hidalgo, the hero of independence, was a student there and later became its Rector. The institution at Puebla was founded in 1578, that of San Luis Potosí in 1624, and that at Guanajuato in 1732.

The University Veracruzana differs somewhat from the other State universities in that it has jurisdiction over all the public schools, public museums, libraries, and laboratories in the State and supervises the private schools. It also carries out cooperative projects with the national meteorological stations at Orizaba and Córdoba.

Several of the *Institutos* in the States, while primarily concerned with secondary, preparatory, and normal school education, extend their offerings to include some fields of higher education. The Instituto Campechano in Campeche, for example, has faculties of law, medicine, and engineering. The Instituto de Ciencias y Artes de Chiapas in Tuxtla Gutiérrez offers work in commerce and administration, pharmacy, nursing, obstetrics, and plastic arts, and maintains a faculty of law at San Cristóbal de las Casas. The Ateneo Fuente in Saltillo, Coahuila, has schools of nursing and obstetrics and chemical sciences. Instituto Juárez

in Durango provides a law school and courses in commerce, nursing, and obstetrics. The Instituto Científico y Literario in Pachuca, Hidalgo, offers medicine, nursing, and obstetrics. The Instituto Científico y Literario Autónomo of Toluca, México, maintains a law school. The school in Oaxaca from which Benito Juárez received his law degree in 1834, and later directed, is now the Instituto Autónomo de Ciencias y Artes del Estado de Oaxaca with departments of law, medicine, surgery, pharmacy, nursing, and obstetrics. The Instituto de Ciencias in Zacatecas gives work in law and in topographical and hydrographical engineering. In October 1955 a new faculty of law was inaugurated as a dependency of the Instituto de Nayarit.

The activity in higher education appears to be strongest in the States of Chihuahua, Jalisco, México, Nuevo León, and Puebla, in each of which more than 500 students were promoted in professional studies in 1951, and weakest in the States of Aguascalientes, Baja California, Colima, Durango, Oaxaca, Querétaro, and Tlaxcala.

FEDERAL INSTITUTIONS

The National Polytechnic Institute, one of the major divisions of the Secretariat of Public Education, is made up of eight professional schools:

Higher School of Mechanical and Electrical Engineering
Higher School of Engineering and Architecture
Higher School of Chemical Engineering and Extractive Industries
National School of Biological Sciences
Higher School of Textile Engineering
Higher School of Homeopathic Medicine
Higher School of Rural Medicine
Higher School of Economic, Administrative, and Social Sciences

The requirement for admission to these schools is completion of the vocational school (2-year preparatory), which follows the *secundaria* or *escuela tecnológica* (prevocational). The programs of study for professional degrees are similar to those of the National University, the chief difference being a tendency to combine fields, such as engineering and architecture, and to put more emphasis on practical laboratory and field work. The following degrees are offered at the schools composing the Institute. Sample programs of study given in the present bulletin are noted by number in the table.

Table T.—Professional degrees offered at the National Polytechnic Institute, 1951

Degree	Number of years	School
Homeopathic Midwife	2	Homeopathic Medicine
Homeopathic Nurse	2	Do.
Nurse	2	Rural Medicine
Nurse and Midwife	2	Do.
Textile Technical Director	2	Textile Engineering

Table T.—Professional degrees offered at the National Polytechnic Institute, 1951—Continued

Degree	Number of years	School
Topographical and Hydrographical Engineer.	2	Engineering and Architecture
Broker Trainee	3	Economic, Administrative, and Social Sciences.
Hospital Nurse	3	Rural Medicine
Pharmacist (see table 20)	3	Biological Sciences
Public Accountant and Auditor	3	Economic, Administrative, and Soci. Sciences.
Statistician	3	Do.
Textile Engineer	3	Textile Engineering
Aeronautical Engineer	4	Mechanical and Electrical Engineering.
Architectural Engineer	4	Engineering and Architecture
Bacteriological Chemist	4	Biological Sciences
Biologist (see table 7)	4	Do.
Civil and Highway Engineer	4	Engineering and Architecture
Communications and Electrical Engineer.	4	Mechanical and Electrical Engineering.
Electrical Engineer	4	Do.
Geologist	4	Engineering and Architecture
Hydraulic Engineer	4	Do.
Industrial Chemist	4	Chemical Engineering and Extractive Industries.
Mechanical Engineer	4	Mechanical and Electrical Engineering.
Metallurgical Engineer	4	Chemical Engineering and Extractive Industries.
Mining Engineer	4	Engineering and Architecture
Petroleum Chemical Engineer	4	Chemical Engineering and Extractive Industries.
Petroleum Engineer	4	Engineering and Architecture
Pharmaceutical Chemist	4	Biological Sciences
Pharmacobiologist	4	Do.
Sanitary Engineer	4	Engineering and Architecture
Zymological Chemist	4	Biological Sciences
Bacteriological and Parasitological Chemist.	5	Do.
Biologist, Specialist in Entomology (see table 7).	5	Do.
Biologist, Specialist in Phytopathology (see table 7).	5	Do.
Biologist, Specialist in Hydrobiology (see table 7).	5	Do.
Biologist, Specialist in Botany (see table 7).	5	Do.
Biologist, Specialist in Conservation of Biotic Resources (see table 7).	5	Do.
Biological Chemist	5	Do.
Civil Engineer	5	Engineering and Architecture
Economist	5	Economic, Administrative, and Social Sciences.

Table T.—Professional degrees offered at the National Polytechnic Institute, 1951—Continued

Degree	Number of years	School
Zymological Chemist, Specialist in Sugar Industry.	5	Biological Sciences
Homeopathic Physician-Surgeon and Obstetrician.	6	Homeopathic Medicine
Physician-Surgeon and Obstetrician	6	Rural Medicine

Polytechnic City, while not as large as University City, is a spacious well-planned area which includes modern buildings, shops and laboratories, central library, auditorium, social center, medical services, stadium, sports fields, and other attractions. The student body, counting the vocational and subprofessional schools under the Institute's supervision, numbers around 24,000. In 1955 there were 119 graduating from the Higher School of Engineering and Architecture, a fact noted with pride by the President of the Republic, who said that these young men would be dedicated to great national works of irrigation, communication, mining, and electrification.

The National School of Anthropology and History, its name since 1946, is also a dependency of the Secretariat of Public Education. It is devoted to professional instruction in physical anthropology, archeology, ethnology, history, linguistics, and museography. Having the status of a university faculty, it collaborates with the Faculty of Philosophy and Letters of the National University in maintaining a single program of study integrated with the University calendar and, by agreement with that Faculty, prepares students for the degree of *maestro* and *doctor* in the fields of its specialization. (See table 6.) The school also collaborates in various projects with the Instituto Nacional Indigenista, the Humanities Division of the Rockefeller Foundation, the University of Washington, in Seattle, and a number of other institutions which help stimulate the study of anthropology in Mexico and the other American countries.

The Institute of Health and Tropical Diseases, a dependency of the Secretariat of Health and Welfare, carries on scientific and technical studies for the benefit of public health. Its programs of study are divided into three terms of 400 class hours each with a fourth term of field work. The studies included for the *maestro* in Public Health are general sanitary administration, biostatistics, social anthropology, nutrition, contagious diseases, sanitary engineering, parasitology, microbiology, maternal and infant care, educational psychology, industrial hygiene, and epidemiology. Those for the certificate of Public Health Nurse have the same general plan of organization and include many of the same subjects along with nursing and supervised practice and field work. Most of the students attending these courses are professional

employees of the Secretariat of Health and Welfare, which provides a scholarship of 800 pesos a month for each student. Foreign students are selected with the cooperation of the Pan American Sanitary Bureau, which gives the school $500 for each foreign medical student and $300 for each nurse in training.

Other Federal institutions of higher education, already mentioned in the discussion of vocational education, are the National School of Agriculture under the sponsorship of the Secretaría de Agricultura y Ganadería, and the Escuela Superior de Guerra (National War College) under the control of the Secretariat of National Defense.

An important research center is the National Institute of Scientific Research, created by Congress in November 1950, with eight divisions: mathematics, physics, chemistry, biological science, sciences of the soil, geological resources, sciences applied to agriculture, and sciences applied to industry. The mathematics division, devoted to pure and applied mathematics, employs 16 researchers, 4 aides, and 5 scholarship holders. The physics division has three sections—nucleonics, electronics, and cosmic radiation—employing some 40 scientists and technicians who are studying the uranium resources of Mexico and planning the construction of machines, apparatus, pilot plants, and laboratories. Scholarships are provided for research scholars and a publications program is being developed.

El Colegio Nacional, created in 1943 by the President of the Republic on the initiative of the Secretary of Public Education, brings together 20 of the nation's foremost scholars for the purpose of enriching and extending the general knowledge of philosophy, science, and the arts. In this work the Colegio is free of the limitations, requirements, and formalities which the prescribed programs of study impose in the universities. The Colegio is in session from January 16 to November 15 of each year, but it does not have any rollcall or fees and does not give examinations or diplomas or degrees. Its lecture series and other activities are entirely free and open to the public. The motto "Liberty Through Knowledge" and the insignia of an eagle poised for flight indicate the Colegio's ideal of community service and general enlightenment.

In the industrial, commercial, and agricultural fields the Bank of Mexico is active in supporting scholarship students and fostering research to determine the industrial resources and needs of the country.

PRIVATE INSTITUTIONS

The Colegio de México, successor to the Casa de España en México, is a private non-profit institution devoted to research, publications, and cultural activities in history, literature, Hispanic-American thought, and social sciences, and a variety of humanistic subjects. The Colegio is composed of professors, research scholars, fellowship students, and col-

laborators, with whom special work contracts are made. Its support comes from members and contributors, including a subsidy from the Mexican Government. Its publications are distributed by the Fondo de Cultura Económica, Pánuco 63, México, D. F. The Colegio sponsors some 15 to 20 lectures a month, which are open to the public, and edits the *Nueva Revista de Filología Hispánica.*

The Instituto Tecnológico y de Estudios Superiores de Monterrey, mentioned in the discussion of vocational education, offers professional degrees in Mechanical and Administrative Engineering, Mechanical and Electrical Engineering, Chemical Engineering, Civil Engineering, Architecture, Agricultural Engineering, Public Accounting and Auditing, and Business Administration. The plan of studies for the degree of Agricultural Engineer is given in table 12. This institution holds membership in the Southern Association of Colleges and Secondary Schools. Located on the Pan American Highway with Saddle Mountain in the background, this new campus rivals that of the larger polytechnic city in the capital for its modern functional architecture and many facilities for active wholesome student life.

Mexico City College, now settled in its permanent location at Kilometer 16 on the Mexico-Toluca Highway, began in 1940 as a junior college extension of the American School Foundation. By 1946 it had become an independent 4-year college organized according to the United States system of higher education for the purpose of enabling U. S. students to gain a knowledge of Mexico and have the experience of living abroad without sacrificing academic credits in making the transfer. The College is on a quarter-hour basis and operates a summer session in addition to the offerings of the regular school year. Studies leading to a master's degree are given in certain fields. In 1955, 50 of the College's M. A. graduates were working on the doctorate in U. S. universities. About 60 percent of the student body is composed of U. S. veterans studying under the terms of Public Laws 246 and 550. The 1955 enrollment was 977, with 200 in the freshman class. Mexico City College is a member with extra-territorial status of the Association of Texas Colleges.

The Women's University of Mexico (Universidad Femenina de México) is a private institution founded in 1943 to increase educational opportunities for women. Like other Mexican universities, it maintains its own preparatory school and includes some subprofessional training. The principal courses offered are in Spanish language and literature, chemical, pharmaceutical, and biological sciences, law and social sciences, journalism, interior decoration, social work, and nursing.

A number of other institutions include some work at the higher education level. A typical example is the Universidad Motolinía, which started as a kindergarten about 40 years ago and gradually added grades and expanded programs as the need grew. The school maintains depart-

ments of kindergarten, *primaria*, *secundaria*, *comercial*, *preparatoria*, and *universitaria*. The higher education courses are in chemical sciences, interior decoration, and language and literature.

A research center of considerable renown is the National Institute of Cardiology, which carries on a program of studies and instruction on diseases of the heart and blood vessels. Its main purposes are to stimulate international cooperation in studies of cardiology and related fields and to foster interchange with the universities and scientific institutions of Mexico and other countries. The Institute has 14 permanent scholarships for resident doctors, 3 for research assistants, and an indeterminate number for research fellows. For its research departments the center receives a maximum of 12 medical interns, 14 full-time medical aides, 24 part-time medical aides, and an indeterminate number of voluntary workers. These places are especially for young Mexican doctors and those from other countries, particularly Latin American. For admission the student must be a graduate of an official school of medicine or of a private one that the Institute considers accredited. The scholarships are for a minimum of one year and obligate the student to work full time in the Institute, thus permitting the student to make a complete study of clinical cardiology or to specialize in one branch of the subject if he already has general preparation.

STATISTICAL DATA

The enrollments in higher education in Mexico seem small when compared with the total population of college age, but opportunities for advanced studies have grown as dramatically as have those at elementary and intermediate levels. According to the 1950 census, there were 2,632,191 young people in the 15–19 age group, 2,299,334 in the 20–24 age group, and 2,019,606 in the 25–29 age group, making a total of nearly 7 million. The numbers in these respective groups who were enrolled in some type of school were 311,392 of age 15–19, 64,763 of age 20–24, 27,316 of age 25–29, or a total of 403,471. Out of these groups higher education received an enrollment of about 30,000 students, two-thirds of whom were in institutions in the Federal District. Table U shows the progression of students in professional studies in 1950 in the Republic as a whole and in the Federal District.

The degrees conferred in 1950 totaled 5,827, and about half of that number were subprofessional, including the *bachiller* and other preuniversity diplomas. By 1952 the number had grown to 10,885, and it is estimated that similar increases have occurred since. The trend toward more technical preparation is apparent in the distribution of degrees by field of study, as shown in Table V.

Table U.—Progression of students in professional studies in 1950 (Anuario Estadístico, 1951–52)

	Number of students in the Republic			Number of students in the Federal District		
	Men	Women	Total	Men	Women	Total
1	2	3	4	5	6	7
Enrolled	24,016	5,879	29,895	17,742	3,687	21,429
Dropped	1,007	372	1,379	524	155	679
Net enrollment	23,009	5,507	28,516	17,218	3,532	20,750
Average attendance	19,301	4,712	24,013	13,806	2,888	16,694
Present for examination	20,759	4,861	25,620	15,162	2,974	18,136
Promoted or graduated	13,275	3,280	16,555	8,928	1,856	10,784

Table V.—Professional degrees conferred in Mexico in 1952 (Anuario Estadístico, 1951–52)

Profession	Number of degrees conferred	Profession	Number of degrees conferred
1	2	1	2
Agronomist	20	Licentiate in Law	316
Architect	21	Licentiate in Economics	16
Dental-Surgeon	84	Rural Teacher	62
Commerce [1]	3,940	Physician-Surgeon and Obstetrician (Allopath)	863
Doctor in Philosophy and Letters	17	Physician-Surgeon and Obstetrician (Military)	15
Kindergarten Teacher	90	Physician-Surgeon and Obstetrician (Homeopath)	21
Nurse	339	Physician-Surgeon and Obstetrician (Rural)	28
Pharmacist	102	Midwife	169
Agricultural Engineer	45	Elementary Schoolteacher	3,492
Civil Engineer	111	Secondary Schoolteacher	220
Mechanical and Electrical Engineer	54	University Professor	33
Mining and Metallurgical Engineer	14	Chemist	277
Petroleum Engineer	9	Veterinarian	22
Chemical Engineer	104	Others [2]	299
Topographical and Hydrographical Engineer	20	Total	10,885
Other Engineering Degrees	82		

[1] Includes: Public Officials, Auditors, Public and Private Accountants, Business Experts, Bookkeepers, Stenographers, and Typists.

[2] Includes: *Bachilleres*, Skilled workers, Aviation Pilots, Seamen, etc.

Programs of Study

Table 1.—Program of studies for secondary schools (Secretaría de Educación Pública, 1953)

Subjects	Hours a week per school year					
	I		II		III	
	Day schools	Night schools	Day schools	Night schools	Day schools	Night schools
1	2	3	4	5	6	7
Mathematics	4	4	3	3	3 or 5	3
Biology	3	3	3	3	3 or 5	2
Physics	.....	.....	3	3	.....	.....
Chemistry	.....	.....	.....	.....	4 or 6	3
Geography	2	2	2	2	2	2
World History	2	2	2	2	.....	.....
History of Mexico	.....	.....	2	2	3	3
Spanish Language and Literature	4	4	3	3	3 or 5	3
English or French	3	3	2	2	3	2
Civics	2	2	2	2	2	3
Music Education	2	1	1	1	1	1
Drawing	2	2	2	2	.....	.....
Modeling	.....	.....	.....	.....	2	2
Manual Arts or Home Economics	4	(1)	3	(1)	4 or 6	(1)
Physical Education	2	(1)	2	(1)	2	(1)
Elective	.....	.....	.....	.....	2	.....
Total	30	23	30	25	34	24

[1] Exempt.

Table 2.—Program of studies for preparatory schools (Bachillerato) (Universidad Nacional Autónoma de México, Anuario General 1954)

5-Year Plan

Subjects	Hours a week per school year						
	I	II	III	IV		V	
				Sciences	Humanities	Sciences	Humanities
1	2	3	4	5	6	7	8
Mathematics	5	4	4	3 or [1] 5	[1] 5	[1] 5	[1] 3
Geography	3	3	3	.....	.....	.....	.....
Biology with Laboratory	4	4	4	[1] 3	.....	[1] 4	.....
Physics with Laboratory	.....	.....	4	4	.....	4	.....
Spanish Language and Literature	3	3	3	.....	3	.....	.....
Greek and Latin Roots	.....	2	3	.....	.....	.....	.....
English or French	3	3	3	3	[2] 3	3	[2] 3
Civics	3	3	3	.....	.....	.....	.....
World History	.....	.....	3	3	3	.....	3
Drawing	3	3	.....	[1] 2	.....	[1] 2	.....
Modeling	2	.....	.....	[1] 2	.....	.....	.....
Music Education	2	2	.....	.....	.....	.....	.....
Physical Education	2	2	2	2	2	2	2
Chemistry with Laboratory	.....	.....	.....	4	3	4	.....
History of Mexico	.....	.....	.....	3	3	3	3
Hygiene	.....	.....	.....	2	2	.....	.....
Introduction to Philosophy	.....	.....	.....	2	2	.....	.....
Electives	.....	.....	.....	7 to 10	8 or 9	10 or 11	6
World Literature	.....	.....	.....	.....	3	3	3
Mexican and Spanish American Literature	.....	.....	.....	.....	.....	.....	3
Logic	.....	.....	.....	.....	.....	3	3
Ethics	.....	.....	.....	.....	.....	[1] 3	3
Cosmography	.....	.....	.....	.....	.....	[1] 3	.....
Psychology	.....	.....	.....	.....	.....	[1] 3	3
Latin Language and Literature	.....	.....	.....	.....	[1] 3	.....	[1] 3
Greek	.....	.....	.....	.....	[1] 3	.....	[1] 3
Total	30	29	32	30 to 33	32 or 33	32 or 33	32

[1] Elective.

[2] English required, French elective.

Table 2.—Program of studies for preparatory schools—Continued

Bachillerato Course for Secondary School Graduates

Subjects	Hours a week per school year			
	IV		V	
	Sciences	Humanities	Sciences	Humanities
1	2	3	4	5
Physics with Laboratory	4	.....	4	.....
Chemistry with Laboratory	4	.....	[1] 4	.....
Spanish Language and Literature	.....	3	.....	.....
English or French	3	3	3	3
World History	.....	3	.....	3
History of Mexico	3	3	.....	3
Etymology	3	3	.....	.....
Introduction to Philosophy	2	2	.....	.....
Ethics	.....	.....	[1] 3	3
Physical Education	2	2	2	2
Electives	9 to 12	8	12 to 16	6 or 7
Mathematics	5 or [1] 3	[1] 5	[1] 5	[1] 3
Biological Sciences	5 or [1] 6	3	[1] 4	.....
Human Geography	.....	.....	.....	[1] 3
Physical Geography and Geography of Mexico	[1] 3	[1] 3	.....	.....
Cosmography	.....	.....	[1] 3	.....
Construction Drawing	[1] 2	.....	.....	.....
Imitative Drawing	[1] 2	.....	.....	.....
Anatomical Drawing	[1] 2	.....	.....	.....
Architectural Drawing	.....	.....	[1] 3	.....
World Literature	.....	.....	3	.....
General Literature	.....	3	.....	.....
Hygiene	.....	.....	2	3
Psychology	.....	.....	[1] 3	3
Logic	.....	.....	3	3
Modeling	.....	.....	[1] 2	.....
Latin	.....	[1] 5	.....	[1] 4
Greek	.....	[1] 3	.....	.....
Mexican and Spanish-American Literature	.....	.....	.....	3
Total	30 to 33	33	29 to 33	32 or 33

[1] Elective.

Table 3.—Program of studies for normal schools (Agenda del Maestro, Año de 1950)

First cycle: 3-year course, same as for secondary school, Table I
Professional Cycle

Subjects	Hours a week per school year		
	IV	V	VI
1	2	3	4
Science of Education	3	3	3
Teaching Techniques	6	6	6
Psychology	3	.....	.....
Economic Problems of Mexico	3	.....	.....
Elements of Mineralogy and Geology	3	.....	.....
Spanish Etymology	2	.....	.....
World Literature	3	.....	.....
Logic	3	.....	.....
Penmanship	2	.....	.....
Music	2	2	2
Drawing and Plastic Arts	2	2	2
Physical Education	2	2	2
Shops	2	2	2
General History of Education	.....	3	.....
Child Study	.....	3	.....
School Hygiene	.....	3	.....
Sociology	.....	3	.....
Cosmography	.....	3	.....
Ethics	.....	3	.....
History of Education in Mexico	.....	.....	3
Educational Psychology	.....	.....	3
Organization and Administration of Schools	.....	.....	3
History of Arts and Elements of Esthetics	.....	.....	3
Dance and Theater	.....	.....	2
Elective (one of the following: Teaching Methods, Drawing, Teaching Methods in Music, Adult Education, Biology, Abnormal Psychology, School Statistics)	.....	.....	2
Total	35	35	33

Table 4.—Escuela Nacional de Comercio y Administración (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Public Accountant and Auditor
Admission requirement: Bachelor of Humanities

Subjects, by year	Hours per week	Subjects, by year	Hours per week
1	2	1	2
First Year		*Fourth Year*	
Accounting I	5	Auditing I	5
Introduction to the Study of Law and Elements of Civil Law	5	Statistics Applied to Commerce	3
Mercantile Calculus	5	Fiscal Law II	3
Economics I	3	Tax Accounting	5
Administrative and Commercial Practice	5	Distribution, Budget and Estimate Costs	5
History of Commerce	3	Special Accounting I (Course A)	4
Total	26	Total	25
Second Year		*Fifth Year*	
Accounting II	5	Auditing II	5
Mercantile Law	5	Study of Professional Problems	3
Exchange, Arbitration, and Precious Metals	3	Seminar	3
Economics II	3	Analysis and Interpretation of Financial Reports	3
Constitutional Law	2	Promotion, Organization and Administration of Public Utilities	3
Administrative Law	2	Special Accounting II (Course A)	4
Financial Mathematics I	3	Economic Problems of Mexico	3
Sociology	3	Total	24
Total	26	*Course A*	
Third Year		Two of the following:	
Accounting III	5	Bank Accounting	2
Fiscal Law II	3	Insurance Accounting	2
Financial Mathematics II	3	Accounting of Extractive Industries	2
Principles of Administrative and Business Organization	3	Accounting of Mechanical Systems	2
Industrial and Cost Accounting	5	Accounting of Public Utilities	2
Accounting of Societies	5		
Labor Law	3		
Total	27		

Table 5.—Escuela Nacional de Arquitectura (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Architect—Admission requirement: Bachelor of Sciences

Subjects, by year	Hours per week
1	2
First Year	
History of Architecture I	4
Initiation to the Study of Architecture	4
Mathematics	4
Mechanics	6
Drawing from Nature I	3
Plastic Materials—Surfaces	3
Descriptive Geometry and Perspective	7.5
Composition	6
Total	37.5
Second Year	
History of Architecture II	4
Program Analysis I	4
Urban Sociology	(1)
Urban Economics	(1)
Stability	7
Drawing from Nature II	3
Plastic Materials—Volume	3
Applied Descriptive Geometry	5
Topography	3
Composition	6
Total	35
Third Year	
History of Architecture III	4
Program Analysis II	4
Urban Hygiene	(1)
Urban Legislation	(1)
Building Calculus I	8
Materials and Construction Procedures	3
Installations I	4
Drawing from Nature III	4.5
Mock-ups	3
Composition	8
Total	38.5
Fourth Year	
History of Architecture in Mexico	3
Program Analysis III	3
City Planning	4
Building Calculus II	3
Materials and Construction Procedures	8
Installations II	4
Specifications and Budgets	4
Composition	8
Total	37
Fifth Year	
Contemporary Art	(1)
Advanced Course in Theory of Architecture	5
City Planning	6
Materials and Construction Procedures	6
Building Calculus III	2
Valuation and Organization of Construction	3
Composition	8
Total	30

[1] Lectures.

Table 6.—Escuela Nacional de Antropología e Historia (Anuario para 1954)

Plan of studies leading to the degree of Master in Archeology

Admission requirement: Bachelor's diploma or graduation from normal or vocational school

Subjects	Hours per week	Subjects	Hours per week
General Anthropography	4	Archaic and Primitive Art of the Old World with Laboratory	6
Prehistory and General Protohistory	4	German I	6
General Ethnology	4	German II	6
General Physical Anthropology	4	American Ethnography	4
General Linguistics	4	Prehispanic Religions	4
Archeological Methods and Techniques	4	Mayan Astronomy and Chronology	4
Cultural Anthropology	4	Náhuatl Language I	4
Advanced Spanish	4	Náhuatl Language II	4
Meso-American Archeology I	4	Mayan Language I	4
Meso-American Archeology II	4	Mayan Language II	4
Stratigraphy and Ceramics with Laboratory	6	Zapotecan Language	4
Meso-American Script	4	Archeology of Asia and Oceania	4
Prehispanic Architecture	4	Mythology, Religion, and Magic	4
Drawing Course for Archeologists	4	American Indian Art	4
Ancient Ethnography of Mexico and Central America	4	Meso-American Manuscripts	4
Ancient History of Mexico	4	Geology and Paleontology	4
Mayan Archeology	4	Social Organization	4
Mayan Epigraphy	4	Seminar in Archeology	4
		Origin and Characteristics of Mexican Cultures	4
Total	74	Primitive Technology and Economics	4
		Photography with Laboratory	6
Ten electives from the following:		African Archeology	4
Mayan Inscriptions	4	Greco-Roman Archeology	4
Archeology of North America	4	Paleography	4
Archeology of South America	4	Museography with Laboratory	6
Topography and Cartography with Laboratory	7		
South American Art	4	Total	40 or more

Table 7.—Estuela Nacional de Ciencias Biologicas (Secretaria de Educación Pública, 1951)

Plan of studies leading to the degree of Biologist

Admission requirement: Graduation from preparatory or vocational school

Subjects, by year	Hours per week
First Year	
Applied Mathematics	4
Physics with Laboratory	5
Inorganic Chemistry with Laboratory	5
General and Cryptogamic Biology with Laboratory	5
Zoology of Invertebrates with Laboratory	5
Instrumental Optics and Laboratory	3
Meteorology and Climatology	2
Total	29
Second Year	
Physico-Chemistry with Laboratory	4½
Organic Chemistry with Laboratory	6
Botany I (Cytology and Organography) with Laboratory	5
Zoology I with Laboratory	5
Comparative Histology with Laboratory	4½
Comparative Embryology with Laboratory	2½
General Physiology with Laboratory	4
Total	31½
Third Year	
General Biochemistry I with Laboratory	5½
Botany II (Plant Physiology) with Laboratory	4
Zoology II with Laboratory	4
General Biology I (General Genetics and Biometry)	3
General Biology II with Laboratory	4½
Comparative Anatomy with Laboratory	4½
Physiology of Mammals with Laboratory	4½
Dynamic Geology and Geomorphology	3
Total	33

Table 7.—Continued

Subjects	Hours per week
Fourth Year	
Botany III (Cryptogamic) with Laboratory	5
Botany IV (Phanerogamic) with Laboratory	5
Zoology III with Laboratory	5
Zoology IV with Laboratory	5
General Biology III (Ecology and Biogeography)	3
General Biology IV (Variation and Evolution)	2
Paleontology and Stratigraphy	3
Conservation of Biotic Resources	2
History of Biological Doctrines	3
Total	33
One additional year leads to the degree of Biologist with Specialization in the following fields:	
Entomology	
Taxonomical Entomology	4½
Morphological and Physiological Entomology with Laboratory	4½
Medical Entomology with Laboratory	4½
Agricultural and Forestal Entomology with Laboratory	4½
Pest Control and Quarantine Legislation with practice	2
Apiculture and Sericulture with Laboratory	3
Chemical Analysis (Special) with Laboratory	6
Total	29
Phytopathology	
General Phytopathology with Laboratory	4½
Special Phytopathology with Laboratory	6
Special Genetics with Laboratory	4½
Agricultural and Forestal Entomology with Laboratory	4½
Pest Control and Quarantine Legislation with practice	2
Chemical Analysis (Special) with Laboratory	6
Total	27½
Hydrobiology	
General Hydrobiology with Laboratory	6
Special Hydrobiology with Laboratory	6
Applied Ichthyology and Exploitation of Hydrobiotic Resources with Laboratory	5
Legislation and Fishery Economics	2
Chemical Analysis (Special) with Laboratory	6
Total	25

Table 7.—Continued

Subjects, by year	Hours per week
Botany	
Geobotany	3
Edaphology with Laboratory	4½
Phytopathology with Laboratory	4½
Special Genetics with Laboratory	4½
Conservation and Exploitation of Forestal Resources	3
Chemical Analysis (special) with Laboratory	6
Total	25½
Conservation of Biotic Resources	
Geobotany	3
Edaphology with Laboratory	4½
Hydrobiology with Laboratory	6
Conservation and Exploitation of Forestal Resources	3
Agrology with Practice	4½
Biotic Resources Legislation	2
Conservation and Exploitation of Biotic Resources Techniques	4½
Total	27½.

Table 8.—Escuela Nacional de Ciencias Químicas (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Chemist

Admission requirement: Bachelor of Chemical Sciences

Subjects	Hours per week
First year	
Inorganic Chemistry with Laboratory	9
Chemical Qualitative Analysis with Laboratory	9
Physics Laboratory	6
Elements of Algebra (semester)	3
Analytic Geometry and Differential and Integral Calculus	3
Physics (Mechanics and Fluids)	3
Total	33
Second year	
Organic Acyclic Chemistry with Laboratory	9
Chemical Quantitative Analysis with Laboratory	9
Analytical Geometry and Differential and Integral Calculus	3
Physics (Heat, Thermodynamics, Acoustics and Optics)	3
Electricity and Magnetism	3
Mineralogy with Laboratory	3
Total	30
Third year	
Organic Cyclic Chemistry with Laboratory	9
Chemical Qualitative Special Analysis with Laboratory	6
Physical Chemistry with Laboratory	6
Chemical Microbiology with Laboratory	6
Industrial Drawing I	6
Visits to Industrial Laboratories	
Total	33
Fourth Year	
Chemical Industrial Analysis with Laboratory	9
Raw and Industrial Materials with Laboratory	6
Industrial Hygiene	3
An Industrial Course with Laboratory (Elective)	6
Visits to Industrial Laboratories	
Total	24

Industrial Courses (Electives)

Petroleum I	Metallurgical Technology I	Photographic Chemistry
Petroleum II	Metallurgical Technology II	Colloidality
Sugar-Alcohol Course I	Enzymology	Essence and Perfumes
Sugar-Alcohol Course II	Coloring (Textile Industry)	Phytochemistry
Non-ferrous Metallurgy	Decimasy	Theoretical Chemistry
Siderurgy I	Metallurgical Analysis	Industrial Engineering

Table 9.—Escuela Nacional de Odontología (Universidad Nacional Autónoma de México, 1954)

Plan of Studies leading to the degree of Dental Surgeon

Admission requirement: Bachelor of Biological Sciences, grade average of 8, entrance examination

Subjects, by year	Hours per week
1	2
First Year	
Dental Anatomy and Techniques	7.5
Dental Materials	5
Dissections	5
Human Anatomy	5
General and Special Physiology	3
Physiology Laboratory	3
Histology Laboratory	3
Histology and Embryology	5
Total	36.5
Second Year	
Physiological Chemistry	5
Topographical Anatomy of the Head and Neck and Dissections	5
Radiology and Radiodontia	1
Prescriptions for Dental Clinic	5
Radiology and Radiodontia (Theory)	1
General Oral Microbiology	3
Medical Propedeutic Clinic	5
Pathological Anatomy	3
Microbiology Laboratory	3
General Pathology	2
Total	33
Third Year	
Dental Clinic I	7.5
Exodontia Clinic I	7.5
Operative Techniques (Cadaver)	3
Prosthodontia Clinic I	7.5
Gold Prosthesis I	7.5

Subjects, by year	Hours per week
1	2
Third Year—Continued	
Therapeutics and Pharmacology	5
Medico-surgical Pathology	3
Total	41
Fourth Year	
Clinical Anesthesiology	3
Medical Therapeutic Clinic	2
Dental Clinic II	7.5
Surgical Therapeutic Clinic	5
Exodontia Clinic II	1.5
Prosthodontia Clinic II	7.5
Gold Prosthesis II	7.5
Total	34
Fifth Year	
Minor Oral Surgery	7.5
Child Clinic	5
Preventive Orthodontia and Hygiene	3
Deontology and History of Odontology	1
Endodontic Clinic	5
Orthodontia Clinic	5
Parodontia Clinic	5
Gold Prosthesis III	5
Dental Economics and Organization of the Clinic	1
Prosthodontia III (Total, Partial, Removable)	5
Total	42.5

Table 10.—Escuela Nacional de Economía (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Licentiate in Economics

Admission requirement: Bachelor of Humanities

Subjects, by year	Hours per week
1	2
First Year	
Economic Theory I	3
General Economic History	2
Elements of Mathematics	2
Economic Geography (T)	2
General Sociology	2
General Principles of Law	2
General Accounting (L)	3
Laboratory	1
Total	17
Second Year	
Economic Theory II	3
Social and Economic Theory of Marxism	2
History of Economic Thought I	3
Economic History of Mexico (T)	2
Statistical Methods (L)	3
Social Security and Labor Laws	2
Cost Accounting (L)	3
Total	18
Third Year	
Economic Theory III	3
Theory of Money and Credit	3
Agricultural Economics (T)	2
Industrial Economics (L)	2
History of Economic Thought II	3
Economic Statistics (L)	2
Analysis of Financial Reports (L)	2
Laboratory	1
Total	18
Fourth Year	
Credit Institutions and Operations	3
International Trade	3
Theory of Public Finance	3
Economics of Transportation	2
Demography and Demographic Policies (L)	2
Economic Problems of Mexico I (T)	3
Seminar in Research Techniques (4 mos.)	2
Total	18
Fifth Year	
Theory of Economic Cycles (T)	3
Modern Economic Systems	2
Money Exchange and Capital	2
State Fiscalization of the Economic Life (T)	3
Public Finances of Mexico (T)	2
Economic Problems of Mexico II (T)	3
Seminar (5 months)	2
Total	17
Seminar Electives:	
National Income	
Organization and Finance of Public Utilities	
Economic Development of Organizations	
Economic Problems of Latin America	
Geopolitics	
Economic History of Mexico	

(T) Class assignments during the course.
(L) Laboratory.

Table 11.—Facultad de Filosofía y Letras (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Master of Science in Education
Admission requirement: Master's degree in another department of the Faculty of Philosophy and Letters

Required Subjects, 2 semesters each:

1. Philosophy of Education
2. Psychology of Education
3. Psychology of Adolescence
4. Development and Evaluation of Mental Tests
5. Principles of Teaching Methods in Secondary Schools
6. History of Education
7. Teaching Methods [1]
8. Educational Sociology

Elective Subjects, 2 semesters each:

1. Physical Exploratory Anthropology or Somatology and Biotopology
2. Special Psychotechniques of the Psychic Faculties and Functions of Adolescence
3. Educational Sociology
4. Teaching Methods in Modern Languages [2]
5. History of Education
6. Exploratory Methods of the Progress of Individual Education of Adolescence

[1] This course in the chosen field of specialization is to be taken in the Higher Normal School.
[2] Required of students specializing in modern languages.

Table 12.—Instituto Tecnológico y de Estudios Superiores de Monterrey (Boletín General, 1952)

Plan of studies leading to the degree of Agricultural Engineer

Admission requirements: Bachelor of Sciences or completion of vocational school; entrance examination or 1-semester course in Mathematics, Physics, Chemistry, and Drawing

Subjects, by year	Hours per week	
	Class	Laboratory
1	2	3
First Semester		
First year:		
Vegetable Physiology	3	2
Cereals and Vegetables	3	2
Zootechnics I	3	2
Meteorology	3	2
General Mechanics	3	0
Agricultural Machinery I	3	2
Total	18	10
Second year:		
Horticulture	3	2
Zootechnics III	3	2
General Topography	4	2
Geology	3	0
Entomology I	3	2
Quantitative and Industrial Analysis	2	4
Total	18	12
Third year:		
Fruitculture II	3	2
Physics and Chemistry of Soils I	3	2
Mycology	3	2
Applied Plant Genetics	5	0
Irrigation and Drainage	3	2
Total	17	8
Fourth year:		
Fertilizers and Improvements	3	2
Insecticides, Fungicides and Fumes	3	2
Applied Biometry	5	0
Agricultural Industries I	3	2
Thesis	0	3
Total	14	9

Subjects, by year	Hours per week	
	Class	Laboratory
1	2	3
Second Semester		
Industrial Plants	3	2
Zootechnics II	3	2
Hydraulics	3	2
Agricultural Machinery II	3	2
Mineralogy	3	0
Chemistry II	3	6
Total	18	14
Fruitculture I	3	2
Zootechnics IV	3	2
Applied Topography	3	2
Agricultural Microbiology	3	2
Entomology II	3	2
General Genetics	5	0
Total	20	10
Citriculture	3	0
Cotton Raising	3	0
Physics and Chemistry of Soils II	3	2
Phytopathology	3	2
Phytotechnic Methods	3	2
Rural Construction	3	2
Total	18	8
Agricultural Industries II	3	2
Rural Administration	3	0
Agricultural Legislation	3	0
Professional Ethics	3	0
Thesis	0	15
Total	12	17

Table 13.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Civil Engineer

Admission requirement: Bachelor of Sciences

Subjects	Hours per week	
	Class	Laboratory
First Year		
First year for all degrees:		
Algebra	3	.....
Analytical Geometry and Differential and Integral Calculus I with Laboratory	5	3
Mechanics I with Laboratory	5	3
General Methods in Drawing	3	.....
Descriptive Geometry	3	.....
General Topography	3	.....
Partial Practice in Topography	3	.....
General Practice in Topography (will be done at the end of the school year)	.....	.....
Topographical Drawing	3	.....
Total	28	6
Second Year		
Practical Calculus	3	.....
Analytical Geometry and Differential and Integral Calculus II, Differential Equations with Laboratory	5	3
Mechanics II with Laboratory	5	3
Construction Procedures I	4	.....
Practical Knowledge and Mechanical Drawing	3	.....
Perspective	3	.....
Physical Geology Applied to Construction and Hydrology	4	.....
Construction Drawing	3	.....
Total	30	6
Third Year		
Thermodynamics and Thermic Machines	5	.....
Mechanics III	4	.....
Stability of Constructions with Laboratory	5	3
Hydraulics	4	.....
Construction Procedures II	3	.....
Wood Structures	3	.....
Materials of Construction and Concrete with Laboratory	5	.....
Total	29	3

Table 13.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954)—Continued

Subjects, by year	Hours per week	
	Class	Laboratory
Fourth Year		
Hydraulic Machines	3	.....
Electricity and Magnetism and Electrical Engineering	5	.....
Concrete with Laboratory	5	3
Sanitary Engineering and Projects	6	.....
Cost Accounting and Budgets	3	.....
Economics, Organization and Legislation	3	.....
Soil Mechanics	3	.....
Soil Mechanics Laboratory	2	.....
Construction	3	.....
Metallic Structures	3	.....
Total	36	3
Fifth Year		
Hydraulic Works	3	.....
Hydraulic Work Projects	4	.....
Highways	3	.....
Highway Projects	3	.....
Ports and Highways	3	.....
Ports and Highways Projects	3	.....
Theory and Design of Hyperstatic Structures	4	.....
Bridges	3	.....
City Planning	3	.....
Elective	3	.....
Total	32	.....
Elective Subjects:		
Terracing and Paving	3	.....
Work Financing	3	.....
Transit and Planning Engineering	3	.....
Transit and Transportation Engineering	3	.....
Regularization of Materials	3	.....

Table 14.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Mechanical and Electrical Engineer

Admission requirement: Bachelor of Sciences

Subjects	Hours per week	
	Class	Laboratory
First Year		
(Same as in Table 13)		
Second Year		
Practical Calculus	3	.....
Analytical Geometry, Differential and Integral Calculus I and Differential Equations II with Laboratory	5	3
Mechanics II with Laboratory	5	3
Mechanical Drawing	3	.....
Physics (Electricity and Magnetism) with Laboratory	5	3
Physics (Heat and Thermodynamics) with Laboratory	5	3
Iron and Steel Technology	3	.....
Machines, Utensils, and Shops	3	.....
Total	32	12
Third Year		
Mechanics III	4	.....
Hydraulics	4	.....
Stability of Constructions with Laboratory	5	3
Thermic Machines with Laboratory	5	3
Projects in Elements of Machinery	3	.....
Theory of Alternating Currents	4	3
Theory and Machinery of Direct Currents with Laboratory	5	3
Total	30	12
Fourth Year		
Electrical Measurements	4	.....
Lighting	3	.....
Steam Engines	4	.....
Hydraulic Machines	5	.....
Internal Combustion Machines	4	.....
Alternating Current Machinery	3	.....
Electrical Machinery Laboratory	5	.....
Electronics and Its Applications	3	.....
Elements of Civil Engineering	3	.....
Total	34	.....

Table 14.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954—Continued

Subjects, by year	Hours per week	
	Class	Laboratory
Fifth Year		
Theory and Machinery of Alternating Currents	3	.....
Hydroelectrical Plants	3	.....
Building and Organization of Plants and Shops	3	.....
Industrial Finance, Budgets and Accounting	3	.....
Installation of Industrial Machinery	4	.....
Electrical Substations	3	.....
Transmission and Distribution of Electrical Energy	3	.....
Industrial Electrical Installations	4	.....
Electrical Communications	3	.....
Elective	3	.....
Total	32	.....
Elective Subjects:		
Symmetric Elements and Their Applications	3	.....
Regulations and Controls	3	.....
Electrical Railways	3	.....

Table 15.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Mining and Metallurgical Engineer

Admission requirement: Bachelor of Sciences

Subjects, by year	Hours per week	
	Class	Laboratory
1	2	3
First Year		
(Same as in Table 13)		
Second Year		
Practical Calculus	3	.....
Analytical Geometry, Differential and Integral Calculus II, Differential Equations with Laboratory	5	3
Mechanics II with Laboratory	5	3
Construction Procedures I	4	.....
Mineralogy	3	.....
Qualitative Analysis	5	.....
Practical Knowledge and Mechanical Drawing	3	.....
Mines Topography	3	.....
Total	31	6
Third Year		
Stability of Constructions with Laboratory	5	3
Mechanics III	4	.....
Hydraulics	4	.....
Thermodynamics and Thermic Machines	5	.....
Building Materials and Concrete with Laboratory	3	.....
Chemical Quantitative Analysis	4	.....
General Geology	5	.....
Wood and Metal Structures	2	.....
Total	32	3

Table 15.—Escuela Nacional de Ingeniería (Universidad Nacional Autónoma de México, 1954)—Continued

Subjects, by year	Hours per week	
	Class	Laboratory
Fourth Year		
Hydraulic Machines	3	.....
Concrete and Practice	3	.....
Electricity, Magnetism and Electrical Engineering	5	.....
Physical Chemistry I	3	.....
Geology Applied to Mineral Deposits	5	.....
Mineral Deposits Laboratory	2	.....
Mining I	5	.....
Non-ferrous Metallurgy I	5	.....
Metallography	3	.....
Total	34	.....
Fifth Year		
Mining II	5	.....
Non-ferrous Metallurgy II	5	.....
Physical Chemistry II	3	.....
Iron and Steel Metallurgy	3	.....
Mining and Metallurgical Installation Projects	4	.....
Mining Economics	3	.....
Sanitary and Safety Engineering	3	.....
Geophysical and Exploitation Methods	3	.....
Elective	3	.....
Total	32	.....
Elective Subjects:		
Electrochemistry and Electro-metallurgy	3	.....
Problems in Metallurgy	3	.....
X-Rays Spectral Analysis	3	.....

Table 16.—Facultad de Filosofía y Letras (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Master in Spanish Language and Literature

Admission requirement: Bachelor of Humanities or completion of normal school

Subjects	Hours per week
Latin I	4
Advanced Spanish I (Morphology)	2
One Romance Language (French, Italian, Portuguese) I	4
Spanish Phonetics	2
Introduction to Spanish Literature	2
History of Mexico	2
History of Spain	2
Introduction to Literary Research	
Advanced Spanish II (Syntax)	2
Latin II	2
One Romance Language (selected) II	4
Historical Grammar of the Spanish Language	2
Mexican Literature (Monograph Course)	2
Medieval Castilian Literature	2
Introduction to a Modern Literature	2
Advanced Spanish III	2
Castilian Literature of the Golden Age (Monograph Course)	2
Modern Castilian Literature (Monograph Course)	2
Comparative Literature (Monograph Course)	2
Modern Literature (French, English, German, Italian)	2
Seminar in Mexican Literature	
Seminar in Spanish Literature	2
Total	46
Elective Courses:	
Theory and Composition	
History of Iberoamerican Ideas	
Literary Theory	
Esthetics	
Introduction to Philosophy	
History of Plastic Arts	
Philosophy of History	
History of Art in Spain	
History of Mexican Colonial Art	
Brazilian Studies	
History of the Theater	
Comparative Romantic Philology	
Any other subject approved by the Counselor.	

Table 17.—Facultad de Derecho y Ciencias Sociales (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Licentiate in Law [1]

Admission requirement: Bachelor of Humanities

Subjects, by year	Hours per week
1	2
First Year	
Civil Law I	3
Political Economy I	3
Roman Law I	3
Introduction to the Study of Law	3
Sociology	3
Total	15
Second Year	
Political Economy II	3
Roman Law II	3
General Theory of the State	3
Civil Law II	2
Civil Procedure I	3
Criminal Law I	3
Total	17
Third Year	
Constitutional Law	3
Civil Law III	3
Civil Procedure II	3
Penal Law II	3
Administrative Law I	3
Total	15
Fourth Year	
Criminal Law	3
Labor Law I	3
Contracts	3
Business Law I	3
Public International Law	3
Administrative Law II	3
Guaranties and Protection	3
Total	21
Fifth Year	
Business Law II	3
Private International Law	3
Legal Medicine	3
Labor Law II	3
Philosophy of Law	3
Forensic Practice	3
Agrarian Law	3
Total	21
Optional Subjects (3 times a week):	
Banking Law	
Mining Law	
Comparative Law	
History of Banking Law	
Maritime Law	
Criminology	
Business Societies and Bankruptcy	
Fiscal Legislation	
Translation of French Juridical Texts	
Military Law	

[1] Doctorate in Law requires 2 additional years.

Table 18.—Escuela Nacional de Medicina (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Physician-Surgeon

Admission requirement: Bachelor of Biological Sciences

Subjects, by year	Hours per week
1	2
First Year	
Descriptive Anatomy	12
Dissections in Descriptive Anatomy	9
General Physiology (Theory and Practice)	8
Histology (Theory and Practice)	12
Embryology (Theory and Practice)	3
Total	44
Second Year	
Topographical Anatomy	3
Dissections in Topographical Anatomy	9
Theoretical Physiology	3
Human Physiology (Practice)	12
Theoretical Microbiology	3
Practical Microbiology	9
Theoretical Parasitology	3
Practical Parasitology	7.5
Medical Chemistry	3
Medical Chemistry (Practice)	6
Total	58.5
Third Year	
Pathological Anatomy and Autopsy Practice	4.5
Practice in Pathological Histology	6
Pharmacology (Theory and Practice)	5
Surgical Techniques (Cadaver)	6
Propedeutic Medical Clinic and Radiology	6

Subjects, by year	Hours per week
1	2
Third Year—Continued	
Propedeutic Surgical Clinic and Radiology	6
Medical Pathology I (Digestive Tract)	3
Medical Pathology I (Respiratory Tract)	3
Surgical Pathology I	3
Total	42.5
Fourth Year	
Medical Clinic (Digestive Tract)	3
Physiotherapy	3
Medical Clinic I (Respiratory Tract)	3
Clinical Surgery I	7.5
Surgical Therapeutics	5
Medical Pathology II	3
Surgical Pathology II	4.5
Medical Therapeutics	5
Total	34
Fifth Year	
Medical Clinic II	4.5
Surgical Clinic II	3
Dermatological Clinic	4
Otorhinolaryngological Clinic	5
Endocrinology	3
Neuroanatomy	3
Theoretical Obstetrics	3
Legal Medicine	3
Medical Pathology III	3
Surgical Pathology III	3
Total	34

Table 18.—Escuela Nacional de Medicina (Universidad Nacional Autónoma de México, 1954)—Continued

Subjects, by year	Hours per week	Subjects, by year	Hours per week
1	2	1	2
Sixth Year		*Sixth Year*—Continued	
Medical Clinic III	3	Social Medicine and Work Hygiene	3
Surgical Clinic III	3	History and Philosophy of Medicine	3
Pediatric Clinic	5		
Ophthalmological Clinic	4	Total	39
Urological Clinic	4		
Parasitical and Infectious Diseases Clinic	3	Internship at the end of the sixth year.	
Obstetrical Clinic	5		
General Pathology	3		
Preventive Medicine and Hygiene	3		

Table 19.—Escuela Nacional de Música (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree in Composition

Admission requirements: Completion of 6-year elementary school and 4-year preparatory course in music

Professional Cycle

Subjects, by year	Hours per week	Subjects, by year	Hours per week
1	2	1	2
Fifth Year		*Seventh Year*—Continued	
Counterpoint II	3	Orchestra II	3
Musical Acoustics	3	Chamber Music II	3
Piano Research	3	Music Education I	2
Sight Reading I	2	First course of a third foreign language	3
Folklore I	2	Total	16
First course of a second foreign language	3	*Eighth Year*	
History of Mexico	3	Classical Forms and Orchestration II	3
Anatomy	3	Music Education II	2
Choral Singing IV	3	History of Art	3
Total	25	Instrumentation of Student Compositions	.....
Sixth Year		Second course of a third foreign language	3
Canon and Fugue	3	Orchestra III	3
History of Music I	2	Wind Instruments	.....
Orchestra I	3	Chamber Music II	3
Chamber Music I	3	Total	17
General History	3	*Ninth Year*	
Sight Reading II	2	Modern Forms and Orchestration III	3
Literature	3	Music Aesthetics	3
Folklore II	2	Practice Teaching	.....
Second course of a second foreign language	3	Violin or Cello I	.....
Choral Singing V	3	Total	6
Total	27		
Seventh Year			
Homophone Forms and Orchestration I	3		
History of Music II	2		

Table 28.—Escuela Nacional de Ciencias Biológicas (Secretaría de Educación Pública, 1951)

Plan of studies leading to the degree of Pharmacist

Admission requirement: Graduation from preparatory or vocational school

Subjects, by year	Hours per week
First Year	
Physics with Laboratory	5
Inorganic Chemistry with Laboratory	5
Analytical Qualitative Chemistry with Laboratory	7
Botany Applied to Pharmacy with Laboratory	5
General and Human Physiology with Laboratory	6
Total	28
Second Year	
Organic Chemistry with Laboratory	6
Analytical Quantitative Chemistry with Laboratory	7
Bacteriology and Parasitology with Laboratory	5
Galenic Pharmacy with Laboratory	9
Total	27
Third Year	
Applied Toxicology with Laboratory	4½
Chemical Pharmacy with Laboratory	6
Drugs Control with Laboratory	6
Commercial Pharmacy	3
Deontology and Pharmaceutical Legislation	2
Hygiene and First Aid	2
Total	23½

Table 21.—Facultad de Ciencias (Universidad Nacional Autónoma de México 1954)

Plan of studies leading to the degree of Physicist

Admission requirement: Bachelor of Sciences

Subjects	Hours per week
First Year	
Algebra	3
Geometry and Trigonometry	3
Analytic Geometry I	3
Differential and Integral Calculus I	3
Physics 1 (Mechanics and Heat)	6
Physics Laboratory I	3
Selected Subjects in Contemporary Physics	3
Total	24
Second Year	
Differential and Integral Calculus II	3
Physics II (Electricity and Optics)	4
Physics Laboratory II	3
Geometric and Spectroscopic Optics	5
Introduction to Atomic Physics	3
Introduction to Applied Mathematics	3
Total	21
Third Year	
Vector Analysis	3
Introduction to Mathematical Analysis I	3
History of Physics	3
Electronics with Laboratory	5
Thermodynamics and Kinetic Theory	3
Introduction to Theoretical Physics I	3
Total	20
Fourth Year[1]	
Theoretical Course	
Atomic Physics	3
Differential Equations	3
Introduction to Mathematical Analysis	3
X-Rays and Crystallographical Physics	3
Introduction to Physical Theory II	3
Mathematical Methods of Physics	3
Spectrography	3
	21
Experimental Course:	
Atomic Physics	3
X-Rays and Crystallographical Physics	3
Physics Laboratory IV	9
Electric Circuits	3
Spectrography	3
	21

[1] Choice of Theoretical or Experimental Course

Table 22.—Escuela Nacional de Ciencias Políticas y Sociales (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Licentiate in Political Sciences

Admission requirement: Bachelor of Humanities

Subjects, by year	Hours per week	Subjects, by year	Hours per week
1	2	1	2
First Year		*Third Year*	
English or French	4	Italian or German	4
General Sociology	5	Introduction to the Science of Law	3
General Statistics	3	History of Political Organization in Mexico	3
History of Mexico	5	History of Culture	3
Human Geography	2	World Literature	5
Economics	3	Specialized Course in Political Literature and Oratory	3
Total	22	Sociology of Political Parties and of Political Opinion (1 semester)	3
Second Year		City Planning (1 semester)	3
English or French	2	General Theory of the State	3
Methods of Social Research	5	Total	27
Social Statistics	3	*Fourth Year*	
General Psychology	2	Italian or German	2
History of Economic Doctrines	3	World History	5
History of Political Doctrines	3	Administrative Law	3
Sociology of Mexico	3	Constitutional Law	3
Total	21	Economy of Mexico	3
		Public Administration in Mexico	3
		Social Psychology	2
		Total	21

Table 23.—Facultad de Derecho y Ciencias Sociales (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Social Worker

Admission requirements: Completion of normal school or graduation from National School of Nursing, 18 years of age

Subjects, by year	Hours per week	Subjects, by year	Hours per week
1	2	1	2
First Year		*Second Year*	
General Sociology	3	Play-therapy	5
General Principles of Law	5	Medical First Aid and Child Care	5
Elements of Anthropology	5	Administrative Organization	5
Biology and Physiology	5	Principles of Criminal Law	5
Child Study	5	Theory and Practice of Social Work	5
Social Economics	5	Psychopathology	5
Theory of Social Welfare and Social Work	5	Mexican Descriptive Sociology	5
Psychology	5	Total	35
Total	38	*Third Year*	
		Nutrition and Dietetics	5
		Social Work (Field Work)	5
		General Criminology	5
		Labor Legislation and Problems	5
		Mental and Rural Hygiene	5
		General Statistics	5
		Total	30

Table 24.—Escuela Nacional de Medicina Veterinaria y Zootecnia (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the degree of Zootechnic Veterinarian

Admission requirement: Bachelor of Biological Sciences

Subjects, by year	Hours per week
1	2
First Year	
Descriptive Anatomy	6
Dissections	6
Cytology, Histology, Embryology with Laboratory	6
General Physiology with Laboratory	4
Biological Chemistry with Laboratory	6
Physico-chemistry with Laboratory (optional)	4
Total	32
Second Year	
Topographical Anatomy and Dissections	3
Special Physiology with Laboratory	6
Histopathology, Pathological Anatomy with Laboratory	6
Microbiology with Laboratory	6
Parasitology with Laboratory	6
Total	27
Third Year	
Medico-surgical Propedeutics	6
Medical Pathology I	4
Surgical Pathology I	3
Third Year—Continued	
Surgical Techniques	6
Immunology with Laboratory	4
Virology with Laboratory	4
Total	27
Fourth Year	
Medical Pathology II	3
Surgical Pathology II	3
Obstetrics and Clinical Obstetrics	6
Small Species Clinic	6
Surgical Therapeutics	4
Pharmacology and Medical Therapeutics	4
Inspection and Technology of Products of Animal Origin	4
Total	30
Fifth Year	
Veterinary Hygiene	4
Sanitary Police, Veterinary Legislation, and Deontology	3
General Pathology	3
Bovine, Ovine and Caprecline Clinic	6
Equine and Swine Clinic	6
Therapeutic Clinic	4
Total	26

Table 25.—Escuela Nacional de Enfermería y Obstetricia (Universidad Nacional Autónoma de México, 1954)

Plan of studies leading to the diploma of Nurse

Admission requirement: Certificate of Secondary Education (first cycle)

Subjects	Hours per week
1	2
First year	
Anatomy and Physiology	5
Anatomy and Physiology Laboratory	5
Microbiology, Parasitology with Laboratory	4
Hygiene and Preventive Medicine	5
Social Work and Applied Ethics I	4
Hygiene Practices and Preventive Medicine	2
General Nursing and Hospital Techniques	5
Hospital Practice	15
Sports	1
Total	46
Second Year	
General, Internal, and External Pathology	3
Clinical Nursing	5
Social Work and Hospital Work II	4
Puericulture and Pediatrics for Nursing	4
Physiotherapy	2
Hospital Practice	20
Sports	1
Total	31
Third Year	
Dietetics	4
Dietetics Laboratory	5
Gynecology	2
Psychology, Mental Hygiene, and Psychiatric Nursing	4
Surgical Nursing Clinic	5
Hospital Practice	5
Sports	1
Total	26

NOTE: Two additional years of study in Obstetrics and Child Care lead to the diploma of Midwife.

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