

with a value of \$350,000. The half of this sum can be said to be received by the poor people in the lowest social grade. These paper factories produce common foolscap paper, printing paper of different sizes, colored papers, wrapping papers, and letter paper.

The principal glass factories are those of Apizaco and Texcoco, and those of china are situated in the City of Mexico.

The subjects of agriculture and mining are treated of in another chapter.

VII

PUBLIC INSTRUCTION.

This interesting department, which is the principal and most solid foundation of the prosperity of nations, has been most highly developed in Mexico through the impetus it daily receives from all the authorities who have anything to do with its management. Moved by a patriotic desire for the advancement of their country, they have done their best to perpetuate the memory of the present administration, by a special attention to public instruction and by opening the greatest number possible of public schools. Outside of the large cities the schools shed the light of civilization on the most isolated villages, excepting only those remote places on the frontier which are at times subject to the invasion of savage Indian tribes. Public and private establishments, libraries, museums and numerous periodical publications contribute to the diffusion of education among the people, giving it at the same time a great onward impetus which is greatly assisted by the authorities and by the numerous societies instituted in the Republic.

The primary instruction is principally taken charge of by the municipalities, although the Federal Government supports some schools either directly or by means of subsidies. Other schools, and not a few are under the care and protection of private individuals and charitable societies.

The principal studies carried on in the primary schools are: reading, writing, grammar, arithmetic, decimal system, princi-

pals of geography and universal history with that of Mexico in particular, and urbanity. Besides the above, the girls are taught all kinds of needle work both plain and fine, as well as embroidery. In most of the private establishments the course is extended to the superior primary instructions, and to different branches of the secondary and preparatory classes.

The greater part of the States of the Mexican Confederation have admitted the principal of obligatory and gratuitous instruction, either by imposing penalties, such as that of not being allowed to enter the public employment, on those fathers or guardians who are remiss in the fulfillment of this duty, or by establishing premiums which serve to stimulate the children to a punctual attendance at the schools.

The system of instruction which is most generally adopted is the mutual and simultaneous, but the objective instruction is also largely practised.

The number of schools established in the Republic and the number of pupils attending the same are shown in the following tables.

PUBLIC INSTRUCTION.

STATES.	GOVERNMENT SCHOOLS.			MUNICIPAL SCHOOLS.			TOTAL NUMBER OF SCHOOLS.	ATTENDANCE.		TOTAL.
	BOYS.	GIRLS.	Mixed.	BOYS.	GIRLS.	Mixed.		BOYS.	GIRLS.	
Agua Calientes.....	35	14	.....	.....	.....	.....	49	2,646	1,296	3,942
Campeche.....	32	18	.....	10	3	.....	63	1,630	800	2,430
Coahuila.....	1	.....	27	5	.....	78	106	3,606	1,965	5,571
Colima.....	20	20	2	1	.....	.....	43	1,140	1,200	2,440
Chiapas.....	5	1	.....	123	35	3	167	1,670	336	2,006
Chihuahua.....	2	.....	.....	134	37	12	185	7,284	1,853	9,137
Durango.....	75	36	4	13	2	.....	130	4,368	3,070	7,438
Guanajuato.....	83	69	.....	47	34	.....	233	9,937	7,059	16,996
Guerrero.....	408	45	14	.....	.....	.....	467	10,276	2,467	12,743
Hidalgo.....	484	201	6	.....	.....	.....	691	18,321	6,425	24,746
Jalisco.....	131	120	48	.....	.....	.....	299	9,444	9,531	18,975
México.....	1	.....	.....	854	178	.....	1,033	29,139	7,593	36,732
Michoacan.....	185	89	.....	.....	.....	.....	274	12,448	7,438	19,886
Morelos.....	50	51	121	.....	.....	.....	222	4,586	2,720	7,306
Nuevo Leon.....	4	.....	.....	221	53	.....	278	8,077	3,512	11,589
Oaxaca.....	399	74	.....	50	13	.....	536	16,766	3,594	20,360
Puebla.....	8	2	2	750	247	90	1,099	30,275	12,944	43,219
Querétaro.....	78	23	1	.....	.....	.....	97	3,316	1,371	4,687
San Luis Potosí.....	1	.....	.....	201	61	.....	263	10,434	4,059	14,493
Sinaloa.....	4	.....	.....	102	33	161	300	5,583	3,390	8,973
Sonora.....	125	39	4	.....	.....	.....	168	4,468	2,114	6,582
Tabasco.....	1	.....	.....	32	22	.....	55	2,094	1,235	3,329
Tamaulipas.....	2	.....	.....	93	41	.....	136	6,106	2,944	9,050
Tlaxcala.....	165	60	2	.....	.....	.....	226	7,036	2,762	9,798
Veracruz.....	352	108	89	.....	.....	.....	549	13,516	6,205	19,721
Yucatan.....	191	87	.....	30	19	1	328	7,861	3,582	11,443
Zacatecas.....	10	5	.....	344	163	149	671	12,107	7,409	19,516
Federal District.....	18	9	2	123	85	14	251	10,929	5,893	17,792
Territory of Lower California.....	13	8	5	1	1	.....	28	506	398	904
" of Tepic.....	.....	.....	.....	62	29	.....	41	2,090	1,475	3,565
Totals.....	2,878	1,079	327	3,196	1,056	503	9,039	257,659	117,710	375,369

The following persons are employed in the public schools of the country:

5,737	Directors.
89	Sub-directors.
72	Prefects.
70	Monitors.
4,981	Professors.
1,169	Assistants.
35	Technical Assistants.
782	Employes and servants.

12,935 persons.

The total amount expended in salaries and general expenses of instruction by the Federal, State and municipal governments reaches the sum of \$ 4,622,886.

The want of data does not allow us to include in this table the statistics of the numerous colleges opened by private people and charitable societies, and which would undoubtedly elevate the relative numbers of schools and pupils by at least 50 per cent over the figures given. The law of compulsory education which has been put in force in the Federal District and most of the States is already producing beneficial results, the attendance at the schools being such that the authorities find themselves under the necessity of opening new establishments with all the conditions demanded by modern pedagogy, several amongst these being normal schools for the training of teachers.

SECONDARY, SUPERIOR AND PROFESSIONAL INSTRUCTION.

The secondary instruction comprehends practical arithmetic, algebra and geometry, cosmography, universal geography and history, geography and history of Mexico, book-keeping, grammar, languages, drawing and music.

The superior and preparatory instruction for professional studies, embraces: mathematics, cosmography and geography

on an extended scale, physics, practical mechanics, mineralogy and geology, literature, chronology and general history, chemistry, natural history, morality and logic, the special history of Mexico, hygiene, education, music, history of philosophy, stenography, fencing, telegraphy, Latin, Greek, Spanish, French, English, German, Italian, Mexican or Nahuatl and drawing. In some establishments they teach languages of the country such as Mexican or Othomí.

There are also numerous establishments both in the Federal District and in the States, in which, besides the preparatory branches they give courses on the subjects required for the different professions, in accordance with all modern improvements, these colleges being fully supplied with the instruments necessary for the study of the sciences. Some of these special departments are extremely well fitted up, especially with cabinets of physics, chemistry and natural history, besides valuable museums and well stocked libraries.

The courses of instruction in the establishments of the capital which may be considered as typical of the others throughout the Republic, are:

School of jurisprudence, literature and eloquence.—Natural rights, Roman, National, constitutional, administrative, and maritime; penal legislation, civil and criminal proceedings, comparative legislation and agricultural mechanics, agricultural technology, hygiene, zootechnics, geology and hydrology, construction, topography, drainage and irrigation, political economy, rural legislation, microbiology, rural accounts and management, lineal, topographical and mechanical drawing, logic, agricultural chemistry, geography and cosmography, general and national history, external pathology of animals, materia medica, medical and veterinary legislation, comparative anatomy and physiology, practical veterinary medicine, Spanish, French, Greek and Latin Roots, music and drawing.

School of commerce and administration.—Arithmetic, mercantile correspondence, book-keeping and public accounts, gene-

ral and commercial geography, mercantile and maritime laws, administrative and constitutional laws, practical knowledge of native and foreign goods, commercial chemistry, Spanish, French, English, German, political economy, theory of credit, history and statistics of commerce, general laws, diplomatic customs and correspondence, mercantile caligraphy, general and national history, and constitutional law.

Industrial schools.—Arithmetic, algebra, geometry, trigonometry, natural, lineal, mechanical and ornamental drawing, modelling and carving in wood, Spanish grammar, physics and principles of mechanics, general and industrial chemistry, ceramics, quarrying, carpentry, blacksmithing, coopering, typography, lithography, photography, galvanoplastics, music and English and French languages.

Conservatories of music.—Theoretical music and principles of harmony, solfeo, choral singing, popular orpheon, counter point and composition, superior singing, piano, violin, viola, counter base, violoncello, harp, flute, clarinet, and reed instruments, oboe, trumpet, wind instruments in general, organ, theoretical and applied esthetics and history of music, biography of celebrated musicians, accoustics, medical legislation and political economy.

Schools of medicine.—Descriptive anatomy, theoretical and practical pharmacy, physiology, general and topographical anatomy, internal and external pathology, external and internal clinics, ophthalmology, history of drugs, chemical analysis, dental diseases, obstetrics, medical legislation, normal, general and special histology, public and private hygiene, meteorology, general pathology, operative medicine, therapeutics, bacteriology and pharmacy.

Schools of mining.—Mining, paleontology and geology; bridges, canals and harbor works, wagon roads and railroads, theoretical mechanics of construction, analytical chemistry, construction and erection of machinery, practical knowledge of materials, practical and industrial mechanics, hydrography

and meteorology, celestial mechanics and astronomy, estatic graphics, analytical and applied mechanics, estereotomy and carpentry, mathematical physics and propable calculus, geodesy and practical astronomy, topography and hydromensuration, descriptive geometry, higher mathematics, electrical engineering, political economy, principles of architecture, architectural drawing, mechanical drawing, architectural designing and theoretical and practical topography.

Schools of arts.—Painting, sculpture, and ornamental modelling, pictorial landscape and perspective, engraving in general, drawing from nature and from models, crayon drawing, anatomy of forms, lineal and industrial drawing, architectural composition, classic orders and copies of monuments, descriptive geometry and estereotomy, legal architecture, practical and applied mechanics, elements of mineralogy and geology and practical construction.

Schools of agriculture.—Mathematics, descriptive geometry, general physics and chemistry, mechanics, botany, zoology, surveying and phonography, chamber music, musical composition, Italian and French.

School for the blind.—Primary and secondary instruction, instrumental music, piano, rattan weaving, lace making and book binding.

Deaf and dumb school.—Language and labial articulation, geography, history, drawing, arithmetic, horticulture, lithography, needle work and embroidery, book-keeping, caligraphy, tailoring, shoemaking, artificial flower making, hat making, and dress making.

Military college.—Mathematics, geography, history, topography and topographical drawing, mechanics, physics, chemistry, geodesy, astronomy, architecture, estereotomy, road-making, canals and harbor works, natural history, military topography, superior algebra and infinitesimal calculus, analytical and descriptive geometry, infantry maneuvers, cavalry tactics, permanent and provisional fortifications, practical and

scientific artillery, fencing, swimming, gymnastics, French, English and German languages, natural and landscape drawing, military art and history, practical telegraphy and photography, military jurisprudence and belligerent rights, constitutional law, political economy, pilotage, naval artillery, and everything else relating to navigation. Besides the military college the Nation has a school ship in commission, and nautical schools established in Mazatlan and Campeche.

The Catholic clergy maintain scholastic establishments for the training of young men to the priesthood and to the practice of law, in which special courses are given on the same subjects as in the schools of jurisprudence, and besides; on morality, religion, sacred scriptures, ecclesiastical history, dogmatic theology, moral theology, natural and canonical law, Latin classics, Latin grammar, sacred oratory and liturgy.

In Mexico City there is a female normal school, where they teach: mathematics, physics and principles of chemistry, Spanish, Cosmography, geography, history and chronology, comparative geography, history and geography of Mexico, telegraphy, galvanoplastics, writing, book-keeping, medicine and domestic economy, duties of women, hygiene and physiology, figure and ornamental drawing, French, English and Italian, hand work, pedagogy, music, singing, horticulture, gardening, elements of practical science, taxidermy, and political economy.

Annexed to this school is one for children and another for the perfection of primary instruction.

The Normal school for men gives instruction in the following branches: Spanish grammar and advanced reading, general and national geography and history, constitutional law and political economy, arithmetic, algebra and geometry, elements of mechanics, physics and chemistry, elements of natural history and object lessons, elements of physiology, domestic and school hygiene, cosmography, caligraphy and drawing,

gymnastics, military exercises, French and English, pedagogy, solfeo and coral singing.

There are in the country 16 secondary schools for girls, 16 preparatory schools for the professions, 19 special schools of jurisprudence, 26 seminaries for the study of law and the ecclesiastical career, 9 special schools of medicine, 8 special schools for the different branches of engineering, one practical school of mines, 31 institutes and lyceums, in which besides the preparatory studies, lectures are given on the subjects of law, medicine, pharmacy, engineering and commerce; 4 schools of fine arts, 2 special schools of theoretical and practical agriculture, 1 special school of commerce, 3 industrial schools for men and women, 3 conservatories of music, 1 school for the blind and 1 for the deaf and dumb, 1 military college, 2 nautical schools and several normal schools for male and female professors, the study of modern languages being general in nearly all the colleges.

LIBRARIES.

Besides the numerous libraries which are to be found in the Clubs, Departments of State, State Governments and private houses, the following exist in the Republic, either as public libraries or as annexes to scientific and literary societies.

Federal District.....	National Library, with a rich collection of manuscript documents, mostly referring to the history of Mexico.....	159,000
" "	Of the Preparatory school.....	10,000
" "	" Commercial school.....	2,000
" "	" Law school.....	14,000
" "	" Fine Arts school.....	2,000
" "	" Engineering school.....	7,000
" "	" Agricultural school.....	4,000
" "	" Medical school.....	3,000
" "	" Museum, on Mexican History.....	2,000

Federal District.....	Of the Geographical Society.....	4,000
" "	" General Archives.....	8,000
" "	" Judicial ".....	1,600
" "	" Normal school for men.....	400
" "	" " " women.....	400
" "	" Industrial school.....	2,117
" "	" Conservatory of Music.....	1,021
Aguascalientes.....	Public Library.....	2,136
" "	Civil Institute Library.....	1,809
Lower California...	Municipal Library, La Paz.....	700
Campeche.....	Instituto Campechano.....	3,408
Coahuila.....	Public Library, Saltillo.....	2,102
Chiapas.....	Scientific Institute, San Cristobal.....	3,304
Chihuahua.....	Public Library.....	2,563
" "	Literary Institute.....	1,690
" "	College of San Francisco.....	497
Durango.....	Juárez Institute.....	5,000
Guanajuato.....	State College Library.....	12,500
Guerrero.....	Literary Institute, Chilpancingo.....	2,346
Hidalgo.....	Literary Institute, Pachuca.....	3,000
Jalisco.....	Public Library, Guadalajara.....	25,119
Michoacan.....	Public Library, Morelia.....	14,200
" "	San Nicolas Library.....	3,681
" "	Seminary Library.....	20,000
" "	College of the Compañía, Pátzcuaro...	1,200
México.....	Tribunal of Justice, Toluca.....	126
" "	Scientific and Literary Institute.....	10,258
" "	Municipal Library, Mineral del Oro...	100
" "	" " Lerma.....	100
" "	" " Otumba.....	100
" "	" " Jilotepec.....	100
Morelos.....	Public Library, Cuernavaca.....	1,855
Nuevo Leon.....	" " Monterrey.....	2,150
Oaxaca.....	" " Oaxaca.....	15,000
Puebla.....	Palafox Library, Puebla.....	27,000
" "	Lafragua Library, Puebla.....	21,000
" "	Serrano Library, Atlixco.....	200

Puebla.....	Benito Juárez Library, Zacatlan.....	400
"	Manuel Flores Library, Chalchicomula.....	350
"	Porfirio Diaz Library, Matamoros	500
Querétaro.....	Civil College Library.....	7,698
San Luis Potosí.....	Public Library.....	7,000
"	Municipal Library, Matehuala.....	1,000
Sonora	Public Library, Hermosillo	3,500
"	Sonora College, "	800
"	Educational Board, Guaymas.....	1,000
"	Society of Instruction, Zahuatipa.....	800
Tabasco.....	Juárez Institute, San Juan Bautista...	165
"	Cárdenas Library, "	1,800
Tamaulipas.....	State Library, Ciudad Victoria.....	300
"	Juárez Society, Matamoros.....	500
"	Pedro Méndez Society.....	600
Tlaxcala.....	General Archives.....	327
Veracruz.....	Public Library, Veracruz.....	7,595
"	Popular Library, Tlacotalpan.....	512
"	Commercial School Library, Tlacotalpan.....	200
"	Preparatory College, Orizaba.....	9,092
"	"	375
"	Córdoba.....	375
"	Cuauhtemoc Library, Huatusco.....	300
Yucatan	Literary Institute, Mérida.....	320
"	Cepeda Library, "	1,404
"	Iturralde Library, Valladolid.....	280
Zacatecas	Public Library, Zacatecas.....	19,686
"	"	1,190
"	Fresnillo.....	1,190

The libraries in the Colleges are specially selected with a view to the particular class of education for which they are established and the same may be said of those which belong to scientific societies or corporations. The private libraries are very numerous, and amongst them are some which contain handsome and rare editions of valuable works, whilst others are noted for their rare manuscripts and valuable books on the archeology and history of Mexico.

The State Departments in the Capital of the Republic also possess very good libraries, with special reference to the branch of the public administration managed by each Department.

The general archives of the nation are contained in fourteen large rooms, and preserve a great number of documents and valuable manuscripts referring to the history of México. This important establishment is to México what the archives of Simancas are to Spain.

MUSEUMS.

The principal establishments of this class existing in the Republic, are:

In Mexico.—The National Museum of Antiquities and Natural History.

The Museum of Paintings, Sculpture, Engravings, Medals and Coins situated in the Academy of San Carlos. I will treat of these two museums more at length, in the portion of this book descriptive of the Capital.

The Museums of Zoology, Botany, Mineralogy, Paleontology, of the Preparatory school and of the Technical school of Engineering, Agriculture and Medicine.

In Guadalajara.—Museum of Natural History, in the Scientific Institute or School of Engineering.

In Oaxaca.—Gallery of Ancient Paintings.

In Mérida.—The Archeological Museum of Yucatan.

In Morelia.—The Michoacan Museum of Antiquities and Natural History.

In Monterey.—The Cabinet Museum of Natural History.

In Puebla.—Museum of Paintings, Natural History and Antiquities in the Academy of Fine Arts.

In Jalapa, Córdoba and Orizaba.—Special Museums of Natural History in the State Colleges.

The Museum of the State College in Coahuila.

The Museum of the State College in Chihuahua.

The Museums of Mineralogy and Natural History in the State College of Guanajuato.

The Public Museum at Chilpancingo, State of Guerrero.

The Museum of the Sonora College in Hermosillo.

OBSERVATORIES.

The Astronomical and Meteorological Observatories of this country can be fairly considered as excellent establishments for scientific observation, being duly provided with the persons and instruments required for their proper administration.

The National Astronomical Observatory which was founded in Chapultepec has been permanently removed to a house in Tacubaya which was formerly a military college.

The Central Astronomical Observatory is established in México in the National Government Palace.

Besides these two principal observatories there is another one established in the Port of Mazatlan.

The Central Meteorological Observatory is also situated in the National Palace in México, and is in direct communication with the other observatories established in the greater part of the States of the Republic, as well as with the principal observatories abroad.

ASSOCIATIONS.

Besides the numerous Mutual Aid Societies which have been established in connection with important establishments of public education, with the object of maintaining and increasing primary schools, there are many others established throughout the Republic, dedicated to the study of the geography and history of the country, natural sciences, literature and fine arts; and the following is a list of them:

STATE.	SOCIETY.	Towns in which they are established.
Coahuila.....	Literary «Manuel Acuña.»	Saltillo.
Cuihuahua.....	Pedagogic «Franklin».....	Chihuahua.
Guanajuato.....	Engineers.....	Guanajuato.

STATE.	SOCIETY.	Towns in which they are established.
Guanajuato.....	Medico-Pharmaceutical...	Guanajuato.
Jalisco.....	Medical.....	Guadalajara.
".....	Engineers.....	"
".....	Medico-Pharmaceutical...	"
".....	Students.....	"
".....	«Verea» Law Society.....	"
Nuevo Leon.....	Lawyers.....	Monterey.
".....	Board of Health.....	"
".....	Board of Education.....	"
Oaxaca.....	Medico-Pharmaceutical...	Oaxaca.
".....	Lyceum «Ruiz de Alarcon»	"
".....	Professors.....	"
San Luis Potosí.	Jatrodelifica.....	S. Luis Potosí.
".....	Normal School.....	"
Sinaloa.....	Lancastrian Company.....	Mazatlan.
Tamaulipas.....	Literary «Manuel Navarrete».....	Ciudad Victoria.
Tepic.....	Lancastrian.....	Tepic.
Veracruz.....	«Sánchez Oropeza» Charitable.....	Orizaba.
Federal District..	Geographical and Statistical.....	México.
".....	Natural History.....	"
".....	Hidalgo Lyceum.....	"
".....	Atheneum.....	"
".....	Academy of Medicine.....	"
".....	Spanish Academy.....	"
".....	College of Lawyers.....	"
".....	College of Engineers.....	"
".....	Mineralogical.....	"
".....	Agricultural.....	"
".....	Veterinary and Agricultural.....	"
".....	Filoiatrica.....	"

STATE.	SOCIETY.	Towns in which they are established.
Federal District..	Farmaceutical.....	México.
"	Ex-pupils of the Mining School.....	"
"	Pedro Escobedo, Medical.	"
"	Antonio Alzate.....	"
"	Montes de Oca, Medico-Surgical.....	"
"	Literary, Morelos Lyceum	"
"	Literary, Mexican Lyceum	"
"	Mexican Agricultural.....	"
"	Gregorian	"
"	Seminarists.....	"
"	Pupils of Military College.	"
"	Normal School.....	"
"	Christian Company.....	"
"	Literary, Manuel Nava.....	"
"	Triste.....	"
"	Paracutian.....	"
"	Estados Unidos.....	"
"	Tabasco.....	"
"	Geographical and Statistical.....	"
"	Medical.....	"
"	Natural History.....	"
"	Historical.....	"
"	Alphabetic.....	"
"	Academy of Medicine.....	"
"	Spanish Academy.....	"
"	College of Lawyers.....	"
"	College of Engineers.....	"
"	Mineralogical.....	"
"	Agricultural.....	"
"	Veterinary and Agricultural.....	"
"	Legal.....	"
"	Political.....	"

JOURNALS AND PERIODICALS.

STATES.	Political and Literary.	SCIENTIFIC.	Commercial and Indust.	AGRICULTURAL.	LEGAL.	MEDICAL.	LITERARY.	PEDAGOGIC.	RELIGIOUS.	FOREIGN.	GENERAL.	MILITARY.	ARCHEOLOGICAL.	MINING.	MUSICAL.	TOTALS.
Aguascalientes.....	1	2									2					5
Lower California.....	1															1
Campeche.....	2										1					3
Coahuila.....	1	1	1						1							4
Colima.....	1	1		1		2										5
Chiapas.....	1															1
Chihuahua.....	7	1						1	1		1					10
Durango.....	2					2		2		1						7
Federal District.....	21	6	10	2	5	3	7	2	10	7	3	2	1	2		81
Guanajuato.....	2		3		1		4		1							11
Guerrero.....	2									1						4
Hidalgo.....	2	1					3	1			2			1		10
Jalisco.....	11	1	2		1	1	5	2	6		1					30
México.....	2		1		1			2	2		1					9
Michoacan.....	4						3		4							11
Morelos.....	1															1
Nuevo Leon.....	3		1				2		1							7
Oaxaca.....	1		1				2									4
Puebla.....	4	2	2				3				1					12
Querétaro.....	1															1
San Luis Potosí.....	3		1				1									5
Sinaloa.....	3		1				3	1	1		2					11
Sonora.....	4		3				1	3			2					13
Tabasco.....	4		4				1				1					10
Tamaulipas.....	6		2				6		1		1					16
Tepic.....	2		1								1					4
Tlaxcala.....	1						1									2
Veracruz.....	12	1	1				2	10	3	2		1				32
Yucatan.....	6		3				1	1							1	12
Zacatecas.....	3						1		1		1					6
Totals.....	114	15	38	2	9	7	58	15	33	7	23	2	1	3	1	328

Most of the political journals are also literary.