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NEW MEXICO
THE LAND OF OPPORTUNITY

OFFICIAL SOUVENIR OF THE STATE OF
NEW MEXICO
AT PANAMA-CALIFORNIA EXPOSITION SAN DIEGO 1915

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NEW MEXICO

THE

LAND OF OPPORTUNITY

NEW MEXICO BUILDING — PANAMA-CALIFORNIA EXPOSITION

OFFICIAL DATA

ON THE

Resources and Industries

OF

NEW MEXICO—THE SUNSHINE STATE

PRESS OF THE
ALBUQUERQUE MORNING JOURNAL
ALBUQUERQUE, N. M.

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Editor's Foreword

IN THE preparation and presentation of this volume there has been but one object in view, namely, to acquaint the world with the advantages, resources and progress of the great Sunshine State. Knowledge of the New Mexico of today is certain to result in the influx of tourists, settlers, capital, for no other state in the Union presents so great a variety of attractions for these as does New Mexico.

Every effort has been made to assure absolute accuracy. Whenever possible, the description of any particular section is from the pen of some representative citizen who has seen and knows whereof he speaks. The statistics are official. The pictures tell their own story and the compiler of the book has seen to it that they are numerous and from the most recent photographs.

No section of the State has been neglected in this story. Necessarily, not every detail could be included in any book, no matter what its size. Additional information, however, can readily be obtained from commercial organizations, from business men, from officials.

The Exposition Book of New Mexico, issued ten years ago for the St. Louis Exposition, resulted directly and indirectly, in bringing 100,000 new settlers to the State, who tripled the number of farms in the State, turned the eastern livestock ranges into agricultural country, founded villages and towns, created new counties, and inaugurated a new era of growth and prosperity. The present volume has a distinct historic value for it measures the growth and progress of the commonwealth since then. The modern idea of history is not a mere catalogue of battles and dates, but the story of the activities of a people in the fields of industry, science, culture and peace. Such a story this work presents and after serving its purpose of opening the eyes of millions to the opportunities that beckon them in New Mexico, it will also have its further use as a volume of information for the geographer and the historian.

An acknowledgment of the unselfish service of those who have contributed to the volume, be it financially or with their pen, or otherwise, is herewith made. They have made possible its publication and the people of New Mexico owe them a debt of gratitude.

A. E. Koehler Jr.

Editor and Publisher.
Commissioner of Publicity New Mexico Board of Exposition Managers

77533

CAPITOL AT SANTA FE

WILLIAM C McDONALD
GOVERNOR

GOVERNOR'S MANSION

REPRESENTATIVES, UNITED STATES CONGRESS

CHIEF JUSTICES OF THE STATE SUPREME COURT

STATE OFFICIALS

STATE OFFICIALS

NEW MEXICO BOARD OF EXPOSITION MANAGERS

BY A. E. KOEHLER

IT WAS a task of magnitude to be executed under peculiar difficulties that was entrusted to the New Mexico Board of Exposition Managers, appointed by Governor William C. McDonald under legislative direction and consisting of the following: Ralph Emerson Twitchell of Santa Fe; J. J. Shuler of Raton; Sam T. Clark of Deming; Guy A. Reed of Carlsbad, and Manuel U. Vigil of Albuquerque. The board organized in the summer of 1913 by electing Colonel Twitchell president, Manuel U. Vigil, secretary and treasurer and appointing A. E. Koehler, Jr. of Albuquerque, commissioner of publicity, Estelle Bennett Burton, assistant secretary; Paul A. F. Walter, publicity secretary, and Fayette A. Jones, mining commissioner.

The legislature had voted an appropriation of $30,000, which, however, was not entirely available until the taxes payable in 1914 and 1915 were collected. A business organization had to be created and a staff selected which would carry out the plans of the commission. The legislature demanded that a suitable building be erected in San Diego and exhibits provided for and placed in time for the

opening of the Exposition on New Year's Day, 1915, eleven months before the last of the taxes had been collected out of which the last balance of the $30,000 appropriated was to be paid. This work devolved upon a commission whose members gave their time and energy without compensation.

The New Mexico Board of Exposition Managers, at the very outset of its undertaking, asked for the submission of designs and specifications for a building in the typical New Mexico architecture as exemplified in the mission churches and public buildings of the Franciscans and the Spanish conquerors of three hundred years ago. The plans submitted by Architect I. H. Rapp, who had charge of the construction of the Capitol, the Executive Mansion and other notable New Mexico public buildings, were accepted. There were some misgivings as to the commission being able to meet the cost of so noble an edifice, but through able financing, it became possible to erect it for a sum far below what had been deemed possible.

The commission attacked the problem with vigor. It formulated plans that expressed lofty ideals. The innumerable details of which an outsider can have no adequate idea were worked out conscientiously. There were doubts and misgivings, it is true, but the work accomplished has justified the course mapped out at the beginning.

The result has been a building and exhibits of which the commonwealth is justly proud. The publicity already gained, were it charged up at space rates, could not be paid for by three times the amount spent altogether. The exhibits are such that they may be deemed permanent and can be utilized for publicity work for many years, and finally become a permanent historical record increasing in value with each decade.

The educational exhibit was prepared under the direction of a Woman's Auxiliary consisting of the following: executive committee; Chairman, Mrs. W. J. Fugate of East Las Vegas; Vice-chairman, Miss Flora Conrad of Santa Fe; Secretary, Mrs. Rupert F. Asplund of Santa Fe; Assistant Secretary, Miss Aurora Lucero of Santa Fe, and Mrs. A. B. McMillen of Albuquerque, and the following members representative of the twenty-six counties: Bernalillo, Mrs. A. B. McMillen, Albuquerque; Chaves, Mrs. W. A. Johnson, Roswell; Colfax, Mrs. J. J. Shuler, Raton; Curry, Mrs. A. W. Hockenhull, Clovis; Doña Ana, Mrs. G. W. Frenger, Las Cruces; Eddy, Mrs. E. B. Kemp, Artesia; Grant, Mrs. G. K. Angle, Silver City; Guadalupe, Mrs. C. H. Stearns, Santa Rosa; Lincoln, Mrs. W. L. Gumm, Carrizozo; Luna, Mrs. J. C. Moir, Deming; McKinley, Mrs. Stella Morris, Gallup; Mora, Miss Lena Fenton, Wagon Mound; Otero, Mrs. G. W. Young, Tularosa; Quay, Mrs. R. P. Donohoo, Tucumcari; Rio Arriba, Mrs. Samuel Eldodt, Chamita; Roosevelt, Mrs. A. A. Rogers, Portales; Sandoval, Sister Margaret Mary, Bernalillo; San Juan, Mrs. R. M. Jackson, Aztec; San Miguel, Mrs. W. J. Fugate and Mrs. Elmer E. Veeder, East Las Vegas; Santa Fe, Mrs. Rupert F. Asplund, Miss Flora Conrad, Miss Aurora Lucero, Santa Fe; Sierra, Mrs. Charles Anderson, Kingston; Socorro, Mrs. J. G. Fitch, Socorro; Taos, Mrs. Alexander Gusdorf, Taos; Torrance, Mrs. Harry Fincke, Moriarty; Union, Mrs. John A. Pace, Clayton; Valencia, Mrs. Eduardo M. Otero, Los Lunas. This board after a public contest awarded to Mrs. Florence Bartlett of San Acacio, Socorro County, the prize for the best scenario of a New Mexico motion picture play.

The motion picture camera was recognized as the greatest aid in presenting vividly and convincingly New Mexico's attractions to the Exposition visitors. From it was evolved the New Mexico idea of a continuous daily performance at the State building. More than 30,000 feet of motion pictures were taken and more than 3,000 colored slides for stereopticon purposes were collected and will tell the world New Mexico's story graphically as it never has been told before.

Supplementing this, a complete mineral exhibit has been gathered. Artistic models have been made of notable landmarks. Provision has been made for a striking exhibit of gems, of native handicraft, of art. The State owes much to the public spiritedness of a number of private citizens and several business enterprises, who contributed in the way of material or cash for the exhibits. Several of the boards of county commissioners also took advantage of the opportunity to gain desirable publicity for their counties and appropriated sums of money so that their counties might be adequately represented. All this entailed much time, considerable traveling about and consistent planning and execution.

However, the board is well pleased with the ready response it met, the efficient assistance it was given, the success attained. It would be a pity if the commonwealth were not to make provision to preserve as a monument to the Spanish conquerors and Franciscan martyrs the noble edifice reared at San Diego, reproducing it in imperishable concrete as a place in which to keep protected from danger of fire and vandals the pictorial archives and other exhibits gathered with such care and thoroughness.

NEW MEXICO BOARD OF

EXPOSITION MANAGERS

AT PANAMA-CALIFORNIA-EXPOSITION, SAN DIEGO 1915

EXECUTIVE STAFF

NEW MEXICO BOARD OF EXPOSITION MANAGERS

NEW MEXICO BUILDING—PANAMA-CALIFORNIA EXPOSITION

BY A. E. KOEHLER

AN INSPIRATION, it has been called, the New Mexico Building at the Panama-California Exposition at San Diego. True it is, that among the magnificent structures at the Exposition Beautiful, there is not one more appropriate, more impressive, more significant.

The exterior of the New Mexico building is in greater part a replica of the Franciscan mission church on the Rock of Acoma, a fort and castle-like structure, almost severe but also magnificent in its simplicity and with many massive buttresses. In order to lighten the heaviness of the facade, the balustrade as it is found in the mission church of Cochiti was reproduced. The church has two characteristic bell towers and is connected with the convent by an enclosed arcade which serves as a publicity room. On the roof between the two campaniles there is a tea garden. The Patio is surrounded by an arched cloister and a fountain plays in the garden, recalling days of Old Castile.

In the church is located the main auditorium, which has been pointed out as the most unique moving picture theater in the world. It has been furnished in mission style and seats six hundred people. Here are shown 30,000 feet of motion picture films and 3,000 stereopticon views, all being explained by expert lecturers. New Mexico's resources, attractions, progress, are the theme of every talk and admission is free to all.

The publicity room has been made attractive with Indian rugs, comfortable chairs, tables and desks for representatives of commercial organizations and newspapers.

In the convent are the exhibit halls, with the mineral and other exhibits, the wonderful models of historic landmarks, Indian pueblos and mission churches and various displays, maps, charts, all complying with a standard of beauty and art, set from the very start for all exhibits. There are cozy rest rooms for women, with colored transparencies of New Mexico's most beautiful scenery in the windows, and various offices for exposition officials.

MEMBERS OF THE EXECUTIVE COMMITTEE

HISTORICAL SKETCH OF NEW MEXICO

BY PAUL A. F. WALTER

IT IS owing to the fact that New Mexico was the seat of a distinctive and advanced culture of the stone age that it is the most interesting region archaeologically in the United States. A comparatively numerous prehistoric population occupied the valleys of the San Juan, the Rio Grande, the Gila, and left ruins of thousands of habitations, ranging from single-chambered cave and cliff dwellings to communal dwellings of over a thousand rooms each, veritable fore runners of the modern apartment houses, some of them being four or five stories high and occupied in their day by hundreds of families. It the Pajarito Park, twenty miles west of Santa Fe, 20,000 such dwellings have been mapped and they are found not only in the valleys mentioned but also in the more remote hills and ranges as well as in the rugged country south and southeast of the Navajo reservation. In these cave, cliff and prehistoric communal houses, are found decorated pottery, stone utensils and weapons, fabrics, charred corn and beans, and other evidences of occupation by a people who had vanished when the first Europeans came, but who had a highly organized communal and religious life.

It is possible, in fact, it is likely, that the descendants of these prehistoric villages and structures are to be found among the Pueblo Indians, who had built towns, were cultivating the fields, practiced elaborate religious ceremonies, and had advanced in certain handicrafts when the first Spaniards set foot upon what is now New Mexico soil. Alvar Nunez Cabeza de Vaca and three companions were the first men of alien birth to penetrate as far as New Mexico. This was in 1536, only 44 years after the discovery of America by Columbus. Spanish explorers then came in rapid succession, Fr. Marcos de Niza in 1539, Francisco Vasquez de Coronado 1540, Francisco de Ibarra 1563, Fr. Augustin Rodriguez 1581, Antonio de Espejo 1582, Castaño de Sosa 1590, and Juan de Oñate in 1598. The diaries and reports of the explorers and the stories of these expeditions are narratives of thrilling episodes and of terrible hardships. There is nothing in the epics of ancient history, nor in the narratives of the great marches of modern times, that transscends in interest the accounts of the travels of Cabeza de Vaca or of the heroic march of Coronado.

These explorers found the Pueblo Indians living in towns in the Rio Grande Valley as far north as Taos, as far east as the Manzanos, as far west as the Seven Cities of Cibola which are supposed to have included Zuni and the Hopi villages, and as far south as Sonora.

There were clashes with the Pueblo Indians as early as in 1540, when Coronado's army defeated the Zunis at Hawaikuh. Coronado named the country New Granada. The first Indian insurrection occurred in the year following and was ruthlessly subdued. That year, 1541, Coronado started on his famous march in search of Quivira which took him as far north as eastern Kansas. In 1542, the first Franciscans were martyred by the Indians. But from that date on the work of Christianizing the Pueblos proceeded heroically under the preaching of the Franciscans. The first missions were established in 1581 by two Franciscan Fathers and a Franciscan Brother.

It was in 1568 that the name of New Mexico was first applied to the region which then covered part of the present State of New Mexico, included what is now Arizona, part of Colorado and extended as far north as Yellowstone Park and east to Louisiana.

In 1583 another Spanish explorer named the province New Andalusia. In 1590, Castaño de Sosa established among the Pueblo Indians the form of government to which they adhere to a certain extent to the present day.

It was Juan de Oñate, however, who made the first settlement in what is now New Mexico. His expedition from Mexico numbered 400, of whom 130 were colonists with their families, and at a point in the lower valley of the Rio Grande, south of San Marcial, he took possession of the country in the name of the King of Spain. He advanced up the Rio Grande as far north as San Juan and opposite that Indian pueblo established the first Spanish colony, in the summer of 1598, a decade before the English planted a colony at Jamestown and more than two decades before the landing of the Pilgrim Fathers at Plymouth Rock. The town established by Oñate was called San Gabriel.

In January of the following year occurred the memorable battle at Acoma. It lasted three days and the surviving Acomas surrendered to Vicente Zaldivar.

Upon his return from an expedition to the Gulf of California, Oñate founded the city of Santa Fe, the date being

1606, and since then the history of Santa Fe has been to a large extent the history of the Southwest and especially of New Mexico. Oñate, between 1560 and 1608, erected a government building known to this day as the Palace of the Governors and which is without doubt the most historic structure in the United States. It is today the home of the Museum of New Mexico, the School of American Archaeology and the Historical Society of the State, a shrine for thousands of tourists and pilgrims each year.

The history of New Mexico for the next fifty years is one of internecine strife between civil and ecclesiastical authorities, of Indian revolts, of frequent changes in governors until in 1680, a general insurrection of the Pueblo Indians resulted in the expulsion of the Spaniards from New Mexico.

The story of the Pueblo conspiracy and revolt is a most remarkable one. Juan Popé, an Indian from San Juan living in Taos, was the leader, and he formed an alliance of the Indian pueblos. On August 10, 1680, the Indians rose simultaneously, killing the Spanish priests, soldiers and colonists, except the few who escaped to Santa Fe.

Converging from all sides, the Pueblos by the thousands attacked the Capital. The little garrison of 150 repulsed them but could not lift the siege. On August 16, after a terrific battle, the thousand Spaniards, including women and children, retreated into the Palace of the Governors, which was also a castle and a fort, where for a week they were huddled together. On August 23, the Indians cut off the water supply, and Governor Otermin, in his extremity, made a sally which resulted in a stinging defeat of the Indians who left 300 dead on the battleground. The Spaniards with scant provisions set out afoot for El Paso, arriving there on December 20. It was a heart-breaking journey over almost trackless wilds, with men, women and children scantily clothed, in inclement weather, with insufficient provisions and continually harrassed by Indians. About 150 women and girls were taken captives by the Pueblos and many of them were murdered while the survivors were compelled to marry their captors. History has scarcely a parallel to this memorable march and some day it will serve for the theme of a great New Mexico epic.

Efforts to reconquer New Mexico from the Pueblo Indians failed for twelve years. Otermin, in 1681, penetrated as far as Cochiti; Gironza Petriz de Cruzate led seventeen expeditions into New Mexico, between 1683 and 1687. In the last-named year, Pedro Reñeros de Posada sacked the pueblo of Santa Ana. In August, 1689, Cruzate defeated the Indians at Zia, slaying 600, but it was not until 1692 that Don Diego de Vargas Zapata Lujan Ponce de Leon achieved the permanent reconquest of New Mexico, and took possession of Santa Fe. The Indians, though at first making a show of resistance, submitted without giving battle. DeVargas made a peaceful march of conquest to the various pueblos and was met with demonstrations of joy, after which he returned to El Paso. There he gathered 800 persons, consisting of troops, priests, colonists, women and children and with them set out on October 13, 1693, to take permanent possession of the reconquered province. This march was as memorable as the retreat of Otermin, thirteen years before and on it, thirty women and children perished of hunger.

When DeVargas reached Santo Domingo he was informed that the Tanos Indians, aided by the Teguas, would resist further progress. December 15, DeVargas, nevertheless, resumed his march toward Santa Fe. The expedition camped at the entrance to the city, DeVargas with a small retinue proceeding into the city, planting a large cross in the Plaza in front of the Palace and taking formal possession. Among the Spaniards camped outside of the town, the cold, heavy snows and smallpox were demanding heavy tribute. The Indians gave evidence of restlessness and a conspiracy was discovered among them to massacre the Spaniards.

Reinforcements reached DeVargas as well as the Indians and on December 29 a pitched battle occurred in the foothills near Santa Fe. The Pecos Indians aided DeVargas and for a time stood the brunt of the attack. Finally, the Spanish cavalry routed a horde of mounted Teguas and Picuris and turned the tide of battle in favor of the Spaniards although nightfall left the battle still undecided. At daybreak the Spaniards and their allies assaulted the city, easily putting the rebels to flight. Seventy of the traitorous Indians were shot in the Plaza and four hundred women and children of the Pueblos were made captives and distributed among the Spanish families as servants.

DeVargas, who was by far the greatest figure in New Mexico during the Spanish occupation, redistributed the lands and completed the conquest of the Pueblos, scourging also the Apaches and Comanches. On April 16, 1694, he defeated the rebels at Cieneguilla, fifteen miles southwest of Santa Fe, killing 25, capturing 300 women and children, 1,000 sheep and 70 horses. The final great battle took place on the Mesa Prieta near San Ildefonso, twenty miles northwest of Santa Fe, in May, 1694, and there the Pueblo confederacy was finally crushed, although for a short time, in June, 1696, the rebellion flared up again and 20 soldiers and seven priests were killed before

DeVargas could wreck vengeance. One month later he was succeeded as governor by Don Pedro Rodriguez de Cubero and was thrown into prison in the Old Palace for three years, to be vindicated in 1700 and restored to the governorship.

Cubero took the first official census, reporting 1,500 Spaniards in the province, many of them on the point of starvation. In 1698, a French expedition from Louisiana invaded New Mexico to punish the Navajos for a raid on a French colony, and killed many of them. In 1699, Cubero founded Laguna and Cubero, populating them with scattered Queres Indians.

DeVargas died in 1704 and was buried in Santa Fe. His successor, Francisco Cuervo y Valdez, founded Albuquerque in 1706. José Chacon Medina Salazar was the next governor who routed the Navajos and was removed in 1712, upon charges preferred by ecclesiastics.

During the succeeding administration, that of Juan Ignacio Flores Mogollon, a formidable rebellion by the confederated Indian tribes was put down and victories were won in the Ute country as well as over the Acomas and the Navajos. But Mogollon, too, had to yield to ecclesiastical influence and resigned. He was not permitted to go free and was imprisoned in the Old Palace, as had been DeVargas.

Felix Martinez, who succeeded Mogollon as governor defacto, defeated the Moquis in two battles. During his absence, the Utes partially destroyed Taos and were defeated upon his return in a bloody battle near Conejos, now in Colorado. Fifty Spanish women and children and many Indian women and girls of the Taos pueblos, who had been taken captives by the Utes, were rescued. Martinez was removed by force from his office and tried at Mexico City.

Governor succeeded governor in rapid succession. In 1721, the Franciscans, upon a decree from the King of Spain, established the first free public schools in all the Spanish towns and the Indian pueblos. In 1743, the first French colonists settled in New Mexico.

It was during the administration of Tomas Tellez that a stinging defeat was inflicted upon the Comanches and that silver was discovered in what is now Colorado.

In 1767, Santa Fe was almost totally destroyed by a flood that caused $200,000 worth of damage and the loss of 50 lives. In 1776, the year of the Declaration of Independence, an expedition under Escalante discovered the great Salt Lake, now in Utah. In the following year, New Mexico, Durango, Sanora and Chihuahua were consolidated into one province. In 1779, near where Hutchinson, Kansas, now stands, Governor Juan Bautista de Anza, in one of the bloodiest battles of New Mexico history, defeated the Comanche chief Cuerno Verde.

During the term of Fernando Chacon, in 1804, the first merchants from the United States arrived. In 1805, Col. Zebulon Pike and a military escort were taken captives by the Spaniards near Alamosa, now in Colorado. They wene sent to Chihuahua, tried and acquitted.

In 1810, New Mexico elected and sent to the Cortez at Madrid, Spain, a representative, Pedro Bautista Pino, who served for ten years when the independence of Mexico also separated New Mexico from the dominion of the King of Spain.

In 1812, mercantile traffic was established over the Santa Fe Trail, between the Missouri and Santa Fe. The first caravan was seized and its leader, McKnight, arrested at Santa Fe and sent to Chihuahua to be tried as a spy.

In 1821, after 223 years of Spanish rule, New Mexico fell under the rule of Iturbide, emperor of Mexico, who sent two governors, Francisco Xavier and Antonio Viscarra.

Mexico became a republic in 1824, and Bartolome Baca was the first governor under the new order of things, New Mexico being established a territory by a decree of the congress at Mexico City.

After 1822, Ceran St. Vrain, David Waldo, Kit Carson, Charles and William Bent and other pathfinders, trappers and frontiersmen came to New Mexico. In 1827 the placer gold deposits in southern Santa Fe County were discovered. A provincial deputation was organized at Santa Fe in 1822 and passed the first public school law. The first newspaper was established about 1835. That year New Mexico was made a department of the Republic of Mexico.

In 1837, northern New Mexico rebelled again Governor Albino Perez because of a tax law he had signed. Perez and other public officials were assassinated near the capital and the rebels occupied Santa Fe. The loyal citizens organized at Tome and under the leadership of Manuel Armijo defeated the rebels, and four leaders of the latter were shot at Santa Fe on January 24, 1838.

Texas, after separating from Mexico, set up a claim to New Mexico and a Texas expedition invaded the department near Fort Sumner in 1841, penetrating as far as Tucumcari, where General Armijo took them prisoners without firing a shot. Other raids by the Texans followed but were all defeated.

A peace delegation of the Utes attacked Governor Mariano Martinez de Lejanza in the Old Palace at Santa Fe, and would have murdered him had not the governor's wife

rushed into the melee with an uplifted chair and held back the excited Indian chiefs until soldiers came to her rescue. In the fight that followed many of the Utes were killed.

In 1846, during the war with Mexico, General Stephen Kearny with 300 regulars, 700 volunteers and 900 cavalry under Col. Doniphan, followed by 1,800 men under Col. Sterling Price, invaded New Mexico, annexing the department to the United States. Kearny entered Santa Fe on August 18, 1846, Governor Armijo disbanding his troops at Apache Pass and fleeing without striking a blow.

Doniphan marched southward and defeated the Mexican army at Brazito. Gen. Kearny, with Kit Carson as guide, proceeded to California with a large portion of the American army of invasion. Doniphan continued to Chihuahua. An insurrection broke out among the Mexicans still loyal to the government of Mexico. Governor Charles Bent, who had been appointed by General Kearny, was assassinated at Taos on January 14, 1847, together with a number of Americans.

Col. Sterling Price with 300 men and a company of Spanish-American volunteers under Captain Ceran St. Vrain defeated the rebels at Santa Cruz and at Embudo. At Taos, a stubborn battle was fought in which 150 of the rebels were killed or wounded, while the Americans lost in killed one officer and six soldiers and in wounded 46 men.

On December 6, 1847, and before the formal cession of New Mexico by the treaty of Guadalupe Hidalgo, signed February 2, 1848, the first legislature met in Santa Fe. A convention, the following year, asked for the establishment of a territorial form of government in place of the military rule. In May, 1850, after a bitter factional fight, a state government was organized, a constitution adopted, state officials and a congressman as well as a state legislature elected which in turn chose two United States senators, Francis Cunningham and Richard Weightman. But this effort to establish a state government at that time was not sanctioned by congress, and New Mexico and Utah were admitted as territories and California as a state on September 9, 1850.

In 1853, Governor William Carr Lane provisionally annexed the Mesilla Valley, until then claimed by the State of Chihuahua. The annexation was ratified by the Gadsden treaty signed with Mexico on December 30, 1853, the United States paying $10,000,000 for the strip taken.

During the Civil War, New Mexico was in the main loyal to the Union, in fact, in proportion to population, furnished more volunteers than any other state or territory. Several battles were fought on American soil, the most notable at Glorieta, twenty miles east of Santa Fe, at Peralta and at Valverde in the southern part of the State. The Confederate advance unchecked at Valverde enabled them to hold Santa Fe and the country south until the battle of Glorieta in 1862 re-established the Union officials in power. On August 7, 1862, the California Column, after a march now famous in history, reached the Rio Grande and all of the military posts in Arizona, southern New Mexico and northwestern Texas were re-occupied by this column. In 1868 came the final submission of the Navajos but it was not until 1886 that the Apaches were finally conquered, Geronoimo being captured, which put an end to Indian raids in New Mexico.

In 1871, another constitutional convention was held at Santa Fe and a state constitution formulated but the movement for statehood failed again. From 1878 to 1881, General Lew Wallace was governor of New Mexico and during his term wrote in the Old Palace a portion of his famous book Ben Hur. It was during his term that the Atchison, Topeka & Santa Fe railroad entered New Mexico.

In 1889, during the administration of Governor L. Bradford Prince, another constitutional convention met at Santa Fe but the constitution failed of adoption.

On June 20, 1910, Congress passed the Enabling Act, admitting New Mexico to statehood. A constitutional convention met at Santa Fe on October 3, 1910, and drafted a constitution which was adopted by popular vote in January, 1911. It was August 29 before President Taft issued his proclamation, after a memorable controversy in Congress over the constitution adopted by the people and it was not until January 6, 1912, that the president signed the proclamation formally admitting New Mexico into the sisterhood of states. On January 15, William C. McDonald was inaugurated governor and on March 27, the legislature elected Thomas B. Catron and Albert B. Fall to represent the State in the Senate.

New Mexico has made comparatively rapid growth and progress since the St. Louis Exposition in 1904, at which it had a notable exhibit. The 1910 census showed an increase of population of 67.8 per cent in ten years, exceeded by only five states of the Union. The increase in the number of farms in that decade was 189.8 per cent, of improved lands in farms 348.9 per cent, value of farm property 196.8 per cent, in farm buildings 265.3 per cent, in farm land values 470.4 per cent. The amount of capital in manufacturing increased more than 200 per cent, while the mineral production has increased more than a hundred per cent the past two years.

"THE LAND OF HEART'S DESIRE"

BY PAUL A. F. WALTER

MIDWAY between the Pacific Coast and the Gulf of Mexico, New Mexico, at the gateway to the Republic of Mexico, occupies a commanding commercial and industrial position. From time immemorial, it has been on the great highways of commerce that spanned the Continent in all directions.

Covering as it does, 12,000 square miles more than the Kingdom of Italy, and varying in altitude from 3,000 to 13,000 feet, in the same latitude as Southern California, Georgia, Southern Spain and Greece, it offers sufficient range in climatic conditions, in resources and in opportunities, to fulfill the hopes of its early conquerors who were in search of a new Eldorado. At present, with only three inhabitants to the square mile as against 300 for Italy and 15 for California, it may be said to be still in the first stages of development, although in point of settlement by white people, it is among the oldest of American commonwealths, and as to occupation by sedentary town builders and cultivators of the soil, its prehistoric monuments show it to have been a land of fertility thousands of years ago.

Climatically, New Mexico is especially favored. Not in Florida, but in New Mexico, the Spaniards found the Fountain of Youth. Thousands can attest that its climate has restored them to health and they have truly named it "The Land of Sunshine." Climate is destiny, for climate prescribes the conditions under which people must live, must pursue agriculture and other industries and even decides the trend of art and literature. Civilization was born in the arid valleys of the Nile and the Euphrates and the countries that practiced irrigation were beehives of human industry and progress at the very dawn of history.

AGRICULTURE

New Mexico is first of all an agricultural state. Of 121,497 persons in gainful occupations in the last federal census year, 66,887 were employed on farms. It is significant, that the value of products of farm and range is twice that of mining and manufacturing taken together.

The corn crop harvested in 1914, was 2,690,000 bushels; the wheat crop, 1,790,000 bushels; oats, 1,940,000 bushels; potatoes, 1,100,000 bushels; hay, 510,000

THE SCENIC BEAUTY OF NEW MEXICO IS UNRIVALED

tons; apples, 888,000 bushels; barley, 100,000 bushels; beans, 100,000 bushels; sweet potatoes, 20,000 bushels; broom corn, 750,000 pounds; cotton, 2,000 bales; kaffir corn, 1,000,000 bushels; peanuts, 2,000 bushels; dry peas, 50,000 bushels; peaches, 40,000 bushels; pears, 30,000 bushels; plums and prunes, 25,000 bushels; cherries, 10,000 bushels; apricots, 4,000 bushels; grapes, 750,000 pounds; strawberries, 50,000 quarts; other berries, 60,000 quarts; nuts, 275,000 pounds. The total value of the crops in 1914 exceeded $20,000,000, an increase of 68 per cent. in five years, thus giving some evidence of the rapid development of the resources of the State and at the same time a glimpse of the possibilities that the future holds in store.

GREAT AGRICULTURAL VALLEYS

The valleys of the large rivers and their tributaries, naturally, were first occupied and cultivated. The Rio Grande bisects the State from north to south, and along it and its tributaries were the first irrigation systems and cultivated fields. The longest tributary of the Rio Grande is the Pecos, and it, too, furnishes water for irrigation of tens of thousands of fertile acres.

Another large basin is that of the San Juan in the northwestern part of the State. Smaller, only by comparison, are the valleys of the Arkansas drainage area, of the Mimbres, Gila and lesser streams. The lower Pecos Valley alone shipped 6,000 carloads of alfalfa, 1,000 carloads of apples, 400 cars of cantaloupes, 100 cars of tomatoes, 50 cars of canned tomatoes, 20 cars of cotton, 22 cars of onions, 15 cars of honey, 1,000 cars of cattle, 2,500,000 pounds of wool this year.

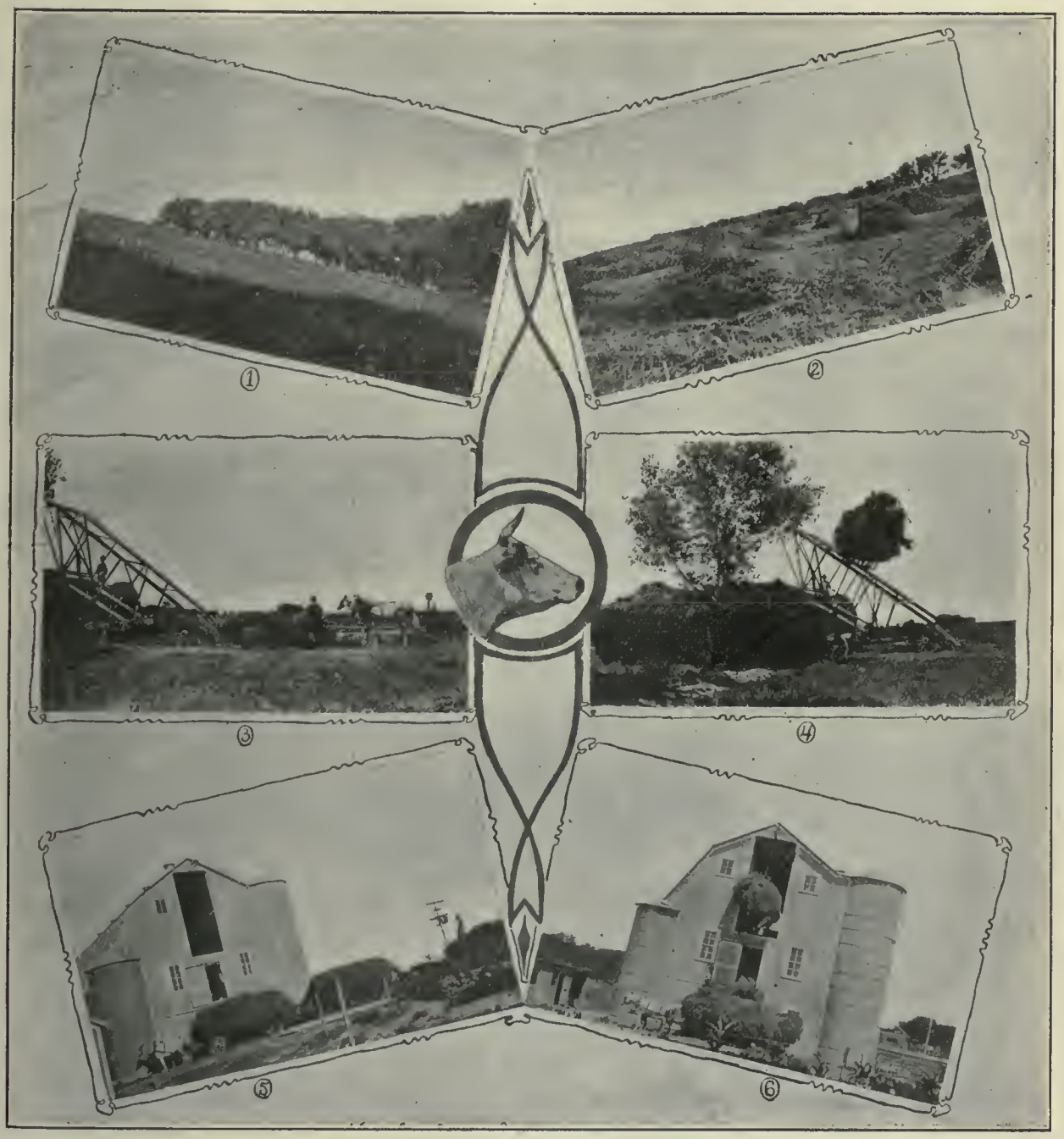
Artesian and pumping wells supplement the water supply from running streams. The artesian belt in the lower Pecos Valley is a wonder and a delight to every visitor and it has transformed a portion of the forbidding Staked Plains into a Paradise of Verdure. Here, alfalfa is king, and orchards make fortunes. A net profit of $10,000 a year from a twenty-acre apple orchard, has been recorded, and the yield from small parcels of land, intensely cultivated, seems almost incredible.

Pumping wells have reclaimed thousands of acres in the Portales and Mimbres Valleys and indicate possibilities that had been only barely surmised ten years ago. The net profit on an acre of cantaloupes in the Portales Valley in 1914, averaged $57.58. There sweet potatoes yield 200 to 300 bushels per acre. Dairying is proving a money-making proposition and 1,500 acres in alfalfa irrigated from wells attest to possibilities in raising forage crops.

IRRIGATION

But the mainstay of the irrigation farmers is the irrigation project, big or small, that impounds the waters of the flood season for the day that they are needed by the crops.

CASTLE ROCK IN THE CIMARRON CANYON



ALFALFA FROM THE FIELD TO THE SILO IN THE PECOS VALLEY
1. Alfalfa Field. 2. Cut Alfalfa. 3. Ready to Stack. 4. Stacking. 5. At the Silo. 6. Storing in the Silo.

The largest irrigation system in the State is that which supplies the Mesilla Valley with water. It is a federal Reclamation Project on which $8,000,000 are being expended and which supplies water to as many acres as were irrigated in the entire State in the year 1900. Next in size is the Carlsbad Reclamation Project in the lower Pecos Valley, also in the hands of the Government. Both of these valleys, being the lowest in altitude in New Mexico and also the most southern, are marvelously productive, for the soil is deep and fertile and the water supply permanent and assured.

Private enterprise has built large irrigation systems in Colfax County, and so-called community systems supply the irrigationists in other counties. Careful stream measurements indicate that New Mexico has sufficient running water to irrigate 2,350,00 acres. Less than one-third of that amount is under cultivation at present, thus demonstrating that here is a promising field for further development. The land is there, the water can be stored, the soil is fertile and the climate favorable. All that is needed is capital and enterprise to triple the area of irrigation farms and the agricultural production. The College of Agriculture and Mechanic Arts, the State Engineer's Department, each and every community to be benefited, are all eager to assist in developing and utilizing this latent resource.

Under individual and partnership irrigation enterprises, 200,000 acres are under cultivation; under commercial enterprises, 50,000 acres; under co-operative enterprises, 300,000 acres; under the U. S. Reclamation Service, 150,000 acres. There are almost a thousand artesian wells supplying 50,000 acres, 500 pumping wells supplying nearly 10,000 acres. A thousand storage reservoirs and ten thousand miles of canals and ditches pour their waters upon the fertile lands during the growing season.

The United States Census Bureau gives the average cost of construction in New Mexico of irrigation enterprises at $14.19 per acre and the cost of maintenance at $1.36 per acre per year. The Census Bureau also has found that irrigation increases the yield of corn 139 per cent. over non-irrigated areas; oats, 34 per cent.; wheat, 168 per cent.; barley, 98 per cent.; dry edible beans, 191 per cent.; dry peas, 50 per cent.; timothy, 44 per cent.; alfalfa, 168 per cent.; other forage plants, 77 per cent.; wild grasses, 122 per cent.; coarse forage, 186 per cent.; potatoes, 79 per cent.

Dona Ana County leads in the acreage irrigated for it is the main beneficiary of the Elephant Butte Project. The Mesilla Valley, which is the section reclaimed, resembles in its productiveness the irrigated valleys of Southern California. Chaves County, including part of the lower Pecos Valley, is second in its irrigated area, more than 60,000 acres being under irrigation. Eddy County is a close third with more than 50,000 acres. It, too, has a federal reclamation project like Dona Ana County and

STORAGE RESERVOIRS ADD MUCH TO AGRICULTURAL PROSPERITY

artesian wells like Chaves. Then come Rio Arriba and Taos Counties with close to 50,000 acres each. Valencia and Colfax Counties have almost 40,000 acres each. San Juan County has more than 30,000 acres but water enough for 300,000 acres. Santa Fe, Sandoval, Socorro, Sierra, which is in part under the Elephant Butte Project; Mora, San Miguel, Bernalillo and Grant, have from 20,000 to 25,000 acres under irrigation. There are only two counties among the tweny-six, without any irrigation system, Curry and Torrance, and these have small gardens which are irrigated from wells.

Wherever water touches the soil in New Mexico there is growth and promise of prosperity, and with intensive cultivation, the Sunshine State will become the granary of the Southwest.

DRY FARMING

Of late years, more than a million acres, or almost twice the area under irrigation, have been placed in cultivation by so-called dry-farming methods. Entire new counties and scores of towns and villages have been created in New Mexico the past decade and a half, by dry farmers. The success of dry farming has depended much upon the selection of drouth resisting crops, the application of scientific methods, supplementary dairying, poultry raising and silos. There have been lamentable discouragement and failure occasionally, due to inexperience or lack of energy or sufficient capital. Further experimentation is necessary to make certain the growing of crops in sections with less rainfall than fifteen inches a year.

There are portions of New Mexico, especially in the higher mountain valleys, where the rainfall is heavy enough for what is called temporal farming, or the raising of crops without irrigation or dry farming methods. In the Moreno Valley, for instance, 15,000 pounds of potatoes per acre are produced on temporal farms. In the Sacramentos, on the upper Pecos, on Johnson's Mesa and in other sections, thousands of acres are in temporal farms on which, despite short seasons, satisfactory harvests are garnered.

FREE LAND STILL ABUNDANT

Less than 2,000,000 acres out of the 78,000,000 acres in the State are under cultivation. Although there are almost 10,000,000 acres in forest reserves, 15,000,000 acres of state lands, huge areas in private land grants and Indian reservations, there remain subject to entry under the public land laws of the United States 30,000,000 acres, an area exceeding that of the State of New York. Much of it is subject to the 320-acre Homestead Act and will come under the proposed 640-acre Homestead Act, which assures the homesteader a living even in the newest of dry farming sections, by giving him sufficient pasture for dairy and poultry purposes. There are five federal land offices in the State at which entries may be made and having jurisdiction over a definitely defined portion of the State. In the Las Cruces district, almost 12,000,000 acres are still subject to entry; in the Santa Fe land district almost 8,000,000 acres; in the Roswell district, 7,500,000 acres; Fort Sumner district, 2,000,000 acres, and the Clayton district, 750,000 acres.

The state lands covering almost 15,000,000 acres, are open to lease and in part to purchase at competitive pub-

ONE OF NEW MEXICO'S MANY BEAUTIFUL WATER SUPPLY LAKES

lic sales. There exist colonization projects under which irrigated lands may be purchased on long-time payments. Under the U. S. Reclamation projects, a long time is granted to pay off the cost of water rights. Under community systems, the landholder pays his pro rata either in money or in labor for maintaining the headgates and ditches. Under irrigation, the farmer regulates his showers to suit his crops; the sunshine which is so constant in New Mexico helps him to produce the maximum that the land can be made to yield, makes certain the garnering of the crops in their season, to a large extent eliminating the elements of uncertainty. It is the ideal method of farming. It makes possible the community life, for under irrigation the small farm unit is the most profitable.

ROUND-UP TIME ON THE RANGE
1. The Round-up. 2. In the Branding Pen. 3. Chuck Wagon and Cowboys at Mess

LIVESTOCK

Next to farming, the raising of livestock is the principal industry of the Sunshine State. For several decades past, New Mexico has been one of the leading wool producers of the Union. Conditions are very favorable for sheep raising and the number of sheep in the State has been as high as 6,000,000, though at present less than 4,000,000, as the grading of flocks has a tendency to decrease them numerically. The wool shipments exceed 20,000,000 pounds annually, yielding a return of $3,000,000. The vast extent of the public range, the comparatively open winters, the protection of the range and its equitable apportionment by the forest service, all conduce to make the business a profitable one. To it will be added sooner or later, the feeding of livestock for market. It is along this line, that capital and enterprise would find profitable openings immediately, for New Mexico has not only the public range and large areas of state lands which can be leased for a few cents an acre, but also raises the fodder and has the farms on which the fattening of muttons and beeves should be exceedingly profitable.

With a million cattle on its ranges, New Mexico is among the heaviest cattle growing states. Here the typical cowboy of western song and story is still swinging his lariat. To the larger cattle outfits have been added smaller concerns and more than one cowboy, beginning with an investment in a few head of stock, has prospered and is now a cattle king.

More than half a million goats browse on the underbrush of New Mexico foothills, delectable range for the sure-footed and hardy animals. In Sierra and Grant Counties especially, the raising of goats has been very successful, but in all of the other mountainous sections of the State also, particularly in Sandoval, Socorro, Santa Fe, Lincoln, McKinley, Mora, Otero, Rio Arriba and even in Chaves and Eddy Counties, tens of thousands of goats are to be found on the ranges.

IRRIGATION IN THE MIMBRES VALLEY

Of horses, New Mexico has a quarter million and the State is apt to become a heavy producer of horseflesh for army and commercial purposes. Of hogs there are more than 50,000, and hog raising on a large scale has proved quite profitable. Mules number more than 20,000, and the burro has been a transportation standby for centuries. Dairying and poultry raising are growing to be important specialized occupations and will add materially to the income of farm and range.

MARVELOUS GROWTH

In 1890, New Mexico had 4,458 farms of more than three acres each; ten years later it had 11,834 such farms; in 1910 it had 35,678 farms, according to the census bureau, or an increase of 750 per cent. in twenty years.

SULPHUR CAVE AT JEMEZ SPRINGS

In 1890, the value of farm property was $33,543,141; in 1900 it was $53,737,824, and in 1910 it had climbed to $159,447,990. Domestic animals were valued at $25,111,202 in 1890, at $31,727,400 in 1900, and

MORA COUNTY SHEEP

$43,494,679 in 1910, while today, the value exceeds $50,000,000. The value of farm buildings increased

from $3,565,105 in 1900, to $13,024,502 in 1910; farm implements and machinery from $291,140 in 1890, to $1,151,610 in 1900, to $4,122,312 in 1910, and to exceed $5,000,000 in 1914. The area included in farms was 782,882 acres in 1890, in 1900 it was 5,130,878 acres; in 1910 it had increased to 11,270,021 acres, while in 1914 it was 15,000,000 acres. Public land entries have fluctuated between 12,000 and 20,000 annually the past decade and a half. It is readily understood therefore that now is the time to take advantage of growth and development of the State by filing on a homestead or purchasing lands. In another decade, the lands adapted to agriculture will all be in private ownership.

HOME OF CHARLES SPRINGER IN COLFAX COUNTY

It must be emphasized, however, that it requires some capital to create a profitable farm even though the land may be had for a nominal filing fee. The prospective settler should have resources enough to tide him over for at least a year, to erect comfortable buildings, to stock the ranch with domestic animals, to buy farming implements and seed. He should have money for the sinking of a well and the erection of a pumping plant in those sections where irrigation is from wells or in the dry farming counties. In the irrigation districts he should have the means to acquire water rights and to divert the water upon his land. But given a moderate capital, energy and intelligence, there is no part of the country at this day where the returns will be so satisfactory and the values increase so steadily as in New Mexico.

MINING

Gold was mined in New Mexico long before the famous gold discovery in California in 1848. The State produces a million dollars worth of gold annually and has in its time added something like $100,000,000 to the nation's stock of that metal. Silver is produced to the extent of $2,000,000 worth annually. Of copper, New Mexico produced last year 54,000,000 pounds placing it high in rank among the states of the Union. Zinc production last year amounted to 21,566,637 pounds; lead, 4,694,018.

As a coal producer, New Mexico has been steadily increasing its output, the production last year having been 3,634,217 tons of coal and 71,135 tons of coke. Five thousand men are employed in and about the coal mines. But these figures give no adequate idea of the immensity of the coal deposits in New Mexico. These amount to billions of tons in San Juan, Colfax and McKinley Counties. In Santa Fe, Rio Arriba, Socorro, Lincoln Counties, the coal veins that have been prospected or are being worked, are also extensive. In fact, the coal area of New Mexico exceeds that of France and Belgium combined, or that of Germany. San Juan County has coal veins 40 feet thick. The supply available runs into billions of tons. What that means toward the development of industry and commerce, can hardly be estimated in its vastness.

There is not a county in New Mexico without its mineral indications. From gold placers to marble quarries, from iron deposits to coal veins, from mountains of lime to beds

of clay, from inexhaustible copper resources to mines of precious turquoise, the world hardly yet realizes the extent of the Sunshine State's mineral wealth. Its surface has been scarcely scratched and the prospector finds a virgin field, the investor rich promise of returns. Most important, however, will be the utilization eventually, of the raw materials and of the fuel for smelters, rolling mills and factories.

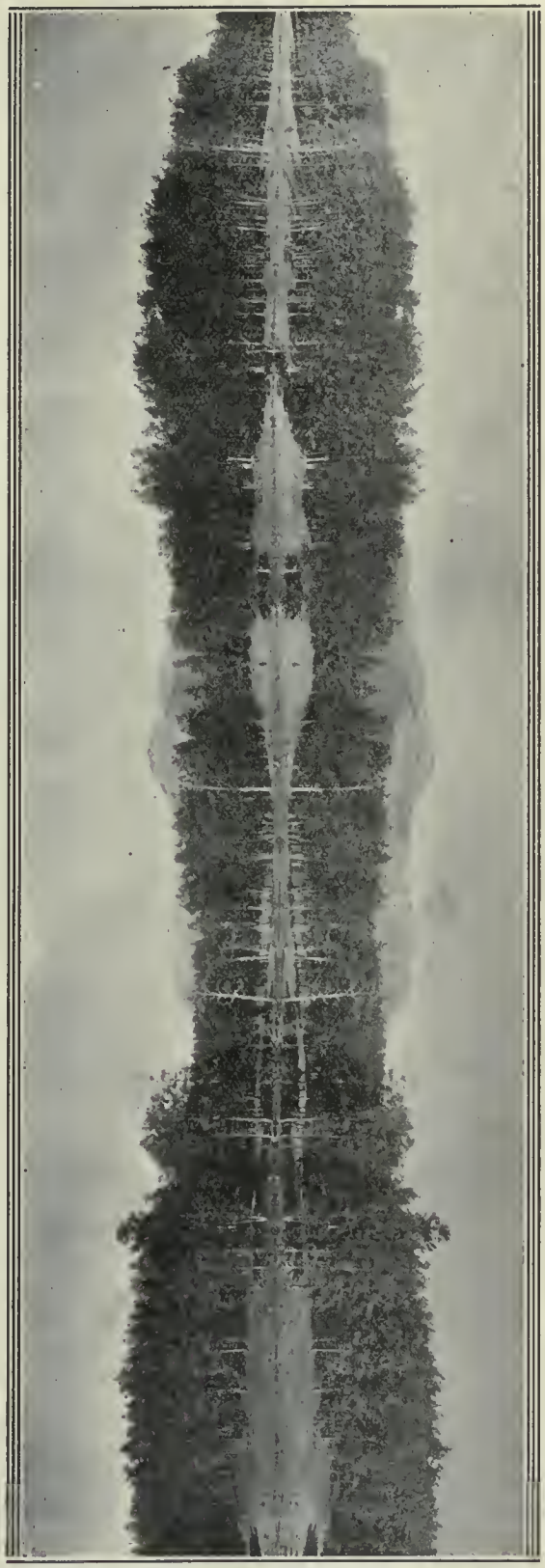
MANUFACTURES.

It is this limitless wealth in raw material that destines New Mexico to become another Pennsylvania. There are in the State 500,000 horsepower of unutilized water power; it has the material for making cement, glass, chinaware. Its supply of gypsum and lime is almost limitless. It has the ores and fluxing materials for smelters, iron and steel mills. It has the hide for tanneries, shoe and glove factories, the wool for woolen mills, raises sugar beets of the highest percentage of purity and sugar content for beet sugar mills, the cotton for cotton gins and mills; the cheap fuel, the transportation facilities, the proximity to great, undeveloped markets. Only a small beginning has been made in manufacturing and therefore competitive pressure is absent, labor conditions are of the most advantageous. Municipalities are ready to grant subsidies and the state tax exemptions to foster industry. Outside of railroad shops, a few cement and plaster mills, several fruit canneries, manufactures of silver filigree on a small scale, the making of pottery and weaving of blankets by the Indians, and a number of ore reduction plants, there is a dearth of manufacturing industries. Though the State's ore production exceeds $10,000,000 annually, it has not a single smelter or steel mill.

It seems an obvious economical waste to ship raw material 2,000 miles to the Atlantic seaboard and then to reship it to the Rocky Mountains in manufactured form, or to pass it through New Mexico on its way to the Pacific, or the Orient, when it might just as well be manufactured in New Mexico and the freight charges of 4,000 miles saved, for New Mexico has the raw material, the fuel, the water power, the climate, the available labor and skill, and offers special inducements to manufacture those things for which a ready market is found within the State or in tributary trade territory. The value of manufactured products turned out in New Mexico annually is $10,000,000, and 5,000 persons are given employment.

LUMBERING.

New Mexico has 9,000,000 acres in national forests, 5,000,000 acres more in private timber tracts or in timber on state lands. In other words, an area twice that of the



MIRROR LAKE IN COLFAX COUNTY

State of Maryland is covered with timber. This has resulted in extensive lumbering operations. Under the forest regulations of the government, the industry is now placed upon a self-perpetuating basis. Large timber areas are still on the market and the government is eager to let contracts on advantageous terms for the cutting of billions of feet of matured timber.

COMMERCE.

From ancient times, New Mexico has been on the high roads of commerce across the Continent. The oldest trail in America, that from Vera Cruz, terminated at Santa Fe. So did the famous Santa Fe Trail, and at Santa Fe started the first trail to California. The amount of traffic over those early trails was enormous. Since 1880, the railroads have supplanted the caravans, and the automobile the ox team. But New Mexico is still on the great transcontinental traffic arteries, the Santa Fe, the Southern Pacific and the Rock Island Systems. In addition, it has quite a complete system of local railroads and feeders, the total mileage exceeding 3,00C Of course, in a state so vast in extent, there is ample room for further transportation development.

GOOD ROADS.

New Mexico is building good roads as rapidly as its financial resources permit. The past year a million dollars was expended by the State, counties and the Federal Government. As a rule, when the weather is fair—and the climate of New Mexico is such that nine of every ten days are fair—the thousands of miles of wagon road are in splendid condition for automobile travel. The State, however, is building roads in accordance with modern engineering, roads that are links in the main highways from the Atlantic to the Pacific and from Canada to Mexico. El Camino Real, the Royal Highway, bisects the State from south to north and is part of the Old Trails Highway. The Southern Trails Highway crosses the State as do the Panhandle and Gran Quivera highways. Thus the motorist from the east and the north is offered the choice of roads to the west and the south, each of which has attractions of its own and all of which are traveled the year around, because of the open winters of this latitude.

HOME OF GEORGE H. WEBSTER, JR., NEAR CIMARRON

FOR THE TOURIST.

New Mexico is both a winter and summer resort. It is in addition a land of a thousand wonders,—scenic, historical, archaeological. No other state has such tourist attractions. Its mission churches are 150-years older than those of California, and many of them are shrines for worship to the present day. Cave and cliff dwellings number tens of thousands and are vestiges of a culture thousands of years old. Indian pueblos and hogans are as quaint and mysterious as any of the ancient habitations of the Orient. Indian dances, such as may be witnessed in New Mexico, and church ceremonials, are more interesting and as full of poetic and symbolic meaning as any of the Greek mysteries. New Mexico has been the meeting place of successive cultures, of many races and tribes and each

has left its imprint, each has its survivors, making the land a treasure trove for archaeologist and ethnologist. Nowhere else in the United States can be found so great a variety of unique sights, glimpses of Old Spain and of scenes that hark back to prehistoric times. It is Egypt and Babylonia, Spain and Mexico, Colorado and California, Switzerland and the Orient, combined. Stupendous mountain masses, the loftiest peaks more than 13,000 feet high, are accessible by easy trails to their very pinnacles; shadowy canyons, flower spangled mountain meadows, picturesque waterfalls, whispering pine forests, babbling trout streams, vast game preserves, the all-pervading sunshine, the mystery of the desert, the invigorating atmosphere of the higher altitudes, the unique aspects of irrigation, the smile of orchards and alfalfa fields, the unspoiled hospitality of flat-roofed adobe homes in which the mellifluous Spanish is spoken, are all spanned by perfect turquoise skies that rival those of Naples and of Andalusia. Yea, verily, here is a land of delight, of myriad charms, of the heart's desire, well worth a visit and a stay.

"TOOTH OF TIME" ON URACCA RANCH

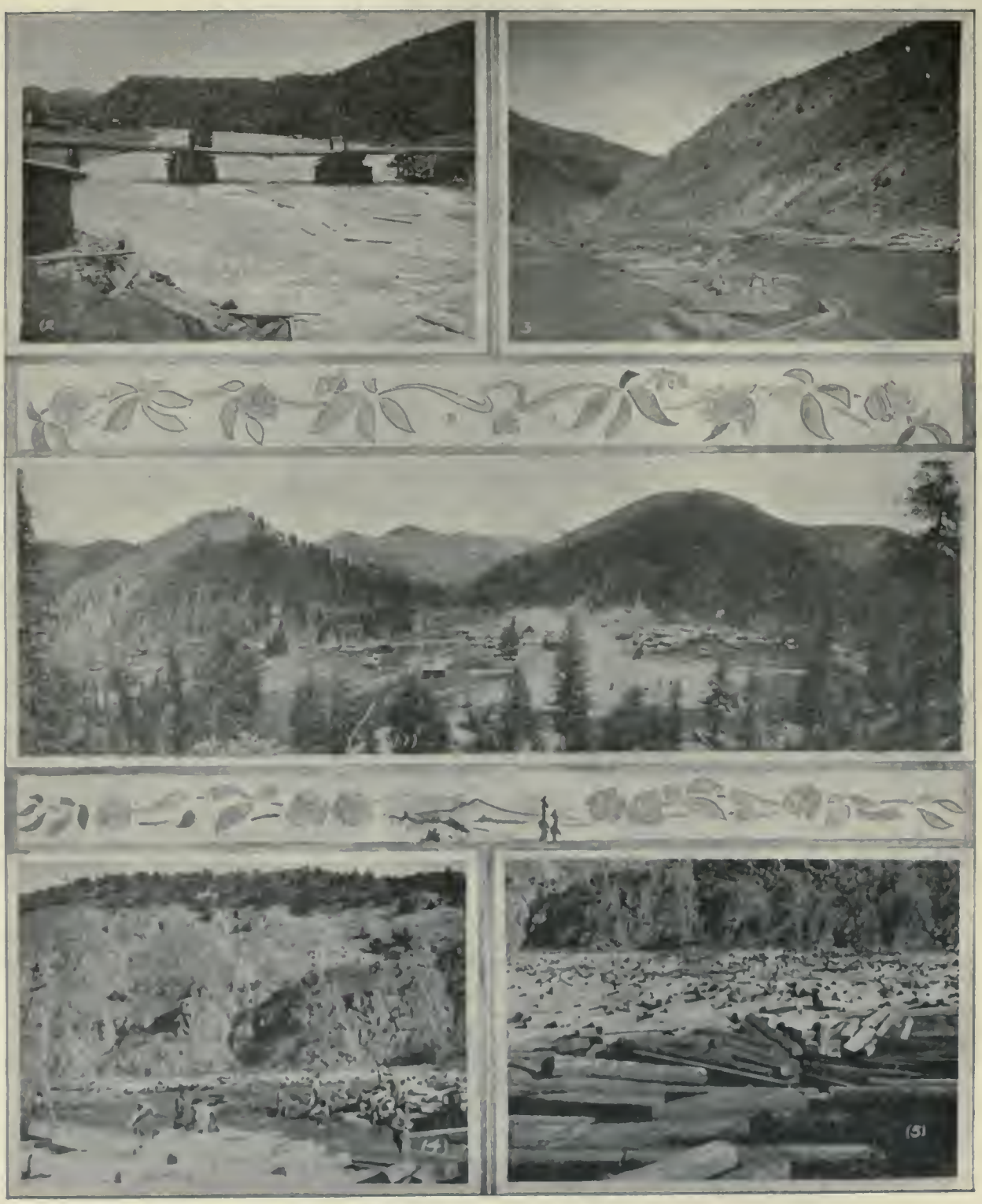
EDUCATION.

New Mexico is a commonwealth of school houses, churches, handsome and substantial public buildings, of law-abiding, progressive citizenship. In Santa Fe County alone, with about 15,000 inhabitants, fifty-two modern school houses were built the past year. The State maintains a University, an Agricultural College, a School of Mines, a Military Institute, three normal schools, besides hospitals, orphans' homes, reform school and other institutions, all housed in modern buildings and endowed with immense land grants. A museum of art and archaeology is located in the Palace of the Governors at Santa Fe, a structure more than 300 years old and in many respects the most historic building in the United States. In it are found priceless historical and archaeological collections, precious heirlooms, paintings and ancient manuscripts, historic and linguistic libraries, such as are not duplicated anywhere else. Every community has its churches, learned and fraternal organizations, charity boards and civic bodies. Taxation is equitable and not crushing and whenever the tax rate appears high there the assessment rate is low. Every head of a family is given a liberal tax exemption. The indebtedness of state, counties and municipalities is comparatively small. New Mexico is law-abiding, its people are liberal, hospitality is the rule and the social side of community life is extraordinarily well developed.

CLIMATE.

In a domain so extensive, covering several degrees of latitude and varying 10,000 feet in altitude, there is naturally a considerable variety of climatic conditions, although, generally speaking, the so-called mountain and arid conditions prevail. Nights are always cool even in the lowest and most sheltered portions. In the higher Sierras, the winters are long and cold, but the sunshine modifies even the coldest day to a certain extent.

There are mountain valleys where the rainfall is suf-



1. LUMBER CAMP. 2. RIO GRANDE RIVER AT EMBUDA. 3. FLOATING THE LOGS DOWN THE RIVER. 4. STARTING THE LOGS. 5. LOGS AWAITING THE BREAKING OF THE BOOM.

ficient to raise crops without irrigation. There are sections where the rainfall averages only four or five inches a year, although the normal for the State is between 14 and 15 inches. Every portion of the commonwealth is salubrious. There is an almost total absence of endemic epidemics or of malaria. New Mexico's climate is a specific for tuberculosis. There are thousands of people in the state who came as health-seekers, who liked it so well as to remain after they were restored to health, and who prospered in business, farming, stock raising or other pursuits.

Physicians agree that climate is an important factor in the cure of tuberculosis and the United States government has so far recognized that New Mexico's climate is the best suited for restoring to health the consumptive, that it maintains a sanitarium at Fort Bayard, Grant county, for the Army, and another at Fort Stanton, for the Marine Service. Well-equipped sanitaria are found in the larger towns but as the main essential for the health-seeker is outdoor life, abundant but well-selected food, sufficient means to support himself without work or worry and a deep interest in his surroundings in order to ward off homesickness, he will find restoration to health also on ranch, range or forest, though, perhaps, not with the ease and comfort to be had in a sanitarium where a special study has been made of his needs.

New Mexico has a considerable number of hot and mineral springs whose waters are specifics for various chronic ailments. At several of these springs, hotels and bath houses have been erected, at others, the accommodations are more crude. These springs have been famous for hundreds of years among the Indians who often came long distances to benefit from their healing powers.

POPULATION.

The rural population exceeds that of town and city by far in New Mexico. In fact, New Mexico has no large urban centers. Up to the last census, it had not a single town officially accredited with 10,000 population. That census lifted Albuquerque alone into that class, and that city today, with its widespread suburbs has probably 20,000 people. It boasts also of the improvements and facilities of a metropolis of 50,000 and more inhabitants. Next in population is Roswell, the metropolis of the Pecos Valley, which with suburbs has more than 7,500 people. A close third is Santa Fe, the capital, a town more than 300 years old and most picturesquely situated. No other incorporated community reaches the 5,000 mark in population, although Las Vegas and East Las Vegas together exceed it and Las Cruces and Raton come near to it and with suburbs probably exceed it. There are 32 incorporated places in the state, the smallest of which has 300 inhabitants.

New Mexico's population is not quite 400,000, although it is expected that the end of 1915 will pass that mark and the next census will find half a million inhabitants. The growth in population has been rapid of late years, the percentage of increase between 1900 and 1910 having been 67.6 per cent. In 1850, the state,

BALED ALFALFA IN THE MIMBRES VALLEY

which then included Arizona and southern Colorado, had a population of only 61,547. In 1870, it was still less than 100,000 and in 1900 it was less than 200,000. Towns have grown even more rapidly. Albuquerque had only 3,785 people in 1890, Roswell only 2,049 in 1900, experiencing a growth of 201 per cent in ten years, Albuquerque increasing its population 76.7 per cent in the same decade. A tier of new counties has sprung into existence the past two decades that cover areas which a quarter of a century ago had not a single habitation.

Of the 327,301 people in New Mexico in 1910, 26,331 were of foreign born or mixed parentage; 20,573 Indians, 1,628 negroes, 258 Japanese, 248 Chinese. Of the native-born white population, 164,267 were born in New Mexico, and of these, about 130,000 were of Spanish-American parentage, either as to both or one of the parents. Of the persons born outside of the state, 30,506 came from Texas, 11,605 from Missouri, 7,607 from Illinois, 7,348 from Oklahoma, 6,281 Kansas, 4,764 Tennessee, 4,386 Kentucky, 4,353 Arkansas, 4,266 Colorado, 4,184 Iowa, from Ohio 4,087, Indiana 3,564, Pennsylvania 2,640, New York 2,381, Alabama 2,324, New England States 1,246, Pacific States 1,196. Of the foreign population, Mexico contributed 21,948, Germany 6,143, England 3,394, Italy 2,826, Ireland 2,722, Canada 2,228, French Canadian 404, Austria 1,707, Scotland 1,419, these figures including not only those foreign born but also the children born in this country to foreign parents.

A CORDIAL INVITATION.

What was stated as true ten years ago in the official book for the St. Louis Exposition, applies at this time:

"New Mexico wants more people, it needs them; it has room and resources for them. It offers to immigrants a fine climate, free homesteads under the land laws of the United States, great natural resources; to the healthseeker, health; to the tourist, scenic, historic and archaeological attractions; to the sportsman, good fishing and hunting; to the summer and winter guests, the best summer and winter climate on earth, hot and cold mineral springs, mountain retreats, ranch resorts, good hotel accommodations and the comforts and luxuries of modern communities; to the farmer, good crops; to the coal miner, permanent work and good pay; to the prospector, extensive mineral deposits; to the mechanic and professional man, the same and better chances than any other country that is settling up, room on the top if they deserve it; to the stockman a free range and a climate favorable to stock raising; to the manufacturer, openings to establish factories and mills that should yield good profits; to the real estate man, cheap lands and a chance to make money, and to the capitalist, opportunities to make big dividends and to buy anything that his heart desires, from a gold or copper mine worth a million or more, to a game preserve as big as a European kingdom.

"Healthseekers should come to New Mexico by all means. They should come before disease has made inroads upon the system, if they want to be sure of recovery; they should come even if the disease has advanced noticeably, for possible cure or at least, prolongation of life, but they should not come without means to pay their way, the first year at least. The jobs for healthseekers are few and far between and a healthseeker should not work for a living if he desires to regain his health speedily. Living is as reasonable in cost in New Mexico as anywhere else in the United States.

"The laws of competition and trade are the same in the Sunshine State as elsewhere. Fortunes are very seldom made in one day. The poor man who comes west must expect to work, and work hard for a living; the capitalist must invest and invest judiciously to make money. After this is said, however, it can be truthfully added that New Mexico offers great opportunities to the honest and intelligent worker to become independent and to gain affluence and civic and political prominence in time; and to the shrewd and careful capitalist, greater and surer returns on his investments than any other portion of the Globe.

"It is to the homeseeker, to the farmer, to the stockraiser, to the miner, to the merchant, to the manufacturer, to the capitalist, that New Mexico is an undeveloped empire of magnificent resources, which throws a peerless climate into the bargain with the rich returns that are offered to the man with capital to invest, or with brain and brawn to apply."

THE PALACE OF THE GOVERNORS

BY PAUL A. F. WALTER

WHAT the Pathenon was to Greece, the Forum to Rome and what Liberty Hall is to Philadelphia and Faneuil Hall to Boston, that the Palace of the Governors at Santa Fe is to New Mexico. Reared more than three hundred years ago, as a fort, castle and government building, it antedates the landing of the Pilgrim Fathers at Plymouth Rock by a decade. That it was built upon a pre-colonial village site appears to be indicated by the findings of archaeologists.

History has graphically recorded the stirring events that have been staged in the venerable structure that to this day faces the Plaza in the Capital City of New Mexico. All roads led to Santa Fe in the early days and that meant to the Palace. From here was governed a domain greater in area than the German Empire and here were held the counsels that determined the fate of the aboriginal people and their conquerors. An unbroken line of one hundred governors here held sway under Spanish, Mexican, Indian and American regimes. From here essayed expeditions to explore the unknown regions or to conquer turbulent and rebellious tribes. Here were received the emissaries and the deputations from near and far. It was here, too, that in the dark days of the Pueblo rebellion, were huddled together the inhabitants of Santa Fe, men, women and children, for several days resisting the attacks of the Pueblo Indians, and from here sallied forth Governor Otermin and his handful of brave soldiers to inflict defeat upon the pitiless hordes of savages so as to clear the way for the memorable evacuation of Santa Fe and that terrible retreat to El Paso. Here in later days Lew Wallace wrote chapters of Ben Hur. The memories that cling to those massive adobe walls have made the Palace a shrine, an imperishable monument that typifies the spirit of the Sunshine State.

New glories have come to the Palace of the Governors in its latter days. Just when it had been deserted by the State's executives, when it was falling into ruins, when it was in evident state of neglect, Dr. Edgar L. Hewett, director of American Archaeology for the American Institute of Archaeology, raised his voice for the reconstruction and preservation of the venerable pile. His efforts saved to the commonwealth its most precious heritage. He made the plans for its restoration, reverently clinging to the ancient outlines, tearing away the later garish innovations and giving back to the people the Palace as it stood in the days of its greatest glory.

The building was dedicated to science and art. It was placed in the custody of the Board of Regents of the Museum of New Mexico, a body of public spirited men with a vision who give their time and services to the State free of charge. In the eastern end of the Palace have been housed for years the valuable collections of the New Mexico Historical Society and the priceless historical library, rich in New Mexicana. This museum is open to the public free of charge and tens of thousands of people from all parts of the world have viewed and studied the historical relics and the books.

The western end of the Museum is devoted to the archaeological collections and is occupied by the School of American Archaeology. The Museum is also open to the public free of charge. Its collections are scientifically arranged and priceless. The Museum rooms are made lovely with mural paintings depicting the life and environment of the pre-Columbian Cliff Dwellers. In the main entrance hall, mural paintings tell the history of Santa Fe. All the mural paintings have been installed through the generosity of a private citizen, Hon. Frank Springer of East Las Vegas. In the lecture room, Mr. Springer has placed the Finck Linguistic Library, one of the most valuable libraries of that kind ever brought together. In the ancient reception room, art exhibits are constantly held.

One can profitably spend days and weeks in the Palace studying its exhibits, viewing its collections, admiring its pictures, recalling its history. No tourist bound to or from the Pacific Coast should fail to visit it, for the Palace of the Governors is the most historic structure in the United States and more than that its exhibits are altogether unique and distinctly worth while.

The School of American Archaeology which from here directs its activities, sends expeditions to all parts of the Western Continent, studying the prehistoric cultures. It is a sister school of one maintained at Jerusalem, one erected in Athens, another in Rome and a fourth planned for China. It has made important contributions to science and

to art and is altogether a school for research, doing its work in the field and in laboratories and studios, enclosing one side of the Old Palace patio, rather than in class rooms, although each summer it has held a popular Chautauqua in the Palace which has been drawing attendants from all parts of the world.

Upon the register of the Museum of New Mexico, are the names of tens of thousands of people, among them the names of men of affairs, of scientists, of artists, of authors of many nations, men who have gained fame in the world's arena, and who have found the Museum a veritable Palace of Delight.

COLONADE, PALACE OF THE GOVERNORS—PALACE OF THE GOVERNORS

The Palace of the Governors has become a new civic center for the entire Southwest. Men and women of means and of artistic perceptions are enriching its collections with gifts that there enshrines their names forever. The throng that comes to visit it increases with each day and its work already spans two oceans. This much is certain, it has brought new fame to New Mexico and its sphere of influence has extended far beyond the imperial domain governed by the proud Spanish Conquistadores who reigned from it centuries ago.

PRESERVING THE PAST

BY PAUL A. F. WALTER

NEW MEXICO has two organizations working side by side to preserve the monuments and relics of the past, assisted by other societies whose objects also include other interests, such as the Daughters of the American Revolution who are marking the Santa Fe Trail with suitable granite monuments, or the New Mexico Pioneer Society, or the Society for the Preservation of Spanish Antiquities, while organizations such as Montezuma Lodge, A. F. & A. M., have also carefully preserved relics of the early days that are of value and of interest.

But it is to the New Mexico Historical Society and the New Mexico Archaeological Society that the commonwealth owes the preservation of much that otherwise would have been irretrievably lost. The Historical Society is the older of the two organizations and is incorporated under the laws of the State. More than thirty years ago it began the work of collecting manuscripts, books, photographs, relics of the days that reached back not only to the Spanish conquest but even to prehistoric days. Of course, there is no other collection like it in existence. For decades that collection has been housed in the Palace of the Governors. The library of New Mexicana is remarkably complete and is frequently consulted by historians and other scholars. Bulletins, such as "Kin and Clan," by Adolph F. Bandelier; "The Stone Idols of New Mexico," and "The Stone Lions of Cochiti," by L. Bradford Prince; "The Franciscan Martyrs of 1680," "The Defeat of the Comanches in 1716," "Journal of the New Mexico Constitutional Convention of 1849," "The California Column," "Carson's Fight with the Comanches at Adobe Walls," "The Spanish Language in New Mexico and Southern Colorado," by Aurelio M. Espinosa, in addition to reports and other monographs, are contributions of the Society to the written history of the State. "Old Santa Fe," Col. Ralph E. Twitchell, editor, a high-class historical quarterly, is the official mouthpiece of the Society, as it also is of the Archaeological Society.

The officers of the Historical Society are:

President—Hon. L. Bradford Prince, L. L. D., ex-Governor and ex-Chief Justice of New Mexico.

Vice-Presidents—Ex-Governor William J. Mills, Attorney General Frank W. Clancy, Col. Ralph E. Twitchell.

The Archaeological Society owes its origin to a series of lectures given by Dr. Edgar L. Hewett at Santa Fe, some two decades ago, and since, by co-operation with him, has given yeoman service in preserving the antiquities of the State, in helping to create the Museum of New Mexico, restoring the Palace and in locating the School of American Archaeology at Santa Fe.

Its constitution declares its purpose to be the preservation of "historic and prehistoric remains, ancient monuments and noted landmarks of the Southwest and make them known to the world; to promote archaeological and ethnological research; to collaborate with the State and National governments, state institutions, scientific and educational organizations and private individuals in the conservation of the native arts and architecture of the Southwest and in general to promote all worthy movements that have for their object the advancement of the knowledge of, and interest in, the Southwest's historic past."

The Society has a membership of three hundred, including men of note in all parts of the United States. It meets monthly in the Palace of the Governors and has for its official bulletin, El Palacio, an illustrated monthly edited by the secretary of the Society. The officers of the Society are:

President—Judge John R. McFie.

Vice-President—Hon. B. M. Read.

Secretary—Paul A. F. Walter.

Corresponding Secretary—Miss Ruth Laughlin.

Treasurer—Dr. James A. Rolls.

Directors—John R. McFie, B. M. Read, Paul A. F. Walter, Miss Ruth Laughlin, James A. Rolls and Charles E. Linney.

The New Mexico Museum, housed in the Palace of the Governors, is governed by a Board of Regents, consisting of Judge John R. McFie, president; Hon. Frank Springer, Judge N. B. Laughlin, Col. Ralph E. Twitchell, Postmaster Jas. L. Seligman. Its director is Dr. Edgar L. Hewett by virtue of his position as director of the School of American Archaeology. Paul A. F. Walter is acting director and secretary, Mrs. H. L. Wilson, librarian, John P. Harrington, ethnologist, and Wesley Bradfield, museum assistant. Judge N. B. Laughlin is the treasurer.

The Museum has an incomparable collection of prehistoric pottery, stone utensils and relics of the past in the

Southwest. It has been deeded the site of the ruins at Cuarai and at Pecos and has acquired part of the site of the Tabira or Gran Quivira ruins. It is collecting a valuable archaeological library, which includes historical documents of great rarity, maps, photographs, and relics of historic interest. The Museum rooms are embellished with mural paintings by Carl Lotav, placed through the generosity of Hon. Frank Springer, water color paintings, enlarged photographs, and the collections are scientifically displayed. In the lecture room has been placed the great Finck Linguistic Library by Hon. Frank Springer and here too, are exhibited the fine models of the Pecos and Cuarai pueblos and churches constructed for the Exposition at San Diego by the New Mexico Exposition Board. From time to time art exhibits are made in the historic reception room, and the nucleus is on hand for an art gallery, a number of paintings having been given by noted artists in addition to the mural paintings placed by Mr. Springer and the art work of men on the staff of the School of American Archaeology, which includes paintings of the Indian pueblos, Franciscan missions and the cliff dwellings. The Museum has been pronounced one of the most attractive and interesting in the world and is open daily to visitors as is also the Museum of the Historical Society in the same building, the Palace of the Governors. More than 15,000 people from outside of Santa Fe visited these two museums in the past two years.

Not the least work of the Museum of New Mexico in co-operation with the School of American Archaeology, has been the restoration of the Palace of the Governors. The State appropriated generously for the purpose and to these appropriations were added substantial gifts by the Santa Fe Woman's Board of Trade, Hon. Frank Springer, The Archaeological Society, and other organizations and individuals.

The School of American Archaeology, which from the Palace directs its activities, is a school of research, with Edgar L. Hewett as its director, and governed by a managing committee for the American Institute of Archaeology, a scientific organization chartered by Congress. W. H. Holmes, of the National Museum at Washington, is the chairman of the Managing Committee, Miss Alice C. Fletcher of Washington, D. C., the chairman emeritus, John R. McFie, the treasurer, and Dr. Charles A. Peabody, the secretary.

The school for the past four years has conducted important excavations on the site of the ancient Maya city of Quirigua in Guatemala, at Cuarai, Pecos and Jemez in New Mexico, and has co-operated with universities, the National Museum, the Panama-California Exposition, in expeditions and research work extending from Central America to Siberia.

Pueblos and Utes. The school is one of five maintained by the American Institute of Archaeology, the others being at Athens, Rome, Jerusalem and in China. Annually, for the past six years, a summer school has been held at Santa Fe and in the field which has attracted scholars not only from all parts of the United States but from as far away as the University of Oxford in England and the University of Warsaw, Russia.

INDIAN KIVA IN PAJARITO PARK, RESTORED BY SCHOOL OF AMERICAN ARCHAEOLOGY

CLIFF CITIES THOUSANDS OF YEARS OLD

BY PAUL A. F. WALTER

TWENTY thousand cave, cliff and communal dwellings have been mapped in the Pajarito Park, twenty miles west of Santa Fe. New Mexico, as Dr. Edgar L. Hewett, the great authority on American archaeology puts it, "is the most interesting archaeological region in the United States."

The Pajarito Park which is about to be established as the National Park of Cliff Cities, is a volcanic plateau lying between the Rio Grande and the Jemez Range, with the pueblo of Cochiti at its southern boundary and the Santa Clara Indian reservation on its northern boundary, facing the pueblos of San Ildefonso, Santa Clara and Pojoaque on the east, and the crest of the Valles range on the west. It is a park some thirty miles long by ten to fifteen miles wide, and within that comparatively small area offers the tourist and the scientist more attractions than any region of similar area in the United States.

The plateau is cleft by deep canyons, a few of them with running water and waterfalls, but most of them dry. In all of them, practically, the precipitous sides are lined with caves, some natural and others excavated by human hands in the soft tufa, but each one giving evidence of human occupation, many of them in three successive periods.

At the foot of the cliffs, there are heaps of debris under which have been found the ruins of so-called talus villages, that is communal buildings erected against the cliffs like a lean-to. On top of table lands that look like islands rising from the general plateau, are ruins of other communal dwellings, some of them like vast prehistoric apartment houses of 1,200 and more rooms. The School of American Archaeology has excavated a number of these, taking from

OTOWI—IN PAJARITO PARK

them pottery, stone utensils and other artifects, specimens of which, scientifically classified, may be seen in the Museum of New Mexico in the Palace of the Governors.

All this gives no adequate idea of the scenic grandeur, the air of mystery that seems to hover over the plateau, the overwhelming beauty of the canyons, forests, mountains, panorama, that are the setting of this prehistoric world. There is every evidence that at one time this plateau was inhabited by thousands of people while today, outside of a few ranches, notably that of the Seven Alders in the Rito de los Frijoles and the Pond ranch on the Pajarito, the entire park is without human habitation.

The park is reached over good highways from Santa Fe. The stations of Buckman and Espanola on the Denver & Rio Grande are within a few miles of the cliff dwellings. Within the park itself, wagon roads and trails make the principal communal and cave dwellings, shrines and canyons easy of access. The trip is one of unalloyed delight from Santa Fe, for one of the main roads passes through the Tesuque valley, by the Indian pueblo of Tesuque, through the quaint settlements of Cuymungue and Jacona, the Indian village of San Ildefonso with its kivas and mission church, over the Rio Grande and up the switchbacks of Buckman hill to the top of the Pajarito Plateau with its thousand wonders.

But not only in the Pajarito Park are the cliff and communal dwellings of a prehistoric people found. There are two more noted cliff city parks, though neither is quite as accessible. One is on the upper Gila, in a region watered much better than the Pajarito Park, and also in the depth of forests and canyons within the shadow of majestic mountains. The other is in the San Juan region, where prehistoric villages cover a vast extent of country from the Santa Fe Pacific railroad to the San Juan river and as far west as Flagstaff in Arizona. This high plateau region has been divided into the Chaco Canyon, the Aztec, which adjoins the Mesa Verde district, and the Canyon de Chelly districts. The most accessible ruins are those near Aztec

TSANKAWI TRAIL IN PAJARITO PARK

in San Juan County, the most extensively evacuated at Pueblo Bonito, the weirdest and most spectacular in the Mesa Verde and Canyon de Chelly districts.

Adjoining the Pajarito district on the west is that of the Jemez in which seventeen ancient pueblos have been mapped. In the Acoma district, too, a number of most interesting pueblo ruins are found. In fact, Acoma itself, has the reputation of being the oldest continuously inhabited settlement in the United States. On the Zuni reservation pueblo ruins exist, some of them abandoned within the historic period. On the upper Pecos, the chief and most famous ruin is that of Pecos, abandoned less than a hundred years ago, and which at one time, according to Castenada, had 10,000 inhabitants. Tributary to tit are a number of lesser pueblo ruins.

On the Mimbres and in the Las Animas Valley in southwestern New Mexico, vestiges of prehistoric villages are found and have been recently explored, yielding rich treasures of pottery and stone implements.

South of Santa Fe, within six miles of the city, are ruins of communal dwellings on the Arroyo Hondo and at Rgua Fria. Farther south is the abandoned pueblo of San Marcos. Across the A. T. & S. F. tracks are the ruins of the Galisteo and Sandia districts, some of them being excavated only lately, the most noted being those of San Cristoval. Farther east are the ruins of the Canyon Blanco, and farther south, most spectacular of all, the ruins of the pueblos of the Salines, the largest of them, Tabira, Abo, Cuarai, abandoned since the coming of the Spaniards, and easily reached from Albuquerque, Mountainair and Willard.

CEREMONIAL CAVE, RESTORED BY SCHOOL OF AMERICAN ARCHAEOLOGY

The mere enumeration of these ruins gives some idea of the extent of the prehistoric occupation of the Southwest, but no pen picture can convey the beauty, the mystery, the strange attractiveness of these sites. Besides the School of American Archaeology, the Museum of Natural History, New York, the National Museum, and the big universities have scientifically explored a part, but only a small part of these regions.

Ruins located on public lands or within forest reserves or within national parks and Indian reservations, are protected by the government. The State, too, is taking steps to preserve these ancient landmarks on state lands. To the Museum of New Mexico has been given the title and custody of such important ruins as those of Pecos and Cuarai.

NEW MEXICO'S MISSION CHURCHES

BY PAUL A. F. WALTER

CALIFORNIA is justly proud of its twenty-one mission churches founded between the years 1769 and 1823 by the Franciscans. They are in part in ruins, in part reverently preserved and still used for divine worship. They attract each year thousands of tourists.

But what are the missions of California compared with those of New Mexico, also founded by the Franciscans, but much earlier and the scenes of episodes far more thrilling and romantic than any connected with the history of the California missions? What is more, the New Mexico mission ruins as well as the mission churches still in use, are located amidst surroundings which are much the same as they were in the days before the California missions were even thought of.

The Spaniards founded the first mission near San Juan de los Caballeros, forty miles north of Santa Fe, in 1598, or 171 years before the foundation was laid for the San Diego mission, the oldest in California. True, this first church no longer exists, but in its place have been built a beautiful chapel and a new mission at the Pueblo of San Juan, which with its statue of the Virgin of Lourdes, annually attracts thousands of worshipers from far and near to its shrine and to which are attributed some miraculous cures.

Other mission churches were established in rapid succession by the Franciscans, for the Spaniards came to New Mexico fired with a holy zeal to convert the Indians. As early as 1606, a mission church was built in Santa Fe. Benavidez laid the foundations for another church in 1626, which was finished in 1629. According to Lummis, San Miguel's church was not built until after 1636, partly destroyed in 1680 and restored in 1710, but some authors still cling to the tradition that it was reared in 1541. But be that as it may, San Miguel's church is much older than the mission at San Diego, even accepting the date of its restoration in 1710 as that of its founding. Santa Fe had other churches built before the San Diego mission. Em-

PECOS MISSION RUINS

bodied in the cathedral, with the old walls still standing, is the ancient parochial church, with parts of the Church of Las Castrensas used up to fifty years ago as the principal church in the city. Guadalupe church also has an antiquity extending back to the time of the founding of the California missions.

In 1617, three years before Plymouth Rock, there were already eleven churches in New Mexico according to Lummis. Many, if not all, were destroyed or partly destroyed during the Pueblo Revolution of 1680, but upon the re-conquest by the Spaniards in 1693, most of these and many others were ordered rebuilt immediately and many of them on the old sites, so that at least twenty-one of the parish churches, to parallel the twenty-one California missions, date back to a time anterior to that of the oldest mission church in California.

Prior to 1617, Galisteo and Pecos had each a mission church, Jemez had two, Taos, San Ildefonso, Santa Clara, Sandia, San Felipe and Santo Domingo, each one.

Among the Zunis, six churches were built soon after 1629, the year in which the church at Senecu was built. The church of Picuris, from which the body of Fray Ascencion de Zarate was brought to the church at Santa Fe, where it was reinterred, was built prior to 1632, about which time the church at Isleta was reared. The church at Pecos was built almost 300 years ago and part of the walls are still to be seen from the Santa Fe railroad trains as they pass on their way to Glorieta from the east.

GRAN QUIVIRA

Even the small pueblo of Namba had a church in 1642 and soon thereafter the churches at Cuarai, Tabira and Abo were built in the Saline country, where the ruins are still noteworthy sights. Tajique and Chilili in the same country had churches dating back 250 years and more.

The church at Acoma was built in 1629 and prior to 1680 there were mission churches at Zia, Santa Ana, Tesuque, Pojoaque, San Juan, San Marcos, San Lazaro, San Cristobal, Santa Cruz and Cochiti. In addition to these churches, many chapels had been built in outlying settlements.

This being the case, New Mexico abounds in picturesque old ruins of sacred edifices and in churches which today are more ancient and more quaint than any other edifices used for worship in the United States.

Most accessible, of course, are the old churches at Santa Fe, which are especially interesting because of their art and other treasures. Next to the Palace of the Governors, San Miguel's church is probably the most visited shrine by tourists in the Southwest, and lays clam to being the oldest church in the United States still used for regular worship. Rosario chapel overlooking the city from the west has been hallowed by the romance of centuries. Guadalupe church is noted for its elaborately carved reredos. The Cathedral

church is one of the most beautiful houses of worship in the West, though still uncompleted. It has art treasures, archives and relics of great value dating back three centuries. The Loretto chapel is considered one of the finest specimens of pure Gothic architecture west of the Mississippi.

There are also churches and chapels in the vicinity of the Capital that are quaint, old, picturesque. At Agua Fria, there is a church that is typical of the rural settlements of New Mexico, and it is less than six miles from town. The chapel on the Bishop's ranch built by Archbishop Lamy, four miles from the Capital, attracts many tourists. The church at the Tesuque Indian vollage, nine miles from Santa Fe, is noteworthy. At Canyonsito, fifteen miles from Santa Fe, is also an interesting structure. The churches at San Ildefonso, Santa Clára, Nambe, and especially at Santa Cruz, all within Santa Fe County, are well worthy a visit. At Sanctuario, is a chapel, to which are attributed miracles of healing, the clay found in its vicinity being considered efficacious for various kinds of diseases.

SPANISH MISSION CHURCH AT ACOMA
Prototype of New Mexico Building at Panama-California Exposition at San Diego

Thus one may go from county to county and find old time churches, about which cluster traditions and romances fully as interesting as the chapels one finds in the older settlements of England, or Spain, or Italy. One of the more pretentious mission churches is at Old Albuquerque and it attracts many pilgrims annually. In every Indian village there is a church, if not very ancient itself then located on the site of old missions. Of more than passing interest are such edifices as the church at Santo Domingo, or San Felipe, or Taos.

There is great attraction in the impressive ruins of the mission churches at Pecos, Cuarai, Abo, Tabira or Gran Quivira, Ranchos de Taos, whose massive walls are crumbling and gradually disappearing, silently eloquent of an age that has passed.

More remote from the beaten paths of travel are the mission churches of Cochiti and Acoma and no tour of the mission churches of the West is complete without a visit to both of them. The Acoma church gives the impression of a castle or fortress built on a high cliff overlooking a vast extent of country. Its severely plain sides are heavily buttressed, its torreons or towers might as well be used as bastions for cannon as for bells calling peaceful worshipers together. There is only one small window in front, a low door, no windows in the massive wall toward the village and the attached convent which is also heavily buttressed. The church and convent serve as models for the superb New Mexico building at the Panama-California Exposition at San Diego, the severe simplicity being relieved by the addition of the exterior second-story portico between the two towers and the addition of windows and other features which characterize the church at Cochiti, a later structure than that at Acoma and still one of the mission churches older than those of California.

Truly, the tourist must not miss these old, old churches, with their crude altars, dirt floors, many of them without pews, most of them proud of some precious painting on wood or leather which has been cherished for generations, or with church records and archives which give but a mere glimpse of hardships, heroic deeds, martyrdom, intermingled with the humble annals of the Indians and their conquerors, conquerors not so much with the sword as by the cross.

INDIANS OF THE SOUTHWEST

BY PAUL A. F. WALTER

NEW MEXICO has 20,000 Indians. Oklahoma and Arizona, alone among the states, have a greater number. Much of the color and picturesqueness of the Sunshine State it owes to the Indians, yea, even its history and its archaeology are inseparably associated with the Red Man. In no commonwealth has the Indian become so much a part and parcel of the daily life and even

VENTURA—TAOS

of the industries as in New Mexico. To the tourist he is a perennial delight, for it is in New Mexico that the visitor comes in the most intimate touch with the Indian, his handiwork, his homes, his ceremonials. This is so much the case that colonies of artists have been established at such places as Taos to paint the Indian and his life. Not only the tourist who can leave the railroad train, but even the traveler who does not take the time to linger, comes in contact with the Indian while passing through New Mexico for the main line of the Santa Fe passes through several Indian villages and the Denver & Rio Grande passes not

GOVERNOR VIGIL—TESUQUE

NAVAJO—APACHE—NAVAJO

only through Indian villages but also over an Indian reservation.

Three great tribes of Indians are represented in New Mexico, the Pueblos, the Navajoes and the Apaches, all peculiarly southwestern tribes. On the Colorado boundary are also found the Southern Utes.

The Pueblos are the oldest town builders in the United States. Three hundred and sixty years ago, the Spaniards found them occupying well-built communal houses and towns and cultivating the fields. To the present day, they live in similar towns, some of these settlements being undoubtedly a thousand and more years old. Generally,

TYPES AT ACOMA, ISLETA, LAGUNA

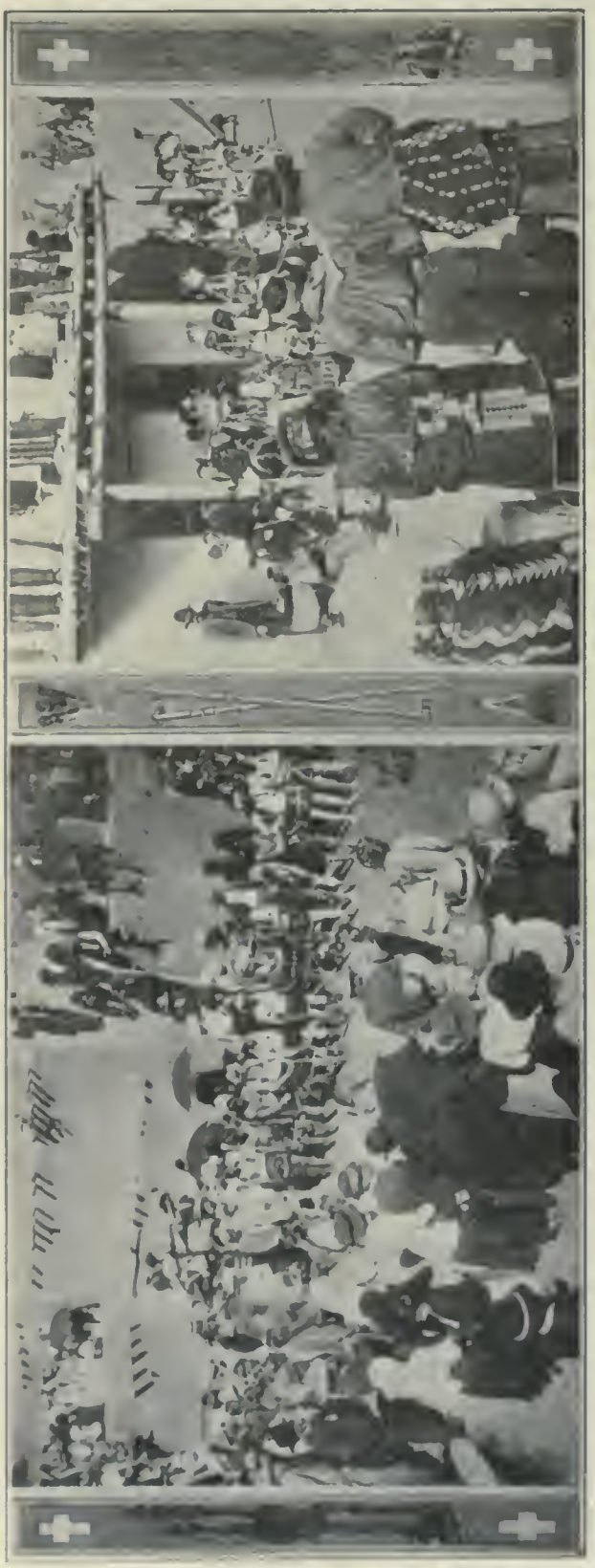
these towns are so located as to be easily defended, but a number of them lie in open valleys on the banks of streams. The most of them are in the Rio Grande Valley, or its tributaries, the largest being Taos, Santo Domingo and Isleta, lesser ones being Picuris, San Juan, Santa Clara, Pojoaque, Nambe, San Ildefonso, Tesuque, Cochiti, Santo Domingo, San Felipe, Sandia. West of Albuquerque, the important pueblos are Laguna, Acoma and Zuni while in the Jemez country are Jemez, Zia and Santa Ana.

Though Christianized three hundred years ago, the Pueblos still cling to their ancient picturesque rites, ceremonials and customs. On their annual feast days, their religious dances are performed as custom has handed them down for a thousand years. As Charles F. Lummis, the writer, has put it, here one catches his archaeology alive. Most noted of these dances are the Corn Dance at Santo Doming on August 4, and the San Geronimo Fiesta at Taos on September 30. But the dance at any of the score of villages is unique and there is nothing quite like it to be found anywhere else in the world, even the Orient will be searched in vain for such a sight as that of the Corn, or Antelope, or Eagle dances, as can be seen at Tesuque, only nine miles from Santa Fe, at San Ildefonso, at Isleta a few miles from Albuquerque, reaching perhaps, their greatest interest in the annual dances at Zuni and Acoma and the Snake Dance at the Wolpi villages just acress the Arizona border.

But there are other features in these Pueblo villages that are of interest to travelers. Their pyramid houses of adobe, their methods of irrigation and farming, their domestic ways and handicrafts, their pottery, their blankets, their bead-work, their basketry, their altars, can be viewed at first hand by the tourist. Here there is material indeed for the camera, the sketch book, the pallette and brush of the artist. In every case, the surrounding scenery, the mesas and the mountains are sublime; in every instance the village has a quaint old church and of late years, a day school. New Mexico would be worth while to visit even if it had nothing else but the Indian pueblos. The archaic form of government, the inborn simplicity and courtesy of the Pueblos, are noteworthy and a day's visit to any of the villages becomes an unforgettable event in a life time.

"GOLD TOOTH JOHN"—TAOS INDIAN PUEBLO

New Mexico has two branches of the Apache tribe, the Mescaleros and the Jicarillas, each occupying a reserva-



SAN GERONIMO DAY INDIAN SPORTS

tion which includes some of the grandest scenery in the Southwest. The Jicarillas have their reservation in Rio Arriba County with agency at Dulce on the Denver & Rio Grande railroad. It is a region still quite difficult of access but covered with forests and boasting of much beautiful scenery. It is on the Mescalero Reservation, however, reached over the Rock Island and El Paso & Southwestern railroads, that southwestern scenery reaches its climax in the White mountains. The reservation is a vast natural park with good roads, picturesque trout streams, and deep forests. The Apaches are renowned as basket weavers and in part still live in tepees.

The Navajo Reservation in the northwestern corner of the State is a veritable wonderland from archaeological, ethnological and scenic standpoints. The Navajos in New Mexico number 10,000 and still live in hogans. They are mostly stockmen and their herds cover a thousand hills. At Shiprock, in San Juan County, an agency has been established and here the government maintains a model agency school and farm. Here, too, annually, the Navajo Fair is held which brings together thousands of Indians to display their products, to engage in sports, to practice their ceremonies, or to barter their blankets and hammered silverware for the treasures of Indian traders who gather from all points of the compass. A more picturesque and colorful event cannot be imagined. From Gallup also, the Navajo reservation is quite accessible and it is a trip certainly worth while. Within the reservation are the biggest natural bridges in the world, wonderfully carved mountains and canyons, prehistoric ruins and relics and with it all the unspoiled life of the New Mexico Bedouins.

The government maintains two great Indian industrial schools, one at Santa Fe and another at Albuquerque, where another phase of the Indian problem may be studied and where represntatives of all the tribes from Oklahoma to California may be seen studying together. There are other Indian schools such as St. Catherine's, at Santa Fe, and mission schools at various pueblos, not to speak of the agency schools and the government day schools.

There are Indian towns, such as Abiquiu, Cuymungue, Jacona, Tajique, Chilili, that at one time were the homes of Pueblo Indians who have amalgamated with the settlers of Spanish descent. There are deserted villages like those in the Manzano mountains, Tabira, Abo, Cuarai, or those in the Sandias or on the Pecos. Then there are villages like those close to Las Cruces where the descendants of original Indian settlers still retain some of their characteristics. Or there are vestiges in many parts of Indian occupation, such as at Fort Sumner, or in the Black Range or on the Mim-

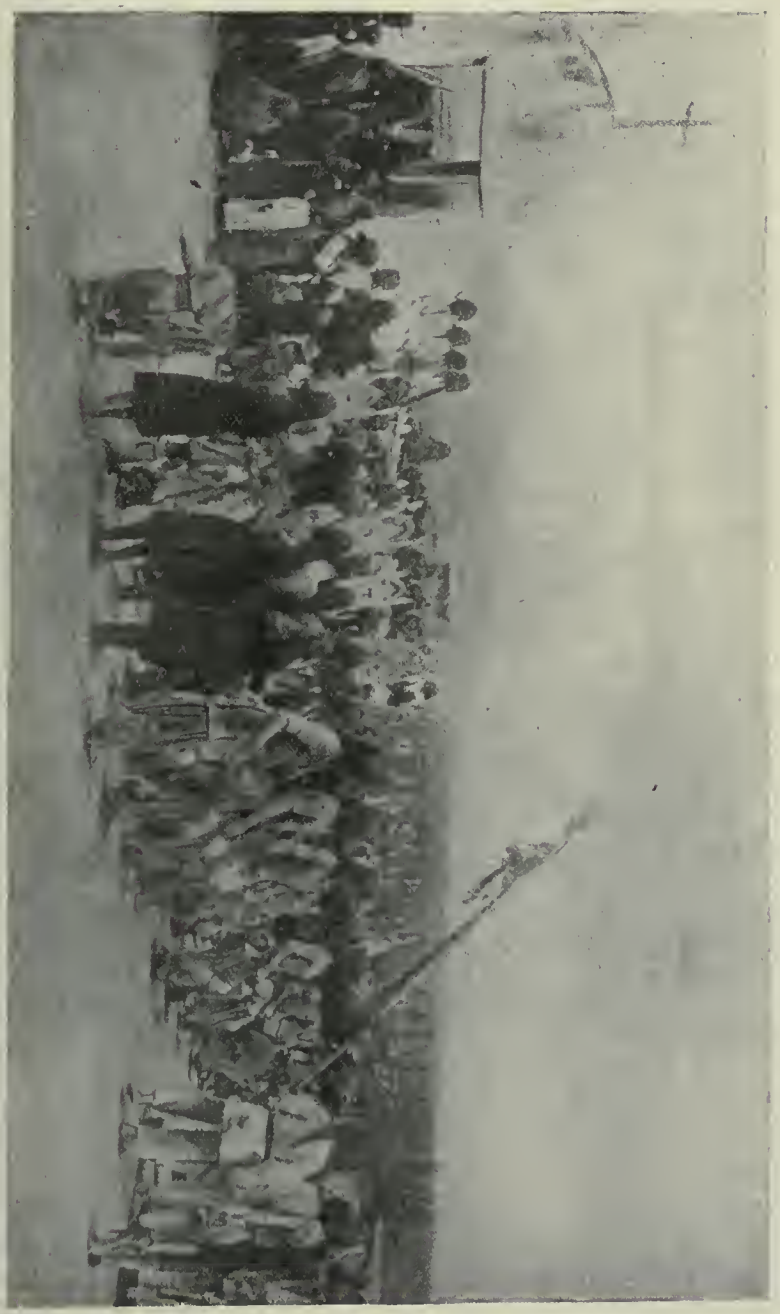
BUFFALO DANCE AT THE INDIAN PUEBLO

1. Indian Buffalo Huntress in Costume. 2. Start of Buffalo Dance. 3. On the Trail—Buffalo Dance. 4. In Sight of the Game. 5. Return From the Hunt. 6. Buffalo Hunter in Costume.

bres, or of Indian raids, as along Gila. Or there are historic battlegrounds like that of the Black Mesa, or places where the Indians held council, like the Comanche meeting place a few miles south of Santa Fe. Of late years, the Indians in New Mexico have actually increased in numbers but the day is not far distant when they will be amalgamated, full-fledged citizens and will necessarily lose their picturesqueness and will abandon their dances and customs that at present make them an attraction for the student and the tourist.

THE DANCE IN FULL SWING

MESCALERO APACHE INDIAN VILLAGE



CORN DANCE—SANTO DOMINGO

A NAVAJO HOME AND BLANKET WEAVER

ONE might drive for days on the twelve thousand square miles reservation of the Navajos, and, although there are from sixteen to twenty thousand of the Indians, he would meet with not more than a score in a week. The Navajo is a great lover of seclusion, and his "hogan," or "family residence," is generally to be found where the looker for it would least expect. Simple and primitive, it offers no attraction at first sight but novelty.

No loom could be more simple than hers—two upright poles, across the top of which a third pole is fastened, with a fourth one as a cross-beam at the bottom. Below the upper cross-beam another beam is suspended by lashings of rawhide, and to this the yarn-beam is fastened. On this yarn-beam the vertical threads of the warp are tied to a corresponding beam answering the same purpose at the bottom. The rawhide above serves to draw the threads tight, and, when thus fixed, the loom is ready for the weaver.

PUEBLO INDIAN FAMILY: MOTHER, FATHER, DAUGHTER

POTTERY VENDORS

With her different "shuttles" of yarn she squats on the ground, tailor-fashion, and, thrusting a stick through the warp, she divides the cords so that she can run the different threads of the woof without delay. The "shuttle" is a simple piece of stick, on the end of which the yarn has been wound. As soon as a thread is placed in position, a "batten stick," which, like the woof stick, is always kept in the warp, is brought down with such great force as to wedge the thread into a firm and close position. And thus every thread is "battened down" with such vim and energy that one does not wonder to find the blanket, when finished, capable of turning the heaviest rains.

The term "blanket" is generally used to describe anything of Navajo weave, largely because of the fact that in the beginning, and for many years after, the Navajos only had such sizes as would serve as a serape, or as a blanket for sleeping purposes. As the demand for these goods increased, smaller sizes were woven and used as rugs, and, at the present time, they are woven in various sizes from a pillow top or small rug. But the term "blanket" seems to be fastened on them by common consent, and by that term they will probably continue to be known.

THE NAVAJO INDIAN BLANKET

BY GEORGE WHARTON JAMES

EVERY nation has—and, in most cases, highly values—examples of the handicraft of its ancient and prehistoric forebears. In one instance it is tapestry; another, laces; others, jewelry, metal work, etc., all of them standing out unique in their particular class, and, in most cases, superior in many ways to their modern counterparts.

The Americas, particularly that part of them occupied by the United States, are especially favored in the above respect in the handicraft of the North American Indians. This, because of the marvelous skill indicated in much of their work, its barbaric beauty and its absolute dissimilarity to the work of any other nation in the world. Most prominent among their varied product of bead, metal, clay and textile works is the Navajo blanket, this because of its wider and more varied possibilities of practical utility, which will be mentioned again later. And we have the satisfaction of still being able to secure these blankets woven in all their primitive and barbaric splendor and woven in the same way they were countless years ago, giving us a finished product impossible to duplicate on modern looms.

The Navajos are of the Dinñe stock, and a portion of the branch live in Alaska, where they are weavers and silversmiths, same as the Navajos, with the exception they only weave a ceremonial robe from the wool of the wild sheep. Spaniards introduced sheep into this country, and shortly afterward the Navajos secured their share with but little scruple as to how they acquired it. From the Spaniards they learned the value of wool as a material for weaving. The Navajo women had inherited the simple arts of making primitive fabrics of yucca and grass for sleeping mats, and screens of shredded bark to hang over the entrance to their huts; hence it was rather an easy transition than a radical innovation for them to adopt the vertical loom and make spinning and weaving a favorite pastime. They substituted woolen fabrics in place of the grass sleeping mats. As the flocks yielded about equal quantities of white and black wool, the simple effort to dispose of it produced the characteristic pattern of the common bed blanket, which displayed broad alternate bars of black and white running across its width. With the weaving art they also acquired the knowledge of dyeing, and today are making the blankets of the wool from their own flocks which are as beautiful as the most expensive blanket they make from the Germantown yarn.

Indian designs are never mechanical, but are, to a great degree, historical and always full of significance. The Navajo squaw is a natural artist, and, in addition to putting into her blankets religious and tribal symbols emblematic of faith, custom or tradition, frequently weaves into the fabric the story of her own life replete with all its joys and sorrows, trusting to some mystic power to translate its message to its future possessor. And the finished result is a gem of barbaric weaving that to many would appear almost hideous were it not for the perfect blending of colors.

The tendency towards mythologic symbolism seems to be instinctive with the Navajos. Apparently, from their earliest condition their decorations have always shown this bent. The designs in their textile fabrics suggest their derivation from basketry ornamentation, as the angular, curveless forms inherent to the process of depicting figures by interlaying plaits are predominant; and the principal subjects are conventional devices representing clouds, stars, lightning, the rainbow, and emblems of the deities. But these simple forms are produced in endless combination, and often in brilliant kaleidoscopic grouping, presenting broad effects of scarlet and black—a wide range of color skillfully blended upon a ground of white. But the greatest charm of these Navajo fabrics is the unrestrained freedom shown by the weaver in her treatment of primitive conventions. To the checked emblem of the rainbow she adds sweeping rays of color typifying sunbeams; below the many-angled cloud group she inserts pencil lines of rain; or she softens the rigid meander signifying lightning with graceful interlacing and shaded tints. Not confining herself alone to these traditional devices, she invents here own method to introduce curios, realistic figures of common objects—her wooden weaving-fork, a bow and arrows. None of the larger designs is ever reproduced. Each fabric carries some distinct variation, some suggestion of the occasion of its making, woven into form as the fancy arose.

STATE SCHOOL OF MINES

MINING IN NEW MEXICO

BY FAYETTE A. JONES
PRESIDENT

THE State of New Mexico is the vanguard of mining in the United States. The story of New Mexican mining is interwoven with the warp and woof of romance and adventure. It was here that the conquest of the mineral resources of the United States had its beginning.

Gold and turquoise were the first mineral products spoken of in New Mexico; this was in the year A. D. 1534 by Cabeza de Vaca and his three companions in their wanderings after reaching the Pueblo tribes of the Rio Grande. Doubtless the turquoise mentioned by these unfortunate wanderers came from the prehistoric diggings at Mount Chalchiuitl in southern Santa Fe County.

The first real conquest for gold within the present confines of the United States was made by the celebrated Spanish commander Francisco Vasquez de Coronado and his army in 1540-42. Only a few trinkets of gold, worn by the Pueblo tribes, were secured by the invaders and the expedition felt keenly the disappointment. The gold so ruthlessly appropriated by the conquistadores must have come originally from the gravel beds of Taos and Santa Fe Counties. Finally, the exploits of the Spanish conquest became bedimmed with the passing of the years and not until three centuries later was the first modern discovery of gold made west of the Mississippi. This was in the year 1828 at the base of the Ortiz mountains in southern Santa Fe County. It should be noted that this find was made twenty years before the discovery of gold by Marshall at Coloma in California and thirty-one years before the find made on Cherry Creek in Colorado.

The discovery of gold in New Mexico was, in effect, the most important ever made. By this discovery the great West had its awakening. Political and geological boundaries no longer had significance. Trackless plains and mountain barriers offered no resistance. The impetus of this mighty force of civilization set in motion in the year 1828 has lost but little of its momentum, even unto the present day.

Today, the industry of mining is the greatest of all industries in New Mexico. It overshadows the combined industries of both agriculture and stockraising. The industry is expanding yearly at a rapid rate in both the metallic and non-metallic products. The mining output has doubled within the past four years. The production in 1913, according to the U. S. Geological Survey, was $17,862,369. In 1914 the output totaled in round numbers $18,000,000, notwithstanding the paralyzing effect on the industries of the world due to the European war. The production during the year 1915 will in all probability, exceed $20,000,000. By the year 1920 the mineral output of the State will reach the magnificent sum of $30,000,000, judging from the present rate of increase. New Mexico is, therefore, to be classed strictly as a mining state.

The geology and mineralogy of New Mexico have been, as yet, but meagerly studied. The exposed rock sections lie before the student of nature as an open book. The geological column is practically complete, most every period in geological history being represented, from pre-Cambrian times to the present.

The core of the principal mountain ranges, more especially in the northern part of the State, is composed chiefly of pre-Cambrian rocks. In the pre-Cambrian formation occur the economic minerals of gold, silver, copper, lead, mica, etc., and many of the rarer metals. This mineralogical horizon in the basal rock-system of New Mexico has never proven so prolific and profitable to mine as in some of the more recent formations. The chief mining conducted in the pre-Cambrian rocks is in the northern part of the State.

Superimposed on the pre-Cambrian series occur, most usually, massive plates of Carboniferous limestone; the lower Palaeozoic rocks, embracing the Ordovician, Silurian and Devonian, are generally lacking. The lower series of the Palaeozoic rock-system are important mineral horizons—especially in silver, lead and zinc. In fact, the Palaeozoic system contains most of the important mineral-bearing horizons in the State (not including the copper-bearing porphyries of later age).

The red series or "red beds," comprising the Permo-Carboniferous and Jura-Trias, contain both copper and lead, though not so important as the deposits described in the preceding paragraph. The "red beds" formation, however, constitutes the chief saline and gypsiferous horizon of the State. The gypsum deposits are the most important in the United States. Moreover, it is claimed that the plain of the "white sands" in southern New Mexico is the most

extensive deposit of gypsum in the world. The Permo-Carboniferous rocks are petroleum-bearing; the Pecos Valley being the chief field.

The most extensive rock-system in New Mexico is the Cretaceous. This great system covers more than one-half the surface of the State. It is important as a fuel horizon, since it is prolific in coal, gas and oil. There were mined from this horizon during 1914, according to the state mine inspector, 3,826,885 tons of coal valued at $5,588,352 and 405,127 tons of coke valued at $1,341,732, aggregating $6,930,084. The coal production now comprises one-third the value of the mineral output of the State.

Beds of splendid quality of fire-clays occur in proximity to the various coal fields.

The Tertiary period in New Mexico was one of intense volcanic activity. Most of the great basaltic lava flows took place during this period. Dikes of various types of igneous rocks were formed during the Tertiary. This period was important in the formation of mineral-bearing veins. Most of the active mining now conducted in the State is being done on deposits and veins of Tertiary age. This is especially the case in the southwest part of the State. The most productive and largest operations are conducted in this section.

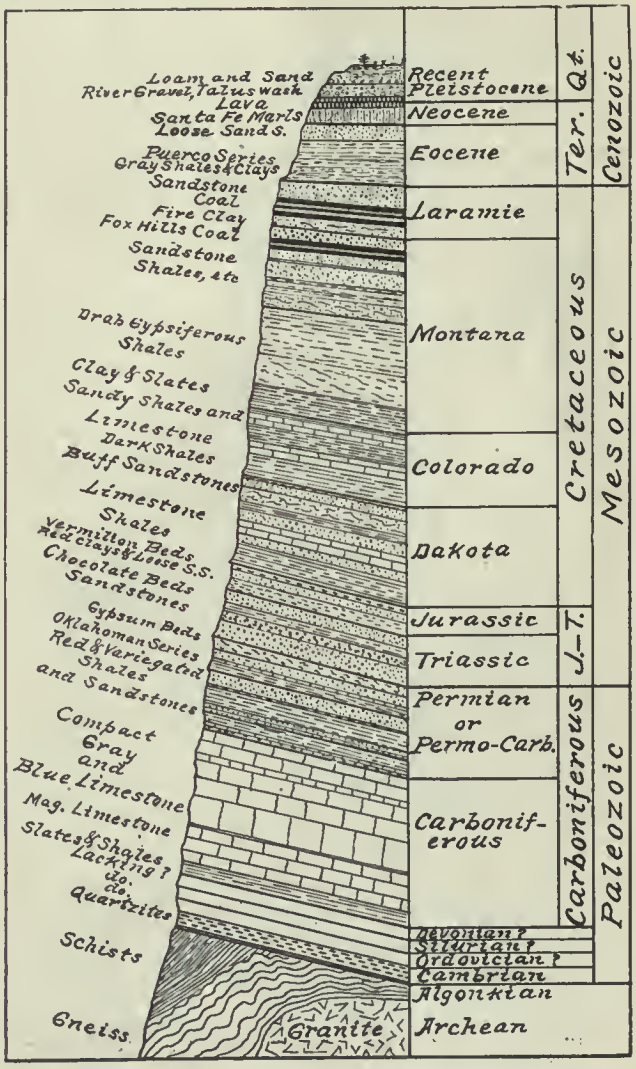
The geologic structure of many of the mountain ranges is complex and difficult to comprehend. This complex variation in geologic structure doubtless had a corresponding effect in the genetic occurrence of the varying types of mineral. Many of the rare and heavy metals occur in the older metamorphic rock. It is believed that no state in the Union is endowed with so great a variety of mineral species as is New Mexico. The recent discovery of uranium and radium-bearing minerals tends to encourage prospecting. A new deposit of wolframite (tungsten ore) has been recently found in Taos County. The magnitude, extent and locality of the coal and gas areas of the State remain, to a great extent, an unknown quantity. The same may be said about the metalliferous deposits. New Mexico is, perhaps, the most favorable field in the United States for prospecting. The chances of success here are far greater for the prospector than in any other part of the United States.

The mining and production of copper at Santa Rita and in the Burro mountains are classed among the big enterprises of the world. The ore occurs principally as a low grade sulphide disseminated through porphyry. These ore reserves are of such magnitude that it will take a half century to exhaust the deposits, mining six thousand tons per day.

The principal zinc and lead deposits occur near Silver City, Cooks Peak and Kelly. In magnitude zinc mining stands next to copper and coal.

Most of the stream gravels carry placer gold; this is especially true in the northern part of the State. Placer mining about Elizabethtown has been active since the discovery of gold in 1866. The placers at Hillsboro in Sierra County and in southern Santa Fe County where the first discovery of gold was made in 1828, are still being worked in a small way.

The chief lode mining in gold and silver is in the Mogollon district in western Socorro County. This camp is among the best in the West. The mines pay a handsome dividend, although they are handicapped by a ninety-mile haul between Mogollon and Silver City. At Rosedale, in the Red River district, and in western Colfax County gold mining is successfully conducted.



Gypsum plants are being operated at Ancho, and at three or four places in the Pecos Valley. The supply of gypsum in the State is practically unlimited.

A fire-clay plant at Gallup is supplying many of the smelters in Arizona and other points with a very excellent refractory brick for converter linings. At Las Vegas, Santa Fe, Raton and Tonque in southern Santa Fe County an excellent quality of good building brick is had.

In western Socorro County, at Estancia and in the southeastern portion of the State abundance of salt exists. In a prospect hole for oil southeast of Carlsbad the drill penetrated and passed through a bed of salt almost one thousand feet in thickness.

Large deposits of fluor spar have been opened and mined near Deming, on the Gila river, Sierra Oscura, and Sandia mountains east of Albuquerque. All of these deposits of fluor spar are quite pure and are valuable for smelting iron ore in the open hearth furnace.

Extensive bodies of hematite exist at the Jones district in the Sierra Oscura, about White Oaks, at Orogrande, in the Gallinas mountains, at Fierro and other points. This iron ore is uniformly of a very high grade and is desirable for making steel. These economic deposits possess great commercial value.

Economic deposits of molybdenite are being successfully worked northwest of Las Vegas. These deposits will become important in the near future. Molybdenite also occurs just east of the city of Santa Fe, but these deposits are undeveloped. At Petaca in Rio Arriba County some exceedingly important deposits of mica occur in pegmatite dikes. These dikes extend through a distance of six or seven miles and vary in width from fifty to six hundred feet. The mica is classed as muscovite and is very transparent. Large sheets from eight to fifteen inches square are not uncommon. The rare mineral samarskite is associated with the pegmatite dikes at Petaca; this mineral carries radium.

Taken all in all the possibilities of the mineral wealth of New Mexico appear unlimited. But few people realize or comprehend the importance and magnitude of the mineral deposits of the State. The greatest heritage possessed by New Mexico is embodied in her mineral resources.

CHURCH LIFE IN NEW MEXICO

IT WAS to Christianize the Indians that the Franciscans accompanied the Conquistadores from Mexico to New Mexico more than three centuries ago. The house of worship was among the first buildings to be erected by the Spanish invaders wherever they went and to this day there is no village, however poor or isolated, but has its chapel. Naturally, the Roman Catholic church has had the predominant religious influence in the State. Santa Fe is the see of an archbishop and has large Catholic institutions, including St. Vincent's Sanitarium, Hospital and Orphanage, St. Michael's College, Loretto Academy and Convent, the Cathedral, Guadalupe church and San Miguel and Rosario chapels, besides the archbishop's palace, parochial schools and secular property interests. More than one-half of the population of the State is Catholic and it is not only at Santa Fe that hospitals, sanitaria, academies, schools are maintained but also at various other points. Among the Indians, missions are maintained but the Protestants are also active in their work among the Pueblos and Navajos and have established mission schools at Santa Fe, Albuquerque and other points, where native children are given training in household arts and practical trades in addition to schooling.

Among the Protestant denominations, the Presbyterians have the largest number of communicants. They have fine churches in the larger towns and in a number of rural communities. They maintain mission schools and mission churches and a sanitarium for consumptives, the latter at Albuquerque. The Methodists come next in number and also maintain missions and schools at various points. The Episcopalians are strong, especially in the larger towns and a resident bishop has selected Albuquerque as his see. The Baptists, Congregationalists, Christians, Lutherans and many other denominations are represented in the State. The Mormons have settlements in San Juan and McKinley Counties and a scattered membership in Rio Arriba, San Juan and Socorro Counties. There are two or three purely religious colonies of religious sects in the State. Such organizations as the Christian Endeavor and Epworth League have a large membership. Of the Catholic organizations, the Christian Brothers, the Franciscans, the Jesuits, the Sisters of Loretto, of St. Vincent's and of the Holy Sacrament are accomplishing noble work in education and charity.

There is a State Sunday School Association and a state Sunday school missionary is establishing Sunday schools in the new communities or in sections where homesteaders are settling.

THE SCHOOL SYSTEM OF NEW MEXICO

BY ALVAN N. WHITE, STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

WHEN New Mexico became a territory under the United States flag, it had but a few private schools and these were conducted at irregular intervals by individual teachers and without any organization. Governor Vigil in his message to the first New Mexico Legislature, in 1847, made this statement in discussing educational conditions: "There is at present but one public school in the territory, that located in the city of Santa Fe, and supported by funds of the county, which are insufficient to employ more than one teacher." When New Mexico became a portion of the United States, it was under a solemn treaty, the terms of which gave an absolute promise of admission to the Union. Under this promise, and also under the pledge of citizenship, there were brought into the United States about ninety thousand alien people who did not speak English, who knew but little of our customs, our constitution or our laws. The United States government did absolutely nothing for many years to improve conditions in education among the Spanish-American people and to this day not one dollar has been given for public school purposes outside of lands granted by the federal government and in no way has our government directly assisted these people to become worthy citizens, as it has since done in Porto Rico and the Philippines, to which islands regiments of competent teachers have been sent and millions of dollars expended for school buildings and education. For sixty years, the government failed to keep its pledge for the admission of New Mexico as a state of the Union and during all this time expended nothing in New Mexico for public school purposes, excepting a donation of sections 16 and 36 of each township as school sections which became available for school purposes in 1898. During the greater portion of these sixty years of territorial regime but little educational progress was made. The territories of New Mexico and Arizona were governed as provinces; their officials, the majority of whom were totally unacquainted with local conditions, being sent under appointment from Washington.

Not until 1891, forty-one years after New Mexico became a territory, was a public school system in reality created. This law provided for the establishment of common schools throughout the territory, created the office of superintendent of public instruction and a territorial board of education. Educational matters began to improve rapidly. From time to time, this first public school act has been wisely amended and additional beneficial school laws passed, until today New Mexico prides itself upon having one of the best harmonized and effective school codes and systems of any state in the Union.

At first New Mexico people were unaccustomed to any direct tax for school purposes. In 1855, when a proposition for levying a general tax for the support of public schools was submitted to popular vote, there were only 37 ballots in favor and 5,016 opposed. Today, the people are quite willing to vote special taxes in addition to the general levy for school purposes.

The New Mexico system of raising school funds is one which is intended and does secure the hearty cooperation of all the people; for provision is made, (1) state funds, (2) a county general school fund, and (3) a district fund. The state funds include a permanent school fund the interest on which only may be used; the current school fund, which is distributed by the state superintendent of public instruction among the various counties according to the number of bersons of school age (5 to 21); and the reserve fund to be used to aid those districts which are unable to hold the minimum five months term, with the proceeds of the local district levy and other funds allotted to such district.

This permanent school fund is made up of five per cent of the proceeds of United States land sales and of the sale of school lands, which now comprise four sections in each township. This fund on December 1, 1912, amounted to $121,040.78 and on the same date of 1913 it amounted to $127,040.78. The interest from banks where this fund is deposited during each fiscal year amounts to several thousand dollars, this being placed to the credit of the current school fund. This fund receives also the proceeds from the leasing of the four school sections in each township, certain licenses, all fines, forfeitures, etc., collected under general laws; and one-half mill state tax.

The state reserve school fund, a fund that is needed and used to aid weak districts in having at least five months term of school, includes half of the current school fund. The unused portion of the reserve school fund is now used to aid weak districts in building school houses. During the past year, there were used for this purpose approximately

$40,000, thus assisting 135 school districts to erect suitable school buildings. Again, the willingness of the people to contribute of their means for school purposes is illustrated; for, under the terms by which a weak district may receive state aid for building purposes, the district must levy the maximum district tax of fifteen mills and the citizens must further contribute one-third of the cost of the building either in money or labor.

The county general school fund is composed of each county's portion of the state current school fund, the proceeds of a three-mill county tax, a portion of the liquor licenses, and eighteen of the twenty-six counties share in twenty-five per cent of the proceeds of the earnings of national forest reserves, this income being placed in the county general school fund. This county general school fund is distributed among the districts, cities and towns by the county superintendent of schools on a per capita basis.

The district funds are composed of the proceeds of a local levy which may not exceed fifteen mills in rural districts and twenty mills in incorporated cities and towns. The rural school levies are made by the county commissioners on request of the district directors, but such levies must be made to produce sufficient funds with other moneys allotted to the district necessary to maintain at least five months of school on the basis of an annual expenditure of three hundred dollars per school room. The district fund receives also its portion of the county general school fund, poll taxes and a part of liquor licenses.

Thus it may be clearly seen that the State acts first, doing its share, then the county, then the district and finally in weak districts the citizens supplement the fund for building purposes. The result is that there is hearty cooperation among the people of the various communities, villages, towns and cities when it comes to educational matters.

Under the state constitution, a state board of education consisting of seven members, including the governor as chairman ex-officio, and the superintendent of public instruction as secretary ex-officio, and five other members appointed by the governor, by and with the consent of the state senate, for a term of four years, one to be a county superintendent, one the head of a state educational institution, and one other a practical educator, was created and given the "control, management and direction of all public schools, under such regulations as may be provided by law". The board issues all teachers' certificates, prepares institute manuals, courses of study and other publications and assists the state superintendent who is the executive officer of the board, to shape the educational policies of the State and to put into effect rules and regulations. The state superintendent of public instruction is an elective officer, his term being for four years and he is eligible to succeed himself. He is required to make official visits to all counties of the State each year for the purpose of supervision, investigations, and rendering assistance generally in educational matters. He is also authorized by law to interpret all school laws, see to their enforcement, apportion state school funds and issue any publications of interest educationally.

Each county elects a county superintendent who has general supervision over the schools of his county. The district is the school unit of organization. In rural communities, there is a board of three school directors, and in the incorporated villages, towns and cities there is a board of education of five members, elected at large, with an appointed city superintendent as administrative officer. These directors and boards in school districts hire the teachers, expend the school funds, and have the general care and keeping of school property, hold school elections, make annual enumerations of school children, collect poll tax, and assist in enforcing the compulsory school attendance law.

Other provisions of the law are: All children, seven to fourteen years of age, must attend some school during the whole time that it is in session; school terms in every district of the State must be at least five months in length; women may hold the offices of county superintendent of schools, school director or member of boards of education, and may vote at all school elections, which elections, except that for county and state superintendents, must be held at different times from general elections; the nature and effect of alcohol and narcotics, also civics and history of New Mexico, must be taught in all the schools of the State; county high schools may be established on majority vote of those qualified to vote at school elections in the county, such high schools being supported by general county levy and in which schools in addition to the usual subjects taught, vocational branches must be added, tuition being free to all children of the county who have completed the first eight grades. The law provides for industrial instruction and for a state director of industrial education appointed by the state superintendent of public instruction. Such state director is required by law to introduce the teaching of vocational branches in all the public schools of the State.

In 1891 there were considerably less than five hundred public schools in the then territory of New Mexico and there were but 552 public school teachers. Today there are 1,017 public schools in operation, in charge of 1,717 capable and efficient teachers. The past year, expendi-

tures for maintaining the public schools, were $1,254,470. The public school census shows more than 105,000 persons between 5 and 21 years, an enrollment of 64,845, with an average daily attendance of almost 50,000. The value of public school property is approximately $1,500,000; that of the state institutions more than $1,000,000; of private schools about $500,000, and of the Indian schools something over $500,000. The percentage of illiteracy has been greatly reduced by the rapid growth and improvement of the public schools. The state educational institutions offer comprehensive courses and have high-class faculties. Each year shows a very satisfactory increase in attendance and the interest of the people of the State is rapidly reaching the point of enthusiasm for their home institutions. The State University at Albuquerque,, the School of Agriculture and Mechanic Arts near Las Cruces, the Normal University at Las Vegas, the Normal School at Silver City, the Spanish-American Normal at El Rito, the School of Mines at Socorro, the Military Institute at Roswell, the School for the Deaf and Dumb at Santa Fe, and the Institute for the Blind at Alamogordo, have extended their scope materially since statehood. While the problem of providing proper financial support for our state institutions has not been fully solved, each institution has received a liberal appropriation of public lands which, supplemented by direct appropriations of the legislature, provides a substantial support for each of them.

Certainly one of the most striking advances made in education in New Mexico, since it became a state, has been the aroused public sentiment in favor of the establishment of standard high schools. The New Mexico legislature in 1912 enacted a high school law said to be unique in some of its provisions. This law contemplates the establishment of one or more county high schools in each of the twenty-six counties of the State, upon the approval of the proposition by a majority vote of the electors of the county. The control of each school is vested in the board of directors, or board of education, of the district in which the high school is located, with the county superintendent as an ex-officio member. The high school board may levy a special tax not exceeding two mills upon all property in the county, the receipts thereof to be used for the maintenance and operation of the county high school. The site and building must be furnished by the district and all children of the county who have completed the eighth grade may attend gratis. The course of study of every county high school must include manual training, domestic science, the elements of agriculture, and commercial science. If more than one county high school is established in any county, the receipts from the special tax must be apportioned between the schools on the basis of the number of pupils who attended at least half the regular sessions of the previous year. Under the provisions of this legislation, there have been established 14 county high schools. The state department of education gives state-wide examinations for pupils who have completed the eighth grade for a certificate of promotion, which entitles them to enter any of the state's high schools without further examination. The present year shows an increase of twenty-five per cent in the enrollment of the high schools. Recently the state board of education fixed a standard course for the high schools of the State and practically all of these schools are now complying with this requirement.

Credit must be given to the many denominational and private schools in all parts of New Mexico which are increasing their capacity and usefulness from year to year. There were enrolled last year in the mission and non-sectarian private schools 4,995, and more than 2,000 pupils in the government Indian schools.

New Mexico is thoroughly aroused to the importance of education and will always consider it a solemn obligation to give the largest opportunity to every child to obtain an education. The people of New Mexico have in recent years been more than willing to vote the maximum levy for public school purposes and when that limit was reached under the law they have by private subscriptions and donations supplemented the state, county, and district funds.

By the act of Congress of June 21, 1898, New Mexico received for her common schools a donation of land aggregating 14,244,480 acres and under the Enabling Act an additional amount of 4,219,520 acres, a grand total of almost eight and a half million acres. The revenues derived from the sale and lease rentals, under a proper administration of these lands, will each year materially increase. The statistics for the year 1913-14 show an average term of school for the more than one thousand school districts of almost eight months. It is the exception rather than the rule to find an unqualified or incompetent teacher in charge of a public school. In the large majority of the schools there will be found a teacher who has had two to four years of high school education and in addition, normal training. Without question, there is no state in the Union which can show that more than one-third of the teaching force of the State spends eight weeks of the summer vacation in the summer normal schools of the State. New Mexico last year established this record. New Mexico challenges her sister states to show an attendance of

more than 50 per cent of teachers in attendance at a state educational association meeting. At such meeting last year the enrollment showed 1,248 out of 1,717 New Mexico teachers in attendance. This year the enrollment was 1,820. In interest, in enthusiasm, and in a desire for self-improvement, the teachers of New Mexico cannot be surpassed by the teaching force of any other state. It was this remarkable interest and enthusiasm, as well as the unprecedented attendance, which led United States Commissioner P. P. Claxton, the principal speaker at last year's meeting, to commend most highly the educational progress being made by the commonwealth.

Progress is not being made along one or two lines only, but in all phases of educational advancement. So soon as a step forward has been taken, another is planned and accomplished. Industrial education has been neglected under territorial rule, but the state legislature embraced the first opportunity, after statehood, to provide for the teaching of industrial branches, not only in the county high schools but in all the grades as well. The state director of industrial education supervises and encourages the work, traveling and lecturing almost continually during the year. That phase of educational progress has now become firmly established in the State. At this time, sentiment has crystalized into a state-wide movement for an increase in the minimum school term from five to seven months and the approaching legislature will undoubtedly comply with the demand. Provision is also to be made to provide for every community, having fifteen or more school children, a suitable school house, with state aid if necessary, giving a minimum term of school for seven months at least, under the direction of a capable and efficient teacher, certificated by state authority. The state does not discharge its full duty by making the largest provision for the education of its future citizens, but it must require such future citizens to take advantage of the opportunities offered. New Mexico has fully met this situation, for it has a most effective compulsory attendance law which, through its various administrative officers and in the larger cities and towns by a paid truant officer, is being rigidly enforced. While New Mexico is developing rapidly its various natural resources, with which she has been abundantly blessed, the commonwealth is not neglecting the proper education of her future citizens and desires to be known far and wide for the educational advantages offered to her citizens and those who contemplate locating within her boundaries. Always she may be found striving to reach this end with every assurance of success!

NEW MEXICO FEDERATION OF WOMEN'S CLUBS

BY MRS. RUPERT F. ASPLUND

THE New Mexico Federation of Women's Clubs was organized in 1911 by Mrs. Philip N. Moore, at that time president of the General Federation of Women's Clubs. The organization was held at Las Cruces, and seventeen clubs became charter members of the organization. Since that time, four conventions have been held; the federated clubs number thirty-five and the total membership is about fifteen hundred.

The work of the federation is carried on through seven departments: civic, legislation, literature, library and reciprocity; education and child welfare, home economics, music and art, public health; and there are three standing committees: history, conservation and club extension. The work of each department is directed by a chairman and two directors, and the management of federation business is vested in the executive board which is composed of the officers and chairmen.

Much of the work of the federation is of the same character as that carried on by the departments of the general federation, while some of it belongs especially to New Mexico and grows out of its conditions. In the department of civics, in addition to the usual war on the fly and efforts for clean-up days all over the State, especial attention is being given to inexpensive and efficient disposal of garbage in small towns, and this department is also planning a campaign for the utilization of the school house as a social center.

The legislation department will maintain headquarters in Santa Fe during the coming legislature and will endeavor to get much-needed legislation on the property rights of married women, the placing of women on the boards of regents of the state institutions, proper charity and correction laws and a code of library laws. This department has assisted in the publication and distribution of a pamphlet which summarizes the statutes of the State which especially affect women and children.

The department of literature, library and reciprocity

maintains a bureau of reciprocity for the exchange of papers among the clubs, and assists in the making of club programs. This department has helped a number of clubs in the starting of small libraries through the State and has interested itself in the matter of library legislation.

In a state so new as New Mexico the department of education and child welfare has a work of the greatest importance. Most of the city schools have already received help from the clubs, and the department is now making an effort to give the same assistance to the rural districts. The matter of women voting at school elections and the election of women to the school boards also receives attention.

The first work of the department of home economics was the effort for the creation of a supervisor of industrial education in the State and for the including of all forms of industrial training in the curricula of the schools. This has been so successfully accomplished that the department is now turning its attention to cooperating with the State Agricultural College in its extension work among the women of the State.

The public health department makes a specialty of the campaign against tuberculosis and is planning a systematic campaign of education on the subject of child hygiene and diet.

The music and art department assists clubs in preparing programs and in planning to aid substantially in the musical and artistic development of the State.

A committee on conservation is working for the creation of national parks in the State, for the preservation of historic places and for the building and maintenance of good roads; while a history committee is planning to recover and publish some of the very interesting though unwritten history of New Mexico homes and families.

The activities of the individual clubs are so many and varied that it is difficult to select from them, but a few may be mentioned here. A number of clubs have started and maintain public libraries; others have parks, playgrounds, rest rooms for strangers and care for otherwise neglected cemeteries. Several clubs own their own buildings which are centers of civic and social life in the various towns. The intellectual life of the community is in many places enriched by the classes in art, music, archaeology or literature offered by the clubs which often bring also the opportunity for hearing high-class lectures, concerts and entertainments. Almost every federated club does something along civic lines. Cleaning up the town, killing the flies, disposing of garbage, inspection of foods, tree planting, etc., show the interest of the women's clubs in the material side of city government, while their efforts for police women and against saloons and "segregated districts" show that their interest in the moral side is no less keen. In many of the towns of the State manual training and domestic science were placed in the schools because of the demand of the women, and the same is increasingly true of physical education. Many mothers' clubs work with the teachers in their efforts to better the schools and some are now reaching out to the country schools and aiding the teachers in the poorer districts by gifts of books, pictures, equipment and even clothing for the children who might otherwise be prevented from attending school in cold weather.

A number of "better baby shows" were held last year, "municipal Christmas trees" will gladden many towns in New Mexico, the "Belgian relief commission" and the "Red Cross" have been generously assisted, not to mention many purely local activities which have received a helping hand from the clubs.

The motto of the New Mexico State Federation is, "And the desert shall bloom as a rose". The women who compose the membership of the clubs in the State feel that as the men of the great Southwest have brought smiling orchards and fields of waving grain from the seemingly barren sands of the desert, so their women-folk are doing their part by cultivating in this new State just emerging from her pioneer period, the flowers of the intellectual, artistic and social life. So shall men and women working together carry New Mexico to that high state of development both material and spiritual which is the goal of all civilization.

DEVELOPMENT OF NEW MEXICO'S HIGHWAY SYSTEM

BY D. R. LANE

IT TOOK the stimulus of the transcontinental automobilist to awaken the good roads spirit in New Mexico and set the community to work building highways that should make accessible the State's many scenic resources as well as satisfy the demands of the farmers for better hauling facilities. The influence of the automobile is strongly felt still and will be for many years, as is evident in the great number of trunk roads the State is building as compared to the few laterals.

Ever since the legislators of territorial days were infected with the goad roads germ and authorized the building of El Camino Real from Raton on the north to the Texas line on the south, that great road has been the backbone of all real, practical or tentative highway systems in the State. This is fitting, for as the Rio Grande divides the State from north to south and provided the conquistadores with an avenue of entrance, so should the main artery of traffic do likewise. El Camino Real, or the Royal Road, to put in into English, will be open to traffic along its entire length early in 1915. It is at present open for all but a few miles of the way, where traffic is detoured over a very good parallel road. This great highway enters the state through the Raton pass, a region of great altitude, splendid mountain scenery and wonderful road building. The road winds about, in and out, twisting and turning through the pass, following closely the old toll road set up by the Woottons in the early days, when every wagon that went through the pass on the road to Santa Fe had to pay tribute. Then for half its length it follows the Santa Fe trail, the first real highway of the west, to Santa Fe. Down from the mountains it comes and southward across the lower reaches of Colfax County until in Mora County it reaches the hills again, and in San Miguel County is once more in the mountains, though not such high ones as the Raton range. However, they are high enough. Along the crests of some of them runs a scenic highway the like of which is not to be found in any

ON THE SCENIC HIGHWAY BETWEEN ALAMOGORDO AND CLOUDCROFT

of the famed districts mentioned in the guide-books. For miles this road progresses at an altitule of 6,000 feet, with a whole wide New Mexico valley full of timber below and the pine-clad slopes of the eternal hills above. Valley and canyon, rolling plain and valley glen, they open to the inspection of the tourist motoring along comfortably above them and each appeals to the visitor to stay awhile until the very number and variety of beauties gluts the sense of the traveler and he no longer appreciates.

Into Santa Fe County the road winds, through the Glorieta pass, scene of a famous running fight in Civil War days and locale of many an Indian battle in those days and earlier ones. Past the once vast pueblo of Pecos it comes, through the town of Canyoncito and into the ancient city of Santa Fe, capital of New Mexico and the oldest

IN CIMARRON CANYON

ON THE CAMINO REAL
Upper and Lower Stretches on the Scenic Highway Near Las Vegas

seat of government in the territory occupied by the United States. From Santa Fe there are side-trips almost without number to be taken: to the cliff dwellings in the Canyon de los Frijoles, to the Pajarito cliff dwelling ruins, to Puyé canyon, to the pueblos of Taos, Tesque, San Juan, San Ildefonso and a dozen others, each remarkable in its own way; to the typical old Mexican town of Agua Fria, to Chamita, scene of the first white settlement in the United States. down to San Cristoval to see the ruins of the pueblo the Comanches destroyed in 1680 and to examine the pictographs which the Indians chiseled into the rocks above the pueblo, to dozens of other places, including the famous turquoise mine near Los Cerrillos.

From Santa Fe the road crosses the mesa south to the famous La Bajada, where it descends 630 feet in a mile and three-fifths, giving at every turn along the way a new view of the valley of the Rio Grande, then seen for the first time, and the mountain ranges which bound it. Some of these ranges located as far south as Socorro can be seen from La Bajada's crest on a clear day. Thence the Royal Road runs south and east past the pueblos of San Domingo and San Felipe, over the hills and mesas into the real Rio Grande valley, the irrigated section, and so south to Albuquerque, the State's metropolis.

It was near Albuquerque that Coronado, on his memorable trip in search of the seven cities of Cibola, spent the winter of 1540.

From Albuquerque the official route of the road is south on the west side of the river, but because there is still a small section to be graded and topped between Albuquerque and Los Lunas, a detour is made nowadays to

TYPE OF ROAD CONSTRUCTED BY THE FOREST SERVICE

the east and the run taken down over the great mesa which borders the eastern side of the Rio Grande for two-thirds of its length to "the cut-off" or, if one likes, to Carthage, oldest coal camp in the West, and so to Socorro over a new bridge and a splendid road, or else to San Antonio by an older bridge and fair road. From Socorro one goes south to San Marcial, where the new bridge allows a crossing to the eastern side again, and then on down the east bank of the river to the state line, passing through Rincon, Las Cruces and several smaller towns, each remarkable for some historic or scenic attraction, as it goes.

At San Marcial one has a choice of another route, that through the Cuchillo-Monticello cut-off, which affords some wonderful scenery of canyons, mountains and daring road engineering. The road in some of the canyons of this cut-off is said to excel La Bajada and the scenic route over Raton Pass for daring and grandeur.

In Sierra County, a dozen miles west of Engle, is the site of the Elephant Butte dam, the largest of the government's reclamation projects. There is a good road from Engle, which is on the Camino Real, to the dam and the trip is well worth making. This dam is impounding waters for a reservoir which will ultimately be forty miles long. A fine road is being constructed along the edge of the reservoir.

Closely connected with the Camino Real, and partly in it, is the highway system of Doña Ana County, an exceptionally good series of roads which lead all through the most populous and prosperous irrigated valley of the State. These roads lead to many points of interest, the Organ mountains, the old Mexican towns, the State Agricultural College, and elsewhere in the county.

There are other routes which may be taken in preference to the direct line of El Camino Real, for after all, a main road must be built for speed and ease in traffic, but detours may be built entirely with an eye to the beauties of nature. These begin almost as soon as the highway enters the State. In Colfax County, detours may be made to the famous Elk Park region, west of the Camino Real, to Red River, or to Cimarron, and thence on through rugged, majestic, mountainous Taos County, past the

ON THE OCEAN-TO-OCEAN HIGHWAY WEST OF ALBUQUERQUE

LA BAJADA

One of the Scenic Routes That Parallel El Camino Real in Northern New Mexico
Scenic Grandeur and Magnificent Engineering on Santa Fe-Albuquerque Highway

ancient pueblo and through the oldest cultivated fields anywhere in the West to Santa Fe, where the main route may be regained.

Near Cimarron, and passed through by a part of the

IN CORKSCREW CANYON
Near Socorro, on the Ocean-to-Ocean Route

great scenic route south parallel to the Camino Real, is Cimarron canyon, perhaps the finest single piece of natural grandeur in the State.. This canyon is many hundred feet in depth, its rocky side-walls rise perpendicularly and in places are broken and eroded to form "palisades" which excel in beauty those famous features of the Hudson river valley. The broad floor of the valley is carpeted with splendid growths of pine, except where the land is being farmed, though there are numberless little parks and glens all through the region. The Cimarron canyon is rapidly becoming known as one of the State's greatest assets in the line of beauty.

Or a trip may be made to the east from Raton, over into Union County, and so down the Gulf-Colorado main route, which passes through Clayton, into Texas. Though a splendid road, the scenic and historic attractions are not so marked on this as upon some others, though at the northern end of the road, that portion which is in New Mexico, they are quite noteworthy.

From Las Vegas, the Meadow City, one may swing off to the southeast from the backbone highway and run down to Santa Rosa, or to Vaughn, or even to Roswell, if one so desires, over very good roads. Some good mountain scenery is available along this route, especially in the Estancia valley and near Santa Rosa.

At Santa Fe a diversion may be taken to old Galisteo, a typical old Mexican town. Thence the main road may be rejoined or the diversion may be continued to Roswell, the road for part of the way being the same as that from Las Vegas.

Northwest from Las Vegas runs the road to Mora, which is entirely practical for automobiles and is well worth taking if there is a desire to see a Mexican agricultural community in process of Americanization. Also from Las Vegas side-trips may be taken into the nearby mountains, to Las Vegas Hot Springs, to El Porvenir, over into the Pecos national forest, the great playground of the State, which is also accessible from Santa Fe, and to many little fishing streams not too far away.

At Albuquerque begin the series of east and west shoots from the parent stem which are main travelled roads, though of course there are minor cross country highways all along. Eastward from Albuquerque, through the canyon of Tijeras ,or "scissors," so-called because in shape it resembles an open pair of scissors, and south through the Manzano range, goes the first leg of the Panhandle-Pacific route, a road intended to link up Texas and Oklahoma

ROAD ON AN INDIAN RESERVATION
Constructed by the Federal Government

ON THE SILVER CITY-HURLEY ROAD
A Fine Type of County Highway

with a main road to California. This it does, for if the Ocean-to-Ocean route ends officially at Santa Fe, at Albuquerque is located its real ending, its first digression from the Santa Fe Trail or El Camino Real.

The Panhandle-Pacific route follows the general line of the Santa Fe railway's Belen cut-off eastward from Willard, where it debouches from the mountains, to Vaughn, then north to avoid the bad crossing at Fort Sumner (this northward swing will be eliminated early in 1915, when the new bridge is completed at Fort Sumner) and south again to Clovis, whence it follows the general line of the Santa Fe railroad to Amarillo, Texas.

The Ocean-to-Ocean route leads from Albuquerque along the eastern mesa of the Rio Grande valley to a point

WHITE ROCK CANYON
A Picturesque Spot, Near Santa Fe, Reached Over
El Camino Real and Other Routes

THE SOCORRO-MAGDALENA ROAD
Seen From the Highest Point in Blue Canyon

opposite Socorro, where it crosses the river, passes through Socorro and swings up the long grade toward the continental divide. It passes through the beautiful Blue canyon in the mountains just west of Socorro, continues past the Mount Magdalena, where a natural rock outcropping portrays the face of the Virgin, or so the Spaniards said, on through the Datil mountains and the Datil national forest to the San Augustine plains, which are crossed, past Quemado and so to Springerville, just over the line in Arizona.

There is another through route westward which has found some favor with motorists and which deserves a great deal of attention. This is the "Northern Arizona Route," the "Grand Canyon Route" or the "Western Extension of

the Camino Real". It is called by all three names. This route, which will be ready for use January 1, 1915, leaves the Camino Real at Los Lunas and runs almost directly west to the State line. The difficult sands of the Rio

CONCRETE BRIDGE AT CIMARRON
Specimen of the Splendid Construction Done In New Mexico Since the Good Roads Awakening.

Puerco, where many cars have been stopped for hours, are crossed on a modern steel bridge. The general route is that of an old right-of-way of the Santa Fe line, abandoned years ago. The maximum grade is two per cent. This route leads past the pueblos of Laguna and Acoma, through the very interesting Navajo Indian country at Thoreau and Gallup and is the route for many of the interesting southwestern pueblos, Zuni, Hopi, Moqui and others.

A few miles from Gallup, and easily reached by a short detour from this road, is the famous Inscription Rock, or El Morro, whereon are to be found the names of most of the conquistadores, some of these dating from the very earliest days of Spanish occupation. This rock is now a national monument and is protected from the acts of vandalism which a few years ago defaced some of the inscriptions.

Though the road also ends at Santa Fe, Albuquerque is the practical terminus of the Gran Quivira highway, a route which perhaps has more of historic interest to offer than any other in the State. This highway leads southeast from Albuquerque through the Manzano mountains, past Tajique, where stands a mound of adobe, the only remains of an ancient pueblo, the only one in the region which was not built of stone; past Manzano, where there are apple trees two centuries old that are still bearing, and past the great ruins of the Gran Quivira and Cuarai, from which it takes its name. These are huge piles of stone, built no man knows when and abandoned in 1670 or so. The sole survivors of their once numerous population are now living in the State of Chihuahua, Mexico, to all intents and purposes Mexican though really they are the last of the Piro Indians. This road continues down through the old cattle country of Lincoln County, through gloomy

IN SAN JUAN COUNTY
Showing the Excellent Highways of This Region

THE SOUTHERN NATIONAL AND GRAN QUIVIRA HIGHWAYS BETWEEN CARRIZOZO AND ROSWELL
1. On the Road to Roswell from Carrizozo. 2. In the Pines. 3. The Highway Winds Beside the Ruidoso. 4. Every Variety of Scenery Abounds Along the Highway. 5. Along the Hondo.

FIFTH ANNUAL MEETING OF THE NEW MEXICO GOOD ROADS ASSOCIATION

canyons lit at the bottom by sparkling streams and over slopes clad in giant pines and spruces, until it comes to Carrizozo. And then it turns east to Roswell, where it joins the Borderland route and the Southern National Highway.

The Borderland route enters the State in the southwest corner, passes into Texas, re-enters again in Luna County and continues across to the Arizona line, passing through Deming and Lordsburg. It is in general use, especially in the winter by transcontinental tourists.

The splendid roads of the Pecos Valley, which are included in this route, uphold New Mexico's fair name as a good roads state well. Roswell and Carlsbad are touched by this route.

The Southern National highway is a comparatively recently organized route which makes use of the lately developed highways which cross southern New Mexico. Some of these roads are very fine. From Roswell to Carrizozo there is a splendid road and from Alamogordo to Roswell there is one which is almost beyond praise as a scenic route. This road is very well built, with good grades and wide curves and on it one can enjoy the unusual sensation of fast driving actually above the clouds. There are points on this route where a downward look reveals a sea of fleecy cloud. The Southern National route passes through Alamogordo, the Mescalero Indian reservation, where some wonderful roads have been built by the government, and on to Las Cruces. This section of the road is also very fine. Thence the route goes west through Deming and Lordsburg.

From Alamogordo extends one of the finest roads in the State. This is the scenic highway to Cloudcroft, which is in truth a city within the clouds, being located at the top of the Sacramento mountains. This road cost over $60,000 and is a splendid asset to the community, not only as a scenic highway, in which capacity it excels, but as a commercial road, many farmers using it to bring their produce down to market. This road runs through canyons and along cliffs, around curves and up tangents, but always up, up, and always amid the smell of the pines. The engineering work on it is very fine but is lost to the ordinary person because of the vast beauty of the surroundings. Splendid views of mountain and valley are obtained from almost every point along it.

The roads of San Juan County are more or less isolated from those of the rest of the State but will shortly be connected both at Gallup and through central and northern New Mexico. The roads in this county are very good.

Considerable road improvement is under way by the State, the counties and the forest service.

ORIGIN OF GOOD ROADS MOVEMENT

BY FRANCIS E. LESTER

THE effect of New Mexico's good roads awakening has been wide and has reached every man, woman and child in the State, either directly or indirectly. Though actual road building on a scale commensurate with the dignity of the State has been going on for only a few years, much less than a decade, the country had good natural roads at the start. Improvement was not an expensive matter, mainly consisting of grading and drainage rather than the installation of expensive top surfaces. The native gravel, the native clays and sands, have been used with marked success in gravel and sand-clay roads, of which there are many miles in New Mexico.

COL. R. E. TWITCHELL
President of the New Mexico Good Roads Association

FRANCIS E. LESTER
President New Mexico State Highway Officials' Association

Gravel roads are the best in the State, but where the traffic is light, sand-clay roads have been very successful. The only large general improvement has been on the Camino Real, the main north and south road, but there are numberless pieces of isolated road improvement, in mountain districts, along scenic routes, and elsewhere. Road improvement in the State is done largely through the State road board, though many counties are doing some of the work. However, as the sentiment is that state roads should be state-built, the counties generally confine themselves to lateral, county seat, or other minor highways. Much of the heavy state work is done by convicts under the honor system, which, all other claimants to the contrary notwithstanding, New Mexico originated. The roads built by state funds are mainly gravel, with substantial bridges and culverts, well drained, laid out on the best possible grades. The county roads are frequently gravel but more often sand-clay, are usually well laid out and drained and often have just as goad bridges as the state roads. The quality of county roads, of course, varies in the different counties. Probably the county roads are best in Dona Ana County, the first subdivision of the State to vote a county road bond issue. This is not saying that individual pieces of other roads are not as good or better than Dona Ana county's general system average.

At present, the Camino Real is an improved road from end to end. And lest the mere statement that it is improved but construed to mean that it has merely been dragged a few times, it is well to add that the State has had from three to seven convict gangs at work on it for nearly five years. Also it is well to note that a road in New

Mexico has not the tremendous traffic of a densely populated region to sustain and that if some means are provided for draining off the torrential but rare rains which are characteristic of the country, it requires only a small amount of maintenance to keep it in first-class condition. There are mile after mile of New Mexico roads where forty miles an hour in a touring car is comfortable riding—if one cares to ride too fast to get the beauties of the scenery.

SINCE BUILDING GRAVEL ROADS IN DONA ANA COUNTY FARMERS HAUL THREE TIMES THE LOAD THEY DID FORMERLY

Road building in New Mexico is directly in the hands of the State Highway Commission, a body created by the first State Legislature. This is composed of the Governor, State Engineer and Commissioner of Public Lands. This board has full jurisdiction over state road funds. It also appoints county road boards, of three members each, in all the state's subdivisions. These county boards are in control of the county road funds but cannot make tax levies, that important duty being allotted to the county commissioners, an elected body.

The county roads are in direct control of all road matters in their respective counties, may open, close, condemn and otherwise acquire or dispose of highways, and have the responsibility of collecting and expending the per capita road tax, which usually goes for maintenance work. The State Board has the power to declare certain roads state highways and to do work on them, to handle the state road funds and to appoint or remove county road board members. So far as highways are concerned, it is the supreme authority of the community.

In many instances State and county authorities work together on one piece of road and there are cases on record where the county commissioners have levied special road taxes to be expended by the State Board.

There is a State Good Roads Association, numbering 1,200 members. This organization is mainly a publicity and "boosting" one. The State Highway Officials' Association, composed of the state and county road authorities, with the county commissioners who make the levies, is an active force in obtaining needed road legislation and in standardizing practices and methods and gathering cost data.

THE OLD SANTA FE TRAIL

NEW MEXICO—SPORTSMAN'S PARADISE

T. C. DE BACA, STATE GAME WARDEN

PAGE OTERO, DEPUTY GAME WARDEN

FOR the benefit of sportsmen and tourists who may care to visit New Mexico I have concluded to give a little general information as to the hunting and fishing grounds in the State and the routes to be taken in order to reach them.

The entire country on the northern line of New Mexico, from Union County in the northeast to San Juan County, in the northwest, is one continuous chain of mountains. Tourists from the eastern states usually come over the Santa Fe system through Trinidad, Colorado, though many travel over the Rock Island railroad. There is very little in the way of hunting and fishing to be found in Union County except in the northern part where there are a few blacktail deer and an occasional bear. This country may be reached by taking the Colorado and Southern railroad from Trinidad.

From Trinidad, Colorado, to Raton, New Mexico is only about twenty-six miles.

The St. Louis, Rocky Mountain & Pacific railroad runs trains from Raton to Ute Park and at the latter station the tourist or sportsman finds himself in Taos County at the gate of one of the finest hunting sections in the State. A stage or sled line is operated between Ute Park and Elizabethtown, a distance of twelve miles and from Elizabethtown to Red River, a distance of sixteen miles. At Red River City the heart of the game country is reached. Mr. C. B. Ruggles, famous in that country as guide, hunter and all round good fellow, lives at Red River and it has yet to happen that hunting parties in his care have not had splendid sport and have failed to bring home either bear, lion or deer. Mr. Ruggles has the finest pack of bear and lion dogs in the Southwest, and is always prepared to furnish saddle horses and pack animals for hunting parties. Red River itself is a well-known trout stream and has always furnished excellent sport. This country may also be reached by coming to Santa Fe and from there to either Barranca or Servilleta stations over the Denver & Rio Grande railroad. At the latter station arrangements for transportation may be made with Mr. J. H. Dunn, who has fine livery and auto service.

Rio Arriba County lying next to Taos County on the northern line has many attractions in way of sport. From Chama, the principal town on the Denver & Rio Grande railroad, the hunting grounds and trout streams are easily accessible. L. M. Gilliland, who resides in Chama, is a famous bear hunter and to all those who desire a sure enough bear rug, I would advise them to interview "Doc" as he is familiarly known. The Brazos, Los Pinos and the Chama and tributaries, are ideal trout streams. In years gone by, native trout, some weighing as much as eight pounds each have been taken out of the Brazos river,

GROUP OF NEW MEXICO PEAKS

Hamilton Mesa, East of the Pecos, 10,000 Feet; Lake Peak, 12,000 Feet; The Truchas Peaks, 13,400 Feet; Santa Fe Baldy, 12,661 Feet.

but at the present time a three or four pounder gives the angler a record. In the northeastern portion of this county are a chain of lakes, Boulder lake, Horse lake and Stinking lake, the latter having a shore line of seventeen miles. Fine duck shooting may be enjoyed on these lakes. In the southern portion, wild turkey are to be found in greater numbers than in any other section of the State. In the adjoining county of Sandoval, excellent sport may be had, as bear, deer and turkey are fairly plentiful in the Jemez mountains. Here are located the celebrated Hot Sulphur and Jemez springs. Many wonderful cures have been effected by the use of the baths and drinking the waters of these springs. The waters are especially beneficial in cases of rheumatism and kidney troubles.

In the counties in the central part of the State, San Miguel, Santa Fe, Bernalillo and Torrance many different species of game animals and birds are found. The Pecos range in San Miguel and Santa Fe Counties is considered to be about the greatest game country in New Mexico. Several resorts have been established along the beautiful Pecos river so that parties desiring an outing will find good accommodations within a short distance of the hunting grounds. Tents, saddle horses and pack animals, and camp outfits can be obtained at reasonable rates at these resorts by those wishing to spend a few days and nights in

GOOD GROUSE COUNTRY

the open. There are probably more bear, lion, bobcats and lynxes to be found in these mountains than in all other portions of the State combined. Many silvertip or grizzly bear have been killed during the past few years and there are some left. Blacktail deer and grouse are abundant and wild turkey are plentiful at intervals. The Pecos river is probably the best known trout stream in this part of the Southwest. This stream is regularly stocked each year and now contains four varieties of trout: blackspotted, rainbow, eastern brook and German brown. To persons desiring to enjoy an outing in this magnificent and picturesque country, I will advise that the Atchison, Topeka & Santa Fe trains always stop at Glorieta station. By notifying Mr. J. W. Harrison in time at Pecos, N. M., comfortable wagons, splendid teams and careful drivers will be on hand to convey parties to their destinations in the hunting country.

NAMBE FALLS, ONE OF THE MULTITUDE OF BEAUTY SPOTS

In Torrance County quail are found on the flat lands while a few blacktail deer and an occasional flock of wild turkey may be seen in the hills.

Outside of ducks along the Rio Grande river, there is nothing in the way of outdoor sport in Bernalillo County. The eastern counties of the State are barren of game with the exception of a few quail and prairie chickens. The latter, however, are protected indefinitely by the game laws. The entire southern portion of New Mexico, from Grant County in the southwest to Eddy County in the southeast, is an ideal country for game of all species. Of the limited number of antelope in the State, most of them are found in the flat plains country in the counties of Si-

erra and Doña Ana. Shooting antelope is prohibited indefinitely. The only band of mountain sheep existing in this section of the Southwest is located in the Guadalupe mountains in the southwestern part of Eddy County. The

CAMP SITE IN BOX CANYON

band numbers about 200 and they always have been, and are at present, given the closest protection by the laws. Native crested, Gambel and Mearns quail are plentiful in all the southern counties. Silvertip, black and brown bear, lions, lynxes, bobcats, wolves, coyotes and foxes furnish exciting sport for the trophy hunter in all the ranges, while blacktail and whitetail deer, turkey and grouse are plentiful enough to keep the larder well supplied. In Socorro County and certain parts of Grant County a few specimens of the "Sonoran deer" have been observed. This small species of the deer family is a recent arrival from Mexico and will doubtless be given special protection in order that it may increase and become permanent. Conditions in Grant County are all that could be desired. Owing to the splendid protective system of the Sportsmen's Association of the Southwest, with headquarters at Silver City, N. M., the different species of game animals, birds and fish are plentiful. Every trout stream in the county has recently been generously stocked with fish. Almost every section which has been described can be conveniently reached by railroad. At all stations along the different lines in the State, supplies and outfits may be obtained and good roads leading into the mountains make such trips easy and pleasant. At no time of the year will weather conditions prevent the sportsman from getting into, or out of, good hunting country. In all the National Forests, the officers are constantly in the field. The Ranger stations are located at different points in the reserves and the trails are kept open during the entire year.

NATIONAL FORESTS OF NEW MEXICO

BY A. C. RINGLAND

THERE are nine national forests in New Mexico, comprising a gross area of approximately ten million acres and bearing a timber stand of fifteen billion board feet of lumber and other forest products. These areas are set aside and administered by the government with the purpose of insuring a permanent timber supply and to prevent the destruction of forest cover which regulates the flow of streams. The national forests of New Mexico provide for a permanent lumbering industry; supply material for the development of ranches, farms, and cities; protect the watersheds essential to agricultural development; add stability to the livestock industry; promote the development of facilities for transportation and communication on the forest areas, and contribute through the receipts derived from their administration to the road and school funds of the counties in which they are situated. Mining, agriculture, and all other uses of the forest areas not incompatible with their primary purpose are encouraged by the forest service.

The timber resources of the New Mexico national forests, under forest management, are estimated to have a present annual productive capacity of about eighty million board feet of lumber, sufficient to build each year 8,000 homes for the people of New Mexico, without diminishing the stand or forest capital. This annual production may be confidently expected to increase largely with the practice of better methods of management. The watersheds which the forests protect affect the flow of most of the important streams in the State, and all of the larger irrigated districts derive a large part of their water supply from the national forests. The greatest enemy of the timber and water supply of New Mexico is fire. Before the creation of the national forests, forest fires destroyed millions of feet of timber annually in New Mexico. But now, with its system of lookout towers, telephone lines, and

trails, the forest service is enabled to detect and reach all fires with great promptness and over ninety per cent are extinguished before they have covered ten acres.

The forest ranges of New Mexico are a large factor in the livestock industry of the State; 98,761 head of cattle and horses and 829,729 head of sheep and goats were grazed during the season of 1914 for a nominal fee per head. The grazing regulations of the forest service protect the small stockmen and are aimed to produce an equitable distribution of grazing privileges and a permanent grazing industry. Under scientific management the productive capacity of the forest ranges is increasing each year through the development of watering places, the construction of range improvements, and the improvement of the forage crop.

The forest service is rapidly improving transportation and communication facilities on the New Mexico forests. It has built 1,000 miles of telephone lines, 64 miles of roads, and 960 miles of trails for the purpose of facilitating administration and protection of the forest areas. Its annual receipts are at present about $135,000 for New Mexico, and twenty-five per cent of this fund, or $33,750 is turned into the county funds for roads and schools. An additional ten per cent has by law been made available to the forest service for use in constructing additional roads and trails. This fund now amounts to about $13,500 per year, and 47 miles of road have been constructed with it on the forests of the State during the two years for which it has been available. With the steadily increasing receipts, these funds which accrue directly to the benefit of the State will increase correspondingly from year to year.

ROAD BUILT BY FORESTRY SERVICE

The national forests of New Mexico offer excellent business opportunities to stockmen and lumbermen who are seeking a location for their business. With the general development of the State, new bodies of timber are becoming marketable, concerning which the forest service furnishes definite information to prospective purchasers. On some of the New Mexico forests are found extensive areas of excellent summer range for which the forest service is desirous of issuing grazing permits to settlers who meet the requirements of the regulation for the allotment of grazing privileges.

In addition to the purely economic resources of the New Mexico forests, they have a large and increasing value in the attractions which they offer to travelers, sportsmen, and healthseekers and in their increasing popularity with the people of New Mexico and adjacent states as a location for summer homes. This value for travel, sport and recreation is largely dependent on a proper preservation of their scenic beauty, the development of roads and trails to make them accessible to the public, the protection of their historical and archaeological monuments and ruins, and the conservation of their fish and game. It is the definite aim of the forest service to accomplish these ends, and to encourage the full use of the forests for purposes of recreation and public health. Few people are aware of the delightful climate, the extraordinary scenery, the wealth of historical and archaeological interest, and the facilities for sport, rest, and recreation which are offered them in the mountains of New Mexico. In fact, many people who have seen New Mexico only from the transcontinental trains have the impression that it is largely desert and quite without forests of any description. This is because the railroads, in order to avoid grades, naturally avoid the mountain ranges and seek the lowest elevations.

The future will see a greater appreciation of the possibilities of the New Mexico forests as a summer playground, and together with their steadily developing economic resources, will enable them to contribute an increasing share of the well-being and prosperity of the State. The Alamo, Gila, Lincoln, Datil, Manzano, Carson, Jemez, Pecos and Chiricahua comprise the national forests of New Mexico.

MOUNTAINAIR CHAUTAUQUA

BY JOHN W. CORBETT

NEW MEXICO owns and maintains a regular Chautauqua assembly, the only one in all the great Southwest and this is no mean asset. It is located at Mountainair, near the center of the State, where it holds its annual sessions in a beautiful park at an altitude of 6,500 feet above sea level and where climatic conditions are ideal. The Mountainair State Chautauqua, although founded in a village of less than 100 inhabitants and in a new and sparsely settled country, has held regular annual sessions since 1908 with an up-to-date platform, department work equal to many of the older Chautauquas and has taken care of the creature comforts of its guests as none of the eastern Chautauquas can.

The location from every viewpoint is ideal. The climate is unexcelled, the location is central; it is located on the Belen cut-off of the A. T. & S. F. railway, the best built road west of Pennsylvania, with splendid connections in all directions and is a radiating point to more places of historic and prehistoric interest than most any other place in all the romantic southwest country. Two automobile highways cross at this point also, making ingress and egress easy and convenient from any point of the compass. Among these places of interest, easy of access from Chautauqua Park, are the historic Mission ruins at the prehistoric towns of Chilili, Tajique, Cuarai, Abo and La Gran Quivira. These missions were built by the Franciscans in the sixteenth century and were destroyed, with the cities in which they were located and from which they are named, in the general uprising of the Apache Indians about 1680, leaving at Cuarai, Abo and Gran Quivira imposing stone structures with walls four feet thick as silent sentinels of a mysterious civilization that flourished before the landing of Columbus and has passed into almost complete oblivion, but indicating a degree of civilization and development equal to and possibly greater than that contemporary European attainments. The Museum of New Mexico now owns the land upon which are located the ruins of Cuarai and La Gran Quivira and the work of systematic development of Cuarai was commenced in 1913, under the direction of Dr. Edgar L. Hewett; in connection with Chautauqua and enough has been done alrady to demonstrate that this interesting Tigua city may be thousands of years old, for the base of the old church building, like all the rest, built in the form of a cross, is built upon and above previous buildings which may have been partially under ground but certainly terraced, several stories high with no entrance ways below the second story. From the study of pottery, skeletons and other evidence being brought to light by excavation it is hoped to form some idea of the age and history of this wonderful people now practically extinct. Of the once great Tigua race there are now left about a half dozen people located a few miles below El Paso, Texas, who have become so Mexicanized that even the language is forgotten except by one man whose age can only be conjectured and who can be induced to speak his native tongue on rare occasions. The work of preserving and developing these priceless relics of a race that has passed will be continued as rapidly as available funds will permit.

The real wealth of a state cannot be measured wholly by its material resources.

TABERNACLE AT MOUNTAINAIR CHAUTAUQUA

NEW MEXICO'S INSTITUTIONS FOR HIGHER AND SPECIAL EDUCATION

BY M. L. FOX

THE institutions of higher learning in New Mexico are efficient to a remarkable degree, considering sparseness of the population by which they are supported. The Carnegie Foundation, after careful investigation, classed the University of New Mexico as one of the three educational institutions of the southern half of the United States maintaining standards sufficiently high to entitle them to the pension fund for teachers. The United States commisioner of education ranks the New Mexico College of Agriculture and Mechanic Arts as one of the six most efficient agricultural colleges of the nation. The New Mexico Military Institute is rated by the War Department as one of the four best military schools for boys in the United States. The two normal schools are rated as among the best in the West, the normal University at Las Vegas having the largest enrollment and the greatest actual average attendance of any normal school in the Southwest.

The University of New Mexico, located at Albuquerque, has more than one hundred students doing actual college work, and the graduating class of 1914 numbered eighteen. While the enrollment and the number of graduates are not nearly so large as in the average state university, the showing is an excellent one when it is considered that the total population of New Mexico is little more than 300,000, and that the Agricultural College and two of the normal schools also have liberal arts courses.

The State University has a teaching force of more than twenty, all of the teachers having taken degrees in the large universities and most of them having taught in the schools from which they were graduated, or in other schools of equally high rank.

Students able to take the required examinations of the University of New Mexico can enter the next higher classes in Harvard, Yale or Princeton.

But students of the University of New Mexico have the additional advantage of close acquaintance with all of

the members of the faculty, an advantage that is coming to be more and more understood in this country, as it long has been understood in Oxford University.

The New Mexico College of Agriculture and Mechanic Arts has a faculty of more than fifty highly trained experts. It is fortunately located in the Mesilla Valley, the center of the great Elephant Butte dam irrigation project, where all of the phases of irrigated farming, orcharding and truck growing are encountered by the student.

All that is found in the best agricultural colleges is found in the Agricultural College of New Mexico.

New Mexico has three normal schools—The New Mexico Normal University at Las Vegas, the New Mexico Normal School at Silver City and the New Mexico Spanish-American Normal at El Rito.

The training given at all of these schools is of high order and the combined attendance of the Normal University and the New Mexico Normal is far higher, in proportion to the number of teachers in the public schools, than is the attendance in the normal schools of any other state in the Union. One reason for this fact is that hundreds of students go to each of them for the purpose of securing academic education, but with no thought of engaging in teaching as a vocation.

"Although the New Mexico Military Institute offers all the studies which lead to entrance into the best universities in the United States, its chief object is to prepare boys for the great battle of life, and the responsibilities of American manhood."

In these words, which are taken from the catalogue of the New Mexico Military Institute, there is expressed the ultimate ideal of every educational institution which has any claim upon the favor of the people. To prepare boys for the battle of life and the responsibilities of American manhood is indeed a noble aim. The natural inquiry follows—how well does the institution fulfill this aim?

To answer this question it is only necessary to call attention again to the fact that the New Mexico Military Institute is officially recognized as one of the first four military academies in the United States. Its graduates attain rank only second to those of West Point in Uncle Sam's army. It has received the highest possible praise from military experts of international reputation. Its standard, physically, mentally and morally, is the very highest. Any young man who can measure up to its requirements is fully equipped for the responsibilities of American manhood.

From both the State and the United States the institute has received liberal appropriations. Its equipment is equal to that of any military academy in the United States outside of West Point. Its discipline, under the management of Col. James W. Willson, the superintendent of the institute, can not be excelled by that of any institution in the world. Its alumni have taken high rank in every walk of life and have reflected the greatest credit upon the institution.

With each succeeding year the usefulness of the institute has increased and by the same token its popularity has grown until it is now recognized as second to none in the Southwest in the training of young men. A new swimming pool and gymnasium are among the most attractive features of the institution which have recently been installed.

The New Mexico Military Institute is justly proud of the records that are being made by its graduates. Its diploma has been accredited and admits the holder to most colleges without examination. Graduates have been admitted to the Massachusetts Institute of Technology, the Colorado School of Mines, Leland Stanford and Harvard Universities, Williams College, Colorado College and Washington and Lee University. The last two colleges offer a scholarship for the ensuing year to be awarded by the faculty to members of the graduating class of this institution.

Located at Roswell, in the heart of the rich Pecos Valley, with surroundings tending to the growth of the moral and cultural side of life, the New Mexico Military Institute makes a strong appeal to all who desire well rounded growth in the young man.

When it is considered that New Mexico is one of the great mining states of the Union, that the entire world is in large part dependent upon the wealth that is locked within the New Mexico hills and that the surface of those hills has barely been scratched by the picks of the pioneers who have worked over them, it does not require any argument to show that a college which turns out trained mining engineers, equipped with brain and brawn to exploit the marvelous riches of the State, is an institution which appeals in a peculiar manner to those who are interested in the material development of New Mexico.

Such an institution is the New Mexico School of Mines, located at Socorro in the heart of one of the richest mining sections of the State. To turn out young men fitted to meet the problems that will confront the builders of the State for the next half century—young men who can make two blades of grass grow where only one grew before—young men who can see beyond the bleak rocks that line the highway and discern the precious metal that is hidden from the gaze of the untutored man—is the mission of the School

of Mines, and that it is performing its mission well is shown by the record of its graduates all through the West.

Under the presidency of Dr. Fayette A. Jones, one of the most skilled geologists and metallurgists in the United States and a man of international reputation as an educator, the New Mexico School of Mines has made rapid strides. The growth of the institution and the increase in its attendance are a tribute to his executive ability and the intelligent manner in which he has conducted the affairs of the college.

"The ideal to which the New Mexico State School of Mines tenaciously holds is the practical directing of young men to take active part in the development of the mineral wealth of the world." Such is the avowed purpose of the institution, and those who have had an opportunity to observe its work will readily concede that this purpose is being accomplished.

Courses in mining engineering, metallurgical engineering, geological engineering and civil engineering are given at the college. The best educational talent available is employed to teach the several branches mentioned and the facilities offered the students for original research are such that no young man attending this institution who has a mind to learn and a will to accomplish the objects for which he attends college can justly say, after he has finished his course, that he has not had the best possible advantages in the line which he is pursuing.

THE CARLSBAD PROJECT OF THE UNITED STATES RECLAMATION SERVICE

BY FRANCIS G. TRACY

IRRIGATION in a large way in Eddy County had its origin under what is now called the Carlsbad Project in 1888, when a corporation founded by Charles B. Eddy, who was then engaged in the cattle business with headquarters near Seven Rivers on the Pecos river, took out a small diversion ditch from the east side of the river, a few miles above the present Avalon dam, and began to cultivate and prove up on lands in the present La Huerta; and by means of wooden flumes carried the water across the river to the site of the present town of Carlsbad (at first called Eddy), and beyond Dark Canyon, covering the river lands as far south as the rocky bluff above the present site of the Public Utilities Company's dam.

At that time Roswell's supplies and mail were brought from Las Vegas largely by Mexican freighters with ox teams. Roswell consisted of a dozen houses and a couple of stores. The nearest railway was the Texas & Pacific, eighty-nine miles south of "Eddy". A sheep camp at Screwbeam, a postoffice and two or three dwellings at Lookout on Black river, and the same at Seven Rivers; "Bob Gilbert's" house on the Penasco; and a house at Torres' Lake, were the only signs of habitation in the more than 150-mile stretch between the settlement at Roswell and Pecos on the Texas & Pacific. All cattle watered at the streams and surface lakes; and east of the Pecos, except for Clayton Wells, there was practically nothing.

The vision of two men gave the needed impulse to start the development which has created two of the banner counties of New Mexico,—Chaves and Eddy; and has made the Pecos Valley a household word throughout the United States. The nucleus of all this modern development was at Carlsbad.

Charles W. Greene, then editor of the Santa Fe New Mexican, making a trip for his paper through veritable terra incognita, alone in a one-horse cart, became deeply impressed with the wonderful possibilities of this fertile wilderness. A night at Eddy's Ranch, where these two enthusiasts swapped dreams, exchanged air castles and became mutually enamoured of each others' capabilities, a compact was formed for the full development of the entire irrigation possibilities of the Pecos watershed from Roswell to the Texas line, and beyond to Pecos.

LAKE McMILLAN STORAGE RESERVOIR—CARLSBAD PROJECT

A corporation was formed with Eddy, Greene and Pat Garrett as the chief directors and shareholders. Eddy and

Garrett were to furnish promotion funds and obtain the necessary land filings; Greene was to be general manager, and went to Chicago to find wherewithal to fill the treasury and pay for the construction necessary to start the "boom" which was confidently expected to meet all contingencies and bring unlimited fortunes to the promoters.

It was soon found that the expense of development was far greater than anticipated and James J. Hagerman of Colorado Springs, then in the zenith of his financial power, became interested in the work and assumed control of the company in 1890, and had entire direction of the development.

In 1893 Mr. Greene failed, and shortly afterwards both he and Mr. Eddy disposed of their interests in the Pecos Valley.

Through the following years of financial stress and physical disasters, through flood and personal ill health, Mr. Hagerman stood undaunted by the valley. He completed the construction works as planned, and by building the railroad from Pecos to Amarillo assured the permanence and safety of every individual investment in the valley, and undoubtedly brought about by his sale to the Santa Fe the early construction of the Belen cut-off.

It is a curious coincidence that, in spite of the tremendous natural resources of this entire region and the wonderful development that has taken place, creating fortunes for many individuals and furnishing livelihood for many thousands, there has never been a profitable promotion scheme in the entire main program necessary to attain this success.

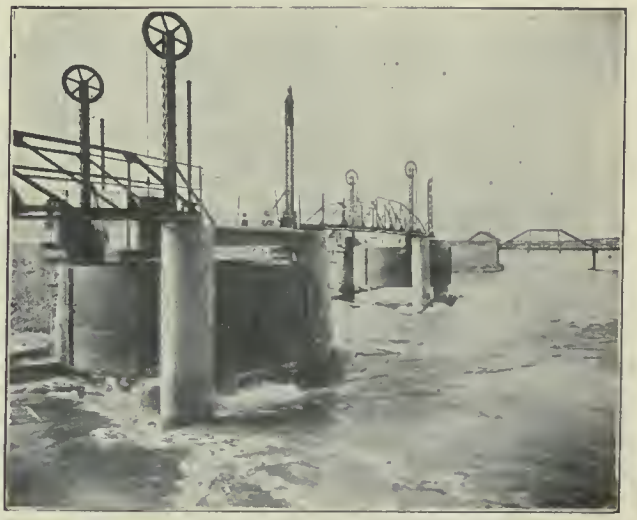
Financial embarassment, coupled with flood disaster to Avalon dam, necessitated the sale of water rights and irrigation works at Carlsbad to the United States Reclamation Service in 1906. The price paid, $150,000, was approximately ten cents on each dollar of original construction expenditure. Since then the Reclamation Service has already, or will in the near future, have expended $1,250,000 in repairs, betterments and extensions of the work to make what, when completed, will undoubtedly represent the most perfect irrigation system that the art of man can provide. The Carlsbad Project as it now stands comprises two storage reservoirs, formed by dams thrown across the Pecos river; the larger, Lake McMillan, capacity 70,000 acre feet, twelve miles north of Carlsbad, and the smaller, Lake Avalon, capacity 7,000 acre feet, half that distance. From the latter is taken the main canal, starting on the east bank of the river and crossing to the west side three miles below in an enormous concrete flume, consisting of four arches each 100-foot span by 25-foot spring in the clear, the intermediate supports each with a contact of 25 by 8 feet upon the concrete rock of the river bed, with massive approaches at each end resting upon the same rock, and a waterway above, 20 feet wide by 18 feet deep in the clear, and 500 feet long, with railway iron reinforcements every four feet in the floor, sides and across the top. The piers and arches are not monolithic; but the forms were built and the concrete poured in upon the principals of masonry arch construction with a "keystone" at the top of each arch, and are without reinforce-

CONCRETE AQUEDUCT ACROSS PECOS RIVER—CARLSBAD PROJECT

ment of any description, except that the keystone, forming part of the floor of the waterway, contains its proportion of the rails above referred to.

This unique and impressive structure, standing in close proximity to one of the great natural wonders of the Pecos Valley—the famous Carlsbad Spring, from which the town and project both take their names—affords one of the most popular attractions for visitors and sight-seers, and is a favorite resort for the people of Carlsbad, two miles away. From here the main canal as now in use extends on the west side of the river for about twenty miles, passing Carlsbad, Otis and Loving, crossing Black river, and terminating a few miles beyond Malaga.

TUNNEL SPILLWAY-OUTLET—CARLSBAD PROJECT—LAKE AVALON



TUNNEL SPILLWAY-INTAKE—CARLSBAD PROJECT—LAKE AVALON

SYSTEM OF HEAD-GATES USED ON MAIN LATERALS—CARLSBAD PROJECT

Embraced under this system are 20,000 acres originally watered by the Reclamation Service and about 5,000 acres recently alloted water which will be delivered in 1915.

The McMillan Dam, a rock structure with earth apron 1686 feet long, and raised by the government to 55 feet in height, has withstood every onset of the Pecos river since originally constructed in 1893 and is felt to be impregnable. It impounds the most extensive and beautiful body of water to be found in the State of New Mexico, and will only be exceeded in size by the Elephant Butte reservoir.

The Avalon dam is a rock fill structure similar to McMillan, but owing to location necessitating spillways at each end of the dam, is strengthened with a concrete and sheet pile core wall and furnished with two spillways of unique and different types. On the west is a concrete curved overflow wall 400 feet long with a concrete spill base. On the east, two massive tunnels through solid rock discharge into the river bed, when open a seething torrent comparable only to the Horse Shoe Rapids of Niagara, and well worth a special trip across the continent to see.

From the eastern shore of Lake Avalon nightly may be seen one of the wonders of the universe, constantly recurring but never repeated,—the magnificent New Mexico sunset, painted in the flaming colors of God's palette upon the sky above the rugged foothills of the Guadalupe moun-

tains, and reflected in a thousand softer hues from the placid waters of the lake below.

The main canal following the necessary contour of the valley, affords not only interesting examples of engineering skill and different types of concrete structures, among

SECTION OF MAIN CANAL CARLSBAD PROJECT

which may be mentioned an inverted syphon 400 feet long and 6 feet in diameter passing the entire water supply under a typical torrential dry canyon; but many pretty water scenes are found and from its elevation extended views of the irrigated section between it and the river in sharp contrast with the desert plain upon the other side.

Cementing of this canal is rapidly proceeding and this and a complete drainage system for the entire project are among the more immediate plans of the Reclamation Service for the comfort and security of the settlers.

The skillful, substantial and permanent character of all the government engineering structures at once attracts and holds the interested attention of the prospective settler. When he reflects that this work is done not for profit of some corporation, but for the sole benefit of the irrigator himself, and that the re-payment is required in annual installments covering a total period of twenty years without interest charge, he can at once appreciate the scope of opportunity offered by his government to the man who will make two blades of grass grow where none has grown before.

It is possible that some of the work done might be done more cheaply by private enterprise; but when one considers that the payments required average only five per cent upon the total cost annually, and that the only limit placed upon the loan is the amount necessary to do whatever will produce the best results, there can be no question of the immediate and permanent superiority of the settler's conditions and prospects under government irrigation as compared with the best of private enterprises offering only equal acreage and equivalent climatic and marketing conditions.

The Carlsbad Project without fear of successful contradiction claims to offer the best inducements of any of the government projects in the following particulars:

1. Climate and Health: The best in New Mexico and the best all year in the United States.

2. Diversity of Crops: The greatest of any government project not even excepting the Rio Grande.

3. Closer proximity to market, owing to geographical situation and railway connections.

4. The highest prices for staple products, such as alfalfa, grains and fruits.

5. The most favorable conditions for profitable livestock production for either breeder or feeder. A perfect climate for winter feeding without shelter.

6. A most abundant water supply constantly increasing. A friable and easily tilled soil, whose large potash content is continually replenished from the irrigating water, whose nitrogen is drawn by alfalfa from the atmosphere, and which requires only occasional light application of phosphoric acid and wise husbandry to increase steadily in productive capacity.

7. All crops produced are above the average in quality.

METHOD OF IRRIGATION: YOUNG ORCHARD—CARLSBAD PROJECT

This applies not only to fruits and garden products but to the staples such as alfalfa, cotton and corn.

A brief explanation of these claims may reasonably be demanded.

Situated in the southeast corner of the State, and protected on the west by the Guadalupe range of mountains,

9,500 feet high, and less than 30 miles distant, while their foothills run down to Carlsbad and cross the Pecos on the north, forming a sheltering barrier 14 miles wide to divert every threatening Texas norther, the Carlsbad Project has the lowest altitude and mildest climate in the "Sunshine State". For the same climatic reason every known crop suited to any portion of the temperate zone may be produced: Cotton, out-grading any of the Texas districts; Indian corn, as good as the corn belt and as productive; winter oats, wheat, barley and rye, alfalfa, peaches that top the markets anywhere in the states; winter apples, tomatoes, celery, cantaloupes, watermelons, Denia onions, sweet potatoes, asparagus in March,—the list is practically unlimited. Where can it be duplicated?

Situated upon the Santa Fe railway which runs through the entire project from north to south, and connects with the Texas & Pacific at Pecos, Texas, the markets of the whole country are open to the Carlsbad project, while no farm is distant over three miles from a shipping point. We are nearer the East than any other government project by many miles, while the South right at our door is the greatest alfalfa market of the United States; and the great and growing state of Texas after August 1st each year is always in a state of drought, offering a market for everything we can produce.

Unlimited range production of livestock on all sides of the project maintains a high local market for grains and cotton-seed, and furnishes abundant opportunity for the purchase of livestock for feeding purposes, while the constant sunshine and dry winters do away with need of shelter and reduce the maintenance rations of livestock from 33 1-3 per cent to 50 per cent of those required by northern feeders.

The same condition reduces largely the cost of living during the winter months.

The topography of the Pecos Valley is such that no reservoir site is available from McMillan north for nearly 200 miles. The entire run-off of the Pecos flood waters is therefore available for storage for use of the Carlsbad Project; another reservoir site between Avalon and McMillan reserved for the use of the project will doubtless be utilized for a large increase in the irrigable area. The supply has been estimated as ample for 75,000 acres. It is confidently expected that 50,000 to 60,000 acres will soon be reclaimed. Meanwhile an extensive area of flowing artesian wells extending from Lakewood to Roswell, about sixty miles, is constantly increasing the return flow into the Pecos river above Carlsbad, without expense or risk to our water users.

In every acre foot of irrigating water applied to our lands is contained fifty pounds of available potash—not made in Germany! For the full use of this potash the phosphoric acid must be replenished in our soils, either by manuring, stock-feeding or by applying high-grade acid phosphate.

The great supply of sunlight and high mineral content of the soil, coupled with the ability to furnish just the proper amount of moisture required by every crop, together assure the highest quality of all products. This has been repeatedly demonstrated by market returns.

At the National Irrigation Congress at Albuquerque, Eddy County won the Hearst trophy for best county exhibit, not only in competition with the New Mexico counties, but with the leading counties of Arizona, California, Colorado, Idaho, Oregon, Utah and Washington. The great counties of Los Angeles, Fresno and Maricopa competed and were beaten. Eddy County won chiefly because of great variety of products; secondly, because of the high quality of everything shown. While the whole county was represented in this exhibit the great proportion of products came from the Carlsbad Project itself.

Under the Carlsbad Project is a good place to live because of climate and natural advantages, because of opportunities offered, because of its people, its churches, schools, roads, telephones, electricity for lights and power. Because of its past achievements, its present opportunities and its future prospects. Come!

THE ELEPHANT BUTTE DAM
UNITED STATES RECLAMATION SERVICE'S LATEST TRIUMPH

BY JOHN LEISK TAIT

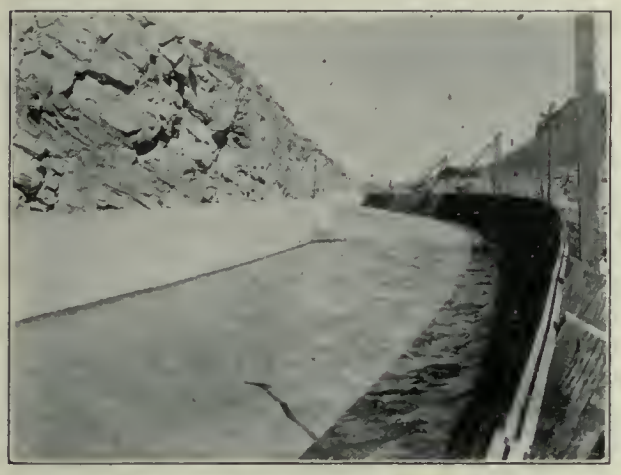
THE keystone of the Elephant Butte reclamation project, and the most gigantic thing of its kind ever undertaken by the United States government, is the Elephant Butte dam.

This huge monolith of cyclopean concrete is located at Elephant Butte, New Mexico, fourteen miles west of Engle, on the Rio Grande. It is 1,200 feet long on top. It is 215 feet wide at the bottom. It rises 304.5 feet from its bed upon the solid rock, 85 feet below the bed of the river to the top of the parapet wall. It is surmounted by a roadway sixteen feet wide.

From solid rock in the east wall of the canyon to solid rock in the west wall of the canyon, it knits across and down to the solid rock far below the bed of the river—an immovable, imperishable door against which all the wrath and caprice of the great stream will be forever exerted in vain. It is pierced by twelve openings, and these openings are controlled by gates which the cunning of man has compelled the river itself to operate for him at his will. The formidable stream is bound and haltered. It is bitted and hobbled, and henceforth must obey as a well-broken steed obeys his master's behests.

ELEPHANT BUTTE DAM SITE LOOKING NORTH FROM EAST BANK - NOTE SLUICE TUNNEL GATES AND LANDING PLATFORM

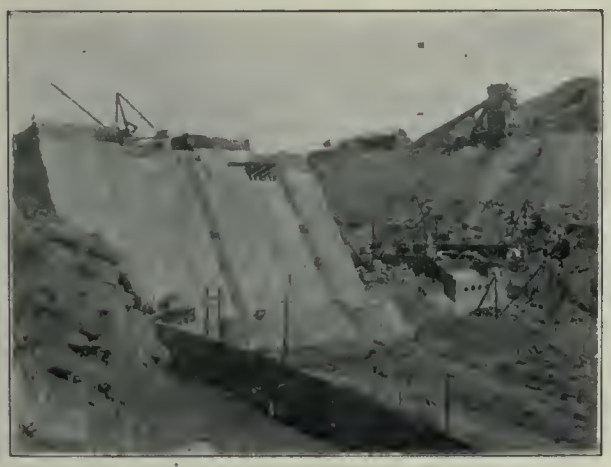
There are 550,000 cubic yards of concrete in this tremendous dam. Reduced to avoirdupois, this means 2,200,000,000 pounds of made stone. And this enormous mass of manufactured rock is set upon foundations grouted to a depth of 40 feet below the base of the dam through



THE BIG FLUMES (NOW CLOSED) BY WHICH THE RIO GRANDE WAS CONDUCTED PAST THE DAM WHILE THE LATTER WAS BEING BUILT

drilled holes ten feet from center to center. Grout is a cement soup. This has been forced at high pressure down into holes bored 40 feet below the surface on which the dam rests, and, permeating all cracks in the natural rock foundation, has bound it into one unbroken and unbreakable mass.

Every possible precaution has been taken to guard against damage to the big dam, from whatever source. The chief source from which damage is to be apprehended in a structure of this sort is the undue absorption of water. This, in time, weakens the concrete—lessens its cohesiveness. Two measures have been taken to prevent this.



THE ELEPHANT BUTTE DAM IS NOW ABOUT 80 PER CENT COMPLETED

The first of these consists of a double line of drainage holes running the whole length of the dam and emptying into a spacious drainage chamber which discharges near the base of the dam on its lower side. These drainage holes are eight feet from center to center. They vary in diameter from eight to twelve inches.

The second is an inch-thick coating of grout on the upstream face of the dam. This is applied at high pressure by a "cement gun". The cement gun is merely an airbrush on a gigantic scale. It uses compressed air to drive a thin spray of liquid cement mixture hard against the surface of the dam. The great force with which this is applied renders it so solid that when once it has dried it is practically water-proof. It is a great protection to the concrete fabric lying behind it.

TWO OF THE BIG BALANCE VALVES BY WHICH THE FLOW OF WATER WILL BE REGULATED FOR IRRIGATION PURPOSES

Another menace to the dam is found in the alternate expansion and contraction induced by changing temperature. This has been provided against in tongue-and-groove expansion joints placed at adequate intervals along the whole length of the dam.

Piercing the dam at varying elevations are six penstocks. These are intended to be used in connection with a large hydro-electric plant in converting the water power developed when the water stored behind the dam is released for irrigation purposes into electricity. This electricity is to be used to run various machinery in the valleys below, as well as to pump water for irrigation upon the adjacent mesas.

The Elephant Butte dam will create the largest artificial lake of its kind in the world. This lake will have a shore line of 200 miles and an average depth of 66 feet. It will store 862,200,000,000 gallons of water. This is water enough to spread more than two feet deep over the whole state of Delaware. It is water enough to perfectly irrigate the whole 180,000 acres of land included in the Elephant Butte project for nearly three years without a single drop added to it. In other words, if the river should dry up and no rain fall for nearly three years, there would be no water famine in the lands under the Elephant Butte project.

This great dam is now so near completion that water is already being stored behind it, and this water will be available for irrigating the 1915 crops. In addition to this, work is in full swing on the construction of the system of canals and ditches and diversion dams by means of which this water is to be delivered to the lands under the project. The Elephant Butte dam itself will cost, when complete, $7,200,000. The diversion dam at Leasburg, already finished, is a fine piece of concrete construction. Another diversion dam is being built a few miles below Las Cruces. This will cost $100,000 and will be topped with a permanent roadway across the Rio Grande. The Franklin diversion dam just above El Paso is already completed. By means of these several diversion dams, the channel of the river will be utilized as a main canal over much of the project, thus vastly reducing the excavation which would otherwise be necessary.

Some conception of the relative size and importance of the Elephant Butte dam may be had from the fact that it will store more than twice as much water as the celebrated Roosevelt dam. It will store fifty per cent more water than the great dam built by the British government at Assouan, in Egypt. It is the greatest triumph of the Reclamation bureau, not only as an engineering feat but because of the actual service it will render—a service which is at once augmented and made possible by the character of the lands which it is to serve.

PART TWO

The Counties and Cities of New Mexico

THEIR INDUSTRIES, RESOURCES AND THE MANIFOLD OPPORTUNITIES OFFERED THE INVESTOR, HOMESEEKER, HEALTHSEEKER TOURIST, RANCHER AND MINER

NEW MEXICO'S ERA OF PROSPERITY

GENERAL COLONIZATION AGENT

ATCHISON, TOPEKA AND SANTA FE RAILWAY

BY C. L. SEAGRAVES

THE war in Europe will make a difference in the Southwest, where it will put a premium upon every remaining untilled, arable acre of its five great valleys, extensive plains and mesas. The reason is that more kinds of products can be raised in greater abundance in this section than in any other part of the countrry. The long growing seasons, the deep, rich soils, incomparable climate, abundance of water where needed for irrigation, the absence of necessity for expensive buildings for the protection of stock, and unexcelled railway facilities, make it the dependable source from which may be drawn the big demands of home and foreign markets.

New Mexico has secured a three-ply guarantee from Uncle Sam. Within its borders are three government irrigation projects,—the Hondo, Carlsbad and Rio Grande. The Elephant Butte dam of the Rio Grande project impounds water from the Rio Grande river, forming a reservoir forty-five miles long that averages one and three-quarter miles wide and sixty-six feet deep. The computed capacity of the reservoir is 2,642,292 acre feet. The project embraces about 155,000 acres of land, lying in south-central New Mexico and extreme southwest Texas. The cost of the project approximates $8,000,000. With the exception of tropic fruits, practically every requirement of the markets of the world could be supplied, at least partially, from this great valley, providing its acres all were under cultivation.

The Mimbres Valley of today is a shining example of the wonders wrought by the magic of the pump when conditions are right. In the Deming district of the Mimbres Valley of New Mexico we find an erstwhile cattle range converted into innumerable truck gardens, producing orchards, alfalfa and grain fields, where, as in other sections of New Mexico, much is being done to assist the newcomer and make straight his path in the direction of prosperity.

The Carlsbad project embraces the southern section of the Pecos Valley that forms the southeastern part of New Mexico. This project is comparatively small when contrasted with that of the Rio Grande, but is of relative importance to the community whose lands it reclaims and causes to produce in abundance practically everything and anything not of the tropics.

Alfalfa and apples, peaches and pears, have long made the Pecos Valley famous. There is a shallow water and an artesian belt included in the territory known as the Pecos Valley of New Mexico. This territory is attracting many who desire assured returns on their investment of money and labor.

In northeastern New Mexico, all the way from Springer to and including Las Vegas territory, there is a prosperous general farming and stock-raising country. A number of private irrigation projects have been developed successfully and a particularly promising future is foretold by a prosperous present.

Although its resources are scarcely more than tapped, New Mexico is recognized as rich in mineral wealth. It also has a wool producing record to be proud of.

Therefore, on the strength of its ability to deliver the goods to uncle Sam, who already has begun his gigantic task of feeding the world, New Mexico invites to share its increasing prosperity every energetic, progressive farmer who has an ambition to better his circumstances.

MIMBRES HOT SPRINGS

BY SAMUEL T. CLARK

COMPARATIVELY little is known to the outside world are New Mexico's many hot and medicinal springs, of which one of the most interesting groups are the Membres Hot springs, thirty-eight miles from Deming, the seat of Luna County. These springs, accessible as they are to a railroad center where three transcontinental systems meet, and easily reached over a goad automobile road, parts of which approximate a boulevarde, are rapidly becoming better and more widely known, though it would be difficult to praise them more highly than they are being praised at present.

The reason is not far to seek, for the waters of the two score and more springs which have temperatures of 150 degrees or more have demonstrated a wonderful curative value in the treatment of rheumatism, gout, anaemia, venereal diseases, nervous troubles and affections of the bowels and kidneys. That this curative value is real is evidenced by the residence of a physician, not financially interested in the exploitation of the springs, in the settlement centered around them for the last seven years. This physician, who has employed the curative waters of the springs in the treatment of many cases, is a strong advocate of their use because of the success which he has attained through them.

The Mimbres Hot springs are located amid the most

SAN JUAN HILL AT MIMBRES HOT SPRINGS

picturesque surroundings, at an altitude of 6,000 feet. The temperature, however, is warmer than would be expected at such an altitude because the heat from the springs affects the whole basin in which they lie. Sometimes this effect is so great that plants and shrubs growing along the stream which flows from the springs remain green through bitter frosts. The springs are near the thickly wooded slopes of Mount Sawyer in the Blanck range,

MIMBRES HOT SPRINGS, SHOWING LOCATION OF HOTEL

close enough to the mountain country to make hunting easy and yet not too far from a modern community for easy access.

The route to the Mimbres Hot springs runs for the first half of its length along the beautiful highways of the Mimbres Valley, crossing the bridge over the dry bed of the Mimbres near that city and then heading straight for Mount Cook. When this river is next crossed it is at Dyer, where it is bankful of cool, crystal-clear mountain water, busily on its way to the fertile fields of the valley below. Then the road lies through the alfalfa fields and the famous orchards of the upper Mimbres, sheltered on either side by the hills that sometimes close up to form almost a gorge that is barely wide enough for the river and the road. Thence to Old Town, where the old Butterfield Trail is crossed, and the remains of a pioneer days stage station are to be seen, and so beyond Schwartz to the mouth of Hot Springs canyon winds the road.

In Hot Springs canyon begins the real climb which takes the highway from the 4,300-foot level of Deming up to the 6,000-foot altitude of the springs. With motor panting and passengers entranced by the changing panorama of mountain and valley, the automobile twists and turns around curves and up grades, up, up, to the last final rise whence the first glimpse of the springs settlement is obtained. The upper road is worked by the management

of the springs and is in good condition all the time, but requires careful driving and a steady hand for there is a precipice on the canyon side more than 200 feet deep.

At the end of the trip, which takes about two hours and

A BIT OF LANDSCAPE AT MIMBRES HOT SPRINGS

a half, are the buildings of the springs, some of them so old that no one knows when or by whom they were built. Among them is an old Mexican ranch house, with towered corners and loop-holed walls, built for defense against the Indians when the Apaches were a menace to all the settlers of the Southwest. Near the group is the ruin of an ancient bath house, built by the Indians so long ago that even the adobe walls have crumbled and fallen. It is even thought that this bath house may have been built by the prehistoric peoples who left their records carved and lined into the white faces of the cliffs along the canyon.

The office stands at the end of a shaded drive, and before it is a beautiful clear pool, around which the shrubs and grasses remain green all the year because of the warmth of the water. The other buildings are detached and stand at the brink of the canyon facing an enclosure which is given over to an alfalfa field and the hotel gardens. At the upper end of this enclosure the waters for irrigating the few acres between the houses and the opposite canyon wall are impounded in another pool. The hills which surround the place provide shelter from every possible wind and serve to confine the warmth of the waters.

The springs are now under the management of Hilliard Brothers and J. G. Cooper, who plan numerous great improvements. Among these is an artificial lake ten acres in extent where Hot Springs canyon and Cold Springs canyon join, a new modern hotel—though the present one is verry comfortable—a pavilion, a new outdoor swimming pool, a conservatory warmed by the flowing water, where fruits and vegetables for the hotel tables will be raised in winter, as well as flowers for decorative purposes; a modern bath house, a stadium, rifle range, tennis courts and all the other adjuncts to a first-class tourist and health resort. The lake is to be stocked with trout and other game fish and motor boats will be placed on it. From the waste water which escapes over the dam at the foot of this lake electricity will be generated to furnish light and power to the community. As the flow from the warm springs is estimated at 500 gallons a second, and the cold spring flow at least equals this, it will be seen readily that there is ample power at hand for this project.

At present the hotel has its own dairy and poultry plants. When the newer structure is erected these will be enlarged. One notable feature of the present establishment is that warm water from one of the springs up the canyon is piped to the hotel and there used for heating purposes, thus effecting a considerable fuel economy. A cold spring only a few feet distant from this one supplies water for domestic purrposes.

To date, only about forty of the hot springs have been walled up and their flow analyzed. Almost all of them are now running freely down the canyon, their waters going to waste so far as their thermal or curative properties are concerned. This waste, however, is soon to be stopped, for as the resort increases in patronage it is expected that more and more waters will be utilized.

It is expected that the proposed additions will render the springs suitable for a large general patronage not only from New Mexico people but from those outside the State. The natural beauties of their location, the easy accessibility of the mountains with their game and the streams with their fish, the wonderful properties of the waters from the springs, the convenient arrangement of the hotel and bath facilities and many other features are believed to be strong factors in support of the development and exploitation of these springs and the attendant resort.

LAKE ON THE GROUNDS OF MIMBRES HOT SPRINGS HOTEL

LUNA COUNTY

ONE OF THE MOST IMPORTANT IN THE SUNSHINE STATE

BY WILLARD E. HOLT, Secretary Deming Chamber of Commerce

THE New Mexico Bureau of Immigration had a very practical idea of the fitness of things when in speaking of Luna County the following language was used:

"A land of promise for the homebuilder, offering every condition of climate, soil, water and successful agriculture. Known for many years as the cattleman's paradise, and with tremendous mineral resources."

Further reference to the county is made by the Bureau concerning its soil, climate, etc. Concerning its climate the Bureau speaks as follows: "A climate without equal in the world for the alleviation of diseases of the throat and lungs, and at the same time adapted to the successful maturing of almost every crop grown in the temperate zone."

Speaking of the soil the Bureau has this to say: "A soil that is rich, deep, enduring, easy to work and highly productive."

Luna County was formed the first year of the present century, and because of its agricultural possibilities and vast mineral wealth it required a good deal of energy and well directed effort to induce Grant and Dona Ana to let go of this domain that took in by far the largest and richest portion of the Mimbres Valley. A good many prominent citizens of this region took part in the fight, but to Mayor John Corbett, J. A. Mahoney and Judge Edward Pennington should be given the credit of pulling the cord that unveiled fair Luna. The county is one of the smallest in the State and is fast developing into one of the wealthiest. Its chief city and county seat is Deming. The outlying towns and villages include Columbus, Hondale, Iola, Hermanas, Mimbres, Waterloo, Arena, Cambray, Akela, Myndus, Miesse, Carne, Luxor, Whitney, Parma, Tunis, Mongola, Gage, Quincy, Wilna, Faywood, Spalding, Mirage, Florida, Cooks, Nutt and Easley.

The county's chief governing body is composed of three Commissioners elected by the people at large. There is also a full quota of county officers including a County School Superintendent. The general topography of the county makes it very attractive, the towering mountain peaks on every side and the vast level plain covering by far

DEMING HIGH SCHOOL
Highest Salaried Teachers in State

ELECTRIC PUMPING PLANT
1800 Gallons per Minute

the greatest area. Beautiful mountains are in sight at every point in the county. Rich minerals abound in great value, and are as yet practically untouched. Great herds of cattle feed on the mesas and bring great wealth into the country. Agriculture, stock raising, fruit raising and every desirable pursuit of the husbandman may be followed in this delightful region from the first day of January to the last day of December. It is a region, in fact, which because of its exceptionally productive soil, mild climate and abundant water supply, produces practically every product that farm and garden and orchard grow in the temperate zone, with the one exception of citrus fruits, and it is a source of much satisfaction that the seasons are all plainly marked, which is far more desirable than the raising of citrus products.

The average annual rainfall is about nine inches, and comes largely at the time crops are growing.

The Bureau of Immigration in its official publication says:

"With fewer cloudy days than any other section of the land of sunshine, with the winter temperature cool enough to be bracing, but never severe, Luna County, particularly in the valleys where they have such altitude as 4,000 feet, offers the ideal climate for the health seeker and at the same time presents the most favorable conditions for the successful growing of almost every crop known to the temperate zone. The soil varies from a light sandy loam to heavy adobe. It is easy to work and responds with marvelous readiness to cultivation. The presence of adobe in the soil renders it particularly satisfactory in irrigation, in that the soil once saturated will carry water with little loss from percolation."

Concerning the market conditions, the Bureau speaks as follows:

"Luna County comes very near to furnishing ideal conditions as to market, chiefly because of the exceptional transportation facilities and close connection with the largest markets of the Southwest. The county is literally surrounded with prosperous mining camps where population and demand are increasing very rapidly. These camps consume thousands of tons of provisions annually and the demand for fresh foods is enormous, it being difficult to supply them with vegetables and poultry even during the most favored seasons. The prices paid are always the highest. But in addition to the mining camps the railroad lines which cross the county in all directions give immediate access to the larger mining towns of Southern Arizona, to El Paso and to the towns along the Santa Fe to the north. It is, in fact, a location as to markets that is absolutely ideal and every pound of grain and forage, of produce and fruit that the county can produce will be in eager demand."

This great valley with its rich lands and matchless climate would be of comparatively little value without water, and after four years of practical demonstration there is no possibility of a doubt concerning the matchless purity of the water and its never-ending abundance.

Referring again to the State Bureau of Immigration, it has this to say concerning the water supply: "It is a water supply that is positively inexhaustible, in so far as geological and engineering experience can demonstrate, and all experience in pumping from this flow proves that the harder a well is pumped the stronger becomes the flow and the capacity. With such a water supply the valley has a source of irrigation water that is both dependable, cheap and easy to handle."

Other reliable information concerning our inexhaustible water supply is given by Mr. A. J. Wells, a noted author and writer on irrigation farming, who in speaking of the Mimbres Valley says:

"In this arid land this is fundamental and the farmer and the investor want to know the facts. They want to know the source of supply, its abundance and its permanence. If the water is not in sight, how can we be certain that the supply is inexhaustible? Let us try to make the situation clear. It is not difficult, it is not guess work, it is not theory: it all comes down to tangible figures and evidences which are conclusive and can be grasped readily.

The Mimbres, or sunken river, heads in the Black Range in the northwest. It flows in a southeasterly direction, and under normal conditions keeps on top of the ground for about forty miles. In flood times it flows much farther and passes ten to twelve miles southeast of Deming, a distance of about ninety miles from its source.

The drainage area of the river from its source to the point where the Government's engineer made his observations is about 500 square miles. The drainage area below this point is much larger, the watershed of the Silver City Draw having a drainage area nearly twice that of the Upper Mimbres, so that the total is figured at 1400 square miles. The rainfall in the mountains near the source of the river is averaged at twenty inches annually and the normal discharge of the river in the upper valley, the flood water and the underflow are placed at something over nine billion cubic feet, or 224,710 acre feet. An acre foot, you will remember, is the amount of water which would cover an acre of land one foot deep.

This, observe, is the annual flow of the Mimbres River at a point about thirty miles north of Deming. The sinking river carries into the valley about Deming—into its

underground sands and gravels — water sufficient every year to cover more than 224,000 acres one foot deep.

The drainage with which the Government Report deals is of the upper reaches of the river only, and is estimated at 500 square miles. But the watershed of the Silver City Draw has a drainage area nearly twice as large as shown by official maps, and comes into the Mimbres at a point below King's Ranch, where the engineer's measurements were made. This would double the underflow, or make a total of about 450,000 acre-feet feed annually into the reservoir underlying the Mimbres Valley.

COUNTY COURT HOUSE
Deming, New Mexico

DEVELOPING A NEW WELL
Near Deming, New Mexico

But this is not all. Here are the flood waters of the Cooks Range, of the lower Burro Mountains and of the mountain ranges at the southern end of the basin which drain into the underflow of the lower Mimbres.

This all means vast subterranean strata of sand and gravel under this entire valley, and when precipitation is greatest, and water appears in the river-bed and comes by Deming, it is an indication that the underground river is full to overflowing. As the Government's engineer says, 'The surface water is only the surplus appearing after the underground channel is surcharged.' It is water out of sight, but it is there. It cannot evaporate in our constant sunshine; it cannot leak out, and we are daily demonstrating that it cannot be pumped out, and that it is practically inexhaustible.

A few wells have been here more than twenty years. They have been largely increased in number in recent years. Some of them are tested by pumps of large capacity. They all seem to be inexhaustible. They show no difference in volume during different seasons of the year, or different years, indicating a constant and uniform underflow. Pumps in use here throw from 600 to 1500 gallons per minute, and the testimony is that the harder a well is pumped the stronger is the flow and the capacity, and that wells improve from the first. One prominent farmer says that on a 72-hour continuous test the water in his well was not lowered an inch after the first head had been lifted off, and that the seepage head of thirteen feet is restored in fifteen seconds after the pump stops."

It is the experience of a number of our farmers this year that the water in their wells is from six inches to two or three feet higher than it was a year ago, and it is the universal experience that the wells that are two or three or more years old are giving a much better flow than they did when they first started. This is due to the fact that the sand is all cleared out and there is nothing to obstruct the underflow. Another important fact, that when two big wells are operating two or three hundred feet apart, as in the case of the city waterworks, the pumping of one has no effect on the other. Throwing all theories to the winds, these are facts that cannot be controverted.

The Victorio District in the western part of the country has produced about two millions in gold, silver and lead.

Nearly all of the mountain ranges in the county are very rich in minerals and at the present time it may be truthfully said "the ground has hardly been touched".

Mimbres and Faywood Hot Springs, near Deming, are among the very best health-making places in America.

DEMING SETS THE PACE

By WILLARD E. HOLT
Secretary Deming Chamber of Commerce

IF ANYONE doubts the statement that Deming sets the pace, let him visit that hustling, bustling city that has grown from an unpretentious village to a commercial center in four years.

Four years ago the Mimbres Valley began to attract some of the hard-headed farmers of other States in the Union, and by a system of intelligent publicity conducted by a live commercial body that number has been steadily augmented from week to week and month to month until today no better class of husbandmen can be found in this great commonwealth.

For countless years this great valley, or more properly speaking, level plain, surrounded by towering mountains, has been blessed with an inexhaustible supply of underground water, pronounced by government chemists to be as pure as water in its natural state can be. Numerous windmills here and there watered vast herds of fattening cattle, but no one supposed that science and American genius would devise ways and means to bring this water to the surface in quantities sufficient for large irrigation projects, and at a price within the reach of profitable farming. The first pumping plants installed and the first large wells constructed cost a good many dollars in experience, but today the intelligent farmer consults other intelligent farmers and knows just what to do to make a success.

Another fact that is becoming more and more patent is that small farms are the most profitable ones, and that intense cultivation of a small area produces much greater proportionate profit than larger areas farmed in a haphazard manner.

When people first came to settle on farms in this great rich valley they were entirely without experience in irrigation methods and rather imagined that they needed a vast acreage. They soon learned, however, the folly of their first idea, and it cost some of them very bitter experience. They have since become acquainted with exact conditions and are now reaping the reward of knowing how to do things.

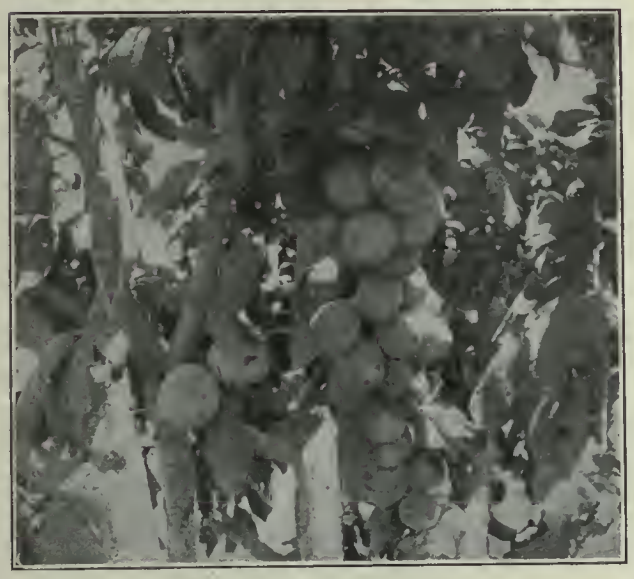
The thing that appeals to people who come from all over the country to the Mimbres Valley is that the publicity sent out does not in any manner seek to overdraw conditions or make them appear better than they are. In fact, it has become a very common thing for people coming here to drop into the Chamber of Commerce and say that things are far better than they really anticipated from the information that had been given them. The Chamber of Commerce has never given its endorsement to anything but absolutely straight methods in the handling of real estate, and can say with a good deal of satisfaction that there are no real estate "sharks" allowed to operate in this vicinity.

Irrigation by pumping has long ceased to be an experiment in the Mimbres Valley, improved machinery and a thorough knowledge of how to dig the wells and install the pumping plants have made farming conditons here such that there can be no such thing as failure when the simplest rules of irrigation pumping are followed. Farmers are learning all the time that cultivation is one of the elements that makes success certain.

It is interesting to note that since the beginning of the present year every state in the Union and an even dozen foreign governments have contributed of their population to the Mimbres Valley. Sensible people are quick to understand that there can never be another land crop in the United States, and they are equally quick to observe that this country is increasing in population at the rate of millions each year. They also realize that the old settled states afford no opportunity for advancement, that is, opportunity has long since ceased to knock at the door in communities that have been established for a century or more. They realize, by experience, that the little old village back in New England and in many of the northern states, is smaller today than it was ten or twenty years ago. They are also not slow in observing that many of the counties have the same or a smaller population than they had a decade ago, and that the same is true of a state now and then. The father gets to talking it over with his sons and they arrive at the conclusion that there is very little room for expansion in the old home community, and that if they are ever going to make a success that is always desirable on the part of progressive people, they must go to some place where opportunity offers better advantages.

Many, many years they have lived in the rain belt and have figured every spring whether or not their crops were likely to amount to anything that season. Experience has taught them that about one season out of every three or four gives them the worst of it, and they are likewise cognizant of the fact that it takes six months of any year to make arrangements to live for the other six months. It doesn't take any argument to convince them that these facts are true, for they have been experienced all their lives.

Usually some one of a neighborhood figures out that he isn't getting a square deal in life and strikes out into the



BLUE ITALIAN PRUNES
Hubbard Farm, Near Deming, New Mexico

"boundless west," or more modernly speaking, into the "Greater Southwest". He has had some correspondence with commercial bodies or some friend or relative and has acquired a very limited knowledge of what he will see when he arrives at his destination. If he comes to New Mexico, naturally his ticket is bought for Deming, as that is the chief railway center of the State, and by reason of its unexcelled natural environment is a great commercial and business center. At the present time it requires little or no argument to convince any intelligent citizen of the United States that New Mexico has the edge over all sections of the country when it comes to a delightful climate. Experts from two continents have published this fact to the world, and when our own government sent out its trained experts to determine the best place to establish a military sanitarium for the treatment of invalid soldier boys, it was only the natural thing for them to locate the gigantic enterprise under the turquoise sky of the Sunshine State. There was no coercion about it or any influence brought to bear. It was a straight case of the survival of the fittest. That is why Fort Bayard Military Sanitarium was established and is maintained a short distance northwest of Deming. It is the largest military sanitarium in the world.

Pure water is another very important factor in the selection of a permanent home, and that is where Deming and the Mimbres Valley excel any other portions of the Union. The water underlying these great rich plains is as pure as any water that can be found in all the world. It is used for every purpose inside or outside of the household with no chemical treatment whatever. The housewife doesn't find it necessary to maintain two kinds of water in the home, hard and soft, as it is all soft.

Naturally the farmer looking around is deeply concerned in the richness of the soil and the lay of the land, so to speak, and when he arrives in the Mimbres Valley he finds things very much to his liking. He is also concerned and very vitally, too, concerning the class of people who are to be his neighbors, and the neighbors of his friends who will follow after, and it is a matter of supreme importance that he finds in this progressive city of the oldest-newest state in the Union people very much like himself, who were not satisfied with the narrow environment of the old home and had struck out for better things and had found them. It is very pleasing to him to find a better class of stores, better schools, a larger number of churches and social conditions unsurpassed in any portion of our commonwealth. This is somewhat of a revelation to him, and when he writes back home or returns to make arrangements to settle here permanently, his friends really find it hard to believe what he says about this great country and its opportunities. His friends appear to believe that he has become infected with the booster spirit of the Southwest, and it is only when they come down here themselves that they become fully convinced that his statements are absolutely true.

When the farmer finds he can raise anything here that can be raised in any semi-tropical region on the globe, it is altogether natural that he should make inquiries about the markets, and right here is where the Mimbres Valley is strong again. Within easy radius of the valley and connected with it by a network of railroads, is a mining population and a string of sanitariums going into the tens of thousands that cannot raise as must as a peanut shuck, and it is certain that their food products must be either supplied by the Mimbres Valley, or shipped through Deming, as this is the gateway to the greatest mineral belt in the whole country. There is also an outlet for our

products east or west on the great trans-continental railways, that you will note by any United States map, radiating in all directions.

The farmer finds here the ideal place for dairying, poultry raising, fruit raising and general all around farming. He works, at his pleasure, twelve months in the year and is in close proximity to the greatest natural playground on this continent. The Switzerland of America is at his very door. Within a day's automobile drive he can strike the great Gila National Forest, where he finds big and little game, fishing and hunting in a region that is almost like paradise itself.

DAIRY FARM
Near Deming, New Mexico

The general attractiveness of this region and the knowledge of its marvelous opportunities, the certain return for money invested and the splendid character of its citizenship have induced large capitalists to put into development vast areas in this valley. One company is now developing close to 100,000 acres in 5,000-acre units Another company has already developed ten to twelve thousand acres, and still another company has purchased upward of 30,000 acres and has taken options on 70,000 acres additional which will be put into developed farms for the people who are coming to this valley to make their permanent homes. Still another company is developing in the immediate vicinity of Deming 37 forty-acre farms, all ready for the thrifty farmers of the north and east to occupy and begin the dual process of coining dollars and enjoying life.

The idea of living in the open and making the body strong and vigorous and the mind quick and active is something that appeals with great force to humanity. The hot, stuffy, humid climates of the north and coast countries are such a contrast to the dry, pure air of the mountain states, and particularly at this altitude, that it is really a pleasant change for the whole family after having existed, because their father and mother, and perhaps their grandfather did, where life is scarcely worth while, as compared with the health-giving ozone with which this country is always blessed.

More than a passing notice is due to our splendid system of public schools, and the hearty support given educational matters by the people. A single instance is given to show the perfect unanimity of action. Recently the county voted to establish the county high school at Deming. This entailed on the entire county an additional tax of two mills, and yet, every precinct in the county, with the ladies all voting, came up with a unanimous ballot favoring the project, with the exception of two, who either misunderstood the method of casting the ballot or else had the unenviable distinction of being the only two undesirable citizens in the county.

STOCK FARM
Near Deming, New Mexico

Nearly all of the great men of the Nation have paid Deming a visit at various times and never one has failed to give us the seal of his approval.

There has just been established in Deming a factory for the manufacture of a scientifically constructed iceless refrigerator, that bids fair to be one of the great industries of the country. By scientific evaporation of water and circulation of air refrigeration is maintained without cost.

The community spirit of Deming and the Mimbres Valley has made the region famous throughout the country, and it is a matter of great importance that the railroads and all public utilities have caught the spirit of cooperation and are working in harmony for the general good of the region. These are tremendous factors in the upbuilding of any community, and go far toward emphasizing the

welcome that here awaits the intelligent man who seeks to better his condition and make the most of his opportunities.

The sentiment of a prominent farmer of Wisconsin will certainly be of interest, and we are copying, verbatim, the letter of Hon. R. B. Dean, formerly of Orange, Wisconsin, for one of his home papers, a few weeks after his arrival here to make his home in the Mimbres Valley:

"We were prepared to see a truly wonderful country in New Mexico, which is not inappropriately named "the land of Sunshine". Our two sons, Harry and Harvey, have been living here for four years, and we have been kept posted during that period, but when we say this is a wonderful country we mean every word of it. The climate is the most delightful in any part of the United States. Farmers here work in the field every day in the year if they so desire, and as they don't have to depend upon rain to water their crops there can be no such thing as crop failure. All watering is done here by means of irrigation, the water being brought from below the surface at an average depth of 50 to 60 feet, by means of powerful pumps, run either by electricity or crude oil engines. There are at present operating in the valley three hundred or more of these pumps, delivering from 500 to 1800 gallons of water per *minute*. One can scarcely appreciate this great volume of water, which in the larger size pumps, makes a river in the course of a few seconds, and by means of which the thirsty land is made to produce an abundant harvest.

We have seen a good many splendid fields of growing crops in good old Wisconsin, but we never saw anything superior to what we have seen in this great Mimbres Valley of New Mexico. We call it a valley, when it is really a great level plain with only just enough slope to be easily and properly irrigated.

We had the pleasure of a somewhat extended automobile drive a few days ago with State Senator C. J. Laughren and Secretary Holt, of the Chamber of Commerce. who took us to both the electric and engine driven pumping plants, and when we say that we were surprised, it is putting it very mildly. We were simply amazed to see the volume of water, pronounced by the Government to be the purest in all the world, being pumped from about 50 feet below the surface. The secretary made a snapshot of your correspondent standing by the side of one of the main ditches and in alfalfa, the second cutting of this year, which reached fully up to his pockets. As proof of this I am going to mail you a picture as soon as they can be developed, and you can put it up in the office to prove to people that I am not exaggerating. We saw one crude oil engine in particular that had been in the service for a period of four years, and were reliably informed that this pumping plant often ran for two or three weeks day and night without lowering the water plane an inch. We speak of this to let you understand what a perfectly inexhaustible supply of water underlies this great valley.

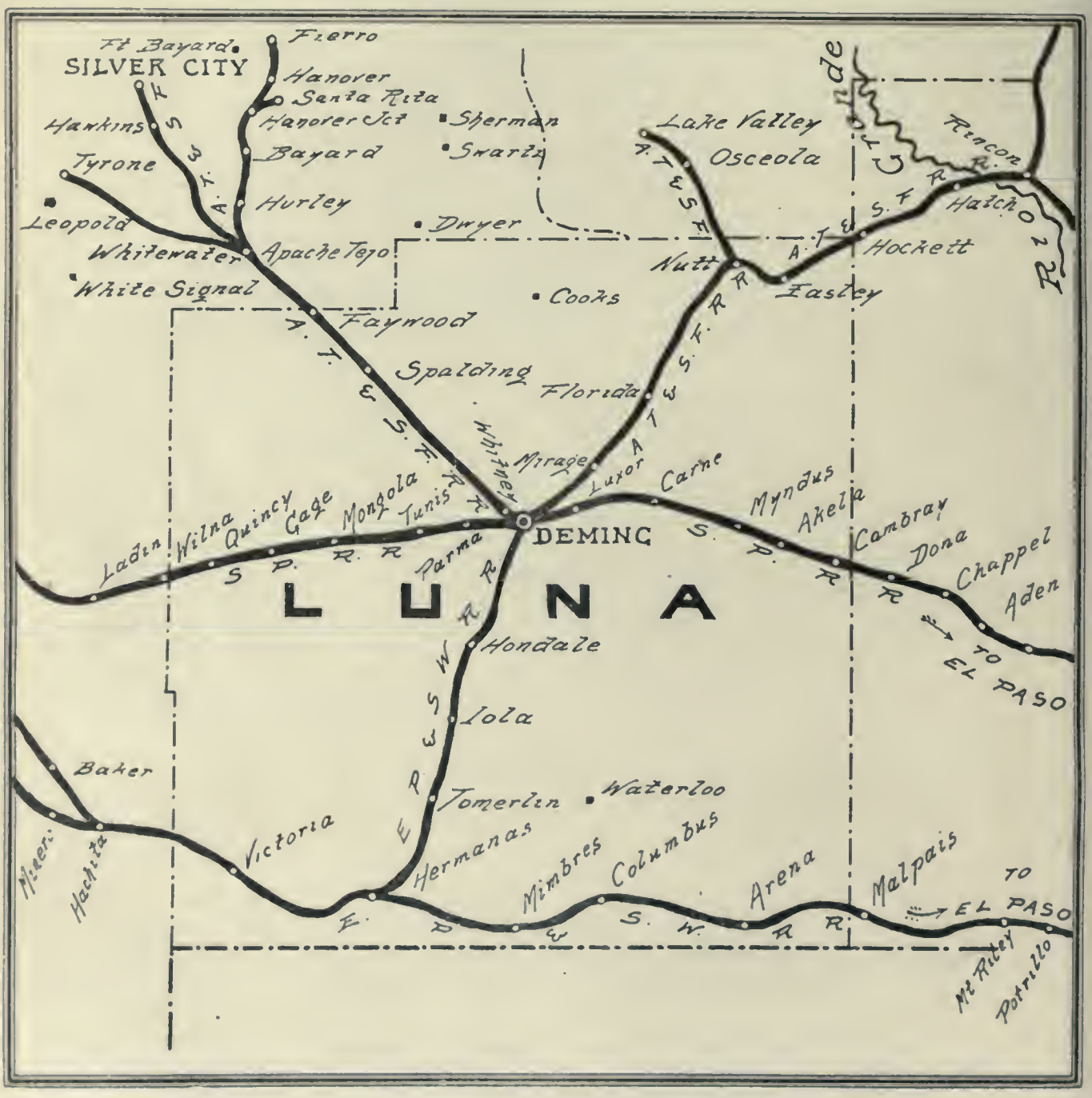
We are sure you will be interested in knowing that everything grows here that can be grown in any semi-tropical climate, and because of the great richness of the soil the abundance of production is almost beyond comparison.

Deming is one of the most modern and progressive cities of 4,000 inhabitants that it has ever been our pleasure to visit. They have here schools that would be a credit to any State in the Union, every modern convenience that can be found in any city of its size in America, and a cordial hospitable spirit that makes one feel glad he came here. The growth of the city is solid and sure; the northern man finds here as fine stores and mercantile establishments as can be found anywhere. There are in this city nine churches, and the social life of the town cannot be bettered in any State in the Union.

Nearly every day we drop into the office of the Chamber of Commerce, and note the fact that this little city and country supports the livest body of its kind in the whole State. We note with particular interest the fact that on the daily register appear names from all parts of this country, and frequently from foreign countries."

Luna County has the largest per capita wealth of any county in the Sunshine State. Here, health makes wealth easier.

For further information regarding Luna County, the Mimbres Valley and Deming, address Willard E. Holt, Secretary, Deming Chamber of Commerce, Deming, N. M.



ROOSEVELT COUNTY

W. E. LINDSEY

THE area out of which Roosevelt County was constructed by act of the Legislature, approved February 28th, 1903, began first to be settled in the year 1898, when the Pecos Valley and North-eastern Railroad was built through it, connecting Amarillo, Texas, with Carlsbad in Eddy County, New Mexico. In the first instance, after Territorial government, a part of Lincoln County; in 1903, the area now covered in Roosevelt County was known as Precinct Number One of Chaves County; and Portales, the County Seat, was distant more than ninety miles from each of the two most approximate county seats, namely, Roswell and Puerto-de-Luna.

Location.—Roosevelt County is a middle eastern border county of the State and as now constituted, is approximately thirty-three and thirty-four degrees North latitude

VIEWS AT PORTALES, ROOSEVELT COUNTY

1. Santa Fe Depot. 2. Roosevelt County Court House, Portales. 3. High School, Portales. 4. Power Plant at Portales.

PRIVATE LAKE—ROOSEVELT COUNTY

and is between one hundred and three and one hundred and four West longitude. Its altitude is approximately four thousand feet.

Topography. — The area of Roosevelt County is "Plains" Country, under general description, but definitely defined, it must be said that the plains surface composes valleys and elevations that grade from one to the other at an almost imperceptible angle of elevation or depression. The valleys are broad and level, extending gradually into the likewise wide and level mesas.

Soil.—Generally, the soil throughout, is a sandy loam, underlain, at varying depths, with a lime formation that contains inexhaustible elements of fertilization.

GRAPES GROW LUXURIANT IN ROOSEVELT COUNTY

Natural Growth.—Mesquite, grama and sedge grasses abound and cover the surrounding soil in its natural state. Occasional natural trees, and stumps evidence the very probable fact that in earlier times the area supported a considerable forest growth which was destroyed by forest fires. Each year, for several years after the writer settled at Portales, wide areas of the country was burned over by fires, destroying the abundant accumulation of grasses and all new tree growth.

Rainfall.—The annual rainfall in the area of Roosevelt County, during the years measurements have been taken, has been approximately twenty inches. May, July and August are designated as the "wet" months of the year. So that in the so-called "dry farming" industry, May has

ORCHARD AND LOCUST GROVE—PORTALES

become the month for planting, June a time for intense cultivation then the rains of July and August make the crops. Thus usually, abundant harvests of maize, kaffir corn, feterita, cane and broom-corn are made in brief time with a minimum of labor. Climate and the alleviation of diseases considered, it may be truthfully said that Roosevelt County is the best section in the world.

Settlement.—The entire area of the county, with the exception of probably twenty quarter sections which had already been entered or titled by purchase, was, as late as the year 1900, "free" Government land, subject to Homestead Entry in tracts of 160 acres. In the nine years, from 1900 to 1909 inclusive, practically the whole area of the county was filed on and settled under the provisions of the Government Homestead Laws, so that the census of 1910 found a population of more than 12,000 in the

ONION FIELD—ROOSEVELT COUNTY

county. In this comparatively brief time, the title to the lands has passed from the General Government to private individuals and are, in consequence, practically without complication.

Development Resources.—(a). Roosevelt County affords an ideal situation for "stock farming" and dairying. Throughout the deeper surface water areas, that industry is fast developing. The abundant natural growth of exceptionally nutritious natural grasses, affording sustenance for stock during the entire year. Or if closer grazing through the long season of mild weather, is practiced, a minimum of feed is required to carry the stock through the brief periods of colder weather or when the ground is covered with snow. By a proper regulation of the location period, for the greater part of the herd, abundant dairy product may be obtained through consumption of the natural grasses alone and at a minimum cost. It has already been shown how abundant forage feed crops are produced for stock feeding, also at a minimum cost. Anyone desiring an easy living has here and in this, an opportunity unsurpassed.

(b). In the "Portales Valley" of Roosevelt County, there are some one hundred and fifty thousand acres of level, fertile land, grading southeasterly at about the rate of five feet to the mile, which is underlain with an inexhaustible reservoir of the purest sand filtered water, at depths of from one to fifty feet. This water has already been tapped by power wells and pumps, and development under irrigation, has been successfully and permanently established. A central electric power plant, with more than seventy miles of power transmission lines, carrying pumping power to many individual farms, has been in operation since 1910. Special description of this power plant and its attendant activities may be seen elsewhere in this publication. Besides the central power plant, many individual oil and gasoline pumping power plants are in successful operation in the valley. Yet there are numerous oppor-

PORTALES VALLEY ORCHARD
Showing How Ground Between Trees is Utilized for Diverisified Farming

tunities for further development along this line that may now be obtained in the purchase of adjoining lands at a relatively low cost. The water-shed, supplying this reservoir of water has been definitely determined to exceed four thousand square miles. In the irrigated areas thus supplied with abundance of water profitable crops of alfalfa, cantaloupes, sweet potatoes, onions, in fact, every kind of crop that can be grown in the temperate zone, are abundantly produced. Because the natural moisture is approximately twenty inches per year, a minimum only of additional water for irrigation is required to be artificially produced on the surface in order to insure abundant product. This area affords the golden opportunity for the individual with energy, ambition and ability.

Climate.—Like all of the "Sunshine State," the climate of Roosevelt County is unsurpassed. From the "naked plain" in a few short years, have sprung ideal homes in an ideal climate made by the choicest people sifted from all the states of the Union. The resident population is, without a single exception, "American".

Public Buildings and Public Debts.—Roosevelt County is equipped with commodious court house and jail buildings and yet has the least amount of outstanding bonded debt of any county in the State; the same amounting, at this time to but $17,500.00, with some $4,000.00 in the sinking fund for this account. The "Court House Block" is noted for its splendid appearance, being set with bluegrass that is always kept in excellent condition and the large growing trees throughout the yard are in striking contrast with the outlying plains. The whole block, three hundred feet in each dimension, is surrounded by an excellent cement sidewalk, the whole making an improvement that is exceedingly gratifying and of which the citizens are justly proud.

Public Schools.—For the year 1913, Roosevelt County enumerated more than 2,500 pupils of school age. There are about 60 school districts in the county besides the town schools in the towns of Elida, Portales, Taiban and La-Lande. These centers of population maintain graded schools while at Portales, the county seat, a High School is maintained that is affiliated with the State University and other special and technical schools of the State. Attention is called to the special article on Portales, the county seat town, in this publication.

PACKING AND PICKING CANTALOUPES

The people of Roosevelt County are generous, free and liberal. They stand ready to welcome any and all who come among them. The local field is wide and the way to fortune and independence is easy in Roosevelt County. Come and see.

PORTALES—COUNTY SEAT

PORTALES is the capital city of Roosevelt County, New Mexico, and is located in the center of the famous Portales Valley. Amarillo, Texas, lies one hundred and twenty miles to the northeast, and Roswell, New Mexico, ninety miles to the southwest.

Portales is a town of, approximately, eighteen hundred inhabitants, all white, neither negroes, Indians or native Mexicans have a habitat within our city or county lines. The citizenship is of the very highest order, educated, intelligent and progressive; cosmopolitan, broad minded and of that extreme liberality so characteristic of the great southwest. It has a municipal water, light and sewer system which was installed at an expense of $80,000.00. The motive power consists of two units of Fairbanks-Morse producer gas engines, high grade electricity generators and the very highest type of pumps. The Santa Fe Railroad Company last year completed a new $17,500.00 passenger depot, which is said to be the finest on the line. We have a court house and jail that can not be duplicated anywhere for $25,000.00 and a public school building that cost $20,000.00. The churches are represented by four or five of the leading denominations and all have houses of worship that are modern and commodious. All the usual business enterprises are represented as well as are the various secret societies.

Immediately contiguous to Portales is an enormous area of irrigated and irrigable lands, which, when fully developed, can not help but build a city of some eight or ten thousand people. Of this matter, more will be found under other headings following. At present there are two very strong financial institutions, the First National Bank and the Portales Bank and Trust Company, which adequately provide for the needs of the city and surrounding country.

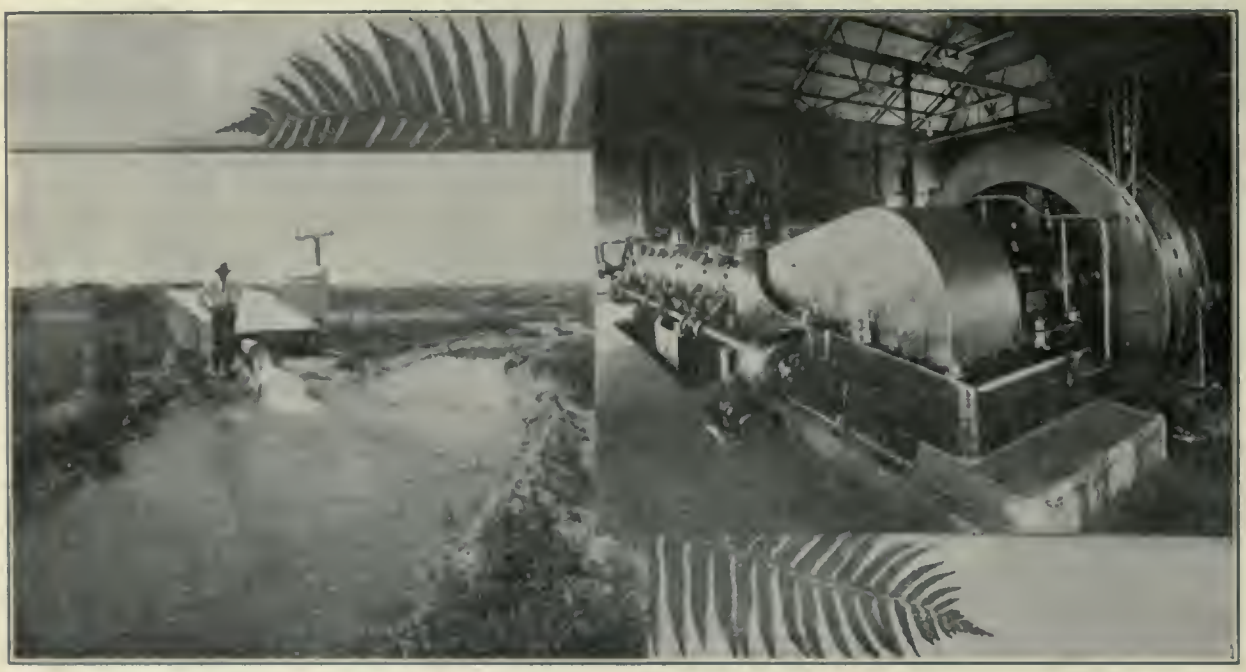
It would scarcely be doing justice to our little city not to mention the splendid public schools. Last year we made the best record of any institution of learning in the State. We graduated double the number of students from the eighth grade of any school in the State, and this on a state examination where the questions were prepared by the commonwealth and the papers graded by the state superintendent's office. Our students met those of other counties and cities in joint debates and oratorical contests and always came home with honors, all of which goes to show that we are not backward in giving the youth of our community every educational advantage possible.

While Portales is a comparatively young village, yet

RED JERSEY HOGS NEAR PORTALES

ALFALFA FIELD NEAR PORTALES

we have many modern residences, splendid lawns, shade trees, numerous cement sidewalks and permanent brick business houses, and the tendency is always forward and onward toward greater and better things. The morality of our people is excellent, in fact, it is doubtful if there is another town of its size anywhere which enjoys our general reputation for a high plane of morality and integrity. Its a good place to live, a good place to bring up your children and a good place to make permanent investments. A cordial welcome is always extended to the stranger in our midst, who comes to us open-handed to make his home with us.



FIFTEEN HUNDRED GALLON WELL — SEVEN HUNDRED AND FIFTY H. P. GAS ENGINE

UTILITIES COMPANY AT PORTALES

A. A. ROGERS

FOUR years have been spent in development and the entire Valley is now ready for farmers. The Company knows that farmers can make a profit in this Valley as there are between seventy and one hundred farmers doing so today. As evidence of their faith in the land they are selling irrigated farms on such terms that the crops raised will pay for them.

Irrigation water is supplied from individual motor-driven pumping plants on each farm. There is therefore no waiting for water from the other fellow. Each farmer owns his own equipment. Electricity is delivered at his door for lighting, heating, driving sewing machine, washing machine and all industrial and household purposes.

Electricity is generated and sold at a cost which is less than any other form of power. This is made on the largest central station of its kind in the world serving irrigation exclusively. This station and the seventy-five miles of transmission line were constructed and fully equipped by the Westinghouse Companies of Pittsburgh and have been operated continuously since 1910. Therefore the guess work has been eliminated.

The Portales Valley is not a barren country, there being a considerable number of farmers already who have developed their farms, with trees, orchards, etc., surrounding them. The town of Portales is located in the center of the tract; has 1500 inhabitants. It has its own electric light plant, water works and sewerage disposal system. The town is located on the Pecos Valley Division of the Santa Fe Railroad which runs through the irrigated valley. There

is no waiting for railroad development. All through California fruit trains pass within eighteen miles over the transcontinental line of the Santa Fe Railroad. Quick delivery of all material raised is therefore assured. The fastest passenger service on the continent will be inaugurated on this line in October. Twenty-five thousand acres is waiting for farmers; seven thousand acres are already developed and ready for occupancy. This property is developed cheaper and operated cheaper than any other property we know of in the United States on account of the low pumping head and no clearing necessary on the land. The Central Station is operated under the direction of expert machinists; no delay to pumping on the farmer's land, no waiting from any cause. The land is located in the center of the largest cattle grazing district left in the United States. Ten acres of Portales Valley land will fill a one hundred ton silo. Conditions ideal for finishing hogs, cattle, sheep, raising cantaloupes, onions, sweet potatoes, alfalfa and all kinds of grain and fruits except tropical fruits.

No healthier place in the world; 4,000 foot altitude, long growing seasons, cool nights, no hot days, ideal climate. This Company is selling farms on terms requiring less cash expenditure than rent in many irrigated districts. The company will sell you these farms on very easy terms, on long time payments and a moderate rate of interest—the renter in the east or north can soon own his own farm in this valley and be independent, instead of depending upon his landlord. It is their endeavor to shut out speculators and develop the country with good bona fide farmers. They are building a community of homes. No need for the farmer to move to the City to get the conveniences of electric lights, telephone and electricity in the home, in this Valley. There can be built a home having all of the conveniences of modern civilization in the cities, with the elimination of all noise, dirt and disease; an ideal home located under the turquoise skies of New Mexico surrounded by sunshine, fruit and health-giving climate.

Developed farms with water on them are selling from $35 to $80 an acre.

Information can be obtained by addressing, Portales Utilities Company, A. A. Rogers, President, Portales, New Mexico.

LA LANDE, NEW MEXICO

LA LANDE, New Mexico, is located fifty-three miles west of Clovis, on the through line of the A. T. & S. F. Ry., from Galveston to San Francisco, and in the valley of the Pecos River, near where said railroad crosses the same. The land in this section is of a red sandy loam, and very productive, the agricultural products adapted to this part consists of wheat, corn, oats, sorghum, cafe, mais, feterita and millet; fruits, such as apples, peaches, pairs, plums and grapes, and all kinds of vegetables, grow to perfection. It is the stockman's paradise, as live stock of all kinds winter on the range without feed or shelter. The altitude is 4,200 feet, snow seldom falls and only remains on the ground a short time. This country is fast being adapted to small stock farming, the dairy business being one of the principal industries. Cows do well for this purpose eight months in the year on the native grass, then with the help of silos they are money makers the entire year. La Lande is one of the largest cream shipping points in eastern New Mexico, pure, soft water can be had from wells at a depth of from fifteen to one hundred feet.

All the leading religious denominations have church organiaztions here. As an evidence of her progressive spirit and splendid citizenship she can boast of having one of the best school buildings in this part of the State, in which are conducted classes nine months in the year, carrying all the high school courses taught in the high schools of the State.

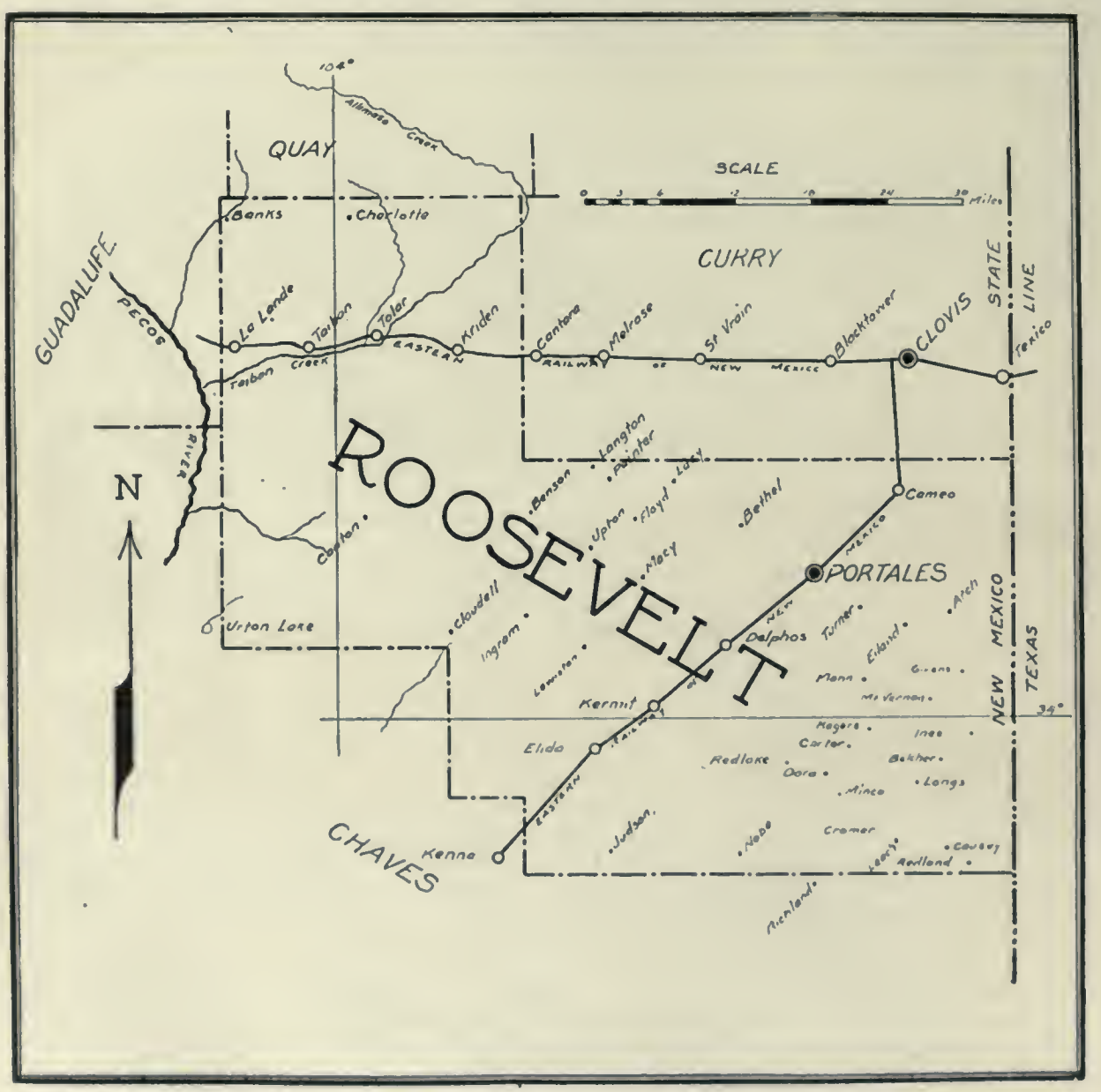
La Lande is a desirable place to live. Come, see for yourself.

ELIDA, NEW MEXICO

ELIDA is situated 25 miles from the county seat, Portales—on the line of the Santa Fe Railroad—a pretty, hustling community of comfortable, pretty homes, with all modern conveniences. In the town and immediate vicinity are about 500 people, for which Elida is the trading center and shipping market.

An unexcelled climate, with a soil adapted to the raising of bumper crops, perfect stock raising conditions, make of the Elida country an ideal ranch and stock raising section.

Prosperous ranches and farms adjoin the town. In and near Elida are many opportunities for the prospective newcomer.



COLFAX COUNTY

ITS WEALTH OF NATURAL RESOURCES

BY WILLIS G. BROWN

"AN empire in itself." We ourselves claim it, others have claimed it for us. But have we the proof? Can we "make good?" Let us see.

Among the definitions and synonyms given for "empire" by the lexicographers we find: "domain", "supremacy", "regality", "kingliness", "a realm"; all of these appeal to our people as particularly fitting when applied to Colfax County—a realm of widespread domain, regal and supreme in its wealth of natural resources, kingly in situation as the northern gateway to the State and in its nobility and comeliness of physical feature.

In domain, Colfax County possesses 2,500,000 acres of mountain, valley and plain. From east to west her boundaries extend approximately 69 miles, from north to south, 54 miles, enclosing 3726 square miles of agricultural, grazing, mineral and timber land—an area full of scenic splendor and blest with incomparable climatic delights. The State of Rhode Island is not one-third so large; Delaware measures just a bit more than half; the two together do not equal Colfax County, which is also greater than Porto Rico and more than half as large as Hawaii or Salvador. Is not our claim of empire in domain well made?

As to an empire in resources—well! Consider, if you please, our coal, of which the United States Geological Survey reports: "No other county in the United States has an equal area. It is perfect coking coal, a high-grade steam coal, and superior for all domestic uses." In figures, the Survey estimates the Colfax County coal deposits to measure 870,000 acres, whose contents total thirty billion, eight hundred and five million tons, with a total value, even at low prices, in excess of forty billion dollars. The cost of mining is at a minimum, since the veins lie horizontally above the earth level and the coal is delivered by gravity to the tipples. The tunnels require no drainage. We could dig a million tons a year from our hidden stores of coal for centuries, without exhausting them. The operators in this field are: The Stag Canyon Fuel Company, at Dawson, a camp of over 3,000 population, with a payroll of $100,000 per month. The St. Louis, Rocky Mountain & Pacific Co., operating mines at Brilliant, Van Houten, Sugarite, Gardiner and Koehler, with extensive coke ovens at the two last named camps. The capacity of the Rocky Mountain Company's mines is 10,000 tons per

VIEW OF TIPPLE—SHOWING SHIPPING FACILITIES AT KOEHLER MINE

day, and of its ovens 1,000 tons per day. The New Mexico-Colorado Coal & Mining Company operates at Yankee. These camps are all highly modernized, especially the two first named, and are maintained and operated with a constant view to the comfort and safety of the workers, as well as to the production of a highly prepared high-grade fuel.

Ample shipping facilities are supplied by the Santa Fe, the E. P. & S. W., and the Santa Fe, Raton & Eastern railroads.

Do you grant us our coal resource? Do you glimpse the golden stream it has released and will continue to release for uncounted years in our channels of trade?

But the coal is not all we have of minerals. Our mountains, comprising nearly two-thirds of the county's area, are rich in gold, silver, copper and iron, all of which are as yet imperfectly developed. Elizabethtown alone—historic first seat of government for New Mexico—has a record of five million dollars in gold output. The Red River district, intermittently worked in the past, is just now coming into its own, and promises to become a second Cripple Creek. The day of nuggets, rich pockets, and dollar-a-pan clean-ups having passed into picturesque history in a score of localities in the county, there is now well begun the application of modern scientific methods in the development of both placer and quartz workings, and Colfax County is due soon to be heard of in a large way by the mineral world. The fact that for over thirty years gold has been panned with profit by the crude hand process in nearly all the western half of Colfax County is in itself evidence of the rich mineralization that prevails.

These vast mountains, whose secret mineral treasures are still so lightly touched, are clothed with yet another source of wealth—the forests of lordly pine which await the axe and the wheels of transportation. Inaccessibility to market accounts for the comparatively insignificant lumbering operations in the past. There is one important company, however, that has tapped the Ponil Park region, 22 miles northwest of Cimarron, and handles at Cimarron the product of three mills. This is the Continental Tie & Lumber Company, which operates a planing mill, box factory and tie creosoting plant, and has a payroll of about $10,000 per month. The rough sawed lumber is brought down over the Cimarron & Northwestern railroad. Besides this industry, Cimarron has about her a rich agricultural section, largely under irrigation, producing alfalfa, grains and fruits, particularly apples, in great abundance. Cimarron is also an important trading point for the stockmen and miners to the west, north and south, and because of her location at

SYLVAN DELL IN THE PALISADES OF CIMARRON CANYON

the eastern end of the Cimarron canyon, is known as the Key City.

Cimarron canyon—region of enchantment! Cunningly wrought storehouse of all the ravishing color, exquisite sculpture, and ethereal and majestic architecture wrought by the hand of Nature in all the ages! To enter it is to view a picture gallery of the gods, enchanting the eye of the mind to intoxication; to remain a while is to profoundly worship in a vast cathedral of the Almighty.

The centuries have cleft this vast, tortuous way through the very backbone of the Rockies. The precipitous sides are stupendously high—here merely perilous slopes, otherwhere colossal palisades—abrupt precipices reaching more than a thousand feet skyward—pillared, castellated, occasionally grotesque, always awe-inspiring and incredibly beautiful. The mountain slopes are adorned for the most part with forest growth and grassy intervals, offering their own form of delight to the eye. Down a tortuous channel in the canyon's bottommost depth tinkling, laughing and roaring alternately from the teasing of the obstructions in its rambling course, runs the sparkling, joyous stream—the Cimarron—hiding in its pools and currents many a wary trout. Overhead, the calm blue of the sky—the New Mexico sky—which alone can worthily embellish the entrancing whole.

Can you see it—just a little? Then you will register a quiet promise to yourself to see it in its full reality, some day.

COLFAX COUNTY APPLES LEAD THE WORLD IN FLAVOR AND QUALITY
1. Well-Laden Trees. 2. Getting Into the Bearing Class. 3. A Cluster of Beauties. 4. Colfax County Apple Cellar.

But we have other wondrous sights besides—miles upon miles of them—along the South and North Ponil, the Vermejo, the Rayado, the Uracca, the Red and the numerous glorious parks scattered through the timbered country—inspiring views of snow-capped peaks, Old Baldy, the Sangre de Cristo—the breath-taking drive over the famous scenic highway from the Colorado line to Raton—all the western half of Colfax County is an elysian field to the lover of the gorgeously picturesque.

In the mountains and valleys and on the plains there

abound game animals and birds, as well as marauding beasts. Deer, bear, mounta'n lions, coyotes, beaver, squirrels, rabbits, wild turkey, quail, ducks and geese, and many others. Trout abound in nearly all the mountain streams, and many irrigation reservoirs scattered over the plains are well stocked with bass and other game fish.

Horticulturally, the conditions in Colfax County are perfect. Orcharding is very extensive and steadily advancing. Apples of many varieties are grown in wonderful perfection of color, form, size and flavor. In thirty-five years one large orchard has never produced a wormy apple out of thousands of bushels grown—insect pests are unknown. In 1893 the exhibit of M. M. Chase, taken from the orchard on the old Kit Carson ranch near Cimarron, won a gold medal at the Chicago World's Fair. Fine apple orchards are growing at various points in the county—near Cimarron (Uracca and Chase ranches), Springer, French, Maxwell, Miami, Rayado, Raton, Dawson, and so far as is known, may be grown anywhere. Pears, cherries and plums also do well, and all the small fruits.

Until comparatively recent years, Colfax County was a vast stock range, nearly all her area being grazed by splendid herds of cattle and sheep, together with a few horses. Today the stock interest is still very large, and the products of the range are of splendid quality and immense value, but the range area has been considerably reduced by the encroachments of the great irrigation enterprises and the small farms.

One result of the great meat production of the county and the demand created by the workers in the mines, has been the establishment of an extensive and prosperous packing house at Koehler Junction. Notwithstanding this, the county's stock shipments annually amount to approximately 40,000 sheep and 20,000 cattle, and her wool shipments reach 500,000 pounds.

Notwithstanding so large a proportion of her physical area is highly mountainous, Colfax County has an extensive and comprehensive system of roadways, well maintained. Her people are thoroughly awake to the value of good roads as a means of quick and profitable transportation and of easy communication with trading centers. El Camino Real, bisecting the county from north to south, is a state road, soundly constructed in part by convict labor. This highway is kept in prime condition at practically all times, and will have increasing attention from the state as part of the main stem traversing the entire state. The Camino Real will form a part of the great Ocean-to-Ocean highway from east to west across the United States. The old Santa Fe Trail, with its glamour of historic romance, is included in the modern Camino Real for a large part of its length in the State. A branch of the old Trail extends also southwestward from Raton to Cimarron and thence through the Cimarron canyon, Moreno Valley and the Taos Valley to Santa Fe. Besides these roads, built and maintained by the county, there are many miles of superb driveway, open to public travel, traversing the magnificent private estate of over 200,000 acres known as the Bartlett ranch, in the northwestern part of the county.

APPLE ORCHARD NEAR CIMARRON

APPLE ORCHARD NEAR MIAMI

THERE ARE MANY FLOCKS OF HIGH-GRADE SHEEP IN COLFAX COUNTY

A SMOOTH BUNCH OF COLFAX COUNTY CATTLE

These roads have been built by the owners of the Bartlett property for their own comfort and convenience, and are models of road construction.

Colfax County is contemplating the issue of bonds in the sum of $100,000 at an early day for the improvement of the laterals connecting with her two main lines of travel and for the betterment of the main highway leading southeastward into Texas. The county roads are under the exclusive control of a county road board of three efficient men, into whose hands are placed the road funds collected by taxation.

Through the main line of the Santa Fe and its connections, the St. Louis, Rocky Mountain & Pacific, the Cimarron & Northwestern, the El Paso & Southwestern, the Santa Fe, Raton & Eastern and the Colorado & Southern, excellent facilities are afforded for rail communication with every part of the county and with the rest of New Mexico and her sister states. There can be no doubt but that within a very few years a direct connection will be made by the Santa Fe railroad with the Gulf at Galveston, whereby a fuller outlet will be provided for the immense coal production of our county and a return haul of the cheap food products of Texas be secured, to the great advantage of both States.

In telegraph and telephone service Colfax County is well cared for.

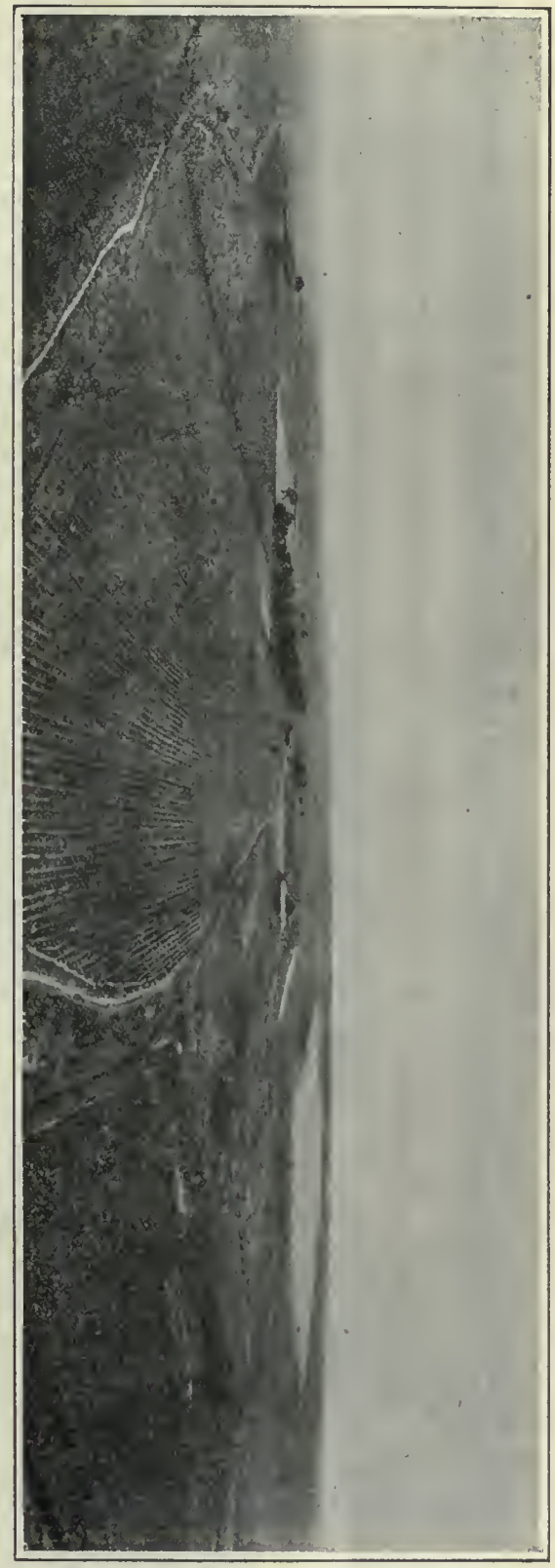
THE RATON PASS SCENIC HIGHWAY
Road Near Raton — Natural Wall Near Raton

THERE IS AN UNLIMITED SUPPLY OF WATER FOR IRRIGATION IN COLFAX COUNTY
One of Hundreds of Storage Reservoirs

Educationally, Colfax County is distinctly progressive and ambitious. The county high school law, which has been applied to the building of additional high schools in many of the counties of the State since its passage two years ago, was conceived and written in our borders. The first county high school in the State was built at Raton, our county seat, at a cost of $60,000, and its doors thrown open to every eighth-grade graduate in the county last fall. By the terms of this law, any county can by its vote establish a high school at any point chosen by ballot, for the benefit of all the pupils of the county, free of tuition, the city of location being required to provide the building and equipment and the county the funds for maintenance, which are raised by a limited tax levy. The high school in Raton, besides supplying the usual academic and scientific courses, is equipped for the efficient teaching of agriculture, manual training, domestic science and the commercial branches.

Colfax County has 71 schools in 35 districts, operating at a cost of over $100,000 per annum. The school population numbers 4,637 out of a total population including adults of 16,450 in the county. In the county, outside the high school at Raton, there is expended in salaries to teachers about $40,000 per annum. Splendid work is being done by our county superintendent and her assistants, and the standards and methods, as well as a most ambitious spirit, are maintained and advanced by teachers' meetings and normal institutes each year.

Perhaps the greatest material advances in Colfax County in recent years have been made in irrigation, though dry farming has had its victories, too. The high mountains in the western half of the county are vast storehouses of moisture, caught by the towering peaks in the form of snow and released by the warmth of the summer sun to flow by rivulet and stream to the plains below. Until recent years this flow was allowed to go to waste, but now storage reservoirs hold it for distribution to the thirsty fields, where it is transmuted into golden harvests for the fattening of bank accounts. In the accomplishment of this there has been no government aid, but only the employment of private enterprise and private and corporate funds. Twelve such projects are either completed and operating or nearly so. United they provide for storage sufficient to apply over one acre-foot of water annually on 300,000 rich but previously semi-arid acres, every one of which is located in Colfax County. The total outlay nearly reaches $5,000,000.



BIRDS-EYE VIEW OF A MODEL RANCH IN COLFAX COUNTY—SHOWING RESERVOIR OF AMPLE WATER CAPACITY

COLFAX COUNTY'S AGRICULTURAL CROPS ARE VARIED AND BOUNTEOUS

1. Stacking Alfalfa. 2. A Good Yield. 3. Average Wheat Field. 4. Irrigating Sugar Beets. 5. Colfax County Corn Field. 6. Truck Gardens Flourish.

Among the projects owned by organized corporations, with the acreage to be served, are:

Maxwell Irrigated Land Co.	20,000	acres
Farmers' Development Co.	10,000	acres
French Land and Irrigation Co.	40,000	acres
Palo Blanco Project	40,000	acres
Lake Charette Project	12,000	acres
Jaritas Reservoir and Ditch Co.	4,000	acres
Springer Ditch System	7,500	acres
Eagle Nest Dam (projected work to begin in fall of 1914)	100,000	acres
Total	233,500	acres

Many of these projects will be enlarged ultimately.

The following enterprises are those of individual owners:

Geo. H. Webster, Jr.	5,000	acres
Capt. Wm. French	2,000	acres
Springer, Chase, et al.	1,500	acres
Meloche & Thomson	2,200	acres
Ute Park (various)	1,000	acres

Several thousand acres in addition are being irrigated by acequias, having no storage provisions, near the head waters of various streams.

This is Colfax County's position, in brief, in relation to irrigation, the happy solution of America's agricultural problem of today and the future.

What other county can match it?

Farming on the various mesas and in the valleys without

IRRIGATION CANAL NEAR MAXWELL

irrigation has been successful for about thirty years. Wheat, rye, barley, oats, potatoes and all root crops yield abundantly, especially on the mesa lands, where this year (1914) wheat has averaged 40 bushels per acre and other grain crops in proportion. Forty bushels per acre at 70c per bushel means at least a ten per cent net return on an investment of $100 per acre for the land, and much of the mesa land is held at $25 per acre or less. The dry farming valley lands do not yield quite so heavily, are not so sure, and bring less per acre when sold. On the three large

CROP OF SILVER KING WHEAT

mesas near Raton (Johnson, Bartlett and Barela), where farming has been in progress since 1885, there has never been a failure of crops. The wheat growing feature in Colfax County has now reached proportions demanding a flouring mill, and steps are being taken to establish one for the 1915 crop. The finest horses and cattle in the world are grown on the mesa lands, which seem to be peculiarly adapted to the production of large, hardy and handsome stock.

Can you comprehend three hundred sunny days in the year—and not a hot one in the lot? Does sleeping under blankets every summer night make any appeal to you? Would you be happy breathing an atmosphere so tonic and so sweet as to make each opening day a new and glorious thing? Could you enjoy living where each summer night is a beaming radiance—and not an insect pest in sight? Where the skies hang so low and stars are so intimate that you feel you can reach up and pluck them from their azure beds?

Our good friends, the mountains, give us blessings. They temper the summer heat with their coats of snow, and block the winter blasts with their towering shoulders. We live in their tender shelter and are glad, all the year—glad, and healthy, and strong. And these mountains will also shelter you, and delight, enthrall and comfort you, as they do us, if you will let them.

RATON, NEW MEXICO

THE GATE CITY—COUNTY SEAT OF COLFAX COUNTY

BY J. J. SHULER, M. D.

I AM led to the brow of Goat Hill, that bold and picturesque mountain promontory which hangs its rugged front high above the western edge of the City of Raton.

The friendly hands that shut out my vision are swiftly withdrawn, and I look—first—

Far into space, to the towering rims of the great mesas to the east; and then—

Down, down, down, when I discover at my feet a midget city—a city truly in form and comeliness, but so tiny at this height that the impulse is to squat down in its midst and play, joyously, as when I was a lad.

Ants of men crawl all about; lady-bug autos skim over the straight, clean streets; beetles of drays haul loads of merchandise from piano-box-sized warehouses to packing-box stores; a little tin train, its engine puffing real smoke, pulls into the toy station on a play track, discharges its insect passengers, and puffs on its Liliputian way. Oh, it is a most perfect and delightful and symmetrical little city, with nothing left out but the size.

In this, my first view of Raton, I stared downward a sheer 500 feet. In the brilliance and clarity of the mountain atmosphere every minutest detail of the charming city stood sharply out. The bright green patches of dooryard lawn; the variegated gardens; the miles of symmetrical streets, trimmed with white ribbons of cement sidewalks and bordered with luxuriant play-trees; the modest and the pretentious homes; the stores, warehouses, workshops, schools and churches, all loudly proclaimed a modern, ambitious, progressive, prideful city of the best American type. Everything complete, everything delightful, everything admirable.

Clustered like sheep in the shelter of the sheepfold, the pretty homes nestled close to the mountain's base, creeping into its curves and hollows as for greater comfort when the storms should blow.

On the west, north and east, the famous Raton Range forms a sheltering barrier from the keen blasts of winter. This mountain wall, crowned with a precipitous rim of castellated rock, lifts up itself on the west from the very back doors of many Raton homes. On the north it is farther from the city boundary and on the east still farther.

RATON'S HANDSOME AND COMMODIOUS CITY HALL AND MUNICIPAL BUILDING

On the northeast and east its character changes to that of great mesas or elevated plateaux, having precipitous sides, some 1,500 feet above the level of Raton, where wonderful grain and root crops have been raised for many years, literally in the clouds at times. These prosperous mesas are valued contributors to the trade of Raton, and their heavy production of wheat has made necessary the erection of a flourishing mill in the city to accommodate the 1915 crop.

The cold months of the year are wonderfully tempered by these great mountain walls. What is often a fearful blizzard on the northern side of the range is with us but a miracle of snow particles dancing in the sunlit air of Raton. It is but snow driven over the mountaintops; the spray from the winter tempest, broken upon the rocky immobility of the eternal hills.

The elevation of Raton is about 6,700 feet. This fact, and the cooling presence of the mountains, explains why Raton never suffers from summer heat. Temperate weather throughout the year, requiring blankets for comfort each summer night, make Raton an incomparable place to live. This, and the brilliant succession of sunny days—more than three hundred of them strung like silver beads on the golden cord of every calendar year—lend a wondrous charm to life in Raton.

Atmosphere clear, sweet, tonic—a marvel and a joy. We have it all the year. It bears healing in every breath, gives zest to life, and inspiration to thought.

The mental and physical vigor of those who have lived in Raton for many years and are approaching their allotted term is remarked by strangers and bears certain testimony that they absorb health with every respiration.

RATON'S PARK SYSTEM IS AMONG THE FINEST IN THE STATE

RIPLEY PARK—SANTA FE TRAIL MONUMENT

CARNEGIE LIBRARY IN RIPLEY PARK

Highly notable among our scenic attractions is our sky-line drive, a splendid mountain highway built on the crest of the Range (nearly 8,000 feet in the air) between Raton and her sister city, Trinidad, Colo., 26 miles to the north. This wonderful roadway, soundly built by State convict labor, is an ideal course for tourist travel and is gaining renown each year from coast to coast. A more exhilirating, breath-taking, eye-satisfying auto run can not be found in these United States than over the scenic highway of Raton. It is comparable only to aeroplane flight in its thrills and its revelations of scenic beauty.

Raton streets are laid out symmetrically and are bordered with many miles of finest concrete sidewalks. Shade trees are abundant. Lawns and homes are kept with a visible pride of ownership. Streets and business places are well lighted with electricity. Systematic garbage removal and modern sewerage insure sanitation. A city park which

RATON'S HIGH SCHOOL BUILDINGS

is a gem of beauty surrounds the splendid Carnegie city library, near the center of the city. This park has its graveled walks, clustered shrubbery, splendid shade trees, a public fountain, modern seats for the public, and swings for the children. Here is also a beautiful, commodious band-stand, where the Raton Concert Band discourses sweet music on Sunday afternoons. In one corner stands the granite marker placed by the Daughters of the American Revolution to indicate the course of the historic Santa Fe Trail through the city, and at other points are relics of the ill-fated Maine and of the Civil War. The Santa Fe Railroad Company has laid off its grounds adjoining this park in conformity to the park, and supplements it admirably. Besides this park a rustic park, with rest pavilions, is located on the top of precipitous Goat Hill, directly overlooking the city on the west, where a vast sweeping view may be had of valley and plain. The city has also provided a pretty park for the section occupied by its Spanish-American residents.

Great pride is taken in the embellishment of the

ELKS' CLUB BUILDING AT RATON

grounds about the more pretentious residences, and many beautiful and picturesque effects are obtained in the abodes of wealth and refinement.

Religiously and educationally, Raton is decidedly progressive. There are churches, with creditable buildings in most cases, of practically every denomination. Of schools there are three where the grades are taught, and one, a county high school, costing $80,000, which is in every way modern and fine and is accessible free to every boy and girl in the county who graduates from the eighth grade.

The large shops and roundhouse of the Santa Fe Railroad are here, and with the train service out of Raton, em-

SANTA FE DEPOT AT RATON

ploy many men. The headquarters of the Santa Fe, Raton & Eastern road are also here, as well as the offices of the St. Louis, Rocky Mountain & Pacific Coal Com-

pany and the New Mexico-Colorado Coal & Mining Company.

Raton has a fine, modern cement and brick plant, capable of producing 40,000 superior brick from local shale daily, which are finding increased favor in a growing market.

The Raton Crystal Ice & Cold Storage Company, a large concern, amply meets the needs of our city for ice and storage and ships to many outside points.

The mountains about Raton contain vast bodies of coal —declared by government geological reports the greatest in the west. This coal is of highly superior quality, and is being profitably mined by the St. Louis, Rocky Mountain & Pacific Company, the New Mexico-Colorado Coal & Mining Company, and the Stag Canyon Fuel Company, the latter not immediately adjacent to Raton. The mines of the former company number sixteen, all contiguous to Raton, and have an output of 10,000 tons daily under full-time working conditions, with a regular pay-roll approximating $100,000 per month. This company also produces coke at its ovens at Koehler and Gardiner, which have a capacity of 1,000 tons per day.

The enormous business transacted by these corporations alone would amply sustain the city, but the whole county is naturally tributary to this market, with its unlimited resources of agricultural and mineral wealth.

Cheap fuel means cheap power, and cheap power brings manufactories, where there is raw material available. Colfax county has the raw material, superior transportation facilities, and the cheapest fuel in America; therefore manufactories will come to Raton—the logical point.

The Raton Creamery draws from a very large territory and has enjoyed a steady growth in business and prosperity since its inception.

A fine large planing mill and woodworking plant does an excellent business the year through.

Two of the largest and most completely equipped auto garages in the entire West are located in Raton.

ONE OF RATON'S BUSINESS STREETS

There are several stone quarries close to town, where excellent building material is obtained.

Raton has two well-equipped printing plants, one issuing a semi-weekly and the other a weekly newspaper.

Our city administration has taken an advanced step toward municipal ownership of its water system—a fine new system now being in process of construction by the city at a cost of $300,000, which will be completed during 1915. This system will supply a superabundance of pure, soft, mountain water, which the city will be able to offer free to industrial enterprises desiring to locate here. The present water system is under corporate management under a franchise expiring in 1916.

RATON BOASTS OF HER MANY BEAUTIFUL HOMES

The surface drainage of Raton is perfect, the slope being steep enough for the complete flushing of the whole area with every rain that falls. The sewerage capacity much exceeds present needs.

The First National Bank has a capital and surplus of $150,000, with deposits exceeding $1,100,000, and is one of the strongest financial institutions in New Mexico.

The National Bank of New Mexico has a capital and surplus of $60,000 and deposits approaching the $500,000 mark. It is the younger of the two banks, and is a growing and popular institution.

Raton has more business buildings of modern character, large capacity and attractive exteriors and interiors than any other city of its size in the Southwest, and besides the large retail trade enjoyed there is a considerable and growing wholesale business conducted here in various lines. The stocks carried by the merchants are unusually large, high-class and varied, attracting trade from an extensive region.

Raton boasts a splendid hospital, known as the Miners' Hospital, erected and maintained by the State.

Our city is well served in the matter of hotels, restaurants, and places of amusement. Its leading hotel is the equal of any to be found south of Denver.

An organization which adds much to the attractiveness of Raton and contributes largely to its prominence is the Northern New Mexico Fair Association, which brings to our city annually great numbers of people from the stock-raising and farming sections for miles about. This is a very vigorous and progressive organization, which annually presents as comprehensive and fine an exhibit of stock, fruit, and farm products for inspection as can be found anywhere in the world for the same contributing territory. The Fair buildings are commodious and substantial, the grounds well kept, and a splendid race track attracts to each fair some of the finest racing stock in the West.

The Colfax county court house and jail is located in Raton, and is a very handsome brick structure.

In 1914 a handsome and commodious municipal office building of buff pressed brick with stone trimmings was constructed for the housing of the city officials and the accommodation of city records, at a cost of $45,000. This building stands on a civic center site in the heart of the city, and beside it is the fine city jail building, of native stone. The fire department is accommodated in the new city hall building.

COLFAX COUNTY COURT HOUSE—RATON

THE MINERS HOSPITAL AT RATON

Raton has many benevolent and fraternal organizations, of which the Masons, Elks and Odd Fellows are the most prominent. The Elks boast the most handsome building in Raton, erected as the home of the order at a cost of $40,000. There are also strong organizations of railway employees.

Few cities present as many attractions as Raton for a place of residence, either within itself or in its environment. It is the place to establish the home of your dreams, and with the inevitable growth along twentieth century lines now in progress it will soon become famous. Great numbers of auto tourists pass through Raton each summer on their way from coast to coast or from the heated plains of Texas and Oklahoma, stop awhile to enjoy its coolness and scenic setting, and pass on to tell the story of its beauty to their friends in distant places.

There are no better opportunities existent anywhere in the new State than may be found in Raton. She is the gateway to the new commonwealth of New Mexico, but she is more—she is the gateway of great opportunities, of better health, and of a keener enjoyment of the act of mere living, to all who enter her portals.

CIMARRON, NEW MEXICO

THE KEY CITY

BY DR. C. R. BASS

ON THAT comparatively narrow shelf of land which divides the great Rayado and Cimarron valleys proper from the Sangre de Cristo mountains stands the town of Cimarron, a thriving place which now has a population of 1,100 souls. A more ideal location could not be found. To north and west the great mountains fling their protecting arm and below to the south and east are two of the most fertile valleys to be found in the State. The region has an abundance of water, the Cimarron, Ponil and Cimarroncito canyons pouring their bounteous streams almost into the town itself. The valleys below are tributary, in a trade sense, to the city and as they include several important irrigation projects, which means a number of enterprising families to cultivate the projects, this is no inconsiderable asset. The mountains about provide fuel, timber and game for whosoever desires it. Truly, the Divine Architect endowed Cimarron with a great wealth of

ONE OF CIMARRON'S INDUSTRIES

resource which is now being turned to the advantage of the homebuilder.

Cimarron is on the direct route of the original Santa Fe Trail, a fact of which she is quite proud. Indeed, in the fields of the Rayado Valley below, the tracks of the myriad wagons which passed that way may still be seen, or could until the fields were leveled for irrigation. At one time, beginning in 1870, it was an Indian agency, being headquarters for some eight years for the Jicarilla Apaches and for a time for the Mohuache Utes. It was these same Indians who prevented the earlier settlement of the Cimarron region, in common with most of northern New Mex-

CIMARRON SCHOOL BUILDING

ico, else it might be that the beauties and wealth of Cimarron might be more widely known at present.

The altitude of the place is about 6,400 feet. The climate is superb, never too warm in summer and never too cold in winter, for though sometimes the December and January nights are of quite low temperature, the cold is dry, due to the altitude, and is felt little. In the daytime during the winter the air literally sparkles with ozone, stimulating and putting "snap" and "ginger" into all who experience it. It is a tonic atmosphere and a stranger experiencing its exhilirating effect for the first time would never believe the thermometer was showing zero weather. Since the summer nights are cool enough for blankets to be comfortable and since the thermometer never rises very high, the mean temperature of the year is low, in fact, fifty-four degrees has been the mean throughout the past ten years.

The streams near Cimarron are all stocked with mountain trout by the state game department, and fishing is good from May 15 to October 15. The largest stream, the Cimarron, passes through a canyon of considerable size and remarkable beauty. In fact, those who have made the trip through this gorge declare it is worth crossing the continent to see. The scenery is not only of the usual rugged type to be found in the west but embraces a number of unusual and unique features found nowhere else.

The mountains near the town are the habitat of deer in considerable numbers, also of the wily turkey in quantities exceeding those available elsewhere, while grouse and smaller game abound. All may be killed during the open season of each year. As they are strictly preserved in the closed season, the supply seems likely to continue.

The town itself is a hustling place, well abreast of all that is most modern in municipalities of its size. It has concrete sidewalks on all the principal streets. It has an adequate and efficient sewer system. Good schools, a feature of New Mexico since statehood has been attained, are of special interest to all citizens of Cimarron and the result is a school system of which a much larger city might well be proud. Good salaries are paid to the teachers and excellent results are being attained. Good churches are always a matter of interest to prospective settlers and on this point Cimarron is able to display considerable pride. There are two churches in the city, both owning their own buildings and both prospering. The city claims more modern homes than any other of its size in the State. In fact, homes are a matter of special pride to all her citizens.

The City of Cimarron is almost in the geographical center of the county of Colfax, one of the richest in the State of New Mexico. It is on the main line of the St. Louis, Rocky Mountain & Pacific Railway, and is but fifty minutes ride by automobile from the main line of the Santa Fe. It was incorporated many years ago and has a live mayor and a wide-awake city council. The people are hospitable after the good old western style of hospitality, a style which, by the way, reached its greatest height in this same county of Colfax. Strangers are welcomed heartily and every facility offered for investigation.

In a short time the valleys adjacent to the city are to be placed on the market in suitable small tracts for intensive cultivation. A water supply will be guaranteed each one by the ample facilities being installed and by the fact that the state exercises a supervisory right over all irrigation projects, prohibiting the attempting of too much reclamation with a given streamflow. When these tracts are settled, Cimarron will take another big stride forward, a stride which will be duplicated with each successive opening up of the different valleys which surround her and which are susceptible of irrigation from the mountain waters.

Recapitulating, Cimarron has: An altitude of 6,400 feet above sea level. An average annual rainfall of seventeen inches during the past ten years. Mean annual temperature of 54 degrees F. Excellent water supply system and the finest water in the country. Concrete sidewalks. Good schools. Two good churches. Solid, prosperous, hospitable people.

CIMARRON BUSINESS BLOCKS ARE SUBSTANTIAL

GROUP OF HANDSOME CIMARRON RESIDENCES

URRACA RANCH ORCHARDS

CIMARRON, NEW MEXICO

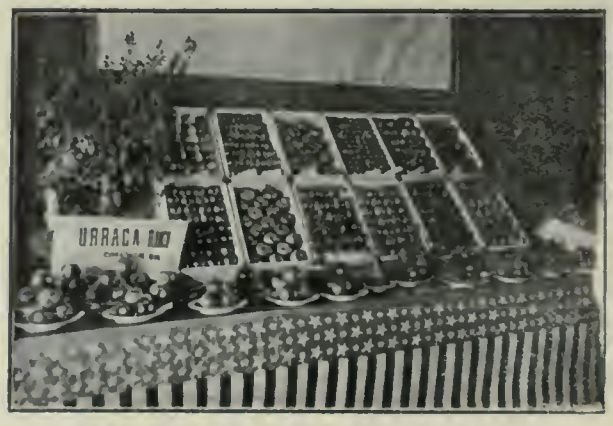
PERHAPS the largest individually owned commercial apple orchard in the State of New Mexico, is that located on the Urraca Ranch at Cimarron, in Colfax County.

This remarkable orchard is owned by Geo. H. Webster, Jr., and is now just coming into bearing. The tract consists of something over 400 acres and is laid out and planted in accordance with the most modern practice in such matters. Each forty-acre tract has a 25-foot road around it, thus enabling the haulers to get on a good, hard road at short distances, in hauling apples to the packing houses.

All the tracts are planted on the triangular system, every tree being 30 feet distant from the other. There are, therefore, about 23,000 trees in the orchard. Only five of the best commercial varieties have been set out, namely: the Jonathan, Black Ben Davis, Stark Delicious, Stayman Winesap and Rome Beauty.

A great deal of money was spent upon this project before a tree was planted, in a thorough investigation by experts of soil, air drainage, soil drainage, water supply for irrigation, railroad and market facilities and the selection of varieties which were known to be successful in this section.

There are on the Urraca Ranch and on other nearby ranches, apple orchards now over 35 years old, that have



URRACA APPLES ARE PRIZE WINNERS

never known a crop failure. The altitude of the Urraca Orchard is 6,300 feet above sea level, an ideal one for the production of sound, well-colored fruit. Situated three

THE URRACA APPLE ORCHARD
Largest Individually Owned Commercial Apple Orchard in New Mexico.

PRIVATE RESERVOIR NO. 1 ON THE URRACA RANCH

Climatically, the environment of Cimarron is one of the finest in all the West. It is a semi-mountainous country, given over largely to fruit raising and the cattle industry. The Urraca Ranch comprises over 80,000 acres of forested and open grazing land and high grade Hereford cattle are handled on the ranch. The fishing and hunting are not excelled anywhere as the game is carefully guarded and protected. As a delightful place to live, there is hardly any section of the country that can offer superior advantages.

miles south of the prosperous town of Cimarron, at the southern end of the great coal fields of Colfax County, the product of this great orchard can be shipped direct over the Santa Fe, The Rock Island and the Colorado & Southern railroads, thus affording direct connection with the extensive apple markets of the South and Southwest.

A private reservoir, situated about four miles west of the orchard, fed by a perennial mountain stream of finest water, furnishes the necessary supply for the irrigation of 2,000 acres of land. The titles and water rights of the Urraca Ranch are perfect and a never-failing, abundant supply of water is constantly available. A large box-factory operating in Cimarron furnishes apple boxes almost at the door of the packing houses and a three-mile down hill haul places the product on the Santa Fe railroad track. Mr. Webster, however, contemplates the construction of a spur, when the orchard is in full bearing, which will make it possible to load direct from the packing house to the car.

This orchard tract, which is now four, five and six years old, is being cut up into tracts to suit purchasers and as the terms upon which Mr. Webster has decided to sell this land are liberal, a really great opportunity is offered to the few purchasers who may be able to secure a tract of the land.

NET PROFIT ON THIS ORCHARD NEARLY $200.00 PER ACRE LAST YEAR

For further information, address The Urraca Ranch, P. O. Box 188, Cimarron, N. M.

THE ST. LOUIS, ROCKY MOUNTAIN AND PACIFIC COMPANY

SWASTIKA FUEL COMPANY

BY L. C. WHITE

THE St. Louis, Rocky Mountain & Pacific Company is a coal mining company operating mines and coke ovens in Colfax County, New Mexico, in the vicinity of Raton.

The land and coal rights owned by this company were purchased from the Maxwell Land Grant Company and include the best of the coal veins on the large land grant of that name, being the principal part of the well-known Raton coal field.

The several coal seams of this property furnish coals of excellent quality for steam, coking, gas and domestic purposes.

The products of this company are marketed through a subsidiary company called the Swastika Fuel Company, whose offices are at Raton, New Mexico, and whose tradmark is a Swastika Cross, and the coal and coke are distributed through Southwestern Coal Company, with offices at Amarillo, Texas, Wichita, Kansas, Oklahoma City, Okla., Dallas, Texas, and S. C. Awbrey, El Paso, Texas.

The Atchison, Topeka & Santa Fe Railway runs through the property near its eastern boundary and has branches to the different mines. The El Paso & Southwestern Railway reaches the property near the southwest corner, and by means of the St. Louis, Rocky Mountain & Pacific Railway, now operated by the Atchison, Topeka & Santa Fe Company, connection is made from the coal mines to the Colorado & Southern Railway at a point 50 miles east of Raton, as well as with the El Paso & Southwestern at Colfax.

In the early development of coal mines on this property, the coal was used principally by the Atchison, Topeka and Santa Fe Company, but in later years the development of other railways and of copper mining and other industries in New Mexico, Arizona and Mexico, has made a large and increasing market for steam coal and coke, and the rapid settlement and development of Oklahoma, Western Texas and all the Southwest, has caused a large demand for domestic coal.

During the past five years mining operations have shown that certain areas of the coal lands owned and controlled by this company furnish a high grade of domestic coal and it was found that by washing the fine slack coal before coking, a grade of coke could be produced equal to any in the Western States. These discoveries led to a systematic campaign of development with the end in view of supplying customers with just the kind of coal and coke they wanted.

At three of the company's mines special plants have been installed for preparing for domestic use the coal from the areas containing coal best suited for that use. The

BIRDS-EYE VIEW OF GARDINER, NEW MEXICO

coal is perfectly screened by shaker screens into four sizes, viz: Lump, Nut, Pea and Slack, and arrangements made for picking out and removing any slate or impurities which may get into the coal in the course of mining.

At the two coke oven plants coal washers were installed. By this means the fine slack coal is washed and a low ash coke is produced. New mines were opened and old ones improved until the capacity is now about eight thousand tons daily. This capacity is greater than the present demand and nearly equals the highest winter demand. It is the policy of this company to increase the capacity of its mines, and to open new mines in prospected areas of its

A SWASTIKA FANCY LUMP
Weight 2755 Pounds

coal field so as to be able to supply the maximum demand at all times.

All the coal on the company's property lies in nearly horizontal seams or veins and is mined by level drifts into the sides of the foot-hills at places where the coal outcrops and the coal is brought out by electric haulage. The company now has five mines and two coking plants in operation.

Koehler Mine is situated 22 miles southwest of Raton. It has three openings, which are level drifts into the hills. All hauling from the mine partings and along surface tramways is done by electric locomotives. Three fans are used to supply pure air to the mines. A complete water system is installed, the water being pumped from wells to a reservoir and from there distributed by gravity pipe lines through the camp and into the mines. By this means the haulage ways in the mines are thoroughly sprinkled every day to avoid danger from dust.

At Koehler is located one of the coking plants, consisting of 210 beehive ovens and a coal-washing plant.

An electric power plant supplies power for all mining machinery and for lighting purposes.

There are at this camp 158 dwelling houses, 3 boarding houses, an up-to-date general store and meat market and a school house. The dwellings are well built houses with convenient water supply and electric light, and make comfortable houses.

Van Houten Mine is situated 16 miles southwest of Raton. It has 6 openings; also level drifts into the hills. Electrice haulage, water supply, power plant, houses and other equipment are similar to the Koehler Mine.

Gardiner Mine is situated 3 miles west of Raton. The present opening is a level drift into the hill at a point where the coal outcrops about 200 feet above the valley, and the mine cars are lowered to the tipple by means of an inclined plane tramway.

A coking plant is located at Gardiner, consisting of 200 beehive ovens and a coal washery, and the fine slack from Gardiner, Van Houten and Brilliant Mines is coked here. Equipment is much the same as at the other mines, except that the electrical energy is purchased from a power company.

Brilliant Mine is situated 9 miles northwest of Raton. The coal mined at Brilliant is an upper seam, or vein, which lies about 500 feet above the main Raton vein which is worked at Gardiner, Van Houten and Koehler Mines. There are three openings — level drifts into the hills at outcrop. Electrical haulage, water supply, houses and equipment are similar to those at the other mines.

Sugarite Mine is situated 7 miles northeast of Raton, on the Santa Fe, Raton & Eastern Railroad, which connects with the A. T. & S. F. Railway at Raton and with the St. L. R. M. & P. Railway at Wallace. This is the latest development of this coal company and the coal is mined for domestic use exclusively. There are three openings, being level drifts into the hills at the outcrop, which is about 300 feet above the valley, and the cars are lowered to the tipple by means of two inclined plane tramways, one on each side of the canyon. This camp is located along a beautiful running stream and is a more pleasant place to live than most coal camps. The dwellings and other buildings are built of concrete blocks, or stone, and the camp presents a very substantial appearance. It has a good power plant, electric haulage, water supply and other first-class equipment. The tipple has all modern appliances for the perfect preparation of domestic coal and Sugarite coal is favorably known in the markets of six states.

Until the year 1914 the company has constructed a

power plant at each new mine opened and produced electric power for its operations. This year, with five mines in operation and others contemplated, it began to appear that a central power plant would be advisable. The company considered building its own central power plant, but as The Trinidad Electric Transmission, Railway and Gas Company had a large power plant already in operation near Trindad, Colorado, only 25 miles away, and wanted to extend its service, a contract was made with the Trinidad Company whereby it will extend its power line to all the mines of this company and supply electrical energy for all its operations.

PIT MOUTHS, VAN HOUTEN MINES—No. 1 AND No. 2

This arrangement will enable the company to open new mines quickly and to enlarge the capacity of present mines, without the necessity of large investments in power plants.

The present daily capacity of the mines is as follows: Koehler, 2800 tons; Van Houten, 2700 tons; Gardiner, 700 tons; Brilliant, 800 tons; Sugarite 1000 tons; making a total output of 8000 tons per day; and the capacity of the 410 coke ovens is 500 tons of coke per day.

The markets for the product of these mines are principally in New Mexico, Arizona, Northern Mexico, Western Texas, Oklahoma, Kansas and Colorado. Steam coal and coke is shipped far into the interior of Mexico and considerable domestic coal has been shipped as far east as Nebraska.

This description would not be complete without some mention of the study and investment this company has made to insure, as far as possible, the safety of the men engaged in mining operations. To render this generally considered hazardous occupation as safe as possible is the problem now being studied more than any other thing in connection with the coal mining business. The danger in coal mining is from explosions which are caused by the presence in a mine of gas, or dust, or both, and imperfect timbering to support the roof, besides general negligence in obeying proper instructions. The mines of this company are unusually free from gas and the excellent ventilation maintained at all the mines practically eliminates this danger.

In regard to dust, the officials of the company believe that the best way to avoid danger from this source is to first remove all dust possible from the haulage ways where it might otherwise accumulate to a dangerous extent, and to sprinkle the remaining dust with water. This is done by an extensive water system at each mine, consisting of a reservoir, or tank, placed far enough above the mine level to supply a good pressure at all mine workings, and pipe lines along each entry with branches convenient to the rooms. By the use of hose of proper lengths the water is distributed just where it is needed.

Coal dust as found in any well regulated mine will not explode by contact with ordinary lights, but the intense heat produced by the powder flame from a blown-out shot will sometimes ignite the dust and cause an explosion. To avoid this danger the company uses a safety powder which, according to U. S. Government tests, causes little or no flame, and all shots are loaded and fired by experienced shot-firers when all other men are out of the mine.

In addition to these precautions the company has provided the latest improved rescue apparatus consisting of oxygen helmets and pulmotors and a number of men trained in rescue and First Aid work are constantly at hand for any possible emergency.

all well ventilated, constructed of good material, lighted with electric lights and are furnished to the men at reasonable rates. Good schools are provided for all grades up to the eighth grade, which entitles children from these mining camps to enter the County High School. Competent doctors and nurses furnish efficient medical and hospital service and strict sanitary regulations are enforced at all the camps. The welfare and safety of its employes is the constant aim of the company.

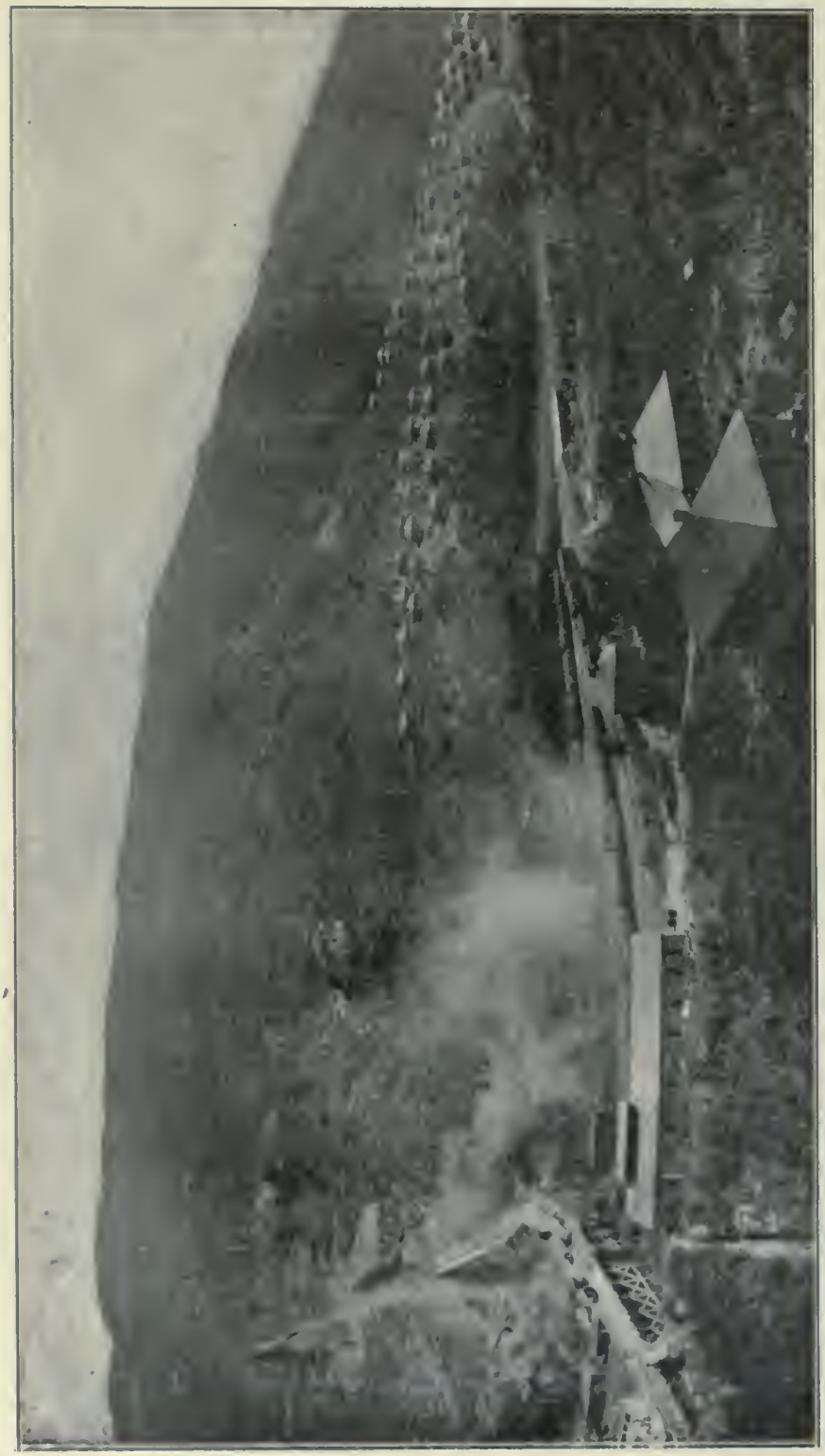
PARTIAL VIEW OF VAN HOUTEN COAL MINING CAMP—PRODUCING 2700 TONS OF COAL DAILY

This company conducts the coal mining business with the understanding that the three most important responsibilities are: *First*, to the men who work in the mines; *Second*, to the customers; and, *Third*, to the stockholders.

PARTIAL VIEW OF BRILLIANT COAL MINING CAMP

The company realizes that in all its mining operations safety to men and equipment is the most important consideration and that pleasant and healthful living conditions must be provided for its employes. The houses are

There can be no doubt that, with a square deal all around, this industry will increase in size and usefulness and will have an important part in the future development of New Mexico and the great Southwest.



SUGARITE CANYON COAL MINING CAMP—ONE OF THE MOST BEAUTIFUL COAL CAMPS IN THE UNITED STATES

SIGN OF GOOD COAL

THE Total Output of the Saint Louis, Rocky Mountain and Pacific Company Mines in Colfax County Amount to Eight Thousand Tons per Day of Coal and Five Hundred Tons of Coke Each Day.

SIGN OF GOOD COAL

RAYADO RANCH—CIMARRON, NEW MEXICO

BY A. E. SCHROEDER

EIGHT miles south of the City of Cimarron stands the house erected by Kit Carson, the famous scout and pioneer, for his residence in New Mexico. The old house still stands, partially unroofed and completely uninhabitable, but the lands that surround it are no longer the hunting ground of Indians. The interest the house and the lands take from the past is lost in the interest they have from their present uses; for the places where once the red man hid to harass the great parties of traders who came over the Santa Fe Trail are now more familiar with the plow and the harrow, the cultivator and traction engine than they are with buckskin moccasin or unshod war-pony's hoof.

All through the section, now known as the Rayado Ranch, wonderful crops are being raised each year. This section is that which is bounded on the south by a spur of the Rockies known locally as the Culebra mountains and the Cimarron river. It has a slight slope to the north and east and is well watered by many streams from the mountains and well drained. The subsoil is deep and well adapted to the storage of water. The top soil is largely of decomposed volcanic rock, a type of soil famous for its fertility, the citrus lands of California being of almost identical character. The fertility of the land is demonstrated by the fact that portions which were absolutely raw in April, 1914, bore wheat crops that yielded as much as thirty bushels to the acre the same year, without irrigation.

The Rayado Ranch comprises some 35,000 acres. Of this a portion is mountainous and hardly susceptible of cultivation, while 16,000 acres is susceptible of irrigation. In addition to this area, which by no means comprises the cultivable land, there are very large areas where crops are grown without irrigation, as on the wheat land mentioned. Of the tract, a 2,000 acre unit is now open for colonization, in addition to the portions already sold to settlers. This tract is for sale in forty and eighty acre parcels on terms which enable the buyer to practically pay for his land out of his crops. In fact, where the buyer understands western methods of farming, this is entirely possible and is often done. Prices are remarkably low when the exceptional conditions are taken into account.

Every inducement is given to land buyers. The company has a large tractor and gang-plow with which the sod is turned under for purchasers who desire it; a sawmill is operated in the near-by timbered section where lumber for building can be secured at reasonable prices. and everything possible is done to make the newcomer's life an easy one and his profits large. The attitude taken by the promoters of the project is that the contented settler brings others, whereas the discontented one is a detriment to the project. Seed grain is handled at no profit by the company for the benefit of the settlers.

The ranch is in a great fruit country. Colfax County is noted for its apples and most of these come from the southern section, where the Rayado Ranch is located. There are apple trees on this property more than half a century in age which are still bearing good fruit. Pears, peaches, plums, apricots and other fruits can be grown on the property.

The climate of this section of Colfax County is little short of ideal. The summers are long, giving a splendid growing season, and the sunshine an everyday affair, cloudy days being hopelessly in the minority. The summer sun is not too warm, because of the altitude, but it is warm enough to mature grains, produce good crops and do all that a farmer can expect of it. The long days, cloudless weather and perfect soil conditions unite to cause crops to reach an unusual bounty and to make vegetables and fruits attain an unusual size, fine flavor and splendid color.

The winters are mild—so much so that land can be ploughed in any month of the year, though this does not mean that snow never falls here.

The community is a progressive one, well abreast of the times and awake to every opportunity. Good schools are provided, with teachers the equal of any. One school is immediately adjacent to the land now offered for colonization.

Summing up, the Rayado Ranch section of Colfax County is in the heart of the fruit belt which is making that county famous as an apple country. It has the finest soil in the West for fruit and small grains; with a growing season that insures success with orchard or field crop, it has plenty of water, offers every legitimate inducement to the settler, is so rich that land will pay for itself in crops, is near a good town with ample commercial and religious facilities, is reached by good roads and is being handled on exceptionally easy terms by the Rayado Colonization Company of Cimarron, N. M.

MAXWELL, NEW MEXICO

IRRIGATED FARMS—MAXWELL IRRIGATED LAND COMPANY

RICH almost beyond dreams in mineral wealth, Colfax County has until the last few years paid but little attention to the vast store of agricultural and horticultural resource which lies within her boundaries, but the short time in which attention has been paid to the development of these industries and the wonderful success attained in the last score of years or so by those wise enough to put their trust in the land and what it will produce have demonstrated beyond a doubt that this is one of the richest regions in the vast treasure-house of New Mexico.

Several sections of Colfax County have been developed and have brought wealth alike to the original owners and developers and to the men who have settled on their lands. One of the areas which has brought richest success to its settlers is that near Maxwell, now being developed by the Maxwell Irrigated Land Company. This concern, composed of Colorado Springs men who are broad enough to recognize the virtues of a state other than their own, has invested many thousands of dollars developing water to irrigate the tract they hold, comprising some 23,000 acres of the old Maxwell Land Grant, whose title is perfect, being removed only a step or two from a patent granted by

ONE OF THE RESERVOIRS ON MAXWELL PROJECT

the United States to the successors of that famous Captain Lucien B. Maxwell, who held it under deed from the Spanish crown, and now the irrigation works are complete. Water is taken from the Red (or Canadian) and Vermejo rivers and stored in reservoirs on the tract. As the streams have a drainage area, combined, of about 1,500 square miles and the company owns practically all the water rights, an abundance of water is assured. As the drainage areas are entirely separate and the canal system permits the filling of the reservoirs or the direct irrigation of the land from either, a failure of water is practically an

PRIZE-WINNING DISPLAY OF MAXWELL IRRIGATED PRODUCTS

impossibility. Eleven thousand acres of the tract have been sold, mostly to experienced irrigation farmers from Colorado, which demonstrates the worth of the land in itself.

Construction work was commenced in 1908 and work ended with the finishing of the big Hebron reservoir in 1913. The storage capacity of the nine reservoirs is 19,000 acre feet. At the lowest estimate, each can be filled twice a year, making 38,000 acre feet available beside what water is used directly from one or the other of the rivers. Several competent firms of engineers have examined the property and unite in asserting that there will never be a water shortage on it, especially in view of the fact that only one and a quarter acre feet of water is needed in a season for any crop. This is because of the soil qualities. The soil does not crack or bake; its texture is light and fine so that it is easy to form a mulch to retain the soil moisture. In fact, Prof. J. D. Tinsley, soil expert for the State Experiment Station, declares the soils are exceptionally good, being rich in nitrogen and containing large percentages of volcanic rock decompositions, while the arrangement of subsoils is such that water

storage is easy. Prof. Tinsley says the soil is especially adapted to the growth of sugar beets and small grains.

With these facts regarding water duty and storage capacities in mind, then, and with the further statement from an engineering firm of national repute that the net water supply available is 42,140 acre feet a year, it is easy to see that the water supply exceeds all possible demands for the tract and is sufficient for nearly 15,000 acres beside. The water right goes with the land and the settler becomes an equal owner, proportionate to the amount of land he holds, with all other settlers.

The land on the tract is of a sandy loam nature, free from rocks, cactus, sage-brush or anything else that need be cleared before cultivation can be commenced. It is ready to farm, water in the ditch ready to use, when the settler buys it. There is no waiting, no expensive development work to do. Domestic water can be obtained from wells at from fifteen to twenty-five feet depth and is of good quality, but wells for pumping irrigation water are unheard of and unnecessary. This land can be secured, with perpetual water-right, for around $80 an acre.

On the Maxwell Irrigated Land tract all orchard fruits do well, apples especially so. Colfax County is a great apple-raising region and the Maxwell Irrigated land is equal to the best orchard land in the region. William French, an old resident of the section, writes that he has taken as much as three boxes of apples from a single five-year-old Jonathan tree. Last year he planted fifty-five acres in apples in raw land, making no preparation except to dynamite the holes where the trees were planted.

The land is exceptionally well adapted to the raising of sugar beets, both by expert opinion and actual results. Best tonnage comes from fertility, but it takes climate to produce sugar content. A single car of beets from the tract, grown by seven different farmers, had an average saccharine percentage of 22.66. This is believed to have been a record for a single car or for any quantity larger. Some of those beets ran one-quarter sugar. Another favorable thing for beet growers, alfalfa stands are secured easily, rendering it a matter of little difficulty to rotate crops. Beet experts declare the conditions at Maxwell cannot be bettered for growing beets.

The raising and fattening of stock is another industry which is taking a great hold on the farmers of the section, because it is so easy to grow all needed feed. The raising of hogs is another phase of this industry that is very profitable on the tract. A packing house at Koehler uses all the hogs that the farmers can supply.

Lastly, and best of all, the farmer on the Maxwell tract gets all he earns. There are abundant markets in the huge coal camps within a fifteen mile radius, Dawson, with 4,000 people; Koehler, Brilliant, Gardiner, Van Houten, with combined forces of over 2,000 men. The company's unique selling plan enables each man who actually farms his tract to pay for it by a share of his crops from year to year. Other selling plans are available for those who have money for an initial investment.

THE TOWN OF MAXWELL, NEW MEXICO

THE town of Maxwell is in Colfax County, New Mexico, located on the main line of the Atchison, Topeka & Santa Fe Railroad, thirty miles south of Raton, New Mexico. Maxwell is progressive and has shown great growth in the last two years.

In the last two years, at least forty houses of a very substantial nature have been erected, among them being several business blocks that would be a credit to any city.

Maxwell can boast of the purest water in the State, which is piped from a natural spring three miles away, and the water mains are now laid on all the principal streets.

Maxwell has a new $10,000 four-room school house, which is strictly up-to-date. The school has now an enrollment of nearly 250 pupils, with four teachers in attendance, and the High School grades are being taught.

In the last two years the Methodists and Baptists have both erected churches, and regular services are held each Sunday.

Maxwell now has a population of over 600 people. The town was incorporated the first of January, 1914.

The Maxwell Mail is a very bright, attractive weekly paper.

No place in the West can boast of a more healthful climate.

MIAMI VALLEY

THE FARMERS DEVELOPMENT COMPANY

BY M. N. MIKESALL

THE Miami Valley of New Mexico, owned and developed under irrigation by the Farmers Development Company of Springer, is singled out as a model and standard by those who are developing lands under irrigation in this part of the Southwest.

The project is not large as enterprises go in this big country—ten thousand acres comprising the entire tract in process of development—and its growth has not been abnormally rapid. The Farmers Development Company purchased the land in 1907 and began irrigation construction immediately. At this date about one-half of the tract is under cultivation, leaving about 5,000 acres yet to be cultivated. The irrigation construction for the entire acreage is almost complete.

ONE SOURCE OF MIAMI PROJECT WATER SUPPLY

The distinction this enterprise enjoys is to have proved the ultimate success of sound conservative methods in the development of irrigation projects. The company has never indulged in the usual noisy methods of land companies, preferring rather to let the land and its settlers do the advertising. Irrigation construction has always been well ahead of the demands upon it and the company has kept its credit clean and has otherwise kept itself in position to more than fulfill its obligations to settlers. Its lands and entire irrigation plant are free from bonds or other incumbrances.

The result is that the settlers, numbering at present about 300, are remarkably intelligent and substantial. Knowing their investments to be good and secure they have had the courage to place first-class improvements upon their lands, to build good homes and embellish them, and to provide for themselves the best of church and school privileges, so that the Miami settlement today has the substantial appearance of an old rich eastern community. The attractive homes with their lawns and flowers and trees, the well-kept fertile fields, the enfolding foothills, carpeted with gramma and tinted with the foliage of oak and pine, all backed by the glorious snow-crowned Sangre de Cristo range, have made Miami one of the famous beauty spots of the Southwest.

The source of water supply is the perennial, turbulent mountain streams fed from the very summit of the Sangre de Cristos. The supply has been regulated and augmented by the construction of enormous storage and distributing reservoirs, so that an abundance of the purest water is always on hand for irrigation or domestic use.

The native soil is covered with gramma grass, and so requires no clearing. It is so smooth that it requires practically no leveling. The first crops are usually small grains which gradually are giving way to alfalfa, orchards and the highly intensive crops adaptable to this region.

About six hundred acres of young apple orchards are approaching the bearing age. The encircling foothills, the

RANCH HOME IN MIAMI VALLEY

peculiar adaptability of the sandy loam soil, the perfect soil drainage and air circulation induced by the peculiar slope of the land have caused experts to predict that Miami will soon be numbered with the famous apple-producing districts of the west.

The big yields of corn and small grains, coupled with the alfalfa which is of the finest quality, are making hog raising one of the big industries of the Valley.

Attention is invited to the accompanying letters from actual settlers. Owing to the elimination of the usual enormous expense of advertising and selling, and because of the company's strong financial condition it is able to make its prices of land low and credit remarkably easy. Persons desiring to know more of Miami should address Farmers Development Company, Springer, New Mexico.

MOUNTAIN VIEW POULTRY FARM
R. W. Bolinger, Proprietor

Miami, New Mexico, Oct. 13, 1914.

To Whom It May Concern:—

Five years ago I left the city in an eastern state and came to Miami Valley, Colfax County, New Mexico, and settled on a small farm which I bought.

Two years ago I leased as much more land as can he handled with two good teams. The crops raised were wheat, oats, barley, peas, corn and alfalfa. After retaining feed, grain, hay and hogs marketed each year were approximately $2,000.00 besides the increase in horses, cattle and poultry.

In the meantime, a fine apple orchard of eight acres, which I planted, has been growing and is now coming into bearing.

Poultry raising is a profitable side line for every farmer as thousands of dozens of eggs are consumed in the nearby lumber and mining camps, at a good price.

To close without a word about climatic conditions would be doing this "Land of Sunshine" an injustice. Here one escapes the damp changeable winters and the sweltering hot summers.

A country of homes where health, wealth and happiness abound.

Very truly yours,
(Signed) R. W. BOLINGER.

Miami, N. M., October 12, 1914.

To Whom It May Concern:—

I came to Miami Valley last December with horses, a wagon and nothing else, no money.

I leased 160 acres of Miami Valley land. I have just threshed my grain crops and find by valuing what I have at the present market prices, I have cleared $1,500.00 above all expense of operation and living; besides I have 40 acres already seeded to winter wheat. All my land was virgin soil, except 20 acres.

I had had no previous experience in irrigation farming. I believe I can do better next year.

Yours truly,
(Signed) W. E. SHAMBURG.

Miami, N. M., October 12, 1914.

Farmers Development Company,
Springer, N. M.

Gentlemen:—

I farmed 140 acres of Miami Valley land during the past season; about ten acres was in native hay; about 60 acres was seeded to alfalfa with a nurse crop of oats. The balance was native sod and was seeded to oats. I find the value of my share of the crops after I have paid all my debts covering all expense of living and horse feed for the past year is better than $1,200.00; besides I have between 40 and 50 acres already seeded to winter wheat. My alfalfa is a fine stand. Judging by other fields in the Valley it should be yielding five tons per acre in a couple of years. Some of my sod oats made more than 60 bushels to the acre, of a quality which tests 49 pounds per bushel. Besides the small grains and alfalfa, I find that corn does well here, yielding as high as 60 bushels per acre. These crops, the excellent climate and the abundance of pure water make ideal conditions for hog raising. I observe that others in the Valley are making big money from hogs, so I am starting in the hog business. I believe there is a fortune here for any man who will work intelligently and stick to it.

Yours truly,
(Signed) GEORGE SHAMBURG.

Miami, New Mexico, Oct. 16, 1914.

To Whom It May Concern:—

I moved to Miami Valley, New Mexico, five years ago. I had $2,150.00 to start with and now 80 acres of irrigated land and improved. My personal property and real estate is worth at least $16,000.00 at present. We have raised as much as 103 bushels of oats to the acre, 40 bushels of wheat, 71 bushels of corn, 60 bushels of speltz; in fact, he who holds and drives will surely thrive in Miami Valley.

Yours truly,
(Signed) B. F. MCENDARFER.

CORN AND ALFALFA ON MIAMI VALLEY RANCH

DAWSON, NEW MEXICO

STAG CANYON FUEL COMPANY

BY D. R. LANE

DAWSON and the industry that makes it its headquarters are two of the things that are bringing New Mexico to the forefront of that country's industrial progress. Dawson is not a coal camp—if you call it such while a Dawsonite is present you will have trouble a-plenty on hand—it's a city. Not a very big city, it is true, yet over 6,000 people reside there, but none the less it is a city in government, in civic pride, in progressiveness, in everything that goes to make a city. Beside that, Dawson is the banner coal producer, the mammoth mineral deposit, the almost sole fuel source for an area equal in size to one-sixth of the United States. All of which will be admitted as evidence that it is a place of considerable importance.

Many years ago, before New Mexicans thought much of any industries beside sheep, cattle, freighting over the Santa Fe trail and a little gold and copper mining, the ground occupied by Dawson and the tributary coal lands was part of a ranch and supported, perhaps, a score of souls. It was on that great tract of land turned over by the Spanish crown to Beaubien and De Miranda, and later by them sold to Lucien B. Maxwell. The "Maxwell Grant" it was called then, but Maxwell had nothing to do with the coal. History of his regime reads like fiction, so rich is it in romance, and when it is considered that this early-day potentate—for he was all of that—frequently threw away a fortune upon a passing whim, nor needed work for a succeeding one, it is evident that such a plebian task as the mining of coal would not interest him in any way. Indeed, it is hardly likely that Maxwell knew of the coal.

But the mineral is there, and was there in his time, and now the romantic glamour reflected from his name lends its luster to the entirely prosaic deposit of potential "block, egg, nut and run-of-mine".

Now the day of waste spaces pasturing but a few sheep or cattle is past. Closer cultivation, intensive farming, the development of natural resources, have come to New Mexico. The natural consequence of these things is an urban population, gathered into cities and towns of varying size, of which Dawson is one. The territory near the city exemplifies these things well. For miles up the valley as one approaches it there are stretches of prosperous-looking farms and ranches.

The environs of the place lead you to expect anything but a coal camp. Your arrival adds to this impression and a glance up the street as you start across toward the hotel confirms it. There must be some mistake about this, you meditate, this is a cozy, hustling little western city,

EXTERIOR AND INTERIOR VIEWS OF MAIN STORE OF PHELPS-DODGE MERCANTILE COMPANY, Dawson, N. M.

with a great many comfortable homes, instead of the bleak, mineral-painted, raw-pine-and-corrugated-iron collection of shacks that experience tells you to anticipiate when arriving in a mining settlement.

You wander out on the sidewalk in front of the hotel to inspect your new kingdom. You know you are in Dawson. The glow of the coke ovens does the trick. That flare can come from nothing else.

Dawson and all its environs are now owned by the Phelps-Dodge interests so well known in New York, New Mexico and Arizona. This association is the fourth owner since the days of the original Spanish grantees. Maxwell, who received it as part of the "Maxwell grant" from Beaubien and De Miranda, sold it to J. B. Dawson, who sold it in 1901 to the Dawson Fuel Company. In 1906 the present owners, the Stag Canyon Fuel Company, a purely Phelps-Dodge concern, bought it. This was five years after the first mine had been opened.

The new owners opened more mines, improved the equipment, installed more efficient apparatus, and particularly improved the status of the workers and created an *esprit du corps*, installing many and splendid improvements in many ways. Good workmen draw good pay there, no one is overcharged at the company's store and every possible effort is made to improve the men and their families, socially, mentally and morally. More than all that, the waste of life looked upon with such complacency in so many industrial quarters is something viewed with horror at Dawson. Safety is really first, there. Nor is there any smack of paternalism in this. Good men, trained men, are worth money. The company finds it economical to keep the good ones on hand rather than train new ones. Hence the schools, the hospital, the theater, the good houses, and all the rest of it.

This spirit of fair treatment for workers is manifest in the houses furnished the workers. The company owns these houses, it is true, but the men know that they are not going to be thrown out of them and so make homes of them. Many a little flower garden surrounds its cottage. Sometimes the earth where the cottage stands is hard or stony and then it is a common thing for the resident in that house to wall his yard about with stones and haul in rich earth for his garden. Men do not do these things when their tenure is uncertain. Floating laborers, "boomers", do not do these things. But men who know they have work waiting for them as long as they are able to work, who know that their tenancy is to be undisturbed, who intend making their home right there, those men do such things. And those are the sort of men that live in Dawson. They keep their lawns cropped and the window-boxes with their bits of bloom neatly painted, do good work in the mines and are happy.

The houses themselves are worthy of comment. As has been stated, there are no shacks. The company provides good homes, substantial housing comfortably arranged. There is no poorer section, in the sense that term is used in cities, though there is a separate quarter for the non-English-speaking families. There are no paupers, no hangers-on fattening on the earnings of the more industrious, and the class that would be content to live in shacks is not wanted and is not hired. So it happens that the miners are of the better class, of the type that appreciate the beauty of nature, and perhaps because of the long hours spent underground, enjoy the greenery of flowers and lawns and urge vines to clothe their homes.

GENERAL VIEW OF WASHERY, ELEVATOR, STORAGE TANKS AND NO. 4 TIPPLE

The excellence of the classes who compose the city's population would indicate thrift, and this indication is found realized in fact. There is a bank in the city, capitalized at $30,000 but having deposits of $170,000. A general banking business is transacted and the amount handled is growing. Special features are provided for the non-English-speaking men.

The city telephone system is one worthy of a much larger place. Telephones are provided wherever the situation demands them outside, and the whole system connects up with an elaborate mine telephone system underground. This system is so complete that long distance conversations have been held from the depths of the mines to Raton or Santa Fe. The primary object of this underground installation is for safety, to enable miners walled

in in any accident that might occur to communicate with the surface and give information as to their plight and directions for their rescue.

Roads and trails near the place are excellent, and, as they connect up with the state highway system, afford an easy outlet to the rest of the country. Several auto owners in the city take advantage of this fact to make frequent trips to nearby points of interest, of which there are many.

The company is held in high esteem by the citizens of Dawson for its excellent attention to their material wants. The store is kept stocked with the highest grades of goods and as large lots are bought and only a nominal profit

ELECTRIC LOCOMOTIVE COMING OUT OF MINE WITH TRIP OF LOADED CARS

taken, prices are very low. This store will undertake to secure any article desired by a resident of Dawson, should demands exceed the supply in stock. The store, and the company, too, for that matter, are in high favor with the residents of Colfax county in general for whatever of their supplies can be purchased from home growers are so bought. Hay, grain, vegetables, fruits and all sorts of things needed for use in the mines, or for stock at the store or for other purposes around the plant are bought from Colfax County growers or dealers whenever possible, and the company manages to make it possible most of the time. This store carries a stock amounting to $150,000.00.

Though Dawson can be reached directly over but one line of railroad, the El Paso and Southwestern, of which it is the terminus, yet it is within six miles of the line of the St. Louis, Rocky Mountain & Pacific and is only nineteen miles from the Santa Fe system lines, while at Tucumcari the Southwestern is joined by the great Rock Island system. This situation gives Dawson ample railroad facilities and makes the transportation problem easy of solution.

There are four schools in Dawson, the company making up the deficit in their budget, which amounts to about $500 a month. The teachers are partly paid by the company and are entirely competent. The central school has two buildings and five teachers, who carry the work up to the tenth grade. At District No. 2 there are four teachers and instruction is given up to the fifth grade. The Loretta school has one teacher, who gives instruction in the first and second grades only. The total enrollment at the schools is 513 and the average attendance is more than 450, which is considered very good.

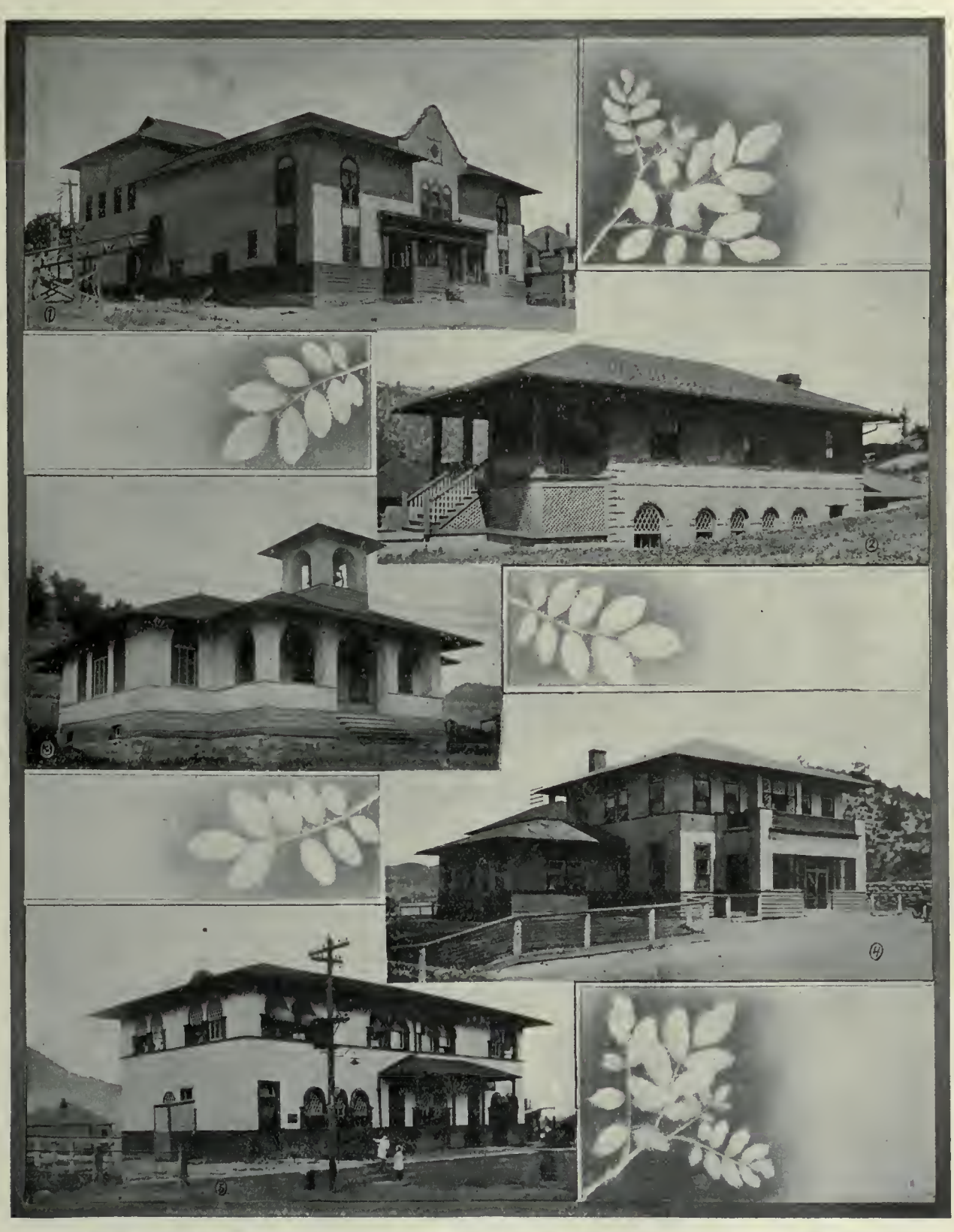
The church, like the schools, is financed by the company. There is only one, the "Church of all Creeds," but services of several denominations are held in it. Rev. Harvey M. Shields, an Episcopal minister, is in charge of the regular services, but a Catholic priest holds services in the camp once each month. A Catholic church is now being built.

Dawson is a well-behaved city and there is little legal business to be carried on there but what there is takes place before a justice of the peace who finds his duties so little onerous that he has time to manage the house renting business of the city, the telephone exchange and the electric lighting service as well. A former member of the state mounted police officiates as chief of police and though he has six deputies to assist him the number of arrests they make has averaged less than six a month for many months. These officers are in reality watchmen and not policemen in the sense that the word is often used.

The company has handsome office buildings, erected some seven years ago, and has built a theater for the use of the people of the city. To this theater, with its almost certain attendance, come some of the best theatrical companies which tour the west. All necessary stage appliances are provided, as is also a choice selection of scenery. An effort is made to have good attractions presented frequently during the season.

In the theater building are a billiard hall for the use of the men, a bowling alley and a lodge room. The last mentioned is in use nearly every night of the week, Dawson boasting strong organizations of the Masonic fraternity, the Odd Fellows, Woodmen and other organizations of similar nature.

Athletics take up a good deal of the spare time of the younger men, bowling and baseball dividing the principal



(1) AMUSEMENT HALL (OPERA HOUSE). (2) RESCUE STATION. (3) CHURCH. (4) HOSPITAL. (5) GENERAL OFFICES.

honors. The diamond is in use long before the eastern grounds are cleared of snow and continues to see service months after the eastern season has ended. The bowling league is composed of six teams and these play regularly.

There is a band, composed of local talent, and frequent concerts are given for the benefit of the public. This band won second prize at the Knight Templar Conclave. Many of the concerts take place in the open air, owing to the splendid New Mexican climate.

The company hospital is a very large one for a coal camp, there being twenty-six beds in wards and private rooms. It was one of the first buildings erected after the Stag Canyon company took over the property and though not used a great deal is equipped with the best and latest instruments for general work and is specially provided with apparatus likely to be needed in the event of a mine disaster. A good laboratory is connected with the hospital. The building itself is light and airy and a competent corps of physicians, surgeons and nurses is in constant attendance. The chief surgeon and his assistants give frequent lectures on first aid, not only to the organized first aid crews but to all who care to be present. The attendance at these lectures is quite large. The work taught is so efficient that to wear a "Dawson First Aid" button is considered a distinction in any coal camp of the country, as it is proof of careful and effective training.

There is a rescue station also and there, twice each week, are given lectures on the sources of danger within the mines, how bad conditions are to be prevented, and other similar matters. Regular courses of training in the smoke chambers are offered, so that the rescue crews may become accustomed to work with the helmet. Minor officials are paid for attending these courses but the manager, superintendent, etc., give their time. The general manager, mine superintendent, mine engineering crew, pit bosses, fire bosses, shot firers, company mine inspectors, coke oven boss, company chemist, in fact every man in a place of responsibility, has taken the full course at this station, side by side with the numerous miners who wished to be educated in rescue work.

Along this line of "safety first," Jo E. Sheridan, former federal inspector of coal mines, had the following to say in a recent article on the Dawson mines:

"Dr. Douglas, president of the Phelps-Dodge Company, made frequent trips into the mine, traveling miles underground, no easy task for a gentleman over 70 years of age.

"Walter Douglas, general manager of the company, made frequent trips to the mines and took great interest in the safety conditions at the mines, as also did Dr. Ricketts, the company consulting engineer, who was often at the mines.

"The general manager and superintendents always gave grave consideration to any suggestions for improvement and carried them into effect.

"These incidents all go to demonstrate the 'esprit du corps' which permeated the mine organization at Dawson. Commencing at the head with the president of the company, Dr. Douglas, and going on down through the various officials to the fire bosses, shot firers and miners, they are all members of as enthusiastic a mine organization for the safety and welfare of miners as ever existed."

"When the United States mine inspector was in camp on these occasions he was sent for by Dr. Douglas and questioned as to the safety conditions at and in the mines.

"On another occasion Mr. Cleveland Dodge, vice-president of the company, was in camp on a tour of inspection and sent a request for the United States mine inspector to meet him at the office. He made close inquiry after conditions regarding the safety of the men and when assured that everything was in excellent condition he appeared delighted with the information."

Mr. Sheridan's report, which is of some length, goes into the matter of safety in great detail. Some excerpts from it, dealing with ventilation, fire protection, shot firing and other details of the daily routine, are as follows:

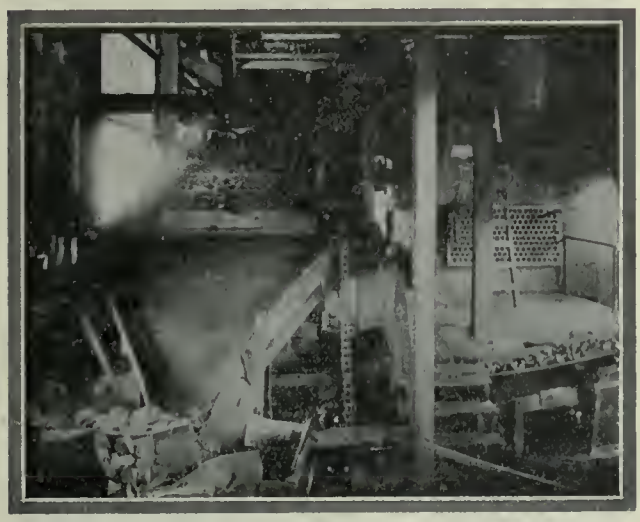
> The Dawson mines are all located on the Blossburg coal seam. The coal lies practically horizontal, the dip being about one degree toward the northwest. No. 2 mine and No. 5 mine are opened from opposite sides of a mountain spur or ridge that forms a promontory between the Vermejo River and Rail Canyon at and near the convergence of the two canyons; No. 5 mine on the Vermejo River side and No. 2 mine on the Rail Canyon side, the workings of the two mines running parallel to each other, the main entries of either being driven into the field to the north.
>
> Between No. 2 high line or main entry there are five other entries opened from the outcrop upon the coal seam and connecting No. 2 and No. 5 mines and furnishing that number of openings for leaving or entering the mine.
>
> The fan shaft is located 5,537 feet from the mouth of the main entry and about 30 feet west of the entry, connecting with the entry by

a short cross-cut. This shaft is 207 feet in depth, dimensions approximately 10 by 15 feet, the exact area of the cross section within the concrete lining being 148 square feet.

At a distance of 58 feet from the center of the top of this shaft the ventilating fan is located. The fan was placed 53 feet to one side of the shaft that it might be out of the direct line of violence in event of an explosion. The fan house is of masonry and concrete and is fire-proof.

Immediately over the shaft the roof is arranged with explosion doors.

Mr. Sheridan discusses these doors and their function at some length, showing how, in event of an explosion, they would open outward and permit the force of the generated gases to expend itself on the outer air, immediately after which the doors could be closed and ventilation be resumed, either through exhausting the bad air, as the fan is primarily intended to do, or reversing it and pumping pure air into the mine up to the point where it was obstructed by the debris of the explosion. The same arrangement could be put into effect in event of a disastrous cave-in blocking part of the usual ventilation system The whole process, he says, need not take more than one minute, much too short a time for gas, after-damp or respiration to materially deplete the store of oxygen in the mine. This reversible arrangement of the ventilating fan, which is applied to those at other shafts as well, provides a prompt means of scavenging any of the mines of gas.



SHAKING SCREEN SHOWING BELT CONVEYOR CARRYING UNDERSIZE COAL TO A RE-SCREENING PLANT

The air shafts are equipped with spiral steel stairways for emergency use. Mr. Sheridan concludes this phase of his article with the statement: "It will be seen from the foregoing that the ventilating equipment is excellent and that many avenues of escape are provided in case of accident."

A report to the Secretary of the Interior by Mr. Sheridan, while acting as federal mine inspector, gives the following:

"Although little fire damp has been found in the mines the management gives careful attention to keeping the mines clear of gas and maintaining proper ventilation. Eleven fire bosses are employed in the four mines. The fire bosses examine all workings for indications of fire damp or other noxious gas before the men are allowed to enter the mine. A record book is kept in a check cabin near the mouth of the mine wherein a record is made of gases found and the miners are prevented from going into a locality where gas is considered dangerous.

"A very commendable method put in practice is to have each fire boss report any unsafe conditions in the working places which it is his duty to examine. He notes unsafe conditions in a memorandum book supplied him for this purpose and marks the unsafe spot or locality. This record applies to timbers lacking, timbers broken, unsafe roofs, etc. When the fire boss comes from the mines he copies these notes in a record book, duplicated by means of carbon sheet, stating particularly where there is immediate danger and need of immediate attention. It is the duty of the pit boss, when he comes on shift, to examine this record and if any place needs immediate attention he keeps the workmen out and either goes himself to the place or sends an experienced workman to remedy the dangerous condition at once. The pit boss tears out the duplicate record from the book and carries it into the mine and it is mandatory that he visit each place requiring attention before noon that day and remedy the conditions the fire boss complained of. By this method some person is made responsible for a knowledge of conditions at every point within the mine, and if an accident occurs the responsibility can be fixed definitely. It is true that a workman may quickly change a safe condition into a dangerous one, as by a few blows of the pick, but such changes, made after rooms or entries have been shot, usually the preceding night, are easily discernible.

"Fire bosses dislike the responsibility thus placed upon them; but the responsibility for safe conditions in a mine should be placed upon some official, and who so competent and careful as a fire boss?

"Shot firers examine each working place after the shots are fired and likewise make a record of any unsafe con-

ditions found. The shot firers have their own record books, thus there is a double check on safety conditions and the fire bosses and shot firers are a check upon each other as they inspect the places at different times."

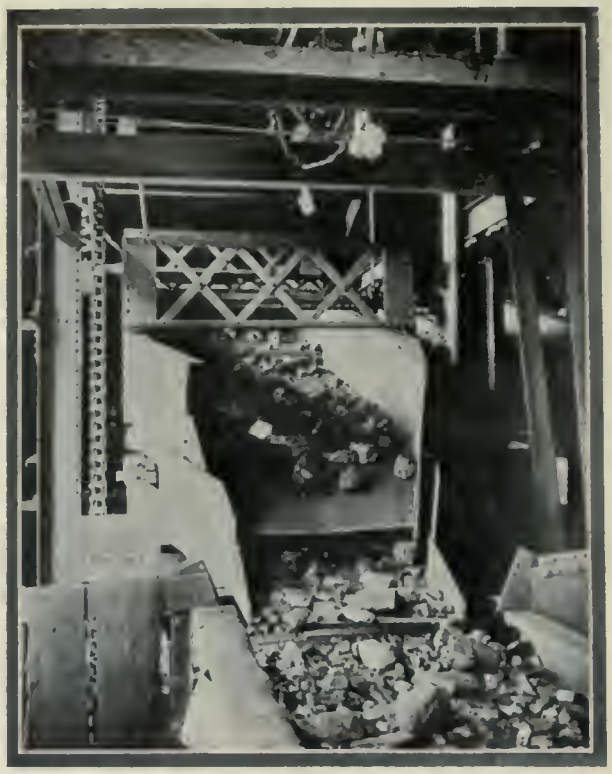
The matter of shot firing is most carefully looked after by the company. Fifteen careful and experienced shot firers are employed. These men visit each working place and make inspections of the holes drilled. If any hole is not properly released by a side cutting or undermining they condemn it. The miners do not charge and tamp the holes, this is done by the shot firers who load all the holes, except such holes as are condemned, after the men have left the mine. Thus careless work cannot endanger even the life of the man who did it, not to speak of the lives of others in the mine.

Shots are fired about 11 o'clock at night, but if there is anyone then in the mine the firing is delayed. An elaborate system of checking out the workers is employed at the mines. Each man is provided with a brass check, stamped with his number, and this he must deposit before entering the mine. When he comes out, the check is returned to him upon his call. A responsible man is in charge of the deposit and distribution of checks at each mine. As long as one of these has any checks on hand, therefore, it is presumed that there are men in the mine. Should an employe leave the mine and neglect to call for his check, a man is sent to his working place to find him. If not found there, his home is made the scene of inquiry, and the search goes on until it is satisfactorily proven that the man is not in the mine, no matter how long it may take. The man who causes this trouble is charged with the time of the man who searches for him and this acts as a strong deterrent to such carelessness as is mentioned.

There are two switches in each entry and a main switch at the mouth of the mine which must be closed by the shot firer after loading the holes after all the men are out, or else where the firing switch is closed in the shot-firers' cabin there will be no explosion. Thus there are three distinct steps to be taken, after the holes are loaded and capped, before a shot can be fired. Clay or adobe is provided for tamping all holes, the company distributing it at convenient places underground.

The powder is stored in large magazines, all of which are electrically heated to avoid the dangers of thawing dynamite in cold weather. The heaters are insulated from direct contact with the powder. The magazines are all fireproof.

The mines are humidified by sprays at short intervals throughout the main haulage ways. Pipe lines extend to the face of all entries, with hose connections every one hundred feet, providing ample means for sprinkling rooms and entries. These lines also afford a prompt means of combatting fire, though there are ample fire extinguishers at convenient places. The company also maintains a two-cylinder Babcock chemical engine on a convenient side-track, ready to be run at any time wherever it is needed. As the presence of fire in the mine would generate a quantity of gas in which it would be difficult, if not impossible, to breathe, the company provides a number of



SHOWING GRADUAL FEED OF LUMP COAL FROM SHAKING SCREEN TO PICKING TABLE. (NO. 1, 2, AND 3 TIPPLE)

the most approved style of helmets and other devices for respiration in poisoned atmosphere.

To cap off all these efforts at safety, and to check up the work of all others charged with maintenance of safe conditions, the company employs a mine inspector, who oversees all the others engaged in safety work. This man makes continuous inspections of all the mines, draws samples of air from old workings and cave-ins with a gob-pump and tests them in his safety lamp, checks up other conditions pertaining to the safety of the men. Should he deem it best, he can order work suspended in any locality, or can take men from other work to remedy a bad condi-

tion. He makes a daily report to the general superintendent, who forwards it to the general manager. In this way the entire administration, from miners through fire- and pit-bosses and inspector on up to the general manager, is in daily touch.

Throughout the mine, manways are lighted by electricity and haulage is carried on in separate channels, so there is no danger of a trip running down miners on their way to or from work.

This would seem to thoroughly establish the fact that the men at Dawson are well looked after, but says nothing of the efficiency and business-like administration which are in effect there. Owning over 50,000 acres of lands and distributing the fuel over an area a sixth the size of the United States, producing the largest tonnage of coal of any one coal mining camp in the west, the Stag Canyou Fuel Company cannot be conducted along the lines of a philanthropic institution. And it is not so conducted. The good treatment afforded the miners and other employes bears fruit a score of times in increased production, higher personal efficiency, a steady and reliable organization, and in other ways.

Yet personal efficiency is not the only sort in evidence at Dawson. Though the company is a comparative newcomer in the field, having been at work but about eight years, yet changes and reorganizations have been made that are little short of marvelous. The concern is a big business affair and is doing business in a big, broad, far-seeing way. Detailed studies of the whole operation of mining from this field were made before much was done. Now those studies have been put into effect and the results are startling economies. These economies include savings in labor, in handling of mined fuel, in preparing fuel for the market, in eliminating waste in the coking process and in the tipple and washery. Probably a higher percentage of mined coal reaches either the coke ovens or the consumer from the Dawson mines than from any other colliery in the country. The place has been compared favorably with the great anthracite fields of Pennsylvania, also Dawson is the only place in the west where the heated gases from coke ovens are saved. This saving of energy from coke oven gases has long been a pet project with engineers, but at Dawson it is a settled fact. When the Dawson company had charge of these mines there were but 124 coke ovens, all of the old style. Now there are 446 improved ovens, beside the old ones, and the energy contained in hot gases which were wasted under former processes is now used to generate all the electricity that can possibly be used in the mines for light or power and in the city for all purposes. The power plant generates 3200 horsepower which is in constant use driving the washery machinery, operating the electric locomotives within the mine, turning the farthest entry of the deepest mine from blackness to bright light, running minor machinery, lighting the city and in other ways. And were there any possible use for more, the gases would supply it.

The company is amply justified in taking such far-sighted measures for the coal being worked lies from six to eleven feet in thickness, but averaging six and a half feet. As the coal lies almost horizontal there is little water to be cared for. There are a number of mines into the coal measures but only five are now being worked. The 1914 output was approximately 1,300,000 tons of coal and 300,000 tons of coke. It was shipped to Arizona, Texas, New Mexico, Kansas, Oklahoma, and to some points in old Mexico, though consumption there has fallen off materially since the war began.

Taking up the more technical side of the question, the coal measures on which operations are being carried on are in the Laramie series of the cretaceous measures which are about 800 feet thick; there are a number of seams in the measure but only two are workable seams. The Dawson mines are on the lower seam. The elevated table on which the coal measures stand has been eroded along one edge until it shows the green shale beneath the coal. On this eroded edge a crop line of coal can be traced for forty miles to the northeast of Dawson.

The triple-main-entry system of mining is used, with double cross entries, rooms and pillars. Main entries and air crosses have a width of nine feet, as have cross entries. Air passages are six and a half feet high and roads are six feet. Room necks are cut twenty feet long and rooms have an average width of twenty feet and a length of 350 feet.

Electricity is used for gathering wherever possible, but there are some mules in use underground. There are twenty-eight electric locomotives underground. A system of signal lights is used through the haulage ways. A red light is hung beside each white mine light. When a trip passes one light, the next one is lighted automatically, thus giving warning some distance ahead that a locomotive or cars are coming.

The ventilating system is unusually good. The company has provided for each worker more than three times the amount of air required by federal law, or 306 cubic feet per man per minute. Mine No. 1 is ventilated by a Vulcan twenty-eight by eight foot fan, double inlet and reversible, belt driven by two fifty horsepower motors.

It runs at sixty revolutions, at a water-gauge pressure of one and one-tenth inches.

Mine No. 2 is ventilated by an eighteen by eight foot double inlet, primarily exhaust, reversible fan, with a capacity of 400,000 cubic feet of air a minute against a water-gauge pressure of five inches. The fan runs at about 150 revolutions a minute and is driven by a 150 horsepower motor.

Mines Nos. 4 and 5 are ventilated by duplicate installation of Coal fifteen by five foot double inlet reversible fans which run at a speed of eighty-two revolutions a minute and have a capacity of 70,000 cubic feet of air a minute each, against a water-gauge pressure of eight-tenths of an inch.

A complete laboratory for testing coals and making necessary analyses is located in a fire-proof building near the washery.

The tipple, which is ample in size, is an all-steel structure. It has duplicate parallel installations of dumps, picking tables and double-deck shaking screens. On it the pit cars, after being weighed, are dumped in hoppers. These hoppers open onto reciprocating feeder plates which deliver the coal to the upper end of the screen in a fine, steady stream. Both top and bottom screens have a screening surface of perforated steel plates seven feet wide and three times that in length, which large size, with the steady feed, assures uniform sizing of product. The oversize of the top screen, and, when desired, that of the lower screen as well, is delivered on pan conveyors which convey to a box-car loader or to open cars. Only the screened and picked coal is sent out in box cars. Oversize from the lower belt can be picked, if desired, and loaded separately.

The screenings from the lower plates go to a bin with automatic feeders which gradually feed it out on a belt conveyor leading to the washery. This tipple, the result of months of careful designing and embodying the experience of years, handles the product from Mines Nos. 1 and 2 only. From Mine No. 4 opposite these first mines, the coal is delivered over a Phillips steel tipple abutting on the main tipple. From Mine No. 5 the coal is screened as it is loaded on the cars, the slack being hauled to a bin, whence it is taken to the washery on a conveyor.

All undersize coal is conveyed to the crusher house and washed. Any oversize which may have got in is screened out and sold for domestic use and the washed undersize coal is sent to the coke ovens in electric cars.

As underground, the coal is handled at the surface with every possible economy and with as little hand labor as possible.

The method of mining employed is by the use of undercutting machines. There are about twenty-five such machines in constant operation in the mine.

Thus it will be seen that not only is there a coal mining corporation which takes out the coal in the most efficient way and which makes the most efficient use of it after it is mined; and that there is a large employing concern which treats its employes with justice and liberality, but that these two concerns are one, and that one is The Stag Canyon Fuel Company.

All coal and coke from these mines is handled by the Dawson Fuel Sales Company, a sales corporation, of which G. M. Hanson is general manager. The officers of the Stag Canyon Company are as follows:

Dr. James Douglas, president; A. C. James, vice-president; George Notman, secretary and treasurer; T. H. O'Brien, general manager; William Hutchings, general superintendent; F. R. Weitzel, mining engineer.

FRENCH, NEW MEXICO

FRENCH is located at an altitude of about 6,000 feet, and has the equable climate necessarily expected of New Mexico where that altitude is attained.

The development of the irrigated lands adjoining the junction of the Santa Fe and El Paso Southwestern Railroad in Colfax County has brought about the existence of the town of French.

French is right at the heart of a great district of irrigable land, the development of which has already been begun. It is thirty miles south of Raton, and has been growing but two or three years. Already the population totals several hundred, and is rapidly increasing.

The town takes its name from Captain William French, the former owner of practically all the land in the district. The soil is of excellent quality, as good, indeed, as any to be found in northern New Mexico, and is well adapted to the culture of sugar beets, Mexican beans, grains, vegetables and apples. Ample water for irrigation is to be had at all times.

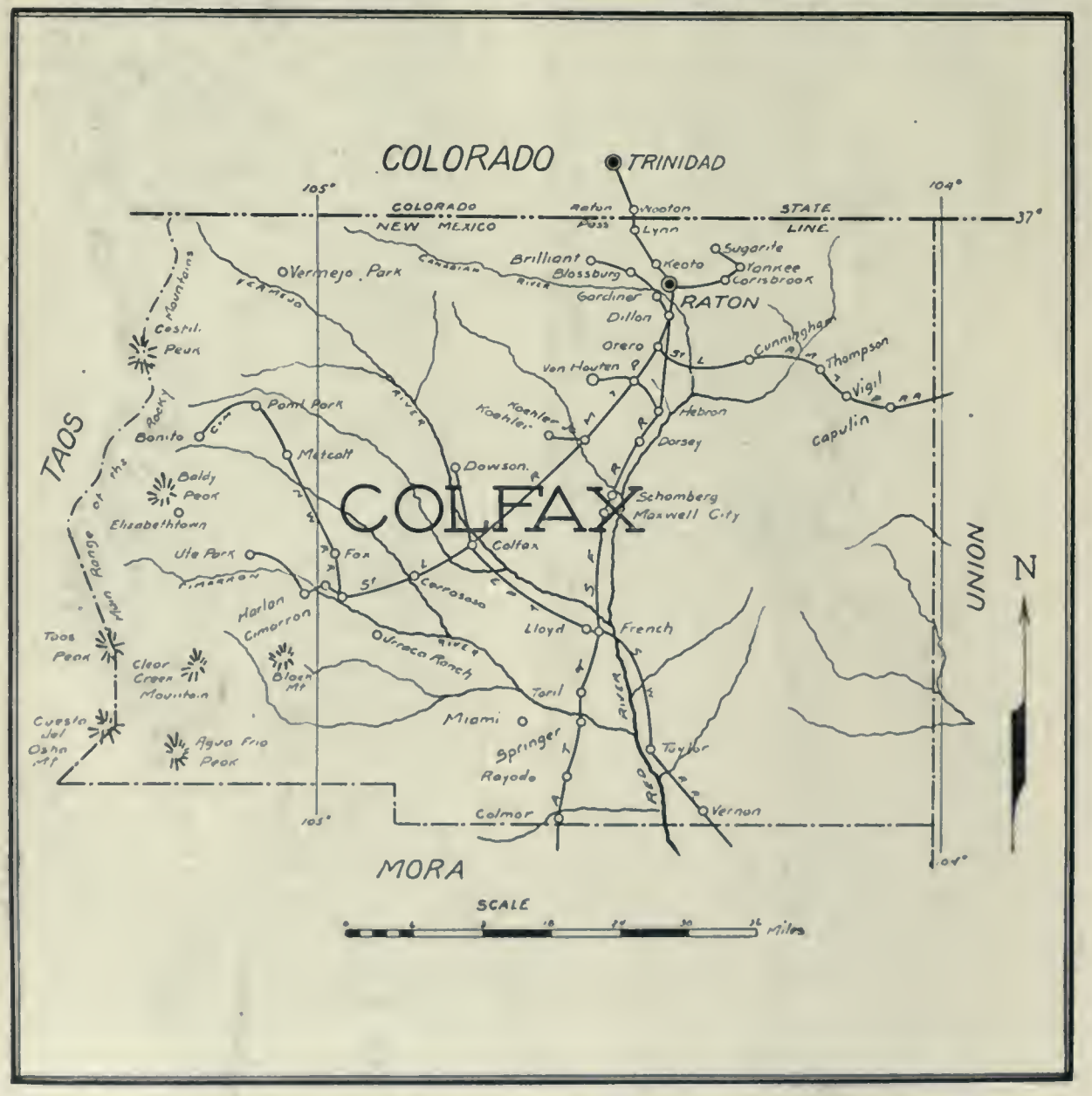
A "TRIP" OF LOADED MINE CARS ENROUTE TO TIPPLE FROM NOS. 1, 2 AND 3 MINES

BOILER HOUSES, POWER PLANT AND UNDERFEED COKE OVENS

SPRINGER, NEW MEXICO

SPRINGER is located on the main line of the Santa Fe Railroad forty-one miles from the county seat, Raton. From 1882 to 1897 it was the county seat of county of Colfax. Then, as now, it was the trading center of a wide area of cattle and sheep industry. It moved farther away, back from the railroad, leaving the still is this, but the cattle men and the sheep men have valleys to the irrigtaionist and intensive farmer. The prosperous Miami ranch property practically adjoin the town of Springer.

Springer now has a population of over 1,000, and is a modern and up-to-date little city, surrounded on all sides by a fine agricultural country. It has good schools, good churches, and has all the appurtenances of a modern city.



LINCOLN COUNTY

BY JOHN A. HALEY

LINCOLN County was created by an act of the Territorial Legislature in 1869, and was not, therefore, one of the original nine counties in the organization of the Territory after it had been acquired from Mexico. It was one of the first created, however, after the organization of the Territory, and at the same time the largest. Soon after its organization the county seat was established at Lincoln, then known as the Bonito Plaza. There the seat of government remained until 1909, at which time the county seat was changed to Carrizozo, where all courts have since been held and where a new court house and jail have just been completed.

Originally Lincoln county covered all the southeastern part of the Territory—about one-fifth of its total area. Three entire counties—Chaves, Eddy and Roosevelt—have been carved out of its former territory, and four other counties—Curry, Guadalupe, Otero and Torrance—contain a portion of its first area.

Lincoln County now occupies a position a little south and east of the south center of New Mexico, and is bounded as follows: On the north by Torrance and Guadalupe counties, on the east by Chaves county, on the south by Chaves and Otero counties and on the west by Socorro county.

It has an area of 4,659 square miles, approximately 3,000,000 acres, of which about 1,250,000 acres are subject to homestead entry. A considerable portion of its area is classed as mineral land and more than half a million acres lie in the Lincoln National Forest, which covers the central part of the county—its mountain ranges. Lands may be homesteaded in the reserve, when shown to be agricultural, and many settlers now reside within its boundaries.

LINCOLN COUNTY COURT HOUSE AT CARRIZOZO

Lincoln County, like all of New Mexico, lies within the so-called arid region that is embraced in the Rocky Mountain plateau, and is divided almost in the center by a range of mountains, the highest peaks exceeding two miles in height. These mountains are but spurs of the main Rockies, but in massiveness and altitude they very nearly approach the Continental Divide. The range is known as the White Mountains, though each spur has a designation. We have the main range, the Capitans, the Tisons, the Jicarillas and the Gallinas.

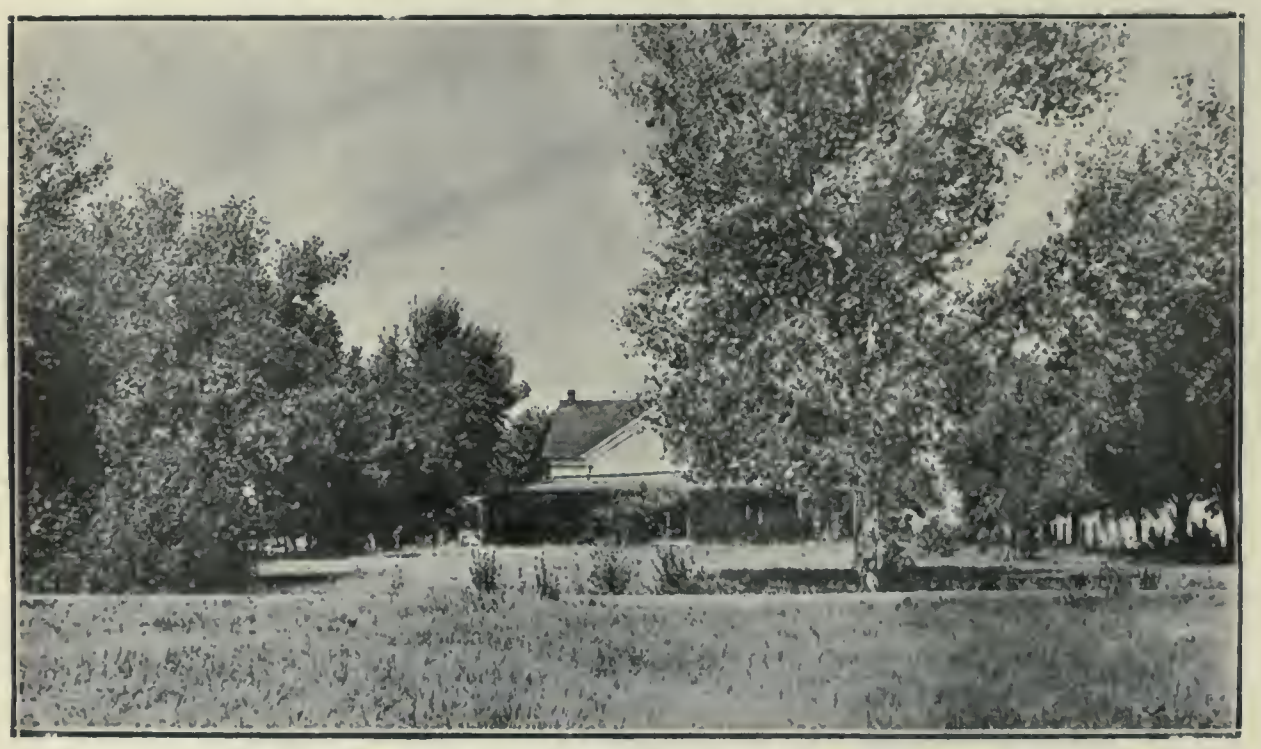
The east slope of the mountain range is well watered. Besides innumerable springs, there are a number of streams that water fertile valleys, maintaining a thriving population. Principal among these streams are the Salado, Bonito, Little and Eagle Creek; Carrizozo, Ruidoso and Hondo—all small streams, but most of them furnishing sufficient water for irrigating purposes. On the west slope a number of springs abound, but there are not so many streams, neither are they so large as on the east slope. Tortolita, Water Canyon and Three Rivers furnish the larger flow of water for the west side. The latter is the principal stream on the west slope, used for irrigating purposes, and along its course are to be found some fine fruit and alfalfa farms. Lincoln County is situated wholly in the Rio Grande water-shed.

All the immense area not touched by streams has been used for grazing purposes, springs and wells furnishing the water supply for herds and flocks.

Our mountain ranges, lying wholly within the Lincoln National Forest, contain a great deal of fine timber—thousands of acres—which will produce millions of feet of lumber, suitable for building purposes. Pine, spruce and fir constitute the principal mountain growth, while in the foothills are to be found cedar, juniper and pinon, all serviceable for fuel and fencing purposes.

On the plains and in the mountains, as well, a most succulent grass grows, which furnishes feed for stock the year round. It is known as the Grama grass. Its growth is rapid during the summer season, matures with the frost and furnishes sustenance to the flocks and herds of Lincoln County throughout the winter. Season after season large areas of this grass are mowed and baled, some of it fed on farm and ranch, but a great deal of it shipped, and brings a very satisfactory price; for its quality is excelled by no other wild hay.

Altitude, aridity and the preponderance of sunshine, combined with its latitude, give Lincoln County one of the best climates to be found anywhere. From season to season, from year to year, it is one of the most attractive features the county has to offer. Generally, the winters are



RANCH HOME OF GOV. WILLIAM C. McDONALD, NEAR CARRIZOZO

short and mild, the summers cool and delightful, and, except in the higher altitudes, the people follow their usual pursuits throughout the year.

Someone has called New Mexico the "heart of the well country," and it is generally recognized as the nation's sanitarium. But to Lincoln county belongs the distinction of occupying the center of the "heart," for the government of the United States has placed one of its greatest sanatoriums within its confines. It is located at Fort Stanton, on the Bonito, ten miles above Lincoln, and is particularly designated as the United States Public Health Service Sanatorium. It was established for tubercular sailors of the merchant marine, and has an average of 200 patients.

Our public school system is patterned somewhat after that of the older states, and the immense grants of land that have been made the State by Congress bid fair to give New Mexico one of the best school funds in the Union. Like all new countries—a sparse population, comparatively little wealth and vast distances—this country has faced these inconveniences, but it has overcome them, and Lincoln County, especially, is proud of its school system.

It is difficult to put in black and white the great improvement in the schools of Lincoln County; so much that goes to make successful schools is intangible and can not be shown in print:—as the enthusiasm of the pupils and the deep interest of the patrons, yet they are the reasons for the progress. Each year our schools take a step forward, due to the intelligent interest of the citizens at large; terms are longer, attendance better, more and higher qualified teachers are demanded.

The value of buildings and equipment is about $57,600.00. The buildings of logs erected by the first hardy pioneers being replaced by good modern school houses—$2,212.94 was spent the past year for new buildings and $1,149.15 in repairs.

The total amount spent by the schools last year was $27,482.77, making the cost per child enrolled about $17.

We have thirty-three buildings with forty-eight rooms in use—twenty-five are one-room buildings, four have two rooms, one uses three rooms and two use six rooms.

We are fortunate in getting teachers with high professional attainments and receive the worth of the $17,286.85 that was paid to teachers last year, the average salary of $61 a month.

The County High School at Capitan is being equipped for manual training, domestic science, and business course as well as the studies required by the state high school course. Every effort is being made to have this school meet the demand of the people for a high school as good as any, giving the children of Lincoln County the advantages they so richly merit.

Carrizozo maintains a four-year high school. Corona is doing two years of high school work. Ancho has a class in second year high school, and White Oaks a class taking first year's studies.

Of the 2,264 enumerated children between the ages of five and twenty-one, 1,723 were enrolled in school. The daily average attendance was about 1,000.

Free gold was discovered at White Oaks in 1879 and a short time later rich discoveries were made at Nogal and in the Bonito country. Mills were installed, the product of the mines reduced to bullion and that in turn was sent to the mint. Just how much gold the mines of Lincoln County have produced would be difficult to say, for the reason that many small shipments were made of which no record is obtainable, but in the aggregate ran into hundreds of thousands of dollars. One mine alone—the Old Abe at White Oaks—has a record of more than a million dollars. A number of other mines in the same camp are almost equally celebrated—the South and North Homestakes—and their joint production quite likely equals that of the Old Abe. Two very valuable mines are located at Nogal—the Helen Rae and the American have been strong producers, and, though idle just now, have experienced only a surface development. The Parsons mine on Bonito, though a low grade proposition, has a large amount of machinery installed and a strong corporation is preparing to work the property on a large scale. Jicarilla, primarily a placer camp, and from the rich beds of the canyons thousands of dollars have been washed by the most primitive methods, has also a promising future for the lode miner, a number of good "strikes" having been made there the past year. The Gallina Mountains, near the town of Corona, have some rich deposits of lead and copper and the Deadwood and Red Cloud mines of that district are producing ore that is now being shipped to the smelter. Other later discoveries in various parts of the county show the existence of valuable ore bodies which will only require capital and scientific development to turn them into paying properties.

Coal mining, until the advent of the El Paso & Northeastern Railroad in 1899, had been carried on only to the extent of developing the properties sufficiently to warrant patenting and the extraction of coal to supply the domestic demand. Up to the date mentioned, White Oaks had the greatest area of coal lands patented and developed, and

the output of coal went to feed the boilers that supplied power for the other mining operations in the camp. The construction of a railroad in 1899 to the Capitan coal fields—the line coming from El Paso—furnished an outside market for our fuel.

Bodies of iron exist in various portions of the county, much of it a high grade, and its commercial value is unquestioned. From developments already made at various points large things are expected from the vast iron deposits known to exist in the county. Principal among these deposits are the iron deposits and ledges in the Capitan mountains, those in Jicarilla mountains, Tecolote and Lone mountains. In Lone Mountain the Colorado Fuel & Iron Company is developing the Yellow Jacket mine and transporting its product to the Pueblo smelter. Adjoining properties to the Yellow Jacket are also undergoing development.

From the first settlement of the county livestock furnished the biggest means for the investment of capital, and even today, after our population has doubled and settlements exist in every nook and corner of the county, the livestock interest still remains one of the principal industries. The vast area of grazing land in the county furnishes excellent range for the stockman, winter and summer, and except in extraordinary seasons of drouth there is little loss to the stockman from poverty. In round numbers, there are 50,000 head of cattle, 250,000 head of sheep, 20,000 head of goats, mostly Angoras and improved, and 5,000 head of horses. For a number of years the herds and flocks of the county have been graded up and the common varieties are about extinct. Range cattle are principally Herefords, although small herds of Jerseys and other milk stock exist in different parts of the county. The sheepman has been building up his flocks, until he now clips a fleece that weighs from 9 to 12 pounds instead of from 3 to 5 pounds as was the case only a few years ago. A like increase in Mohair is shown in the goat industry.

In former years the cattle business was largely confined to big ranchmen and companies, but radical changes have taken place and only three large ranches are now running cattle on the Lincoln County ranges. They are the Carrizozo Cattle Ranch Co., known as the Bar W's, El Capitan Live Stock Company, locally called the Blocks, and the Circle Diamonds. As the larger companies have disorganized their range has been occupied by small individual owners, and today there are many small ranches running from 100 to 1,000 head of cattle. The sheep business has also undergone a change, not so marked as that in cattle, but nevertheless, having larger number of men in the business. The goat is largely confined to the mountains, hence his range territory is not so extensive.

Agriculture has been an important industry since the settlement of the county, but it has been almost wholly confined to the small stream section of the county. Along the small streams in the southern and eastern parts of the county excellent crops of alfalfa, wheat, oats and corn are grown, and almost every vegetable that can be grown in the North Temperate Zone reaches perfection here. In the production of fruit, Lincoln County is not excelled by any section. Our apples, especially, top the market wherever they are shipped; and at the State Fair this year the small exhibit made by Lincoln County orchardists captured five prizes. Annually the alfalfa farms and orchards of the Bonito, Ruidoso and Hondo valleys bring big returns to their owners.

Only a small per cent of our lands is in cultivation and a still smaller per cent is under irrigation. The irrigated area is about 5,000 acres. Within the county only about 150,000 acres of grazing land have been patented, 6,000 acres of coal land and less than 2,000 acres of mineral lands, other than coal.

The county has a main line of railroad, running north and south, and a branch line from Carrizozo to Capitan which taps the heart of the farming belt. The railroad shops and round house are located at Carrizozo and the railroad system is supplied with water by a pipe line that has its source in the White Mountains, tapping the Bonito and Eagle Creeks. Nearly every portion of the county is connected by telephone, and in addition to rural mail routes and the railroad system there is a daily auto line which affords quick means of communication with all sections of the county. The total assessed valuation of the county for 1913 is $6,774,087, of which one-third, or $2,258,029, is the legal basis of taxation.

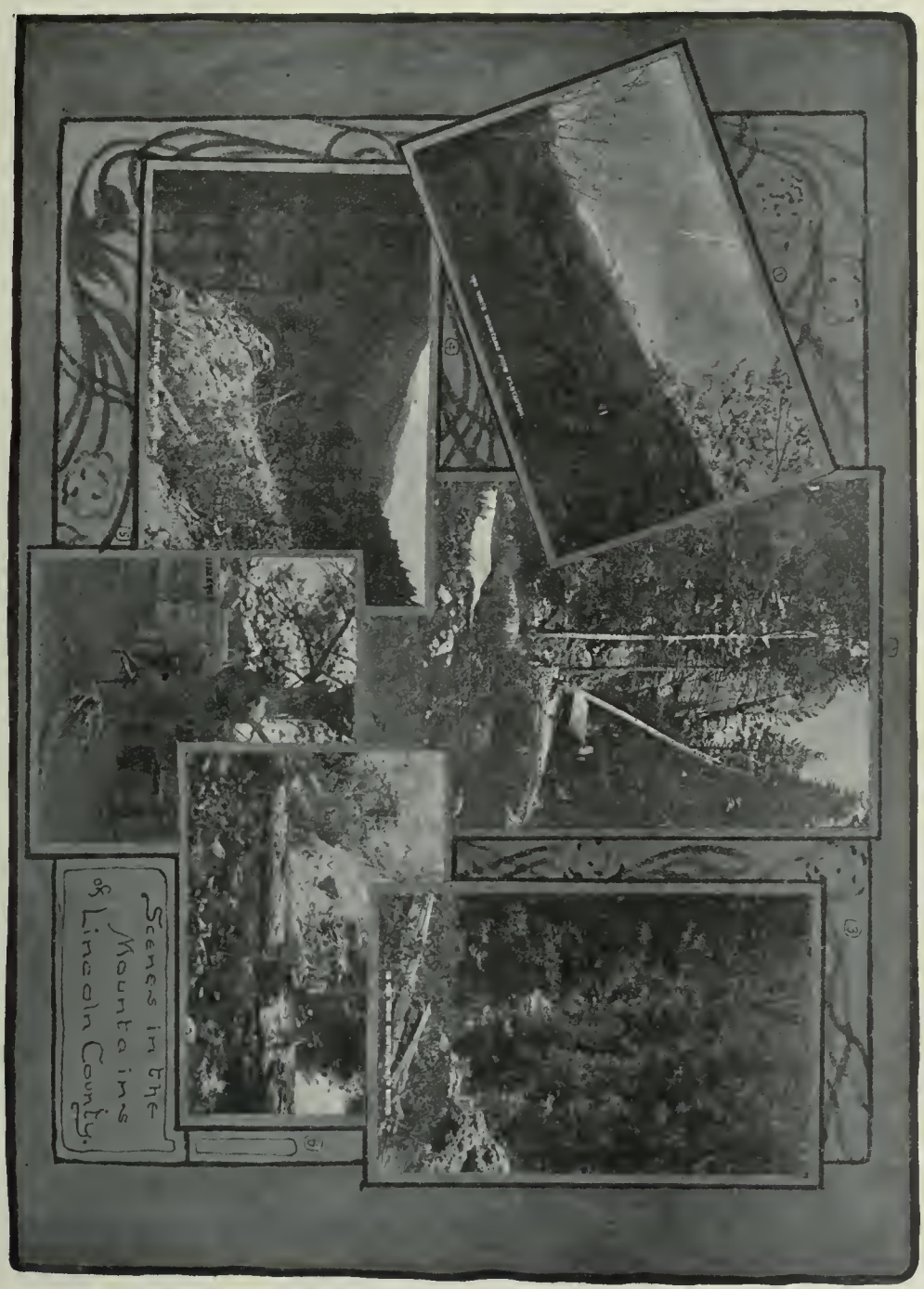
Government lands, of which a large area in this county is still open for entry, may be homesteaded and title acquired by residence upon and cultivation of the land. All non-mineral and non-timber land, which has not been granted by the Federal Government, is subject to entry and settlement. Homesteaders may file on 160 acres of such lands, or in certain prescribed areas, filings will be accepted on 320 acres. Final proof, after a residence and cultivation for three years, entitles the applicant to patent, when proper proof of such occupancy and cultivation is made.

FORT STANTON, UNITED STATES PUBLIC HEALTH SERVICE SANITARIUM

CARRIZOZO, COUNTY SEAT OF LINCOLN COUNTY

POPULATION 1,234. Situated on the El Paso & Southwestern Railroad, 144 miles northeast of El Paso, Texas. Division point on the Southwestern System and junction of the Capitan branch line of the same system. Has a monthly payroll from railroad alone o. $12,000.00 to $15,000.00. Has the best public school in the county and equal to any in the State, with a corps of eight teachers, and in addition conducts a high school, meeting all the requirements of the State Board of Education. Has three church buildings and organizations: Methodist, Baptist, and Catholic. Four fraternal societies, with a live active membership: Masons, Knights of Pythias, Odd Fellows, and Woodmen. Is a distributing point for a large section of the surrounding country, including towns up and down the railroad. Is surrounded by a rich grazing, mining, farming and fruit growing country. Has splendid railway, express, telegraph and telephone facilities. Four mail trains—two each way—deliver mail, besides two daily star routes carrying mail to and from interior points of the county—one of which is an auto line from here to Roswell, a distance of 104 miles, the best in the Southwest. The medical and legal professions are well represented, so is also that of dentistry. All lines of business are well represented, there being twenty-five business houses in the town—such as general merchandise, groceries, hardware, furniture, wholesale grain and feed, livery, garage, drug stores, hotels, meat markets, lumber yard, bank, Jewelry, lighting, undertaking, tailors, saloons and two newspapers. The county of Lincoln has a population of about 10,000 of which Carrizozo is the county seat. The altitude of Carrizozo is 5,435 feet, which gives it an ideal summer climate and its latitude is such that its winters are mild. The country surrounding the town is rapidly filling up with homesteaders and settlers who are purchasers of land from the State, and besides numbers of large sheep and cattle ranchmen near the town has a larger number of small ranchmen, whose herds run into the thousands. The town is enjoying a steady and permanent growth, its buildings are being erected upon lasting plans, by people who have come here to make this their home, and are thus surrounding themselves with all the comforts necessary to a pleasant existence. Business is good, and getting better, and bank statements show ever-increasing transactions. The Commercial Club at Carrizozo will gladly furnish further information regarding Carrizozo and Lincoln County. In Carrizozo, you will find a prosperous community of energetic citizens—a city of homes and every modern convenience for the material comforts.

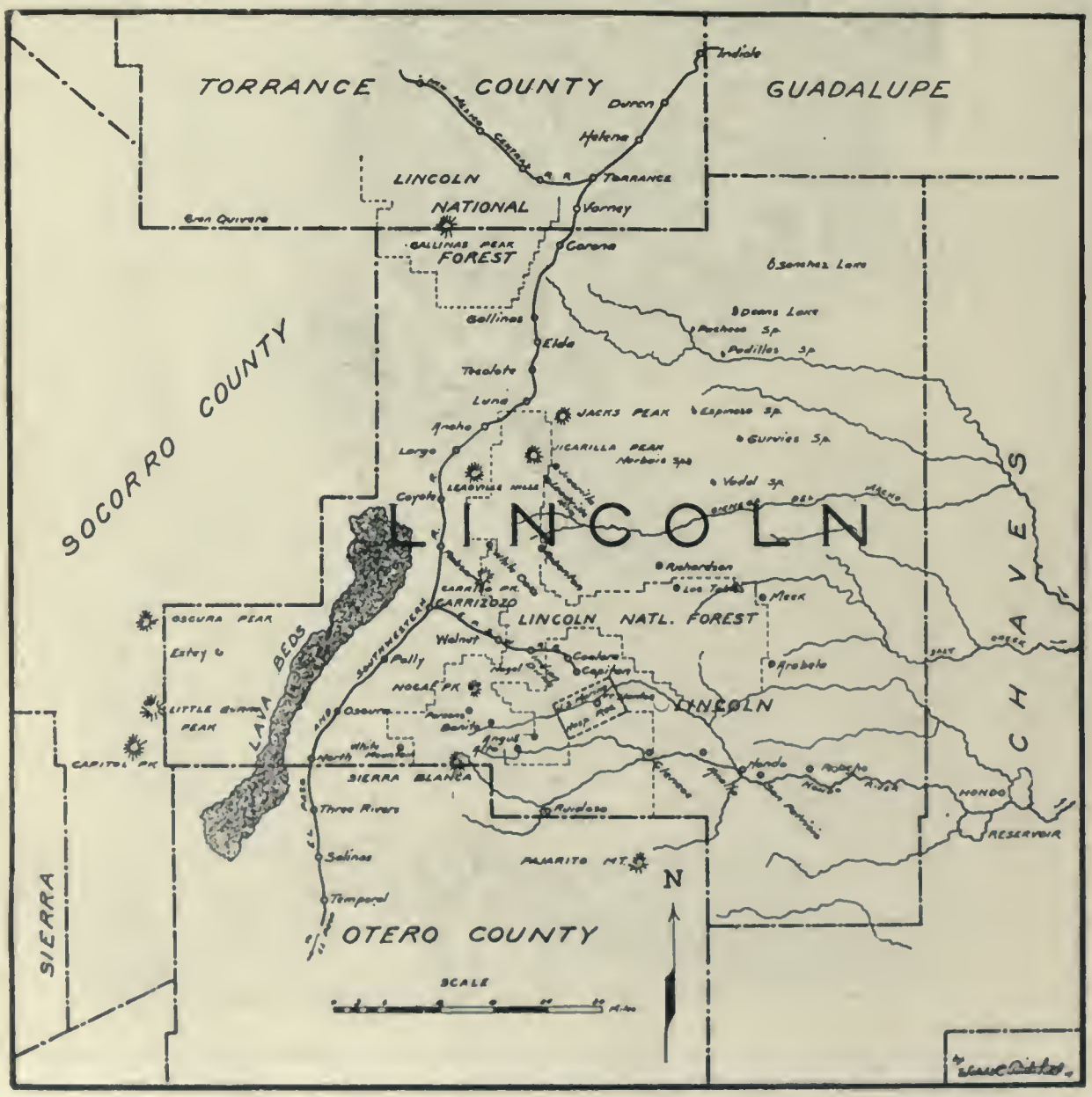
HIGH SCHOOL BUILDING AT CARRIZOZO



THE MOUNTAINS OF LINCOLN COUNTY ABOUND IN GAME AND PICTURESQUE SCENERY

POSTOFFICES, TOWNS, LINCOLN COUNTY

Alto, Ancho, Angus, Capitan. Carrizozo, county seat; population 1,300. Corona, Eichel, Fort Stanton, on the Bonita, Government Sanitarium for Tuberculous Sailors; Glencoe, Holloway, Hondo, Hurlburt; Jicarilla, Lincoln, on the Bonita, former county seat, the earliest settlement in the county. Meek, Nogal, Oscuro, Parsons Pichacho, Rabentown, Ruidoso, San Patricio, Tinnie, White Mountain (formerly Three Rivers) White Oaks.



CURRY COUNTY

BY C. E. DENNIS

IS AN eastern border county joined on the east by Parmer County, Texas. It is in the very heart of that greatest body of fine agricultural land known as the Panhandle—nothing finer in the United States. Water 98 per cent pure, climate ideal, land that produces 15 to 40 bushels of wheat per acre, and other crops in proportion, can still be had at from $10.00 per acre up. Our land will grow as much ensilage as can be grown on the high priced eastern land, and with silos now in use, the cow and the silo will very soon double and treble the price of our land.

Curry County had a poulation in 1910 of 11,443, of which 3,255 was in the city of Clovis and 409 in the town of Texico. Only 1.8 per cent of the population were illiterate. Curry County has 485,992 acres of agricultural lands, valued at $510,224; no grazing, timber or coal lands, no national forest lands. Its livestock includes

FETERITA—ONE OF CURRY COUNTY'S STABLE CROPS

3,471 horses, 511 mules, 25,000 cattle and 18,000 sheep, valued at something over $500,000. Its railroad property is valued at practically $900,000 and its town lots at over $275,000. Curry County has 3,104 acres of public lands available for homestead under the Tucumcari office, all of which is surveyed, and 16,240 acres under the Fort Sumner land office, also all surveyed. Almost all of this acreage is available for enlarged homestead filing. The county has 480,538 acres in some 2,300 farms, most of which are of the 160-acre class, though ten are of over 1,000 acres, 468 in the 260 to 500-acre class. Its annual wool clip is worth about $12,000 and the animals sold or slaughtered each year are worth $213,000. Its principal crops are hay and forage products and cereals, having a value of over $250,000 a year, while dairy products sold or used at home have a value of $116,000 more. Broom corn is also produced to the extent of about 150 carloads a year. The valuation of the county is $19,062,000, taxes being levied on one-third of this, according to law. It has $40,000 worth of bank stock. The area of the county is 899,840 acres. Its topography is characteristic of eastern New Mexico, most of the county being rolling plains. It is drained by the upper reaches of the Pecos and its tributaries and by several small streams, arroyos and canada flowing east through Texas. It has several small lakes and a number of springs.

EVIDENCES OF CURRY COUNTY CROPS

Our system of farming differs very little from the northern and eastern states, and while our country is often referred to as a dry-farming country it is more on account of our close proximity to the alfalfa and fruit raising lands of the Pecos Valley where they have artesian water and irrigate them, than on account of our system of farming. It is true we endeavor to conserve all our moisture and use methods not thought of nor needed where rainfall is very heavy. Every country has its drawback, also its advantages, and while we spend a little extra time in conserving moisture, we do not spend any in building cyclone cellars or preparing for floods. Our rainfall for a period of 20 years averaged better than 21 inches. Our farmers say they can raise good crops with 15 inches. Such a thing as hot winds has never been known here, as we get practically all our rains in the summer months.

Professor W. H. Campbell, of the "Campbell Method" fame, in speaking of the possibilities of Eastern New Mexico as a farming country, says: "In all my travels I have yet to find a section of country that is better adapted to farming under my system of soil culture. The possibilities are vast, and for successful agriculture, I am safe in saying that this section of New Mexico cannot be excelled in any part of the United States. With your climate and your ideal conditions for farming, I do not see anything but success ahead for the men who till the soil intelligently."

The farming of kaffir corn and milo maize in conjunction with the silo is exceedingly profitable in Curry County, as Curry County has an annual rainfall of 21 inches, most of this rain coming during the summer months which makes kaffir corn and milo maize a certainty. This crop can either be sold profitably by being threshed and sold as feed stuff or can be put in a silo where it will bring better returns.

HARVESTING MILLET IN CURRY COUNTY NEAR CLOVIS

And for the reader's benefit, we are herein giving a few facts concerning milo maize and kaffir corn.

Ten bushels of kaffir corn have the same value as nine bushels of Indian corn for feeding work horses, beef and dairy cattle, hogs and sheep. Kaffir corn is a starchy

feed like corn and gives the largest profits when fed with a feed rich in flesh and blood making material, like alfalfa, peanut hay or tankage.

Accurate tests made by Charles Campbell, for twelve years head buyer for Schwartzschild-Sulzberger Company, Oklahoma City, as to the relative dressing of kaffir and corn-fed steers on a sixty to ninety day feeding basis are as follows:

Kaffir-fed steers, dressed, 53 to 54 per cent. Two-thirds kaffir, one-third corn steers, dressed 54 to 55½ per cent.

One-half kaffir, one-half corn steers, dressed, 55½ to 56½ per cent.

Corn-fed steers, dressed, 55½ to 56 per cent.

Cotton meal-fed steers, dressed, 54 to 55½ per cent.

Milo has the same feed value as kaffir. It is fed in the same way as kaffir and should be combined with the same other feed as kaffir. Milo is planted and cultivated just like kaffir. At Government experiment station the best yield has been obtained by having the stalks seven to eight inches apart in the row. Milo matures in 30 days less time than kaffir and therefore has a month's less time in which it must be supplied with moisture.

Milo maize and kaffir corn are very hard to equal and at no time excelled as silage. As an example of what can be done by feeding kaffir corn and milo maize as grain and also as silage, we are herein giving you a statement of what Mr. J. D. Fleming did on his farm four miles southwest of Clovis last year (1913). On the first day of November, Mr. Fleming put in a feed lot 53 calves that weighed 387 pounds each. These calves were fed 140 days on rations of ensilage and ground kaffir corn and maize, were then shipped to the Kansas City, Missouri, market where they weighed 650 pounds each and sold for $8.75 per hundred.

Wheat is now one of our standard crops, the yield ranging from 15 to 40 bushels per acre. This year there were very few fields where the yield was less than 15 bushels, most of it ranging about 30 bushels.

Cyclone Jones, whose post office address is Claud, N. M., about 12 miles from Clovis, from two hundred and seventy-five acres this year threshed a little over 6,200

THE "GOLDEN HARVEST" OF CURRY COUNTY

bushels. He has been raising wheat for four years, and the lowest yield he has had was 12 bushels and this was a piece of wheat drilled in the stalks. Curry County was

SACKING WHEAT NEAR CLOVIS

given second prize on wheat at the State Fair at Albuquerque this year.

If you are looking for a home we don't believe you will find another country where one year's crop of wheat will pay for the land on which it was grown. This is what you can do on this land bought at present prices in Curry County.

We have never advertised Curry County as a corn growing county, yet it is a fact that we have never failed to raise quite a considerable of corn here. We don't have as heavy yields as they do in some of the eastern states, but we can depend on 25 to 40 bushels almost any year. Our rainfall is sufficient for corn but the nights are not warm enough, although the corn we do raise is good quality. We were given first prize on corn at the Albuquerque State Fair. We believe the reader would be interested to know that at the National Dry-farming Congress held at Wichita, Kansas, this year Curry County was given first prize on sudan grass, first and second cuttings, and first prize on sudan grass seed, thus giving it first place as a forage growing crop in the world, as sudan is admitted to be one of the best if not the best forage crop grown. We think it would be interesting for all to know also at our State Fair at Albuquerque this year we were given first prize on corn, cane, beans, watermelons and second prize on wheat and almost all the other crops grown in this county.

Curry County is admittedly the best all-round stock farming county in New Mexico, and for that matter in the United States. To the men in the East who are renting or owning a small farm and have boys coming on who need homes we say without fear of contradiction, Curry County, New Mexico, is the place for you.

Sudan grass is in its infancy in the United States, this year (1914) being the first year that any of it has ever been raised in Curry County, New Mexico. Quite a number of our farmers, this year, raised sudan grass, it producing from 300 to 750 pounds of seed per acre which seed is selling at from 60 cents to $1.00 per pound. The grass alone without the seed produces from six to eight tons per acre and is said to be a very fine forage feed.

A wise man once said, "You cannot live on climate alone, no difference how good." The statement no doubt is true. It is also true that there is a great difference in climates, and we are either fortunate or unfortunate in the particular kind we happen to have where we cast our lot. Our climate we consider almost ideal. Never too hot in the summer nor too cold in winter, which we consider quite an advantage. This climate also gives our farmers an advantage in handling stock; not having to provide shelter in winter nor shade in summer. Many of our farmers and stockraisers do not feed at all during winter months, depending altogether on native grass pasture, making it much less expensive to handle stock. Our altitude above sea level, together with our 300 days of sunshine each year, has much to do with making our climate the ideal one.

It has been our purpose in this article to give the reader actual facts and not fiction. To the prospective homeseeker we can say that Curry County offers you an opportunity to secure a home at the very reasonable price of from $10 to $20 per acre and upon this land you will have all the privileges of schools and churches.

FIELD OF FETERITA IN CURRY COUNTY

MELROSE, NEW MEXICO

It has been commonly believed in the Eastern states that New Mexico would not produce any kind of grain crop commercially. Also this is believed by a great many people who came here in the early days of the settlement of the eastern portion of the State, before anyone knew how to produce crops.

DAIRY COWS NEAR MELROSE
Produce $25,000 Worth of Cream Yearly

But conditions are different in Eastern New Mexico to what they were a few years ago. Now the farmers know how to handle their lands and crops to get the maximum returns, where they did not know before.

The average yield in the Melrose wheat belt this year is estimated to be 15 bushels per acre or better. Many fields will run over 30 bushels per acre. One field of 30 acres which was threshed yielded 870 bushels, 29 bushels to the acre. Another field threshed out 21 bushels to the acre.

But wheat is not the only money crop that is produced in the Melrose country. Last year there was produced and shipped from Melrose alone 68 carloads of broom corn with a value of $54,000.00. This year broom corn men estimate the acreage 25 per cent larger and the condition of the crop at least 25 per cent better than last year.

There is no way of estimating the acreage of maize, kaffir corn and similar crops at the present time, as no accurate report can be obtained, but it is safe to say that there will be produced in the Melrose trade territory in excess of $100,000 worth of grain from these crops in addition to that which will be used for home consumption.

Cream, eggs and poultry will bring in approximately $20,000 this year, the largest amount in the history of Melrose as a shipping point for these products.

Wool from approximately 10,000 head of sheep will be marketed here and this will amount to approximately $12,000, the estimate being on 75,000 pounds of wool.

In summing up the production of wealth from farming and stockfarming operations it will be found that the Melrose trade territory will produce this year approximately $400,000 besides the feed that will be fed to the work stock and dairy cows on the farm. Averaging this up then shows that over $30,000 is produced in the Melrose trade territory every 30 days.

And the best part of the whole thing is that it is a hard matter indeed to find a farmer, stockman or dairyman who is not thoroughly satisfied with what he is producing.

No longer is it possible for anyone to truthfully say that New Mexico is not a commercial producer of grain, livestock, hay, cream, poultry and eggs.

There has been considerable talk of flouring mills and there will not be many years elapse before the wheat will be ground here at home.

A DAIRY FARM NEAR MELROSE

In all probability there will be an elevator erected here next year to handle the wheat crop.

CLOVIS, NEW MEXICO

COUNTY SEAT, CURRY COUNTY

BY C. E. DENNIS

CLOVIS, New Mexico, is located on the main line of the Santa Fe Railroad at the junction of the Chicago-to-the-coast, the Pecos Valley and the Galveston-to-San Francisco lines. It is about equal distance between the northern and the southern boundaries of New Mexico, and just ten miles from the Texas state line. The city was founded and the first house erected in 1907, soon after it was learned that the Santa Fe Railroad Company had decided to make this point the junction for the above three lines, which were then under construction through the undeveloped section of Eastern New Mexico.

During seven years Clovis has grown from a mere village to a real city—of the first class—with a population of at least 5,000 people, who are as intelligent and wide-awake as can be found in the United States. Its almost phenomenal growth has been due to its being located in the center of the great plains country which has been undergoing a period of much agricultural and commercial growth, since it was opened to settlers some few years ago, together with the Santa Fe's great $2,000,000.00 repair and car building shops, terminals, yards, hospital, etc., which give employment to about six hundred high salaried men with a monthly payroll of at least $60,000.00.

There is not a cleaner and more beautiful city to be found on the American continent than Clovis. The basis of good health is good fresh air and pure water, and no more or better of either can be found. The city is well supplied with an up-to-date theatre and other places of amusement. Has excellent hotel accommodations with ample facilities for entertaining and taking care of the many tourists who visit the city each season.

The city is well governed and is supplied with all the conveniences and luxuries of a modern, up-to-date city. It is well-lighted both by electricity and private gas plants. Its municipal water, light and sewer plants completed four years ago at a cost of $140,000.00, are pronounced by experts to be the best in the West. Liberal provisions are made for schools of high standard. Churches are maintained by all denominations, and a handsome Carnegie library, soon to be erected, will provide for the wants of the reading public.

Has an up-to-date Chamber of Commerce with over 500 members.

Those contemplating making Clovis their home need have no hesitancy about the question of proper school advantages for their children. Many people are being attracted to Clovis on account of the superior educational advantages of the city, which will compare favorably with those of many eastern cities of 10,000 people. Indeed, she is becoming recognized as an educational center of Eastern New Mexico.

Those living in the country rural districts here enjoy school advantages that are unexcelled in many of the older and more progressive states.

It is the county seat of Curry County.

It is the hub of the great Santa Fe Railroad system.

It has four lines of railway.

It is the division headquarters for the southwestern lines of the Santa Fe.

CURRY COUNTY COURT HOUSE AT CLOVIS

SANTA FE R. R. HOSPITAL AT CLOVIS

It has railroad yards and terminals costing $2,000,000.

It has a railroad pay roll of $60,000 each month.

Its pay roll is being increased each month and will be doubled soon.

Its churches are modern and well attended.

CITY SCHOOL BUILDING AT CLOVIS

It has the best school system and buildings in the Southwest.

It has the only Conservatory of Music in New Mexico.

It will soon have a State Normal School.

It is on the Panhandle Pacific Highway road.

It has a $100,000 Santa Fe Hospital.

Its hotels are modern and equipped with steam heat. They cost $100,000.

It has a wide-awake Chamber of Commerce.

It has Elks, Masons, Odd Fellows and various other local fraternal orders.

It has a city hall and fire station costing several thousand dollars.

It has the best volunteer fire department and equipment in New Mexico.

It has a crack local state militia company.

It has two weekly newspapers; daily to be started soon.

It has two banks with deposits of several hundred thousand dollars.

It has several hundred modern residences.

It has sixty-eight modern one, two and three-story brick business houses.

It has planing mill, sash and door factory, broom factory, ice factory.

It has creamery and ice cream factory, a candy factory.

It is the headquarters for the phone company of Eastern New Mexico.

It has four wholesale houses.

It has two automobile garages.

It has broad, clean streets, excellent for automobiling.

It has several miles of concrete and brick pavement.

It has municipal water, light and sewer plant, costing $140,000.

It has street lights, water and sewer mains all over the city.

It has the most pleasant and healthful climate in the United States.

The climate is ideal. The winters are short and mild, while the summers are long, but not hot. No uncomfortable results are experienced even during the hottest days of summer, as an almost constant breeze keeps the air cool. The nights are always cool and refreshing; no sleep is lost on account of the heat. At this elevation—4200 feet—the climate is most healthful, and the pests usually encountered in the lower altitudes, especially along the sea coasts, are not with us. The winters are dry and short and seldom too cold to do outside work.

The land is smooth, gradually sloping from the northwest to the southeast at an average fall of about seven to 9 feet to the mile. There are no rocks to remove from

STREET SCENE AT CLOVIS

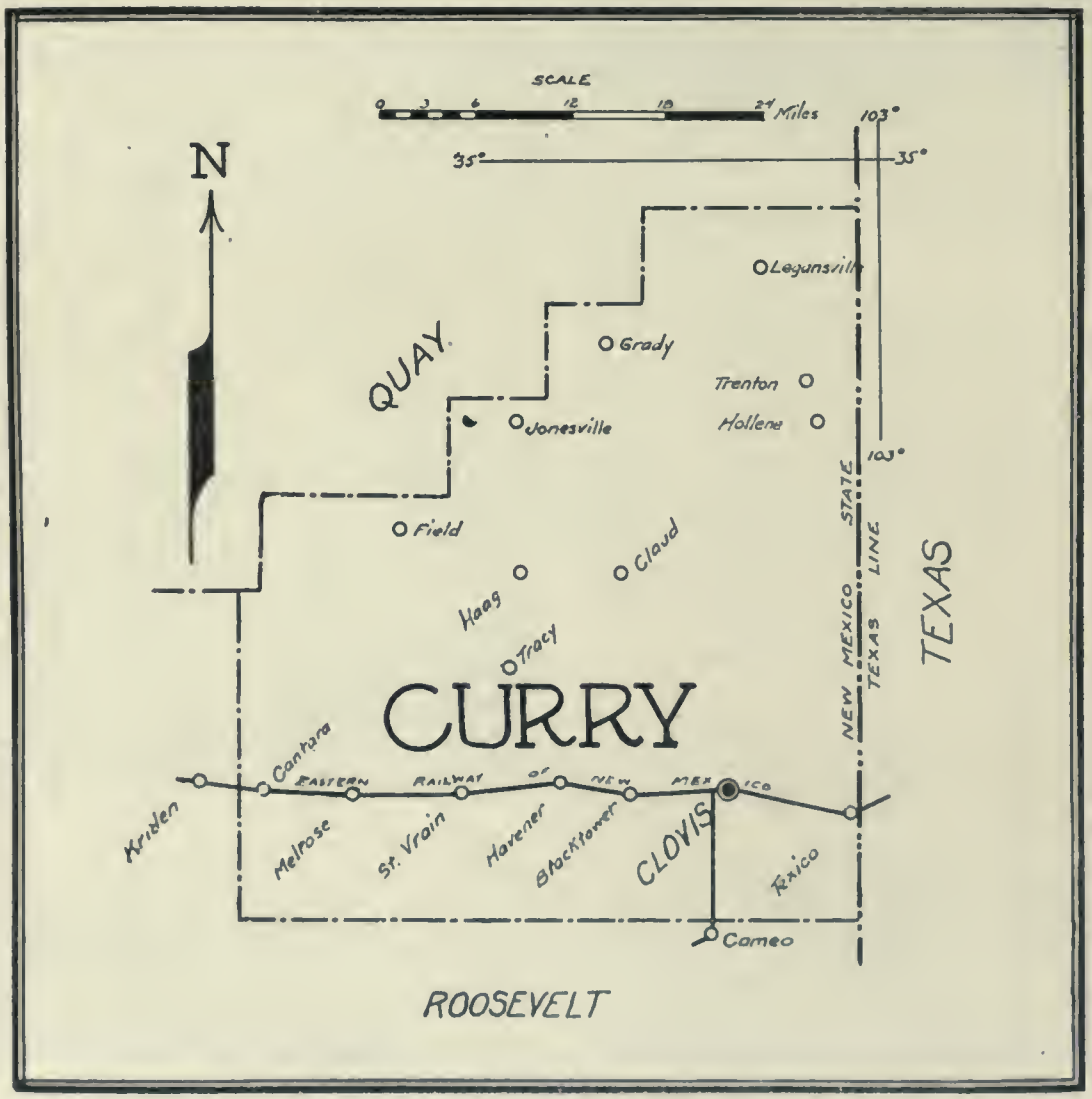
this land; there is no brush to clear; no stumps to grub; and the land is absolutely free from alkali.

For further particulars regarding Clovis and Curry County, address Clovis Chamber of Commerce, Clovis, N. M.

POSTOFFICES AND TOWNS IN CURRY COUNTY

Clovis, county seat of Curry County; Melrose, dairy center of Curry County; Texico, on New Mexico-Texas border; Legansville, Preston, Prairie View, Grady, Hollene, Lewis, Field, Marsey, Haag, Claud, Blacktower, St. Vrain, Cantara. All these towns and communities are prosperous.

For further information regarding Curry County and its opportunities write County Commissioners, Clovis, N. M.; Clovis Chamber of Commerce, Clovis, N. M.; or Melrose Board of Trade, Melrose, N. M.



SAN JUAN COUNTY

IN GOING through the data which has been compiled upon San Juan County there are several characteristics which strike with unusual force, but chief among these is the vast water supply of the county. San Juan County has more water than all the rest of New Mexico put together; she has more than the whole state of Arizona, if the Colorado river be excepted. Other resources of more than usual interest are the vast area of agricultural land which is capable of irrigation and the mineral wealth of the county, hardly tapped as yet.

San Juan County lies in the extreme northwestern part of New Mexico. It has an area of 5,730 square miles, 3,675,000 acres, or three times that of Delaware and something like a fifth larger than Connecticut. About two-thirds of this is cultivable by irrigation. The public land area of the county, subject to homestead entry, was 1,309,-134 acres on July 1, 1914, of which 813,220 acres is surveyed. The high character of the land of the county is shown by the fact that but two townships are available for

THE ANIMAS RIVER

enlarged homestead entry, while many counties in western states are entirely available under this type of entry. The land office under which this is listed is at Santa Fe. It classes the land available as "grazing, agricultural".

Detailed studies of the county's geology have not been made, but it is known that a coal field underlies much of it and oil has been struck at 1,700 feet depth. Most of the rock formations are of white sandstone, a rock which

SAN JUAN VALLEY

decomposes readily into a soil so fertile that the bare rock dust, irrigated, has been known to produce rich vegetation. The lowest point in the county is 4,800 feet above sea level and the highest 8,000 feet at the top of the Chusca peaks. The county contains about 820 square miles of Navajo Indian reservation which will ultimately be opened to settlement. On the Southern Ute reservation, comprising 160 square miles, much land has been allotted and can be purchased. The county slopes mostly north and east, an ideal condition for fruit growing.

The soils vary but are mostly of a reddish tint, rich, loamy, well supplied with nitrogen, humus, potash and phosphorus and other plant food, as is readily demonstrated by the ease with which crops are grown. Analysis has shown these soils to be capable of producing anything that will grow in the Temperate zone. Alkali is almost non-existent, being found only in a very few of the lowest places.

There is a good deal of open range in the county and stock-raising is carried on with considerable profit es-

pecially as the winters are short and mild. The summers are not too warm and the nights are cool the year round. San Juan County is normally too dry for dry farming country, for its precipitation is only from ten to twelve inches a year, but dry farming is successfully done there even by the Indians' primitive methods. Cloudy days average only thirty to forty in a year.

About all the cultivable land is well adapted to fruit raising. San Juan County fruits have taken as many as sixty-five prizes at the State Fair in a single display. Profits are most marked in the raising of apples, though quinces, peaches, pears, plums, cherries, apricots, nectarines, prunes and grapes, as well as all the small fruits are raised widely and profitably. Alfalfa is a staple crop and truck gardening on a large scale brings excellent returns. All grains and vegetables make good crops.

In any semi-arid section, where irrigation is necessary for the production of a crop, the supply of water is of prime importance. San Juan County draws most of its water from three main streams. These are the San Juan, with a drainage area of 3,000 square miles above 8,000 feet and an average annual discharge of 2,000,000 acre feet; the Animas, with a drainage area of half that size above the altitude named and an average annual discharge of 1,400,000 acre feet, and the La Plata, which drains a 300 square mile area above the 8,000 foot mark and discharges annually about 200,000 acre feet. These three streams discharge annually, at the point where the San Juan leaves the county carrying all their flow, 5,500,000 acre feet, or enough to flood the entire county a foot and a half each year. The San Juan draws its flow from eighteen perennial streams and numerous arroyos which are dry except in freshet time. The Animas draws from fourteen streams and the La Plata from a smaller number

According to the 1913 report of the State Traveling Auditor, the last printed, San Juan County has 33,421 acres of agricultural lands, worth an average, on a legally fixed one-third valuation of $16.68 an acre. It has 51,509 acres of grazing lands, assessed at eighty-one cents an acre; 51,297 acres of coal lands, assessed at $4.87 an acre; 4,439 head of horses and mules, over $200,000 worth of cattle and over 60,000 sheep, bank stock and enough town lots, coal and other taxable property to bring the total valuation of the county up to $4,665,520.

The county paid out for the year ending November 30, 1913, $28,828.04 for school purposes, not including erection of buildings, which is done by the different districts. The school system is excellent, good buildings being provided in every district and competent teachers only being employed.

The population of the county is almost entirely of American parentage and there are excellent social features in almost every portion of it, good churches, good schools and organizations of almost every fraternal order being available. Telephones reach every section of the county.

At Farmington are a mill which buys all the local wheat, a creamery, a canning factory that purchases all local fruit suitable for canning, and a fruit growers' association which looks after profitable marketing of crops.

Poultry, bees, truck gardening, all bring good revenues, especially in view of the ready markets available. There are no saloons in the county.

Markets are well taken care of by the Durango mining district, which uses much of what the county produces, and additional markets will be provided by the construction of a railroad now projected to the central and southern parts of the State by New York and Chicago people.

Taking it all in all, it is wonderful that this country should have remained until three decades ago practically

PLENTY OF WATER—IRRIGATING DITCH AT AZTEC

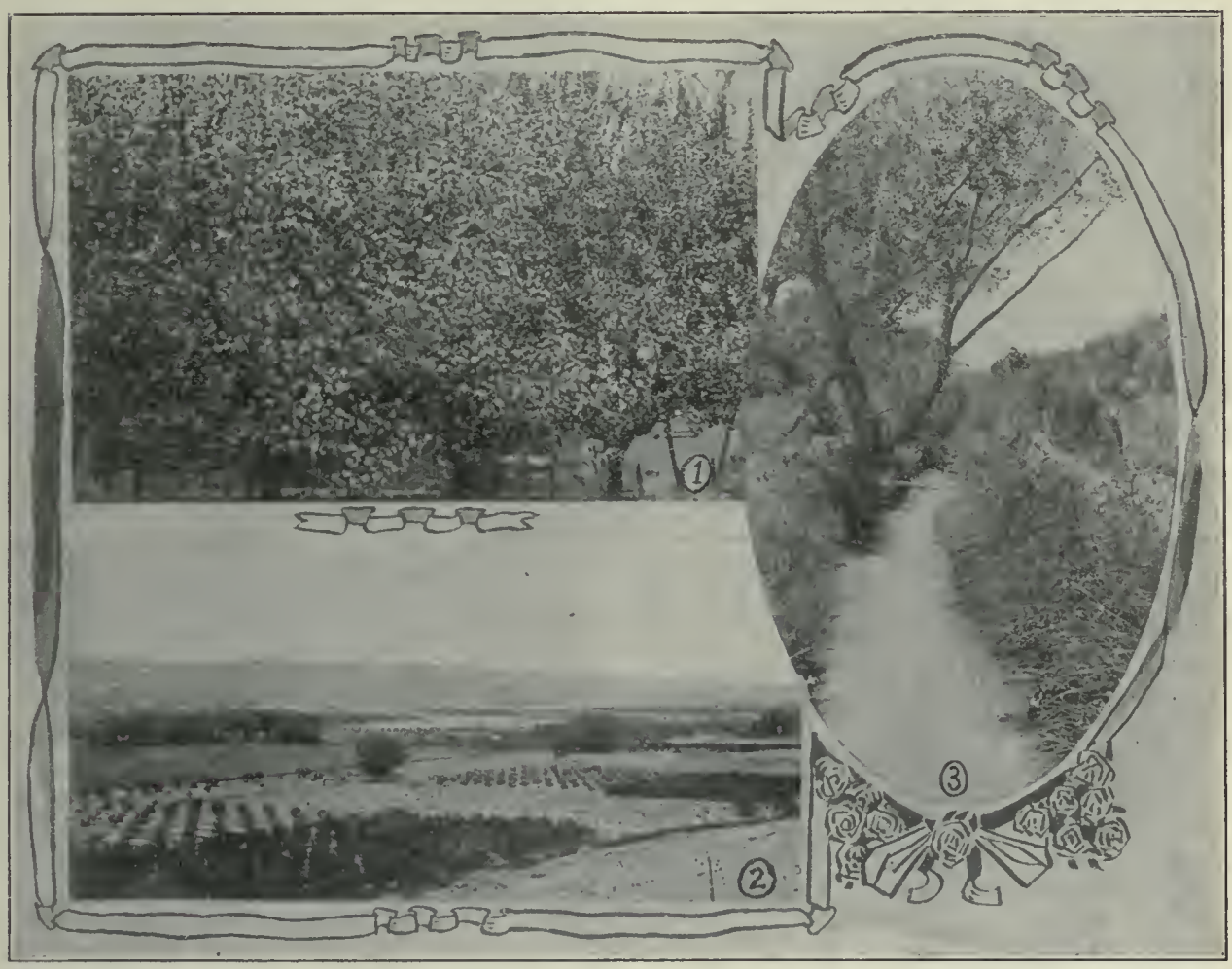
uninhabited and unproductive. The wonderful strides it has made in material and social ways, the finding of oil, the development of so much of its water resources, its progressive population, all argue well for its future.

FARMINGTON, NEW MEXICO

THE most striking characteristic of Farmington, the largest town in San Juan County or northwestern New Mexico, is the entire absence of Spanish or Mexican people from it, though located in New Mexico and not far from an Indian reservation. The community is as American as baked beans and except for the tonic effect of the mountain air might be thought to be some prosperous, well-cultivated section of New England where they enjoyed more sunshine than usual.

Farmington is a live little city, with enterprising business men, a live commercial organization and every feature that goes to make a real city. Water is taken from the San Juan river for domestic use, a municipal water plant preventing high charges for good water. The streets are broad, the buildings handsome structures of brick and stone and the general atmosphere one of bustle and prosperity. Farmington is propserous, for the terminus of the Denver and Rio Grande system in New Mexico is there and many carloads of freight for more southern points are handled through there, as well as all the produce of an area larger than half a dozen eastern counties.

Farmington has an electric light and power plant, electric street lighting system, cement sidewalks, broad streets,



1. FARMINGTON APPLE TREES IN BLOOM. 2. YOUNG ORCHARDS NEAR FARMINGTON. 3. SAN JUAN IRRIGATING DITCH.

those in the residence section often attractively shaded by handsome trees, excellent schools, good churches, branches of most of the fraternal organizations, a well-kept modern hotel, good telephone service and all other adjuncts of an up-to-date community.

Farmington is fifty miles southwest of Durango, Colorado. Its site is well chosen for a large city, for it lies upon a broad low mesa between the Animas and La Plata rivers, three miles north of the San Juan river. It has six churches of as many denominations, and one of the best school systems in the State. It is the supply point for the entire Navajo reservation, an area of 820 square miles. It has a roller mill operated by water power and forms a distributing point for flour and a purchasing point for the wheat of the county of which the yearly yield is large. It also has a canning factory that gives employment to many in the canning season and which affords the farmers a ready market for their fruit and vegetables.

The newspapers of a city are usually considered a good guide to its standards and progressiveness. Farmington has two of the best weekly papers in the State.

The city has an altitude of 5,300 feet and is destined to become one of the most important places in the entire State, it is believed, especially if projects for a railroad line to the south and east are carried through. The success of these projects is considered likely.

The city enjoys the fine climate common to the county. It has more than 200 days of sunshine a year and only about thirty entirely cloudy ones. The rainfall is about twelve inches a year. The winters are neither long nor

PICKING PEACHES AT FARMINGTON

severe and the summers are not especially warm, due to the high altitude. The air is bracing and the evenings are cool the year around.

SHIPROCK, NEW MEXICO—INDIAN AGENCY

WITHIN an easy day's journey of Farmington is the Indian agency of Shiprock, scene of probably the most unique fair in the world. Here each year the Navajos congreate to race horses, gamble their all upon their favorites, watch "chicken pulls" and perform all the other rites and ceremonies of their ancient festivals, including the "fire dance" which has mystified scientific men for so long.

Strongly contrasting with the events carried out in accord with the traditions of the past, however, is the modern fair. The Indians display in this the blankets they have woven in the past year, the pumpkins and squash, corn and beans they have raised, the longest fleeces from their prize herds of sheep, everything they make or grow. Prizes are offered for the winners in each class and proud is the smile of the one whose entry is adjudged the best.

At night the ancient dances are performed for the benefit of Indian and visitor alike, for many come from distant points to witness the ceremonies. In the fire dance the braves strike and beat each other's naked backs with burning brands plucked from the central fire seemingly without effect.

At the agency is a school for the Indians and there the youngsters are taught the ways of the white man. Manual training, agriculture and the care and improvement of the home are salient features of the school's work. The Indians are rapidly becoming quite prosperous, for the government has put down wells on their reservation and made vast tracts of it available for sheep and cattle raising which formerly were too far from water to harbor anything but coyotes and quail. Shiprock village is a model, with cement walks, broad streets and clean, cozy homes. The road leading into it is an object lesson in highway construction.

The place takes its name from a giant rock rising above

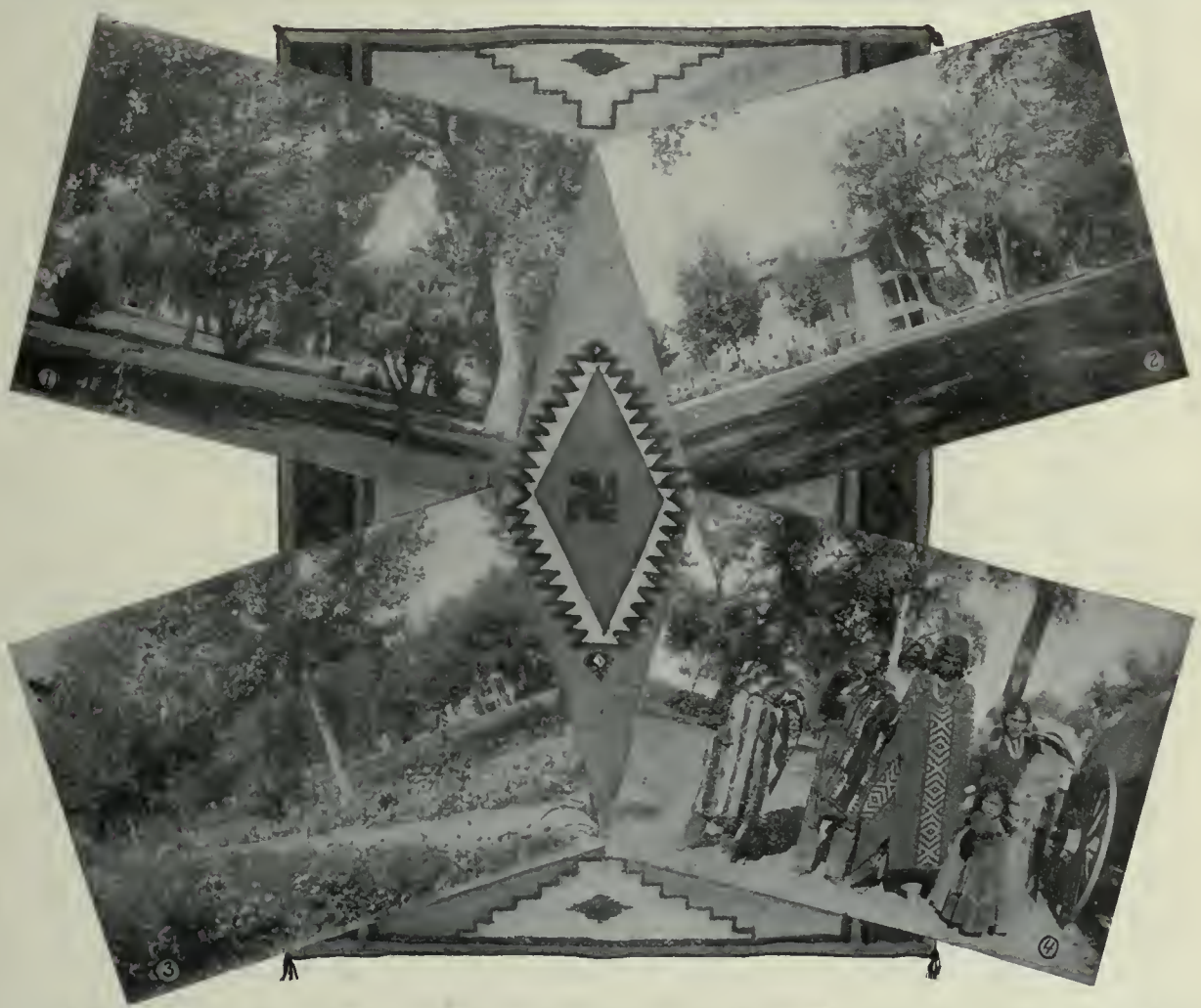
the plain, which, from a distance, appears as a ship under full sail.

A generous Government a few years ago established the San Juan Training School, at Shiprock, New Mexico, for the purpose of fitting the younger generation to meet the condition which is coming.

In connection with the San Juan School is an agency which was established for the purpose of protecting and advancing the interests of the older Indians. More than forty buildings comprise the school and agency plant, most of which are of brick, which was manufactured on the ground. The institution owns and operates its own irrigation system, saws its own lumber, makes its brick, mines its coal, and manufactures its ice. As a part of this school and agency there is a model three hundred-acre farm where intense farming by irrigation is taught and practiced. The boys are given thorough training in agriculture, horticulture, floriculture, gardening, landscaping, etc. Stock raising and dairying are also prominent branches in the training given. Engineering, blacksmithing and carpentry likewise receive due attention in splendidly equipped shops.

The girls receive practical training in housekeeping, sewing, laundering, cooking, baking, canning, preserving, pickling, and drying fruits and vegetables; and in caring for milk and making butter. They are given training in vegetable and flower culture. They are also encouraged to continue and improve their native arts.

A large irrigation canal sixteen miles in length is now being constructed by the Government to cover 5,000 acres of the best land on the reservation, adjoining the school farm.



1. A CORNER IN THE GROUNDS AT SHIPROCK INDIAN AGENCY. 2. VIEW AT SHIPROCK INDIAN AGENCY, SHOWING MESS HALL; GIRLS' DORMITORY IN DISTANCE. 3. BEAUTIFUL FLOWERS, TREES AND SHRUBBERY ARE EVERYWHERE AT THE AGENCY. 4. TYPICAL GROUP OF NAVAJO INDIANS ON THE RESERVATION.

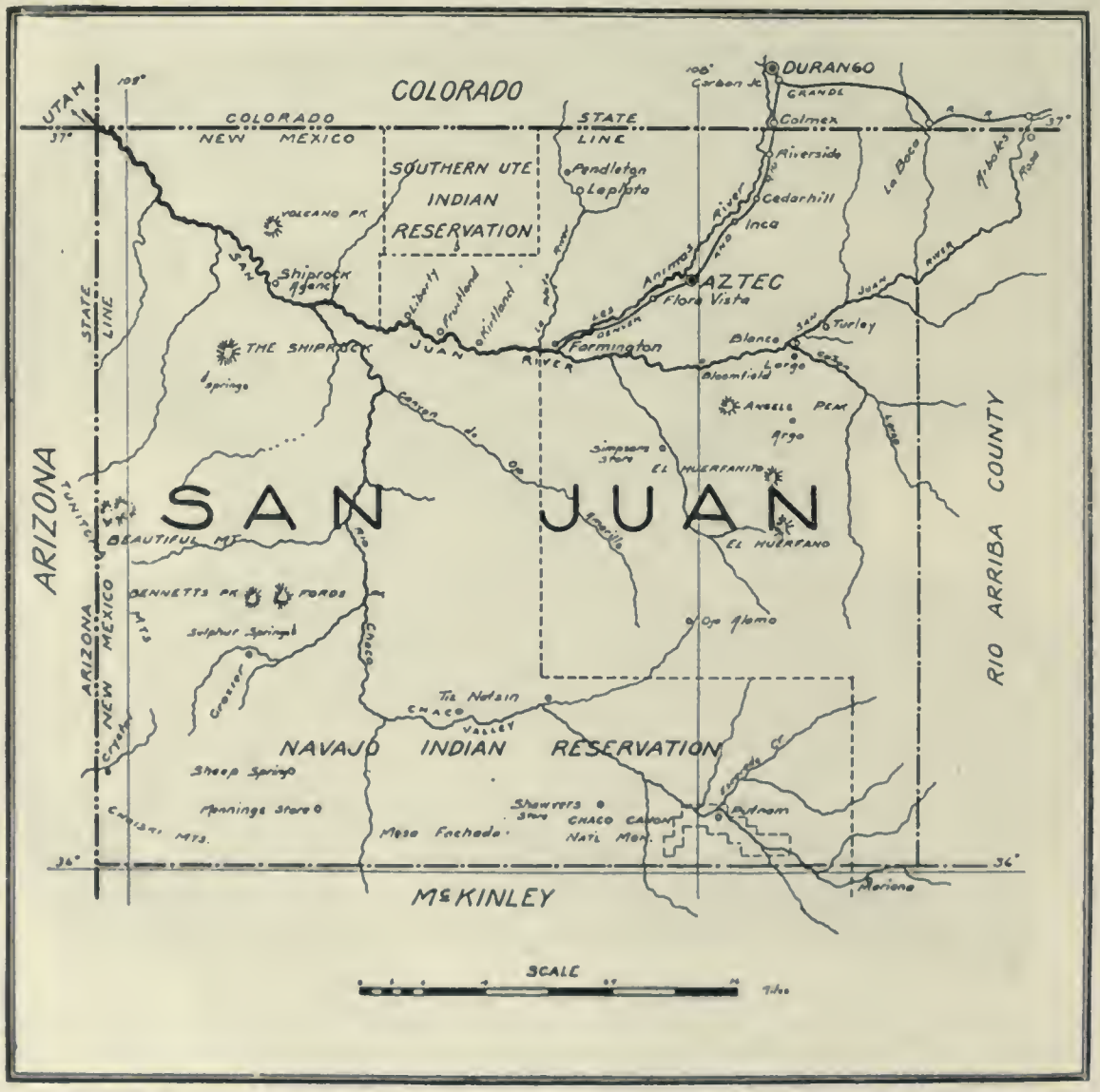
AZTEC, COUNTY SEAT, SAN JUAN COUNTY

AZTEC, county seat of San Juan County, one of its two incorporated towns, and the second largest settlement in northwestern New Mexico, is located on the east side of the Animas river in the heart of a great horticultural section. As it is the distributing point for one of the most productive fruit regions in the Southwest, it does a business out of all proportion to its population of slightly under 1,000.

It is on the Denver and Rio Grande system, has a fine school system, including a new high school building, a fine library, well supported churches and branches of many fraternal orders. It has progressive and enterprising merchants, a good civic organization, and a location amid a rich tributary territory.

Two good weekly newspapers are issued at Aztec, water power operates a modern type roller mill and there is a modern electric light and power plant. The altitude of the place is 5,500 feet.

Near Aztec are remains of cliff-dwellings erected in the dim past which have been an object of greatest interest to ethnologists and archaeologists from all countries.



RIO ARRIBA COUNTY

THE county of Rio Arriba is one of the best fruit-producing sections of New Mexico. It lies in the northern part of the State, its northern boundary being identical with the Colorado state line, and is a little to the west of the north and south meridian line. Rio Arriba County is the seventh largest in the State, exceeding in size the state of Connecticut and being almost as large as Hawaii.

The county is mountainous in the extreme, its wonderful agricultural resources being confined entirely to the valleys down which streams from these mountains flow. In the northern part of the county the Cumbres range reaches an altitude of 12,000 feet or more, while in the southeastern section Las Truchas peaks rise 1,000 feet higher. The section between is very rough. The principal streams are the Rio Grande, which flows through the county, and the Chama, both of which are much utilized for irrigation purposes, but there are many minor streams, such as the Vallecitos, San Juan, Brazos, Amargo, San Antonio, Pinos, Colote, Ojo Sarce, Santa Clara, Caliente, Las Trampas, Petaca, Nutritas, Cebolleta, Canjilon, Gallinas and the upper portion of the Rio Jemez, which lower down is an important stream. The principal mountain ranges, aside from the two mentioned, are the Jemez, Gallinas, Cepita Blanca, Brazos, Cauplin, White, San Antonio, Ortiz and Tusas.

The county has an area of 5,932 square miles or 3,757,440 acres, of which there is available for homestead entry 650,217 acres, of which 443,513 acres have been surveyed.

The county contains 44,681 acres of irrigated land, though projects of the co-operative and private classes comprise over 65,000 acres.

The county has a population, according to the last census, of 16,624, but the 1914 school census, which showed 5,674 persons of school age in the county, would indicate a population of 19,000 or more, at the usual ratio. The county has seventy-two schools and seventy-four teachers. The schools have a minimum term of five months. The State Spanish-American Normal School, for training the native Spanish-speaking people to act as teachers in the Spanish-speaking communities, is located at El Rito.

The county has fair roads and is doing some work to improve them. It is traversed by the Denver & Rio Grande line west to Farmington, along its northern edge, and its southeastern corner is crossed by the Santa Fe line of the same system. There are several shipping places along these lines, though only two of the really important towns in the county are located on either. These are Chama and Espanola, respectively railroad division point and center of a promising fruit raising district. The precinct in which is situated was formerly a part of Santa Fe County. Other important towns are Tierra Amarilla, the county seat, located in the Chama Valley, Abiquiu, El Rito, Chamita and others.

Rio Arriba County's agricultural lands annually produce about two and one-half times what they are worth. The census gives the annual farm products' value as $413,000. The principal crops are hay and forage and cereals, followed by vegetables and fruits. The farms number 1,542, the majority of them being in the ten to nineteen-acre class with three-fifths of the total number having an extent of less than 100 acres and only twelve having more than 1,000 acres. The farm acreage is 223,870, or six per cent of the whole.

There are 1,213,599 acres in national forests in the county, the Jemez and Pecos being the principal ones.

There are 42 acres of coal lands in private ownership in the county, valued at $700; 19,800 acres of timber land, worth $39,600, and 960,000 acres of grazing land, worth $416,200. Mineral lands, other than coal, are worth $2,100.

The annual livestock receipts are around $570,000 for cattle sold and slaughtered, $4,300 for dairy products, and $202,170 for wool and mohair, which is the fourth largest figure in New Mexico. The livestock in the county includes 2,262 horses, worth $36,200; 3,507 cattle, worth $31,000; 114,000 sheep, worth $128,000, and 1,600 goats. The county has railroads valued at $872,000 and telegraph and telephone facilities worth $10,000.

SANDOVAL COUNTY

SANDOVAL COUNTY is one of those parts of the State, which, when developed, will bring most wealth into New Mexico. It has vast areas of coal lands, great forests of excellent timber and its valleys and streams form a farming and irrigation field ripe for the hand of the reclamationist.

Sandoval County lies in the north central part of the State, at the head of the principal irrigated section of the Rio Grande twenty miles of which section lie within the county. It has several high mountain ranges in its western and northern portions and is generally well watered. The principal mountains are the Jemez, the Valles and the Cochiti, as they are locally called, all being actually parts of the main Rocky Mountain system. The southeastern portion of the county includes part of the Sandia range, which rises to 10,500 feet. The Jemez mountains contain valuable medicinal springs which are becoming known as a health resort, while the three ranges first named are all highly mineralized. The geological survey speaks of the Una del Gato coal field as "highly important" and mentions the coal deposits of the Nacimiento range, where there is also gypsum. The Nacimiento districts also contain much copper, some of which has been developed. Near Cochiti is a gold-bearing area which was worked extensively until a few years ago. Additional development work has been done in this field this year and it is likely that some further production may be anticipated from it.

The principal streams of the county are the Rio Grande, which cuts off a comparatively small triangular section from the southeast corner; the Puerco, which has its source in the county, and the Jemez. Aside from these are the Tortuga, La Jara, San Jose, Rio de la Vaca, Salado and Guadalupe. The Galisteo is an important tributary of the Rio Grande in the eastern part of the county and the Frijole, Una del Gata and San Pedro are also found in that section.

The area of Sandoval County is 3,833 square miles, or 2,477,440 acres. Much of this area is in Indian holdings or private land grants. There are, however, 737,246 acres open to homestead entry. The land office for the district is at Santa Fe. About half, 397,571 acres, to be exact, has been surveyed. Irrigation in the county is entirely from streams and is of the crudest and most primitive sort. Little attempt is made to utilize the stream-flow economically or to obtain as much water from the streams as possible. There are but 18,259 acres of irrigated land in the county, of which 8,500 are included in an Indian service project, the most efficient in the region, while the total acreage in irrigation projects in the county is but 37,000. Of this only 5,000 acres is under commercial projects, the remainder being under private and co-operative projects.

The tax rolls show the county to have 3,780 acres of agricultural land, valued at $72,000, but the census of 1910 gives the value of farm products for that year, aside from livestock, poultry or dairy products as $247,000. The principal crops are cereals, hay and forage, which are worth but half as much, and fruits. There are 1,237 farms in the county, having a combined area of 14.1 per cent of the county, or 349,299 acres. Twelve of these farms are of over 1,000 acres, but more are in the 160-acre class, than any other, with two-thirds of all under 100 acres.

The grazing lands of the county comprise 891,571 acres, valued at $399,500. The livestock in the county includes 1,110 horses, 1,940 cattle and 67,500 sheep, having a combined value of $165,000. The livestock sold or slaughtered each year is worth about an eighth of a million dollars, while the wool and mohair produced annually in the county are worth another $70,000.

There are 279,409 acres of national forest land in Sandoval County, on a good deal of which cutting is going on; 36,070 acres of timber lands in private ownership, valued at $54,000; 826 acres of coal lands in private ownership, valued at $6,725, and other mineral land worth $12,480 including its improvements.

Sandoval County has a census in 1910 of 8,579. The 1914 school census shows 2,113 persons of school age in the section. The county has twenty-four schools, taught by twenty-six instructors.

OTERO COUNTY

THE county of Otero, in the south-central portion of the State, is one of the areas which has developed most rapidly in the last decade or so. In 1898, the year the county was created, there were a few scattered agricultural settlements, a few prospectors and several widely-scattered ranches. Now the county has developed immense timber industries, a great deal of mining, stock raising has taken an immense step forward and there is some manufacturing going on. The last census credited Otero County with 7,960 people, while that of 1900 gave it but 4,791. The school census last year, however, indicates a considerably larger population. Otero County has the fourth largest area of national forest lands in the State, notwithstanding it is by no means a particularly large county, its area being exceeded in size by Chaves, Eddy, and Grant Counties and Socorro being nearly double its size. It has 4,280,960 acres within its boundaries, of which only 147,734 acres are in farms. It has mineral resources which have never been accurately estimated but are known to be sufficient to place it very close to the leading mineral county in the whole country, once they are surveyed and listed. In diversity of minerals found and value of deposits, Grant alone, probably, exceeds it in New Mexico.

Otero County has available for homestead entry 1,637,658 acres of public land under the Las Cruces office, of which all but some 472,000 acres has been surveyed. Under the Roswell office it has 893,373 acres, of which only 197,297 has been surveyed. These lands are classified as "grazing, mountainous". Of this land perhaps a quarter is available for enlarged homestead entry. The tax rolls show that the county has 15,729 acres of agricultural lands, valued at about $133,000; 93,873 acres of grazing lands, valued at $107,200; and more timber land than any counties except Sandoval, which exceeds it by 2,000 acres, and Valencia. The acreage of timber land is 34,115, but this, of course, does not include the national forests. These total 850,030 acres.

The valuation of Otero County is $8,174,822, taxes being levied against one-third of this amount, as required by law. The assessed valuation in 1905 was but $2,027,000. The county has almost $200,000 in town lots and a little less on improvements on them. It has water plants valued at $83,000, railroads worth almost $1,400,000, and great investments in livestock. This

STATE INSTITUTE FOR BLIND AT ALAMOGORDO

item includes some 4,931 horses, 800 mules, 21,000 cattle, 11,000 sheep, and about 13,000 goats, worth, in all, over $240,000.

Otero County has about 625 farms, of which a great many are small, though sixteen are of more than 1,000 acres. Its livestock products average an annual value of $235,000, exclusive of dairy products, which amount to nearly $10,000 a year more, and wool and mohair, which bring in another $20,000 a year. Fruit is a very important crop, the average annual yield being about 16,000 bushels, while hay and forage, cereals and vegetables rank in the order named as agricultural products. The total value of orchard and field products is about $235,000 a year.

Otero County has one feature that is at the same time a great natural curiosity and a great resource. That is its "white sands," which are nothing more or less than a deposit of granulated gypsum covering an area of 138,000 acres. Commercial development of these is now going on, a good grade of artificial stone being made from the gypsum. In the Jarilla mountains gold, silver, copper, lead and turquoise deposits are known to exist and some of them are being profitably worked. At High Rolls there is a deposit of a good quality of lithographic stone, so far little developed.

The timber industry has taken great strides in the past few years, there being two large mills at Alamogordo where the pine is sawed. Railroad ties, a part of the mill product, are also treated at Alamogordo to prevent decay.

Of late years more attention has been paid to the raising of fruit and some exceptionally fine apples are now being put out from the mountain regions. There are places in the White mountains and in the Sacramentos where crops can be matured without resort to irrigation and these are being rapidly brought to the front as horticultural sections.

The county has a very good road system, being connected by good automobile highways with Roswell on the east and Las Cruces on the southwest, as well as having good roads throughout its own area. These are being improved at a rapid rate and soon will equal any roads in the State, even in the most thickly settled districts. The county is traversed from notheast to southwest by the El Paso and Southwestern railroad system, many of the county roads leading down to shipping points on this line.

The topography of the section is somewhat broken. There are many ranges of mountains with their usually corollary in New Mexico, numerous small streams, some of which never reach any larger one but sink into the sands out on the plains and mesas at the foot of the mountains. Development of these water resources will afford much water for irrigation in the lower valleys. The White, the Sacra-

THE LODGE AT CLOUDCROFT—FINEST RESORT IN THE SOUTHWEST

menta, the Jarilla, the Guadalupe and the Hucco mountain ranges from the principal groups, some of them having an elevation of as much as 10,000 feet. The headwaters of the Lower Penasco, the Eagle, and other creeks and

OTERO COUNTY COURT HOUSE AT ALAMOGORDO

brooks and the Tularosa, La Luz and Sacramento rivers form the principal drainage system of the county.

The county abounds in natural wonders and scenic beauties. A trip through its mountain recesses, along sparkling brooks that are well stocked with trout and other game fish, into glades where deer feed, is enough to stir the blood of any sportsman and delight the soul of all who love the beautiful in nature. For the ethnologist or the mere seeker after the odd, there is a part of the Mescalero Apache Indian reservation in the county, where remain in practical captivity the last of the Indians who terrorized the State for three centuries.

The largest town and county seat is Alamogordo, well watered, beautifully shaded and altogether a beautiful city. It has broad streets, a number of modern churches, excellent school system, the state asylum for the blind, several large sawmills, an electric light plant, a steam laundry, an ice plant, telephone system, a $100,000 water works system, supplied in part with water from a strictly preserved range of the Alamo national forest, a railway hospital, railway division headquarters, woman's club and two good newspapers. It has a handsome railway depot and public library. A fine fruit and agricultural section is tributary to the city, insuring its prosperity.

Tularosa is a pretty little town, nestling at the base of the White mountains, surrounded by a fruit-raising district where there has been no crop failure since the settlement of the place in 1862. It is a supply point for some of the mining districts and a shipping point for many farmers. The town has a good public school system and several churches.

Cloudcroft is a scenic resort, open for guests only in the summer months, in the Sacramentos, reached by a branch line from Alamogordo. It has an elevation of 9,000 feet and a considerable permanent population, as a very fine fruit country surrounds it. It has a good newspaper and is visited annually by many thousands of people from elsewhere in the State and from outside points.

The Sacramento valley is one of the largest and at the same time most beautiful plains in New Mexico. Protected at the eastern side by the Sacramento mountains, 9,000 feet of crags and pines, it is watered at the same time by the streams which traverse their western face. Additional water can be had wherever needed from the shallow pumping belt which was discovered under the entire valley a few months ago. These wells range in depth from seventy-five to 200 feet and the standing water level

OTERO COUNTY'S SCENIC BEAUTY IS UNRIVALED

ranges from ten to 100 feet down. Hundreds of locations may be found where the water table stands at thirty-five feet. Single wells have yielded as high as 800 gallons of water per minute, an amount which will be better un-

MOUNTAIN FARMING IN THE SACRAMENTO MOUNTAINS

derstood when it is known that 450 gallons a minute is ample for eighty acres of field crops. A central power plant supplies electricity for pumping to those who prefer it to oil engines.

The valley extends from the Sacramentos to the San Andreas range forty miles westward, the two ranges sheltering the plain between to a high degree. The land of the valley is high in nitrogen and other plant foods and has never needed fertilizer. The very finest of fruit, melons, grapes, berries and garden vegetables are grown in the valley. Fruit trees grow almost the entire year here, so that it is usual for trees to begin to yield the second or third year after planting.

Poultry raising and dairying are very profitable in the valley. It is easy to raise early chickens and turkeys there, because of the mild winters, and they bring good prices. Eggs bring from twenty-five to fifty cents a dozen, milk ten cents a quart and butter thirty to forty cents a pound.

The combination of altitude plus shelter which the valley enjoys has the effect of making the summers mild and cool and the winters rather warmer than is usual in the State, especially at such an altitude. This equable climate operates to make the region not only one of health but also of a peculiar and unusual value to the farmer. Fruit takes on a finer flavor there, alfalfa runs five cuttings a year, and six or more tons to the acre. Pigs, fed on the succulent lucerne, thrive greatly. Vegetables and fruits do marvelously.

It is of interest to compare the farming done in the Sacramento mountains with that which is in practice in the valley below. Practically the same crops can be grown in each section. The immediate difference which impresses itself on one is the enormous size attained by many crops grown in the mountains. It really seems as though the great masses of rock lent their strength to the growing plants, that the product might be in proportion.

The growing season is shorter in the mountains, but that is compensated for by the smaller amount of irrigation necessary. In some sections irrigation is not needed. The soil and climate of the mountains are preferred by some people as giving a better flavor to fruits, and it seems as though there must be ground for the contention, for surely apples finer than those from the sky-high ranches of the Sacramentoes, from Mountain Park and High Rolls and other places, were never grown. For size, flavor, color, shipping and keeping qualities, they are unexcelled. And cherries! Cherries grow so large there that the old saying of two bites to a single one is vindicated. And the

cherries are as good as they look—which is strong praise.

Horticulture is not the only industry on the mountains, however. Many acres are in cereals, or, what is more profitable in that section, vegetables. Vegetables grow to vast size in the Sacramentoes and the other mountain ranges of that section, parsnips, cauliflowers so crisp they look good to eat raw, melons, beets, forage crops, cabbages, corn, every sort of vegetable that can be grown in the temperate zone is grown and matured on these mountain tops and in the canyons and valleys of the streams.

The dairy industry of the Sacramento section is an important one. There are numberless parks and glens where the finest and richest of grass grows and there is ample mountain spring water for the cattle. Dairy cows thrive and grow fat in this section. Fat, sleek cattle are the rule and not the exception. There is no under-fed stock. There are ample markets for the butter, cream and milk and dairymen are prospering rapidly.

MOUNTAIN DAIRY CATTLE IN SACRAMENTO MOUNTAINS

As an instance of the ability of the climate and soil conditions of the mountains to mature crops, perfect white roses have been grown on the highest peak. Flowers of all kinds bloom luxuriantly.

ALAMOGORDO, COUNTY SEAT, OTERO COUNTY

FIFTEEN years ago the site of the city of Alamogordo was a barren waste of sagebrush, mesquite and sand. Today it is the location of a city of which New Mexicans speak proudly as their "city beautiful". The reason for the change is a comparatively small stream which flows down La Luz canyon, six miles away, and the use of brains and perseverance as well as water.

Alamogordo has the finest shade trees of any city in the State, it is claimed, and most people who have seen them will agree that the claim is quite justifiable. The town itself is almost a bower of greenery set in the sand and so-called desert plains. It has numerous beautiful lawns, splendid parks, many features that other cities in New Mexico, because of the lack of a sufficient water supply, do not have. The altitude is 4,300 feet.

Alamogordo has twenty-five miles of graded streets. Most of these are shaded by parallel rows of arching cottonwoods. It has a cement sidewalk system with an approximate length of double that. It has a water supply which will never fail, since it is insured for all time by a compact with the Forest Service to protect the watershed on the Alamo National Forest whence comes the municipal water. Alamogordo is the first city in the west to make such a compact. The water works themselves are very fine. The city has a modern electric light plant, an efficient and sanitary ice plant which supplies the surrounding country as well as the local market, a very good telephone system, and a planing mill. The city has a state bank and a national bank, both of which are flourishing. The school system includes a county high school, free to all persons of school age in the county, and partially supported by a general county tax, excellent graded schools and an accredited city high school. There are a number of up-to-date mercantile establishments in the city, most of which are supply houses for ranches in the surrounding country in their lines. The city has many churches and a public library which is well maintained and much used. Fraternal societies are well represented in Alamogordo, branches of all the important orders being located there. The city's location in the midst of a fertile agricultural section insures its prosperity.

IN ALAMEDA PARK AT ALAMOGORDO

NEW YORK AVENUE, ALAMOGORDO

Alamogordo is the location of the state institute for the blind.

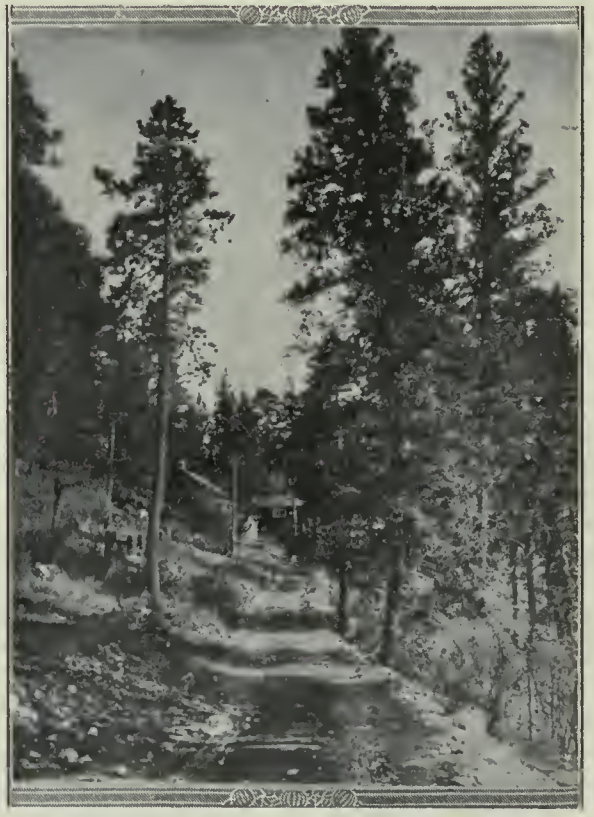
The city is located on the El Paso and Southwestern railroad, eighty-six miles north of El Paso, Texas, and is the county seat of Otero County.

The Commercial Club of Alamogordo is represented not only by the business men of this section but numbers among its members a larger proportion of the orchardists and ranchers and all take a keen interest in the wellfare and future of this district. A letter addressed to the secretary will bring a prompt reply to your inquiry regarding Alamogordo and its surrounding country.

CLOUDCROFT AND THE SACRAMENTO MOUNTAINS

BY SCOTT WILLIAMS

MANY years ago when the lumber business was flourishing in this section of Otero County a few men conceived the idea of locating a summer camp in the Sacramento mountains convenient to El Paso, 110 miles away. The townsite of Cloudcroft was laid out and a few summer homes built. The log road was completed into Cloudcroft and extended several miles beyond to what is now known as Russia. The country at that time was not well settled up but to make a long story short, Cloudcroft is now one of the principal shipping points in New Mexico and has grown to be a flourishing little business city. The merchants supply every want and practically every line of business usually seen in an agricultural district is represented. As a summer resort there is no town in the great Southwest more popular than Cloudcroft and its visitors come from nearly every state in the Union and many foreign countries. At an elevation of 9,000 feet above sea level the weather is always cool and fires for comfort are necessary every day of the year. The attractions during the summer months are many. The El Paso & Southwestern System in 1911 at a cost of over $100,000 constructed The Lodge, a beautiful summer hotel. This building is modern and fire-proof in every respect and is located at an exact elevation of 9,000 feet above sea level looking out over the mountains to the White Sands many miles to the west. From the Lodge can also be seen the White Mountains to the north. Near the station is the Pavilion which is an assembly room for all the cottagers and visitors. Nearby are tennis courts, golf links and baseball diamond. In the Pavilion is a dance hall where dances for the public are held several times a week. There are also bowling alleys where many match games are played. In the business section of town is another bowling alley, pool room, etc. Kodaking and horseback rides are most popular. There are many beautiful walks and drives and daily large parties go to the wonderful "S Bridge," the "Devil's Elbow," to "Scenic Point," "Deer Head Lodge," and many other nearby points for picnics and kodaking. For drives the Mescalero Indian Reservation is visited where hundreds of Indians can be seen in their home life. These Indians, the Apaches, make baskets and bead-work of all kinds which are sold to the tourists. The Mescalero Reservation is one of the most beautiful spots in New Mexico and is a wonderful agricultural section. Down James and Cox Canyons from Cloudcroft spread out one of the best agricultural sections of the State. Here are raised each year many cars of oats, barley, wheat, corn, potatoes, turnips, cabbage, cauliflower, celery, beets, carrots, parsnips and apples. The Sacramento Mountains are noted for the apples raised. They are firm and sound and the flavor is unexcelled. In the vicinity of the pretty little cities of Mountain Park, High Rolls, Weed, Avis, Pinon, Mayhill and Elk are grown scores of cars of apples each year which to all points of the compass. On September 25th and 26th, 1914, under the auspices of the Business Men's Association of Cloudcroft, New Mexico, was held the First Annual Otero County Agricultural Contest. At this contest from every section of the county were exhibits of every kind of fruit, vegetables and grain. Dairy products and canned



SUMMER COTTAGE AMONG THE PINES AT CLOUDCROFT

fruits and vegetables of all kinds grown in the county were shown. The display was a remarkable one; being the first of its kind in the county, there were many surprises. In the mountains surrounding Cloudcroft are millions of feet

GOLF LINKS AT CLOUDCROFT, 9,000 FEET ABOVE SEA LEVEL

of lumber which can be cut and from the forests are shipped each year hundreds of car loads of wood, this section supplying the western section of the county and West Texas.

The work of the Business Men's Association of Cloudcroft, which organized in 1912, has done wonders to start the development of this section and especially the Sacramento Mountains section. This Association backs everything that tends to build up the town or the county, to improve conditions and to encourage the farmer and assist him in finding a market for his products. To irrigate in the Sacramento Mountain section of the county is not necessary, there being an abundance of rainfall during the summer months and good snows during the winter. The woods in and around Cloudcroft with their tall pines, spruce and fir, with oak in some sections, abound in berries and wild flowers and the Cloudcroft wild flowers are known throughout the Southwest. There are few sections in the United States that can boast of a greater variety or richer colors. The parks and woods are full of squirrels and out in the unsettled sections of the forests are deer and wild turkey and some bear.

Regarding Cloudcroft, in a general way, here you will find complete water and sewerage systems, an elecric light plant (operated at present during the summer months), an excellent school teaching all grades from the primary to the Senior year of a High School course inclusive. The Lodge, the summer resort hotel, The Texas, operated twelve months of the year, the headquarters of the Alamo National Forest which contains over 950,000 acres through the Sacramento and Guadalupe Mountains, a weekly newspaper, the general offices of the Alamogordo Lumber Company, a Commercial Club starting with a charter mem-

THE WORLD-FAMOUS S BRIDGE ON WAY TO CLOUDCROFT

bership of 20 which has grown to over 40, telephone lines connecting up the farms and ranches with the town in this section, the Babies' Sanitarium, a charitable institution conducted during the summer months to save the lives of the

ON THE WAY TO CLOUDCROFT

1. Scenic Splendor at Every Turn. 2. Devil's Elbow. 3. Showing the Switchback and Toboggan on the Way from Alamogordo to Cloudcroft. 5. Arrival of Observation Train at Cloudcroft from Alamogordo. 4. Mexican Canyon.

little ones, the Mueller Private Hospital operated every day of the year, three "Star Route" mail lines and many other classes of business too numerous to mention. Cloudcroft is the shipping point for the most of the Sacramento Mountain district, shipments coming from points 45 to 55 miles to the East and South and is without a doubt the coming town in New Mexico. Co-operating with the other towns in the county through the commercial clubs, assisted and boosted by the business men of El Paso, most of whom are property owners here, and backed up by one of the best farming and timber sections of the State it is hard to estimate what the future has in store for Cloudcroft. In speaking of the Sacramento Mountains section of the county it is only necessary to tell FACTS and enough has been said.

While Cloudcroft is at this time best known as one of the most beautiful resorts in the Southwest, if not in the United States, there are many opportunities in agricultural and stock raising in and around Cloudcroft as well as from an investment standpoint. It is a busy community at all times of the year, summer or winter, and the permanent population of the city as well as the rancher and stockman are busy twelve months of the year.

If you are interested in this, the roof garden of New Mexico, whether in agricultural or stock possibilities, as a health resorts, summer resort or from an investment standpoint, the Secretary of the Business Men's Association of Cloudcroft will gladly furnish you with any information you may desire not contained in this article.

CLOUDCROFT SUMMER COTTAGE SECTION STREET

THE "WHITE SANDS" OF OTERO COUNTY COVER 138,000 ACRES

TULAROSA—OTERO COUNTY

TULAROSA, New Mexico, founded in 1862, situated in the fertile Tularosa Valley, is sometimes referred to by its citizens as "The Oasis of New Mexico." It is 100 miles northeast of El Paso, Texas. The altitude is 4,436 feet and on account of the shelter afforded by the White and the Sacramento Mountains, it has a climate not to be surpassed.

Tularosa is noted most for its superior fruits, which rival those of California. However, alfalfa is its largest crop and forms the foundation for the town's importance in this section of the State.

Four cuttings of the alfalfa each year are secured and the price received therefor is always the highest on account of its superior quality.

Among its fruits may be mentioned peaches, pears, apples, apricots, plums, grapes, figs and almonds. Berries of all varieties are also raised here; also garden products.

Of the field crops raised and marketed, we may mention watermelons, cantaloupes, milomaise, kaffir corn, cane, beans, onions and peas. Farming without irrigation in this valley, while falling short of being a sure thing, is much more successful than in other sections of the Sunshine State. Chickens and bees are also paying investments in this valley.

Irrigation by pumping from engines and by windmills is increasing on our homestead land a few miles from town. Many wells have been dug and drilled in recent years.

Stockraising leads in our exports and furnishes a large revenue for the stockmen of this section. Big areas of grazing land both on the flats and in the mountains give food to thousands of head of cattle, horses, mules, sheep and goats. Of growing importance is the mining industry, which has made great strides in the past year. Copper, gold, silver, lead and coal are our leading ores. Forty miles along the west side of the Tularosa Valley extends the large body of phenomenon known as "white sand." Tularosa is the shipping point for the mines in the San Andres to the west and to the Bent mines and the Mescalero Indian reservation to the east. Also for the large stock ranches for fifty miles to the east and to the west.

From official figures it is found that there are shipped by train alone out of Tularosa during one year a total of 386 cars, while in the year before there were 291 cars.

The town of Tularosa is situated on the National Southern highway. It has a first-class public school, employing eight teachers and having an enrollment of 325. Manual training and domestic science are among the list of studies. This year the full high school course will be put in. The 1910 census credits Tularosa with a population of 1,088 and with the increase it now has about 1,200. The local newspaper is the Tularosa Valley Tribune, an eight-page publication. The First State Bank of Tularosa has a capital of $15,000 and a surplus of $2,500. A power house for supplying the town with electric lighting, heating and power has just been completed.

The streets of Tularosa are being graded and graveled; galvanized syphon culverts are being put in; the roads between it and its neighbor towns, including the Southern National highway, are becoming equal to the northern and eastern thoroughfares. Tularosa is a mecca for hunters, who wish to get their yearly deer and turkeys and smaller game. The town is located in the doorway to the famous Sacramento and White Mountain hunting districts. Small game is also plentiful in the valley.

PUMPING NEAR TULAROSA

Further correct information may be obtained by writing the Tularosa Commercial Club Secretary.

If, after reading this article on the resources and advantages offered by Otero County, you should desire any further information, if you will address the Alamogordo Commercial Club at Alamogordo, New Mexico; Tularosa Commercial Club at Tularosa, New Mexico, or the Business Men's Association of Cloudcroft, New Mexico, full and explicit detailed informationn will be gladly and promptly furnshed.

GUADALUPE COUNTY

NOT many years ago the county of Guadalupe was practically isolated from the world and even from its neighboring counties. Today, it is one of the most prosperous and hustling communities of the eastern half of the State. Guadalupe County is located almost in the center of eastern New Mexico and has an arear of 3,952 square miles, or 2,551,680 acres. It has ample railroad facilities, the building of which caused the change from the old regime to the new, several good towns and large and rapidly increasing resources.

Guadalupe County was formerly devoted entirely to stock-raising. Its wide spaces were just the thing for the cattlemen and its fertile valleys were so far from markets and transportation facilities that it was almost useless for even those who knew their fertility to attempt to farm them. The railroads changed all this; they brought new settlers, created new means of transport, opened new markets and when construction work was finished, left a small permanent population strung along their lines. With the railroads came telegraph and telephone lines, communication was made more easy, the country began to develop. Large cattle ranges were cut up and settled upon, other settlers fixed upon fertile areas not pre-empted by the stockmen and it was a matter of only a few years until there was a prosperous rural population in the county.

Guadalupe County is still largely a stock-raising country, but agriculture is next to stock in industrial importance and is rapidly approaching that factor in production of wealth.

Guadalupe County has 7,660 acres of agricultural land, according to the last available tax rolls, and 718,933 acres of grazing land. The county had, in 1910, a population of 10,927, of which but 4.8 per cent was illiterate but the school population, as reported by the State last year, was 3,483, which, at a ratio of three and one-half to one, would indicate a population of close to 12,000.

There is a great deal of public land open to homestead entry in Guadalupe County, over half of which is subject to entry under the enlarged homestead act. Of this land 466,096 acres are under the Fort Sumner land office, it being described as "grazing, broken". All of this portion has been surveyed. In addition, there are 557,503 acres available under the Santa Fe land office, of which 540,953 acres have been surveyed. This land is described as "grazing, agricultural".

Guadalupe County has no timber or coal land. On the other hand, it takes first rank as a producer of wool, some of the finest fleeces in the State being produced on its ranges. Sheep are a very important industry to Guadalupe County, the value of the annual wool clip, according to the census, being $142,494. This includes the mohair produced from a comparatively insignificant number of goats. There are 120,142 sheep in the county, valued at $155,188, according to the tax rolls for 1913. The same source declares there are 15,816 head of cattle in the county, worth $171,220. There are also horses worth nearly $200,000 and mules worth over $70,000 in the county. Guadalupe County has produced as high as 3,000,000 pounds of wool in a season.

GUADALUPE COUNTY COURT HOUSE
Santa Rosa.

In the eastern part of the county there are many springs, affording water for the cattle ranges and also serving to

irrigate small farms in many cases. The Pecos river traverses the county in an almost north-and-south line, and has the following tributaries within the limits of the region:

Gallinas, Enteros, Agua Negra Chiquita, San Juan de Dios, Alamogordo, Petrillo, Pintada, Salado and Los Lunas. Some of these are perennial and some only occasional streams. All carry water in the rainy season, mostly in volume out of all proportion to their natural flow. The northwestern portion of the county is part of the Canadian drainage basin, but most of it is in the Pecos watershed. There are no extremely high mountain peaks or ranges, but notwithstanding this Guadalupe County is quite rugged and broken. It has many high mesas cut by transverse arroyos and has several alkaline lakes. Part of its waters are alkaline.

There are no very extensive or very modern irrigation installations, if those about Fort Sumner and Puerto de Luna are excepted. Even these are not so extensive as some of the works elsewhere in the State, though there are undoubtedly great opportunities for reclamation work there and elsewhere in the county. The principal crops of the county are fruits, alfalfa, vegetables and the cereals. Mineral industries have taken small hold in Guadalupe County, though there are indications of gold and copper ores and of oil. There is plenty of good building stone and the hills supply a quantity of pinon and cedar for fuel, but no large timber. The county has large possibilities for farming by both the dry and the irrigated methods, but must always remain a premier stock-growing region because of its vast areas of land too broken or too ill watered to tempt the farmer.

The county seat is Santa Rosa, though formerly Puerto de Luna enjoyed that distinction. Santa Rosa has an old section but the principal portion of the place was laid out after the building of the Rock Island system through the county. The townsite is located in a picturesque spot on the Pecos river. The town has several good weekly newspapers, a bank, churches of several different denominations, excellent schools, and the railroad repair shops and roundhouses. Near the city are alkaline and gypsum springs which drain into the Pecos. Santa Rosa has 1,031 inhabitants, according to the last census.

Vaughn, on the Santa Fe system in the southwestern part of the county, is probably the next town in importance. It has a population of 1,200 and is a division point on the Santa Fe. Other important towns are Puerto de Luna, Fort Sumner, an old army post now abandoned, Sunnyside, Buchanan, Alamo, Cuervo and Anton Chico.

Guadalupe County has nearly twenty per cent of its area, to be exact, 507,650 acres, in farms. There are 1,760 farms in all, most of them around the 160-acre size, though seventeen are of over 1,000 acres. The assessed valuation of the county was $8,864,364 in 1913

FROM CATTLE AND SHEEP RANCH TO FIELDS OF ALFALFA AND GRAINS

on a legally fixed one-third valuation. About $31,000 worth of this was in bank stock, $68,000 in merchandise stocks, and the remainder mostly in livestock, farm lands, improvements, grazing lands, and railroad lines and their appurtenances.

Guadalupe County has seventy-four teachers employed at salaries ranging from $30 to $75 a month, with superintendents, principals, and supervisors not included in the active teaching staff and paid higher salaries. The shortest term held in the county at any district is five months, while the average is close to nine months.

Guadalupe County has very good natural roads and is steadily improving them and building new bridges. The county is now engaged on new bridges at Puerto de Luna and Fort Sumner which will open up a short north and south road through the county and will also be valuable to tourists wishing to cross the State from east to west along the line of the Sana Fe Railroad. There are good roads open through the county from Las Vegas (San Miguel County) on to the south.

All the towns mentioned, except Puerto de Luna, and in addition Yeso, Buchanan, Ricardo and others are available shipping points for wool, livestock or agricultural products.

FORT SUMNER, NEW MEXICO
IMPORTANT IRRIGATION DISTRICT

THE town of Fort Sumner is laid out in an attractive situation near the tracks of the Belen cut-off, the Santa Fe's gigantic east-and-west short line from California to Chicago. It is a compartively young town, dating back to the settlement and development of the county for its beginning, though it is near the site of an army post where there were considerable numbers of people many years ago.

Fort Sumner is a thriving and progressive place. It is a heavy shipping point for wool and cattle which tread the ranges of Guadalupe County and has in it all the elements of prosperity.

The town has good cement sidewalks in the business section and owing to its favorable location on the Pecos river, is surrounded by a fertile and well-watered area. Its future is thus tied up with the agriculture of the district, and as this has proved successful, it is growing.

The 1910 census gave Fort Sumner a population of 871, including the outlying settlements, but it is propably much larger in fact. Fort Sumner is an important point on the Panhandle Pacifice highway, the east-and-west auto road across New Mexico. Improvements are now being made in the way of a substantial steel bridge over the Pecos river which will result in increased traffic through the town.

In and around Fort Sumner there are about ten thousand acres of land under successful irrigation. This area is divided up into small farms, all of which are in a high state of cultivation. For six or seven miles, on down the Pecos Valley from Fort Sumner, one sees numerous well-kept, comfortable homes; flourishing fields of alfalfa, cantaloupes, sweet potatoes, etc.; and apple, peach and pear orchards, some of which latter will be bearing this coming season. A very complete, up-to-date telephone system affords ready communication between these irrigated farms and Fort Sumner, where all their trading is done. The alfalfa raised in this section is of a very superior quality, and it is no uncommon thing to get as many as five and six cuttings a year. Last year thousands of tons were shipped to the great eastern markets where it brought very satisfactory prices. The Fort Sumner cantaloupes during the past season successfully competed with the well-known Rocky Ford and other melons, and during a greater part of the season brought considerably higher prices. Hog raising, while in a somewhat embryonic state in this section, gives promise of becoming a very successful and lucrative industry.

One of the crops destined to become leaders in the district surrounding Fort Sumner is the apple.

Near Fort Sumner the soil seems to have those peculiar characteristics which render it the best ground for berries and vines. Grapes and all sorts of berries tried there have done well, and in the days to come it is likely that the grapes will be a great feature of Fort Sumner's progress.

For further particulars regarding Fort Sumner and this district address J. E. Pardue, Secretary, Fort Sumner Commercial Club.

SANTA ROSA—COUNTY SEAT

ONE of the most progressive towns of the eastern portion of the new State is Santa Rosa, which for several years past has been the county seat of Guadalupe County. This city has grown rapidly, and now numbers more than 1,000 people, while the population is constantly being added to by the great influx of immigrants to that section of the country.

Santa Rosa is the county seat of Guadalupe County and lies on the main line of the El Paso and Southwestern railroad. It is an important shipping point for agricultural products and for stock.

As the county lies principally in the fertile valley of the Pecos river, though parts of it are in the Canadian River watershed, it is generally well watered and well fitted for fruit and grain growing, and annually produces substantial crops of these articles. Because of the rapid development of the district as an orchardist's country, the prosperity of both Santa Rosa and Puerto de Luna, which latter town was formerly the county seat, is great.

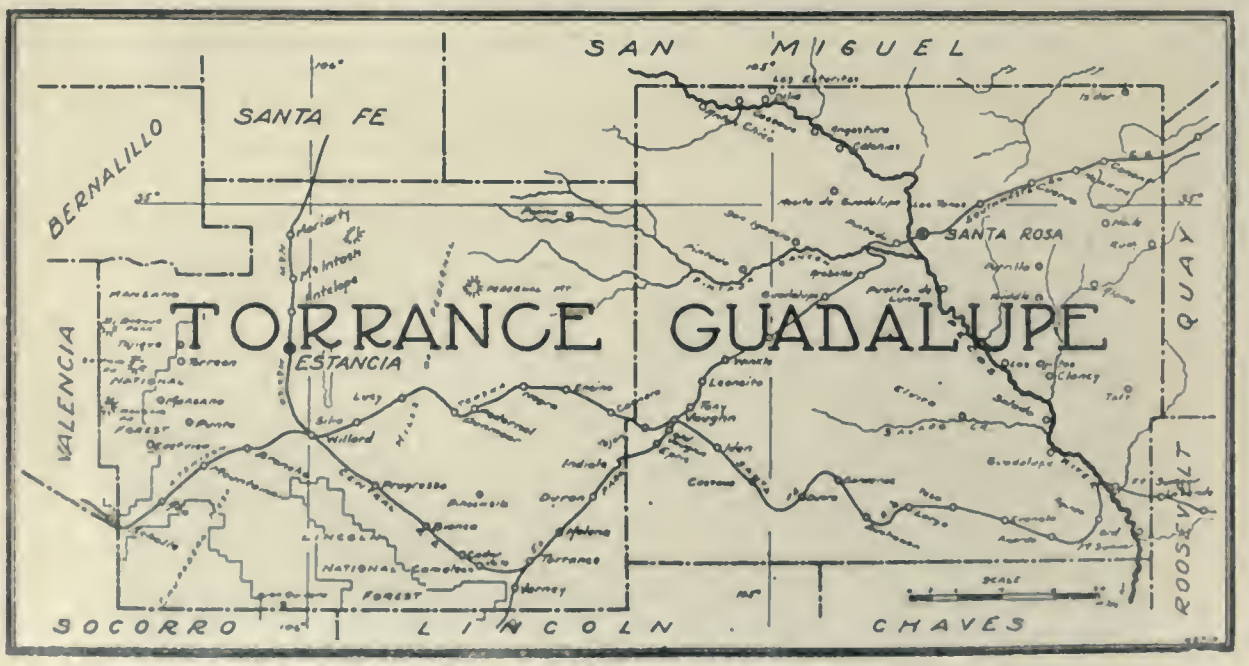
Santa Rosa has good schools, with teachers up to the high standard set in New Mexican communities, good churches, with some of the ablest pulpit orators in the State. The city has a water plant, electric light plant, excellent banking facilities and other modern conveniences

The climate of the city and indeed of the district surrounding it is mild and the winters are seldom severe enough to be reminiscent of the east. Nor are the summers as warm as in the eastern states, for the altitude of 4,600 feet

PECOS RIVER, NEAR SANTA ROSA.

makes for an equable climate with warm days and cool nights, the year round.

Many sheep men ship their annual market consignments from Santa Rosa, and the city is the purchasing point for a wide area of farms, fruit ranches, sheep and cattle growing ranches, and other industries, all of which make her business men prosperous.



THE STORY OF QUAY COUNTY

QUAY COUNTY

BY W. LEMING

THE story of the country now embraced within the boundaries of Quay County begins with the coming of the buffalo hunters and cattlemen into the valley of the Canadian about the middle of the last century. Prior to that time the Indian and buffalo held possession of the country, the first by natural right, the latter by conquest, as it were.

The white men established immense cattle ranges, and shipped long-horned stock to the northern markets. Control of the water holes gave them the necessary power. Possibly half a dozen men ruled the section, with the stations of Liberty, Endee, and Revuelto as their trading points in the county.

Little development took place, however, until the coming of the Rock Island railroad in 1901. Then settlers, who had been few in number before that time, began to pour into the valley, and to cultivate the land, much to the

QUAY COUNTY CROPS ARE IN SPLENDID SHAPE

anger and disgust of the cattleman. Among these first settlers came Quay County's present Commissioner from the Plains, Mr. Fred Walther, who opened a store at Puerto, where he yet resides.

In 1903, Quay County was formed by an act of the Territorial Legislature, being named in honor of Senator Quay, of Pennsylvania, and three years later, in 1906, the town of Tucumcari was incorporated as a city.

The county embraced an area of 1,854,546 acres, as large as the country of Belgium, more than two and one-half times the size of Rhode Island, or as large as Rhode Island and Delaware combined, large enough to give a home of 160 acres to nearly eight thousand families.

This land was thrown open to the public by the Government, and the farmers began to take possession, gradually crowding out the cattlemen and sheep herders.

forty, the most important being Tucumcari with a population of 4,000, the county seat, eight years old as a city. Then there are Naravisa, Logan, Montoya, Obar, San Jon, Endee, Puerto, Plain, House, and a continuous circle of small towns over the plains.

The more important of these, of course, are situated along the railroad lines, which extend in four directions from Tucumcari, giving them easy access to each other.

As the railroads have brought importance to the towns through which they run, so are the county's good wagon roads giving the towns along them a place of importance in the county and State. Gasoline tractors are busy with graders and plows, building good roads throughout the county.

The main automobile line of the Southwest Trail runs almost due east and west from Rock Island to Montoya,

QUAY COUNTY IS FAST BECOMING AN IMPORTANT DAIRY DISTRICT

Thus, in 1900, began the third period of the history of the development of Quay County.

The tenderfoot had taken possession, and there was much to be done toward making the place attractive in his eyes.

Since the founding of the county, more than 15,000 persons have established themselves here, and practically everyone of them wears a smile. They have acquired the habit of the builder, of the man who sees his dreams come true, for the beautiful country homes, fine roads, and modern city rapidly are becoming facts in Quay County. This is because there are few drones, and many possibilities.

Of the towns in the county there are between thirty and

through Tucumcari, and other tributary lines run from the plains, through Puerto, and Quay. Road building has become a hobby with Quay County people, and soon this work of the county will compare favorably with that of older counties of the West. The county is expecting big returns from its road work from the many tourists who are expected to pass this way to the San Diego Exposition.

Another important civilizing influence which Quay County has felt is that of the schools. Schools were founded early and constantly improved until at this time no community is without its temple of learning.

On the first day of September, 1914, there were 3,569 school children in the county, and these children are being

furnished every modern means for acquiring knowledge. High grade teachers are employed throughout the county, and the school terms are of sufficient length to permit of a practical course being given.

Churches throughout the county represent the usual denominations. Some of these are fine structures, and would be a credit in architecture to older communities.

Telephone and telegraph lines connect all portions of the county, and the largest city has electric lights, water works, sewers, and all other modern equipment.

The county is well supplied with newspapers, Tucumcari having two, the News and Sun, other towns in the county supporting ten more.

Many business industries are represented, and the wholesale and retail trade is prosperous. Tucumcari has half a dozen or more houses which ship goods to outside points, and there are in the neighborhood of a hundred retail businesses. The former include bottling and ice concerns, produce houses, creameries, and cream buying firms. Other towns in the county are well represented with enterprising mercantile establishments.

Of manufacturing plants there are in the county broom factories, cement block factories, ice factories, planing mills, machine works of various kinds, feed mills, for the grinding of the grain crops for dairy purposes, and others.

There are extensive stone quarries where fine grades of building stone are mined as well as the undeveloped prospects of precious metal mining.

All this has been brought about in the face of difficulties, both in the nature of the country itself, and from outside causes. Dry years have caused discouragement among the farmers at times, but the drouth and crop failures only have inspired renewed effort on the part of the inhabitants. If it was found that the whole county could not produce wheat profitably, the lesson also was taught that the plains country, in the southern portion, could raise this commodity, and nearly one-quarter million bushels were reaped there in 1914.

It was learned that beans, melons of all kinds, and fodder crops could be raised in all parts of the county. It was found also that the grains milo, kaffir, feterita, and others could be shipped profitably, and that the fodder even could be sent out with big profit in the form of high grade beef, and in cream and butter.

Quay County quickly learned its lesson. It began producing fine beef, cream and butter, as well as raising grain and other crops. The establishment of the Government Experiment Farm near Tucumcari aided in the results. The first silos were put in at this time, one at the station, and one at the Hamilton dairy west of Tucumcari. Soon the word silo became a slogan. Hundreds of them were built. They were filled with anything in the form of forage that could be raised. Thus began the fourth and latest era, that of the dairy and small stock farm, which bid fair to become Quay County's most important industries.

Of dairies, there are hundreds in the county, some of which sell their output direct to the consumer, others which help supply the local creameries, and the cream buying

IN THE STOCK YARDS READY FOR THE MARKET

firms from the outside. Dairying has become an established industry.

Of the stock farms and ranches, this may be said, that while they are not as large as in former times, they are in greater number, and produce more beef for the market, for while the early county was stocked with uncared for range stuff of a low grade, at the present time only the highest grade beef animals are bred.

The same may be said of the sheep-raising industry which also has advanced along scientific lines.

Thus is was that the inhabitant of the county ceased to talk of moving, the settled smile became a characteristic feature.

Civic beautification began to be shown. The work was led by the women, as was natural, and lawns, trees, flowers, beautiful homes and streets began to be evidenced in all parts of the county.

Morally, the status of the county had advanced as rapidly as in other respects.

TUCUMCARI

COUNTY SEAT QUAY COUNTY

TUCUMCARI, the seventh largest city in the State, is located in Quay County, being 550 miles from Kansas City, via the Rock Island Railroad; 363 miles from El Paso, via the El Paso & Southwestern Railway; ninety miles from Dawson coal fields (the largest in the United States), via the Dawson Railway, and 120 miles from Amarillo, via the Tucumcari & Memphis Railway. As it is the terminus of all four of these railroads, Tucumcari may well be called a thriving railroad center where thousands of dollars are paid monthly to the employees who live and own nice residences in the city. The railroad companies maintain terminal shops here and they have lately sunk several wells and found an abundant supply of fine water at a depth of three hundred feet.

The schools of the city are recognized as among the best in the State, employing none but first-class instructors in every department. The enrollment this year is 911. The buildings are fitted with steam heat, sanitary drinking fountains and many other modern conveniences. Athletics, music, literary and commercial courses are in charge of specialists and nothing is left undone to give the student the best possible training.

The city owns a first-class water works and sewerage system and has many miles of cement sidewalks and cement crossings. The streets are lighted by electricity. Nearly every church organization is represented and as well all the leading fraternal and secret organizations. The Elks own a beautiful $25,000.00 home, used by them exclusively, and the Masons own property upon which they

Photo by Sale Bros.

UPPER—MAIN STREET
LOWER—HOTEL VORENBERG

UPPER—ELKS CLUB BUILDING
LOWER—HIGH SCHOOL

will build a temple in the near future. The city also has good telephone service, a steam laundry, ice plant, bottling works, United States Land Office, two national banks and a new creamery which expends large sums every week for cream and ships thousands of pounds of butter every month. A finely equipped post-office, two newspapers, splendid hotel accommodations and everything which goes to make up a first-class city.

The city is well supplied with all kinds of stores and wholesale houses where the necessities of life may be purchased at reasonable prices. It is the market for a large area of the surrounding country which is acknowledged to be one of the best in the State for agriculture and cattle raising. Rent is as cheap as the average in most western towns and modern homes are always in demand. Local gardeners and our splendid railroad facilities keep our markets supplied with fresh vegetables and fruit throughout the year.

Farm lands surrounding the city may be had at reasonable prices, but are steadily increasing in value on account of the steady influx of settlers from the east and north. The climate is like that of the balance of the State, which is the best in the world. The altitude being four thousand feet does not give us the extremes of heat or cold and is ideal for persons suffering from asthma or tubercular troubles.

At a distance of one mile from the city is located a United States Government experiment station at which tests are made of all sorts of farm products in order to determine the varieties most suitable to this locality. The dry-farming system is followed at this station and the results each year are wonderful.

Tucumcari is also located on the Interstate Postal Highway which extends from Oklahoma City, via Amarillo, to El Paso, Texas. A branch runs to Albuquerque, New Mexico, where it connects with the Ocean to Ocean route to the Coast. At El Paso it connects with the Borderland route to the Coast. The road is open all the year around.

PANORAMA VIEW OF TUCUMCARI — Photo by Sale Bros.

NARA VISA—QUAY COUNTY

QUAY COUNTY is enjoying a marvelous development just at present. Her natural resources are being made known to the people, and settlers are flocking to make their homes within her borders. The Nara Visa district is receiving a large proportion of most desirable people. The thousands of acres of land formerly thought to be fit for nothing but the grazing of sheep are being developed by intensive cultivation and the attendant great results are making the farmers wealthy. Nara Visa numbers about 600, but the population is increasing.

The whole section is coming rapidly to the front. There are still large herds of sheep and cattle which graze throughout the region, and their owners buy their ranch supplies, feed, and provisions in Nara Visa, yet these are rapidly taking second place before the advance of the farm land settlers with their greater proportionate results from the soil and augumented propserity for themselves and for the community.

The schools of the district are good, well up to the high standards required by the state educational laws, and the children of the city and of the farmers nearby are attending them well. Churches are being built, and the large part which the church plays in the life of new countries, and especially of new farming countries is being well carried out by the religious organizations in the field.

UNION COUNTY

THE county of Union occupies the northeast corner of the State of New Mexico. It is probably the premier stock-raising section of the State, and while vast portions of it will ultimately be brought under cultivation, there are large tracts that cannot be anything but grazing land and cattle and sheep will in consequence always be an important asset to the county. Union County has and area of 6.037 square miles, or 3,346,800 acres.

There are in the county about 630,000 acres available for homestead entry, of which 555,720 acres are under the Clayton office. This area is surveyed. Under the Tucumcari office there are 88,845 acres, of which 70,845 are surveyed. Most of these public lands can be entered for enlarged homesteads. The county has only 496 acres of agricultural land, according to the tax rolls, worth $7,120, but the census shows 6,288 acres irrigated and 3,392 acres included within private, co-operative or commercial irrigation projects in the county. Not all of this, of course, is being irrigated at present or will be in the immediate future. The 887,190 acres of grazing land in the county are worth $595,000.

There are 1,923 farms in Union County, having a combined acreage of 814,000. Seventy-three of these have over 1,000 acres. Farm products are worth $295,000 annually, the principal crops being hay and forage and cereals. Livestock sold and slaughtered in the county each year is worth $268,000; dairy products, $10,000, and eggs and poultry, $7,700.

There are 6.530 horses in the county, worth $133,400, and 845 mules, worth $29,000. Cattle, however, are the leading livestock asset, there being 30,830 of them in the county, worth $383,000. Sheep are a close second, the 145,000 of them found in the region being worth $216,000. Goats and swine add another $7,000 to the livestock toll.

There are $54,000 worth of shares of bank stock owned in the county, together with town lots worth $61,700 and improvements worth $115,500. Its railroads are worth two-thirds of a million dollars.

The assessed valuation of Union County is $8,217,255. Taxes are assessed against one-third of this, there being a state valuation statute to that effect.

The population, in 1910, was 7.3 per cent illiterate. The total population is 11,404, according to the 1910 census, but the 1914 school census showed 4,793 persons of school age in the county. At the usual ratio, three and one-half to one, this would indicate over 15,000 population now.

There are ninety-one schools in the county, taught by 109 teachers for a term of five to nine months each.

The county has good natural roads and for the last four years, good work has been done in improving these. The Gulf-Colorado highway traverses the county and furnishes a very good road from southeast to northwest. The county is carrying on considerable road building at present.

The county is traversed by the Colorado and Southern railway and is entered by the St. Louis, Rocky Mountain & Pacific, which has its terminus at Des Moines. There are numerous shipping points along these lines and the El Paso & Southwestern passes near the northwest corner of the county, but does not enter it, affording shipping points for the extreme southern section.

The principal towns are Clayton, county seat and headquarters of a federal land district, Des Moines, and Folsom. All are important stock shipping points. The county is mostly plains country, though it has some mountains, isolated hills and bluffs. The principal ones of these are the Sierra Grande range, in which is Mount Cauplin, an extinct volcano, rising to an elevation of over 9,000 feet; the Don Carlos range and Rabbit Ear mountain.

The principal stream is the Canadian, with Ute Creek, Tramperos, Tucumcari, Los Cerros, Flag, Carrizozo, Major Long, Leon, Palo Blanco, Hol Kee, Currumpaw Travesier and Dry Cimarrón as subsidiaries. Not all of these are perennials. Wherever water is available for

irrigation, excellent crops of grains, fruits and vegetables can be raised, but stock raising is the principal industry. This prospers because of the mild winters, excellent range and wide areas available. Many good grade Herefords are to be found on the ranges, the stockmen being engaged in breeding up their herds. Of late years cattle and sheep growers have been raising alfalfa for feed, as the profits accruing to the professional feeders who annually ship close to 100,000 lambs out to Kansas and Colorado feed lots appear most attractive.

On the Johnson mesa, which extends into Colfax County, crops of potatoes and oats are raised without irrigation. This vast plateau is 8,000 feet high. Coal veins underlie it and coal is also found near Clayton.

Mining in the county is in its infancy as yet, but there are many indications of the occurrence of gold, silver, lead and copper ores in several sections. There are oil indications in several stream-beds, fine mineral springs are found near Folsom and there is little doubt that artesian water exists at no great depth.

CLAYTON, COUNTY SEAT, UNION COUNTY

CLAYTON is but ten miles from the eastern boundary of Texas, and much of the territory across the line is commercially subsidiary to Clayton. The country around is a rich farming and stock-raising section, and Clayton is a center for ranchers and farmers for many miles around.

Clayton is on the Colorado and Southern railroad, and has long been a shipping point for the produce of large areas of stock ranches and farm lands.

The town is up-to-date in every way. The buildings are substantial and well built, comfortable and suited to their location. There is an excellent public school system in Clayton, and a public school building of which a much larger town might well be proud.

There is a modern electric light system, and a telephone exchange with the latest equipment, including many ranchmen nearby, among its subscribers, modern and complete water plant, and other improvements.

A large number of secret societies and fraternities make Clayton their home, and the Baptist, Christian, Methodist and Catholic denominations have churches there, at which regular services are held.

The average annual shipment of cattle from Clayton to the eastern and southern markets amounts to over 500 carloads, while the wool shipment, because of the topography of the surrounding country a naturally far more important product amounts to 2,000,000. Four hundred carloads of sheep and lambs are annually sent to the fattening pens of Colorado, or shipped direct to the markets from the fattening Pens of Clayton growers.

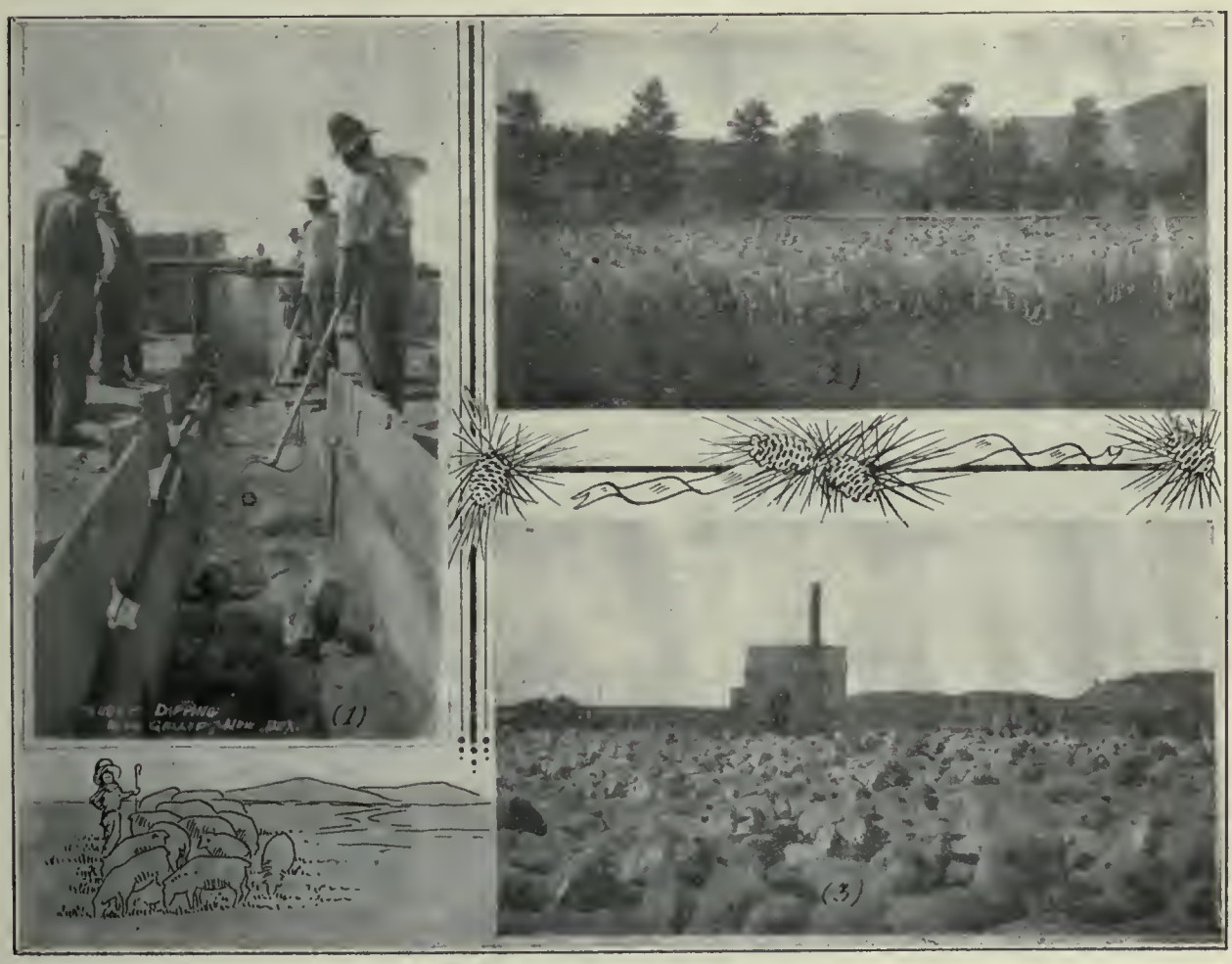
But stock and agriculture are not the sole activities of the region. Coal underlies many parts of the Union County, as it does a considerable portion of the northern section of New Mexico, and this has begun to be developed.

The new courthouse cost $50,000 and looks like it cost more, the Claytonites are correspondingly proud of it. Clayton is the county seat.

The population now numbers about 1,500, not including the surrounding country, however, which is much larger and must be considered when the resources and assets of the place are counted up.

McKINLEY COUNTY

McKINLEY COUNTY contains the largest coal field in the State, and the production of this fuel is its principal industry, though of late years lumbering has also taken on large importance. The county is situated in western New Mexico, slightly north of the east and west meridian line. It is quite rugged in topography, though it has few distinct mountains, and several elevations in it reach a height of 8,800 feet. The continental divide crosses the county from northeast to southwest. It has an area of 5,377 square miles, or 3,523,840 acres, of which 688,193 acres is available for homestead. This is under the Santa Fe office and 535,303 acres of it is surveyed. The county has 397,140 acres of national forest lands. Its coal deposits underlie 800,000 acres and contain five billion tons or more, that amount now being "in sight".



1. DIPPING SHEEP. 2. ANGORA GOATS. 3. SHEEP IN CORRAL READY FOR THE DIPPING PROCESS.

Twenty thousand acres of timber lands are held in private ownership; they are worth $45,000. Coal lands in private ownership total 2,199 acres and are worth $65,970. The county has no agricultural lands, as classified on the tax rolls, but about 2,500 acres are irrigated within its borders, all from streams, and there are other lands capable of irrigation. Most of this irrigation is along the Zuni river and Petasco creek. The Zuni Indians also do a good deal of irrigation, being husbandmen in occupation.

The county annually produces about 575,000 short tons of coal, much of which is used by the Santa Fe railroad. Gallup coal is shipped over the State and finds considerable favor, as it is good steam and domestic coal. The mines cluster around the county seat, Gallup, and the principal camps are Clarkville, Heaton and Gibson. The timber resources are mostly found in the Zuni range further east. A considerable quantity of this timber is hauled over a logging road to Thoreau and thence to Albuquerque, where it is sawed. There are said to be good copper indications in the eastern part of the county. Stock-raising, especially that of sheep, prospers in the county, especially under the Navajo Indians, part of whose reservation in the county is especially adapted to the raising of mutton and wool animals. This reservation has been developed by the government, which has sunk many wells on the range, making available spaces otherwise too distant from water to be used.

The county has many attractions for tourists and these are visiting it annually in great numbers. In the north is the Navajo reservation, with its expert Indian silversmiths and women blanket weavers, the best in all the Indian nations. In the south is Zuni, one of the famed seven cities of Cibola for which the Conquistadores sought with such energy when they first entered the State, and nowadays a well-known scene of the "snake dance". The Navajos are nomands, stock raisers and all that implies, while the Zuni are husbandmen and potters.

There are 5,700 cattle in the county, worth some $53,000, and 46,500 sheep, worth some $70,000. Other livestock bring the total up to $150,000. Livestock sold and slaughtered each year is worth about $59,000; wool and mohair about $10,000. Farm products, despite the small area irrigated, are worth $38,000.

One and six-tenths per cent of the county is in farms, of which there are fewer than 600 in the region. Only two of these are over 1,000 acres and most of them are small, 160 acres or less. The railroad property in the county is worth $2,200,000; the telephones and telegraphs, $23,000; town lots and improvements, $263,000, mostly in Gallup.

The county has a population of 12,963, according to the last census, while the 1914 school census showed

NAVAJO INDIAN CHIEF ROCK NEAR GALLUP

1,676. The apparent discrepancy is accounted for by the fact that so large a proportion of the population is composed of unmarried miners. There are twelve schools in the county, which employ 31 teachers, paying them from $225 to $1,800 for a term, which ranges from the state minimum, five months, to nine months.

The county has many good natural roads and is now expending considerable sums in improving them.

GALLUP

THE county seat of McKinley County is Gallup, a prosperous town located in the center of the county's series of coal camps and shipping and distributing point for many of them. Gallup has a population of about 3,500, including that of the coal camps immediately adjacent to the city. The town itself, according to the last census, has slightly over 2,200. Gallup is a freight division point on the Santa Fe railroad and has roundhouse, shops, icing plant for perishable shipments, and several other features connected with the railroad.

Gallup is the supply point for all the trading stores on the Navajo reservation except those in the extreme north, for all the stores on the Zuni reservation and for several sections in Arizona. It handles the Indian products, especially the Navajo blankets, and is a supply point for the coal camps which surround it. These facts together with its location at the center of a vast body of coal, insure its prosperity. The coal of the Gallup field is easily mined and can be gotten out with safety. The roofs in the different mines are nearly all hard and sound and there is no gas in the field, so far as work has gone. One mine has produced as much as 1,550 tons of coal in a single day (owned by the Colorado Fuel & Iron Co., June 22, 1903). A deposit of fire clay, free from iron and other impurities, underlies much of the region and to the north of the city are indications of oil.

The valley in which Gallup is situated, though it is near the top of the continental divide, is of rich soil and can easily be irrigated by damming the Puerco river a short distance above the town. This will surely be done in the future. The city is lighted by electricity, has a modern water system and is amply provided with local and long distance telephone facilities, as well as being on the main line of both Postal and Western Union transcontinental telegraph systems.

Owing to the fine clay and building stone found in the vicinity, most of the buildings in Gallup are of brick or stone. The streets of the town are wide and clean, and frequently are prettily shaded.

The municipal school system is very good, the highest salaries paid in the county being for instruction and superintendence in the city of Gallup. There are ample religious facilities in the city and there are two weekly newspapers.

The altitude is not far from 8,000 feet, which assures cool weather the year around and the climate is quite dry and with a large percentage of sunny days. Taken altogether, Gallup offers many advantages, either as a place for commercial or industrial investment or as a residence town. It is always prosperous; there is always building going on there, and the fact that coal is its basic industry prevents the fluctuations which so often come to other classes of mining camps.

NAVAJO INDIAN CHURCH NEAR GALLUP

SIERRA COUNTY

THE county of Sierra is chiefly interested in livestock and mining industries. It has the largest assessed valuation on mine improvements in the State except one. The county has an area of 3,081 square miles or 1,995,-520 acres, of which 1,550,956 acres is public land open to homestead entry. Most of this is grazing or mountainous land. All of it is under the Las Cruces land office and 1,334,556 acres have been surveyed. Less than one township is open for enlarged homestead entry,

Sierra County lies in the southern part of the State, separated from Texas and Old Mexico by Luna and Dona Ana Counties. Although it has a total of only 10,426 acres under private and co-operative irrigation enterprises it contains the site of the Elephant Butte dam, the largest single unit of any government reclamation project. It contains 15,371 acres of agricultural lands and 261,300 acres of grazing lands, worth $151,000 and $227,000, respectively. It has much timber in the Black Range and several saw mills. There are coal indications in the Caballos mountains, but its mineral lands in private ownership, other than coal lands, are worth $100,600.

There are 363 farms in the county, mostly in the 160-acre class, with four-sevenths of all under 100 acres in extent and seven having an area of 1,000 acres or more. Its farm products are worth $65,000 annually, the principal crops being hay and forage, cereals and vegetables, in the order named. There are 507,636 acres in farms, or 25.4 per cent of the total area of the county. The average improved acreage is but eleven and six-tenths a farm.

The livestock products, including stock sold, are worth $366,200 annually, exclusive of wool and mohair, which bring in $29,000 additional, and dairy products, which are at a low figure which evidences the undeveloped nature of the country, since intensive stock farming would produce a much greater dairy return than this. Eggs and poultry are also a very small factor in the county's prosperity, bringing in about $665 a year. There are 4,040 horses in the county, worth $44,430, while the 26,200 head of cattle are worth $263,270 and the 21,600 sheep are worth $29,500. Goats, of which there are nearly 2,000, are worth a little over $2,000.

Town lots in Sierra County are worth $14,900 and improvements on them $51,800. The county's railroads are worth $563,000 and its telephone and telegraph systems $9,200. The valuation of the county is $4,886,-941, taxes being assessed on one-third of this sum, in compliance with the state valuation law.

The population of the county is given by the 1910 census as but 3,536, though the school census of 1914 shows a school poulation of 2,021, which, at the usual three and on-half to one ratio, would indicate a population of about 6,000. The ratio is lower here because of so many bachelor prospectors in the mountains. There are twenty schools in the county, taught by twenty-six teachers. The school term is from five to nine months.

Shiping points for Sierra County at Engle, which is the supply point for the northern part of the county; Elephant Butte, where the dam is being constructed; Cutter and Lake Valley. There are ample markets for farm produce at the many small mining towns in the county and at the dam site construction camps. Cattle and sheep are usually shipped out of the State to market from either Engle or Osceola.

Sierra County, a few years almost without adequate means of communication, now has a very good road system which it is constantly improving. The forest service is helping greatly in this work, there being 388,992 acres of national forest lands in the county. The State Highway Commission is at present doing a great deal of work in the county on the Camino Real, the principal road in the New Mexico system. It now has two camps of convicts at work there. A contract has been let for a new bridge over the Rio Grande at Arrey which will open up the direct north-to-south road. The county has made a three-mill levy for road purposes, the money to be expended by the State Commission.

The principal towns are Hillsboro, the county seat; Monticello, a wealthy farming town in the north, and Palo-

mas Springs, a famous health resort. The mining towns are Kingston, Chloride, Fairview, and Hermosa.

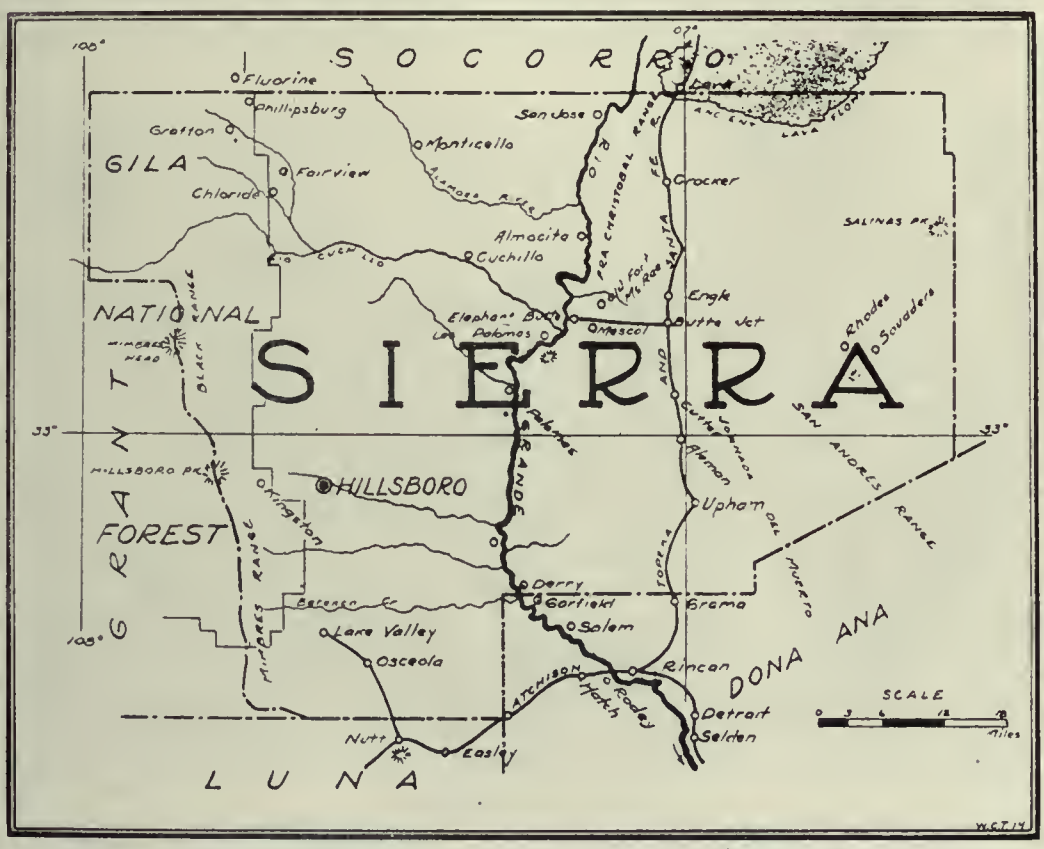
Although Sierra County is one of the smallest in the State, yet it is larger than the State of Delaware by fifty per cent and more than three times the size of Rhode Island. The water supply is unusually good though the annual precipitation is only about ten inches. Irrigation is principally confined to the many streams flowing eastward toward the Rio Grande, though not all of these reach that stream, some disappearing in the sands. The principal streams are the Rio Grande, which bisects the county from north to south; the Canada Alamosa, Cuchillo, Negro, the Palomas, the Las Animas, the Arroyo Seco, Percha, Trujillo, Tierra Blanca, Jaralosa, and Bercuda.

Fruit does well in the valleys, though little has been raised so far and climatic conditions are such that anything which will grow in Kansas and Oklahoma will grow in Sierra County. There are a great number of natural reservoir sites. There is a good underground water supply.

The county is one of the banner mineral producers of the State, especially in the precious metals, though copper, lead and zinc will be developed later. A body of vanadium is known to exist near Hillsboro and endlichite, another rare mineral, is found in the same region. There are mineral camps at Andrews, Mineral Lode, Pittsburg, Lake Valley, Macho, Chloride, Tierra Blanca, Kingston, Hermosa, Apache and elsewhere.

The Palomas Hot Springs are the most famous waters of the Southwest and for unknown ages the prehistoric inhabitants, later the Indians, and still later the Spaniards and Mexicans have used them against rheumatic and blood diseses. Their efficacy is startling and patients have been carried to the hot baths and after two or three baths have been able to "pick up their beds and walk". It is believed that they contain radium in solution as they relieve hardening of the arteries.

Sierra County has magnificent scenery as the Black Range with its ever-living water and running streams, its extensive forests of pine, spruce, juniper and so forth is rugged and picturesque. The Palomas Gap in the Caballos mountains is a semi-circular cliff with a drop of nearly 2,000 feet.



TAOS COUNTY

THE county of Taos was one of the first regions developed as an agricultral district by the Spanish conquistadores when they began the colonization, but about the time of the American occupation or slightly later, the section took on importance as a mineral producer. It has a very good water supply, but as the terrain is much broken, most of the irrigated sections are small. It is well timbered and contains much national forest land but it is only of late years that a great deal has been done with its lumber resources, though timbers for the first bridge ever built at El Paso were cut in its hills and floated down the Rio Grande to the place where they were used.

Taos County lies in the extreme northern part of the State, a little to the right of the north and south meridian line. Owing to its rough topography and the fact that its only line of railroad, the narrow gauge of the Denver & Rio Grande system running north from Santa Fe, touches only its eastern edge, it is difficult of access. Improvement of roads is gradually removing this, however. Taos County last year made a five-mill levy for road purposes, the funds resulting to be expended under the State Highway Commission and much road work is being done by local communities, especially the town of Taos, which is buildings a road to Caliente. A main north and south road is also being built to open the scenic and historic beauties of the county to the autoist.

Taos County has an area of 2,283 square miles or 1,441,780 acres, of which there is available for homestead entry 505,356 acres, all under the Santa Fe land office, 247,246 acres being surveyed. It has over 56,000 acres of agricultural lands, worth $264,500, and 454,-

TAOS INDIAN PUEBLO

000 acres of grazing lands, worth $254,000. Its timber lands in private ownership comprise 2,845 acres, wotrh $5,890, and its mineral lands, none of which are coal-bearing, are worth $29,117 with improvements.

There are 986 farms in the county, totalling 95,540 acres in extent. Most of them are of less than twenty acres area and eight-ninths of them are of less than 100 acres, though twelve have more than 1,000 acres each. There 41,486 acres of irrigated land in Taos County and 57,700 acres are included in commercial, co-operative and private irrigation enterprises. Farm products are worth $324,000 a year, the principal crops being cereals, hay and forage and fruits and vegetables. The farm area is 6.6 per cent of the total area of the county.

The livestock sold and slaughtered by Taos County owners is worth $96,000 a year. Wool and mohair produced are worth $61,000 a year; eggs and poultry, $2,-500; dairy products, $4,000. There are 2,630 horses in the county, worth $41,600; 1,640 cattle, worth $16,227; 40,000 sheep and 5,000 goats, worth $53,700. The county has saw mills assessed at $5,000, and railroads worth $243,700. There are $5,500 worth of bank stock owned in the section. The valuation of the county is $3,268,107.

There are 374,259 acres of national forest land in the county, percentages of receipts from which materially increase the road and school funds.

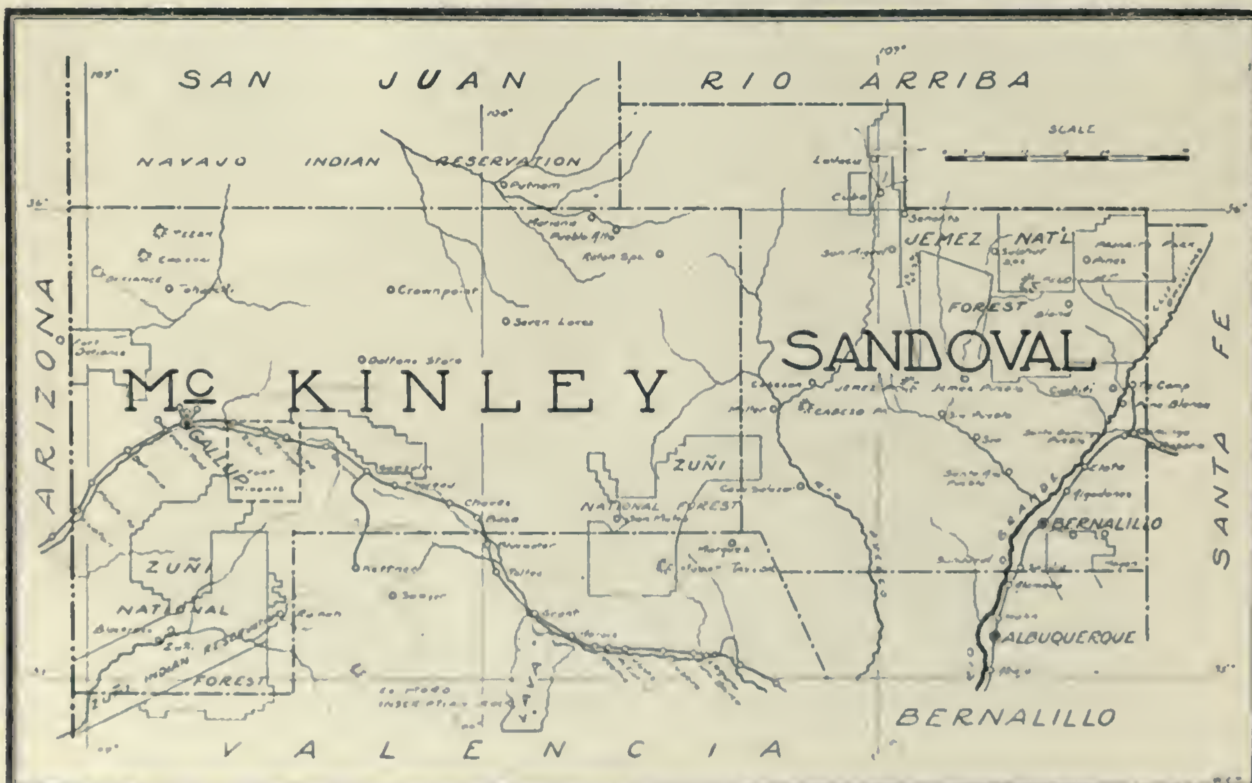
The population is given by the 1910 census as 12,000, but the 1914 school census shows 4,129 persons of school age, which, at the usual ratio, indicates a total population of 14,500. There are forty-seven schools in the county, with fifty-six teachers employed. The school term is five months and upward, according to the district.

At one time Taos County included all of Colorado south of the Arkansas river, all of Colfax and Mora Counties and part of Rio Arriba County. The county is exceptionally well watered, the majority of the streams, however, being small. It could easily support five times its present population, for its soil is remarkably fertile and there are ample facilities for its irrigation. Little of this, however, is on the Rio Grande for that stream runs through rocky gorges throughout its passage of the county. Most of the streams rise in the eastern mountains and traverses the middle and western mesa and plain section, where they are utilized, then reach the Rio Grande. The principal ones are the Santa Barbara, Pueblo, Rio Grande del Ranchos, Rio Taos, Arroyo Seco, Las Trampas, Petaca, Latir, Cabresto, Costilla, Rio Hondo, Colorado, Lucero, and Fernandez. The Taos range, where most of these have sources, has an altitude in places of over 13,000 feet. On its tree-clad slopes precipitation is greater than almost any other spot in the State. Only about one-half the water is used at present and the building of small reservoirs, for which there are numerous sites, would increase the cultivable area many times.

The county has several mining camps, none producing greatly at present because of lack of railroad facilities, of which Red River, Midnight, Black Copper, La Belle, Twining, Glenwoody, Copper Mountain and other are the most important. There are mica deposits near Ojo Caliente.

The principal towns are Taos, the county seat; Ranchos de Taos, Red River, Tres Piedras, Embudo, Questa, Cerro, Penasco and Hodges. The county in general and Taos in particular have much of romance and interest in their history.

COLORADO
Pagosa Springs
Chromo
Antonito
SAN JUAN
RIO ARRIBA
TAOS
COLFAX
MORA
SANDOVAL
SANTA FE
JICARILLA APACHE
INDIAN RESERVATION
CARSON
NATIONAL
FOREST
JEMEZ
NATIONAL
FOREST
JEMEZ MOUNTAINS
CHAMA RIVER
Tierra Amarilla
Chama
Brazos
El Vado
Coyote
Abiquiu
El Rito
Espanola
Chamita
Embudo
Taos
Taos Peak
Cuesta del Osha Pk
Palmillo
Volcano
No Agua
Tres Piedras
Questa
Red River
Cerro
Costilla
La Belle
Vallecitos
La Madera
Ojo Caliente
Truchas Pks
Jicarilla Pk
Hobert
Gallina
Capulin
Hillcrest
Mundo
Lumbre
Llano
Hodges
Servilleta
SCALE
37°
36°
106°
107°
W.C.T.


SAN JUAN
RIO ARRIBA
NAVAJO INDIAN RESERVATION
ARIZONA
McKINLEY
SANDOVAL
SANTA FE
BERNALILLO
VALENCIA
JEMEZ NAT'L FOREST
ZUÑI NATIONAL FOREST
ZUÑI INDIAN RESERVATION
ZUÑI
Gallup
Crownpoint
Seven Lakes
Putnam
Pueblo Alto
Cuba
La Jara
Bernalillo
Albuquerque
Jemez
Jemez Pueblo
Cochiti
San Ysidro
Thoreau
Grant
Ramah
SCALE
36°
35°
107°
108°
109°

SOCORRO COUNTY

SOCORRO COUNTY is the largest in New Mexico and probably in the country. It has shrunk considerably since that day in the Mexican regime when it included the whole State of Arizona and a fifth of New Mexico, but now comprises some 15,065 square miles, or 9,644,800 acres. The principal resources yet developed are mining, livestock and agriculture, though none except possibly the livestock, has reached anything like its ultimate and legitimate size. Mining is carried on in both eastern and western parts of the county, livestock confines itself mainly to the central and west, while agriculture flourishes in the Rio Grande Valley and in countless small valleys of the many mountain ranges which appear in the region.

Socorro County is located in the western half of southern New Mexico. It stretches from east of the Rio Grande clear across to the Arizona line and has a north and south reach roughly one-fourth that of the State. The topography is varied, as would naturally be expected in so large an area. From mountains on the east there is a slope down to the Rio Grande Valley, then a rise again to more mountains, then a vast plain, succeeded on the west by more mountains, then varied and broken topographically to the State line. In the southwest corner is the very rugged and extremely beautiful Mogollon range where the mining of precious metals reaches its climax in the county. The principal ranges are the Sierra Oscura, San Andreas, Magdalena, San Mateo, Datil, San Francisco, Tularosa, Pinyon, Elk, Black, Diablo and Ladron, many of which attain an altitude of more than 10,000 feet. Some of these mountains are heavily wooded. Part of the timber lands are held in private ownership but a great deal of them are included in the Datil or Gila national forests. The national forest lands in the county are 3,404,540, more than any other county in the State has and almost three times the amount in the next largest forest section. Considerable timber is cut from national forests or private lands but owing to the difficulties in the way of transportation, much less is taken out than is annually available or than will be taken out when railroad facilities can be had in the section. Many cattle and sheep are grazed on the national forests.

All down the central portion of the county is open range for stock. This range is probably the largest open stretch of country left in the United States. Upon its vast reaches

IN NOGAL CANYON

thousands upon thousands of sheep are grazed each year and many herds of cattle brought to the marketing stage. The importance of these industries in the county can be

gauged by the fact that Magdalena, a station on a branch line of the Santa Fe system nearer the ranges than any other, is the largest original shipping point for wool and cattle in the State. Hundreds and hundreds of cars of

APIARY NEAR MAGDALENA

cattle are sent out of Magdalena each year, some of the stock being "trailed" in over 100 miles to be placed on the railroad much as the herds were trailed from Texas to shipping points in the old days. Wool is brought into Magdalena in great caravans of wagons, thirty or forty wagons in a string, the trip often taking four or five days each way. During the cattle shipping season all hands work day and night at Magdalena to get the steers started on their way to the consumers without loss of time at the stock-yards or feeding pens and extra trains crowd the line from Socorro up to Magdalena to get the loaded cars out. One of the sections which produces this great amount of potential food and clothing is the San Augustine plains, known to history and romance for the many thrilling events which took place there in the early occupation of the region by the Spaniards.

There are 981,000 acres of grazing lands in the county, according to the tax rolls, worth $550,000, with improvements on them worth $65,000 more. These lands support 52,000 cattle, more than any other county except Chaves can boast, worth $514,000. They also support 260,000 sheep, worth $350,500, this being the greatest number of sheep found in any one county in the State by more than 100,000. There are also 12,000 goats in the county, worth about $13,000 more. The annual receipts from the sale or slaughter of cattle are $447,000. The yearly income from sale of the wool and mohair clips is $190,400, some 11,000 goat fleeces being shorn and some 204,000 sheep giving up their fleeces for the market. Socorro County also produces annually about $6,700 worth of dairy stuff, while it is far ahead of most of the counties in production of wax and honey, its receipts from these features of the livestock industry being $4,000 a year. Socorro County annually sells about 15,300 cattle and over 60,000 sheep. The county's receipts from poultry and poultry products are about $5,000 a year.

Agriculture in the county is chiefly of the irrigated sort. It flourishes everywhere there is water enough to supply the farms but not even a major fraction of the opportunities available have been grasped. Along the Rio Grande are hundreds upon hundreds of acres now covered with cottonwood scrub which could be cleared and made to rival in productivity the famous bottom lands of the Mississippi river. Further back from the river are vast areas which could be cultivated and made to produce bounteous crops, as most of the upper reaches of the river valley are well drained and untouched by alkali, that bane of the irrigationist.

In every range of mountains in the county are small streams whose flow could be developed for irrigation purposes by the building of a small dam or the erection of a

COUNTY COURT HOUSE AT SOCORRO

reservoir. Nothing like the real resource of the county has been developed in these lines. The stockmen have dammed some of the streams to provide a constant water supply for their cattle or sheep, by conserving the freshets

and flood waters until the dry seasons, but irrigation has barely commenced in the county, as is evidenced by the census reports that only 41,000 acres in the entire county are included in irrigation enterprises, and none of these was a commercial project, federal reclamation enterprise, or Carey act project. The total acreage irrigated in 1909, as reported by the census, was but 14,289, yet farm products to the tune of $311,188 that year. This is a gross return of over $21 an acre. Hay and forage crops brought in most of this, but cereals were a fairly close second and vegetables a poor third. Fruits, though an important item in certain sections, were almost negligible in the total.

There are 626,670 acres in farms in Socorro County, 6.5 per cent of the total. Of these twenty-eight are of over 1,000 acres extent. The class which contains the largest single number is that between 160 and 174 acres. However, the greater portion of these farms are of less than 100 acres and a great many of them are of less than twenty acres. The farmers are native white people in ninety-five out of every hundred cases. The average value of land included in farms is $2.49 an acre and the average total value of all farms is $4,515.

Socorro County contains property valued at $9,922,-950, according to the tax rolls, and taxes are required by law to be paid on one-third of this. There are about $60,000 worth of shares of bank stock owned in the county, only seven other regions being richer in this respect. The county has $102,287 worth of merchandise property on its tax rolls, only seven counties having more; some $5,000 worth of saw and flouring mills, nearly $1,-100,000 worth of railroads, about $10,000 worth of telegraph and telephone installations and $180,880 in surface improvements of mines, the largest amount reported by any county by far. Improvements worth $177,318 are reported on town lots worth $34,218. Electric light and water plants worth $5,000 are reported, exclusive of municipal plants owned by the cities. Four hundred forty acres of coal lands are listed for taxation, being valued at $3,660, while mineral lands other than coal, with improvements, are listed as being worth $69,000.

Socorro County is declared by the 1910 census to have a population of 14,761. The 1914 school census, however, shows 5,279 persons of school age within the county, which would indicate a total population of about 18,200, at the usual ratio of three and one-half to one.

Socorro County is well supplied with schools in all its many districts, there being fifty-four school buildings in the county and severty-five teachers employed at them. The school term ranges up from five months, the state minimum, to nine months.

Communication and transportation are supplied to the county by postal routes which go out from the various railroad points and by telephone and telegraph. The former are extended far beyond the railroad points, even being carried by the forest service many miles away from all settlements. Telegraph offices are found at the railroad points. The Santa Fe railroad's main line to El Paso passes through the county from north to south and there is a division point at San Marcial. From Socorro a branch extends west to Magdalena, beyond the Magdalena mountains and at San Antonio the system connects with the New Mexico Midland, a mine railroad which runs to Carthage, ten miles away in eastern Socorro County.

Socorro County has good roads, having been the first section of the State to come into prominence in that respect. The natural roads are of earth and are very good but all the main traveled routes have been improved. For many years a single stretch of highway from Socorro west was the boast of the state highway boosters. Several transcontinental automobile routes cross the county and the main highway of the State system, El Camino Real, traverses it from north to south. A new bridge has recently been built over the Rio Grande which opens up communication with the east very conveniently and which shortens by about forty miles the route in use by most cars going east or west. When the Camino Real is finished down the west side of the Rio Grande from Albuquerque to San Marcial and thence to El Paso, in 1915, this bridge will be of less use but at present it finds frequent utilization.

SAN MIGUEL CHURCH AT SOCORRO, BUILT 1620

Two of the mining districts of Socorro County, those of Cooney and Magdalena, are world-famous. In the

Magdalena district the Kelly and Graphic mines produced over $6,000,000 worth of silver and lead ore before it was found that the zinc they carried, so long regarded as a mere hindrance, was exceedingly valuable for itself. This is now being worked out. The Graphic mine was purchased in 1903 by the Sherwin-Williams paint concern and now the zinc ore it turns out is widely used in paints and colors. The Kelly mine is being worked actively and is producing considerable wealth. The district is the chief zinc producer in New Mexico. Considerable development work was done in the Water Canyon district near Socorro but nothing of value was brought out by the expenditures.

The Magdalena district is situated in and near the north end of the Socorro range, from which it takes its name. The Graphic mine, the most important of the district, is located east of Graphic station, between Kelly and Magdalena, and is connected with it by a tramway. Other mines, including the Kelly and Juanita, are further east and their ore is hauled to the station by wagon. Ore is said to have been discovered at this point by Col. J. S. Hutchinson, of Socorro, in 1866. The Graphic was antedated in its location by the Juanita by a period of three weeks. The so-called sand carbonates or lead ores were the first to be mined and these were smelted in a crude adobe furnace and the resultant hauled to Kansas City by ox teams. Several smelters were built later and ran until the classes of ores for which they were adapted were exhausted. It was not until 1903 that some smithsonite, sent to Missouri, brought the attention of eastern capitalists in need of just such an ore and the sale mentioned above followed. The deeper workings of the district reveal chalcopyrite, galena and zinc blende.

The Cooney district is situated in the Mogollon mountains in the southwestern section of the county, well up on the southwestern flank of the range. Mogollon is just over the dividing ridge between two canyons from Cooney and a little further south. The district was discovered by James C. Cooney, a sergeant stationed at Fort Bayard, in 1875, when he picked up a piece of rich copper-silver ore near the camp which bears his name, but it is said that knowledge of the mineralization of the section antedates this discovery five years. Cooney, with associates from the camps of Central and Georgetown, began the location and development of claims. Good ore was encountered in several places, but the hostilities of the Apaches, whose stronghold the Mogollon range had been for many years, because of its difficult and broken topography, kept up such marauding that the development of the district was badly hindered.

SALT LAKE CRATER NEAR MAGDALENA

Now the district is producing rapidly, its owners and developers are prospering greatly and the country is clamoring for better transportation facilities, the only means of getting supplies in and ore out at present being a wagon

road to Silver City, eighty-five miles away, and a road the Forest Service is building in from the northeast. A gasoline rail line is proposed and is said to have strong backing. The output of the region in 1905 is given as a quarter of a million dollars, while in 1913 it was nine times as much and a round $3,000,000 is the anticipated output this year. Up to 1905, when a lull set in in the region, the output is estimated by a professional paper of the Geological Survey to have been about $5,000,000 in silver, copper and gold. The thing which did most for the district was the development of the cyanide process, which made a higher recovery possible and saved freight on concentrates.

In the twelve months ending with May, 1914, the Oaks Company increased its holdings in this district materially, now owning outright over 400 acres and holding options on 200 acres more. The company did much work on its tunnel above Mineral Creek, which will serve as the main drainage and transport tunnel of the district. A milling plant is to be built by the owners of the mines of the district, the ore being hauled to the mill through the tunnel mentioned. The combination includes over seventy claims. As a further development step, the erection of a power plant at the San Augustine coal fields and the transmission of electric energy to the mining districts is being advocated.

Important claims in this district include the Tunnel-Johnson-Thilby group, the Eberle Deep-Down group, the Mother Lode group, the Socorro Mines Mining Company, the Mogollon Mines Mining Company, the Ernestine Mining Company; the Maud S, Link, Wilson, and Sunburst claims; the Alberta Mining Company, the Precious Metals Mining and Exploration Company, and others.

The original Cooney or Silver Bar mine was probably the richest ever known in New Mexico. The first ton of ore from this mine was freighted to Silver City at a cost of $2.50 a hundred-weight and then taken 1,000 miles by rail at $12 a ton. After deducting these charges and those of smelting and mining, it still left a handsome profit to the owner. From November, 1883, to August of the succeeding year Cooney did over 1,200 feet of development work and netted over $300,000 from the ten months' earnings.

Mogollon, now the most important place in the district, has a population of 2,000. Its postoffice did a business of $150,000 across the money order counter last year and its merchants' receipts aggregated 60,000 tons of goods during the year. The town was burned out in June, 1894, but was immediately rebuilt. Communication with Mogollon is by auto to Silver City. The city has electric lights.

On the eastern side of the Rio Grande, Socorro has a particularly tempting opportunity, a copper location which

MAGDALENA MOUNTAIN FROM OLD BLUE CANYON ROAD

has lain almost undeveloped since the Spaniards came. There is evidence that copper exists in the Oscura mountains and some development work has been done, but little ore has been taken out. There are many evidences in this district of crude attempts to mine and smelt the red metal many years ago and history tells of the securing of enough copper for bells for all the churches in the central Rio Grande Valley some 200 years ago.

In the northern part of the Sierra Oscura are iron deposits which have never been worked. These deposits are about forty-seven miles east from San Antonio, far distant from any settlement and at an elevation of 6,700 feet. The iron occurs as magnetite in irregular bodies along the contact of certain limestone and gypsum ledges with monzonite bases. One body of the ore is a partially oxidized magnetite belt running east and west about a quarter of a mile long and 150 feet wide. Croppings, shafts and prospect holes indicate that the iron extends about three miles. Not enough actual exploration has been done to settle the extent of the deposit. The ore is said to contain over sixty per cent of the metal, with small percentages of silica, sulphur and phosphorus.

At some time in the past Socorro Peak was the scene of considerable mining activity, the chief remains of which are the abandoned prospect holes and tunnels which honeycomb the east face of the mountain. When prospecting in the region first began, in 1867, it is said there were evidences of work done by the Spaniards, probably, in their never-ending quest for gold. The district has not produced for many years, the Torrance and Merritt mines having had the most importance. A production of $760,000 is claimed for the district.

The Canyoncito district is located slightly east of the Rio Grande, between San Acacia and La Joya. The ore is a galena and occurs in bunches or pockets in a gangue of barite, quartz and fluorite which occupies the entire width of the vein. No shipments have been made but a shaft is down 300 feet and there are indications that the ore deposit continues far beyond that point.

The oldest coal workings in the State are at Carthage, in eastern Socorro County, where three mines are being worked now. These mines have supplied coal to smelters in Old Mexico and elsewhere in the Southwest for many years, as well as turning out a fine grade of domestic and steam coal. The coal veins vary in thickness from four to six or seven feet and lie at an acute angle dipping toward the west or southwest. Little timbering is required in working them because the roof is mostly a solid white sandstone. The product is handled over a mine railroad to San Antonio and then sent out over the Santa Fe.

Socorro County has many features of interest to the tourist and especially to the hunter. Its mountain recesses contain much game, especially of the "big" variety and several of its lakes and streams are inhabited by numerous water-fowl. The mountain fastnesses offer great scenic beauties and the rapid development of good roads is opening these to the autoists at a rapid rate.

The principal streams are the Rio Grande, the Salado, San Lorenzo, Alamillo, Chupadere, Nogal, Parida, Water Canyon, Datil, Alamo, Big Pigeon, Whitewater, Mangos, Largo, Apache, Bonito, Gilita, Diamond, Silver, Pueblo and Beaver.

The principal towns are Socorro, the county seat, where is located the State School of Mines; San Marcial, a division point on the Santa Fe; Mogollon, Magdalena, Kelly, Datil, Cooney, Quemado, Reserve, Alma, Sabinal, San Antonio, Carthage, La Joya, Lemitar, Burley and San Acacia.

Socorro is the only county having public lands in three districts. Under the Las Cruces district it has 3,667,854 acres of land available for homestead filing, of which 2,435,538 acres are surveyed. Under the Roswell district there are 102,400 acres, all unsurveyed, and under the Santa Fe office are 829,925 acres, of which 752,485 acres are surveyed. These lands are described as grazing, undulating prairie, mountainous, and coal-bearing. There are a few townships in the county available for enlarged homestead entry.

VIEW FROM SOCORRO LOOKING WEST TO SOCORRO AND MAGDALENA MOUNTAINS

SOCORRO, COUNTY SEAT, SOCORRO COUNTY

THE city of Socorro is one of the quaintest and most picturesque spots to be found anywhere. It has narrow and rambling streets in its older portions, and the town itself is built around a plaza, though the business districts are more modern in appearance and arrangement. On the plaza is an especially attractive spot for it has shade trees and concrete walks and coping and makes an appealing spot of green. Just north of the plaza a short street leads to the old Church of San Miguel, built in 1620.

The city is located on a high plateau west of the Rio Grande river, at the foot of a protecting range of hills. The altitude is about 4,500 feet, which is high enough to insure cool nights and low enough for the weather not to get too cold any time. The people are industrious and are prospering. The history of the city is highly interesting, as it is wrapped up in the events of the Spanish occupation, the Pueblo rebellion and the reconquest by de Vargas.

Socorro is progressing in material ways in strides commensurate with the ability of her people. Arrangements have been made to erect a new surgical sanitarium in the city, at a cost of $25,000. This will be located on a beautiful site. The dry, pure air is the reason for its erection at Socorro instead of elsewhere, thus adding another institution for healing to the several tuberculosis sanitaria which are already in operation.

Another evidence of the city's prosperity and material importance is the plan of the Santa Fe railway to build large new stockyards for the loading of sheep and cattle. Trackage is being laid out at present to open up a new source of gravel for ballast, the largest gravel pit on the Santa Fe lines. This will add $2,000 a month in wages alone to the money in circulation in the city.

Socorro is the county seat of Socorro County, New Mexico, which is the second largest county in the United States.

Socorro is situated on the main line of the Santa Fe railroad, 75 miles south of Albuquerque, and is the point at which the Magdalena branch of the same road turns off to tap the western part of the State.

Socorro has electric lights, a complete municipally owned water system, the water being shown by many analyses to be 99.2 pure.

NEW MEXICO STATE SCHOOL OF MINES BUILDING AT SOCORRO

SCHOOL HOUSES AT SOCORRO

Socorro has five churches.

Socorro has a small but complete hospital in charge of an extremely efficient and experienced surgeon.

Socorro stands upon the bank of the Rio Grande river upon a gentle slope which runs four miles back to the mountains and has a splendid ditch system for the irrigation of the valley portions of the grant belonging to the city.

The Socorro Grant is five miles square, having for its center the front door of the Catholic Church, and the titles in the Socorro Grant rest upon a patent from the United States government to the municipality of Socorro.

At a distance of two miles and a half from the center of Socorro the public or homestead lands begin, underlaid with water in rich sufficiency for irrigation purposes under the pumping system which is now being adopted and recommended by irrigation experts as superior to river or flood water irrigation wherever the water can be obtained at a depth less than 100 feet.

Through Socorro from the western portion of Socorro County more than three million pounds of high grade wool passed during the year 1912.

An enormous coal field stretches for more than thirty-five miles along the river opposite Socorro.

The mountain immediately west of the city has in it deposits of white clay which are inexhaustible.

There is an an enormous deposit of natural cement in the foothills.

There is a bed of fire-clay in the same mountain that is practically inexhaustible.

Within six miles of the city lies a bed of hundreds of acres of the finest quality of Tripoli.

Fruits, such as apples, pears, peaches, plums, prunes, apricots, nectarines, grapes and cherries, grown in this valley rival the best California fruits in size, beauty and profusion of yield.

In temperature in summer it is rarely the case that the thermometer registers higher than 98 which in our dry atmosphere appears to be about equivalent to 80 in the

ACEQUIA—IRRIGATION DITCH AT SOCORRO

humid atmosphere of the East, and in winter it has but once in forty years gone lower than 5 below zero; in fact our average winter temperature for day time is about 58 above, with the nights probably 10 to 15 below that, and our nights are cool in summer.

Our hay and alfalfa lands yield four cuttings per year, averaging not less than four tons to the acre for the year, which sells f. o. b. cars here at from $10 to $14 per ton.

As for the grain crops, they yield bountifully and in many cases by a proper planting and harvest two crops per year can be taken off the same piece of land.

Socorro possesses two newspaper plants (one Spanish), an ice plant and brewery, a $50,000 court house, several large supply stores, two hotels, the State School of Mines, a garage, a flour mill, a lumber yard, a bank, and a considerable number of attractive residences.

For further information address, Secretary, Civic Club, or Secretary, Commercial Club, Socorro, New Mexico.

IN THE PLAZA AT SOCORRO

SAN MARCIAL

SAN MARCIAL is the second largest town of Socorro County and is an important railroad point. It is located in the southern part of the county near what was formerly a settlement of Piros Indians. These were driven out in the early days by the Jicarillas and Mescaleros, the same tribes which later harassed the white settlers. The city has passed through all the stages of development from an Indian pueblo to a Spanish settlement, a frontier cow town, a railroad town, and now is a hustling modern place.

San Marcial is a division point on the Santa Fe railroad, on whose main line it is. It has a roundhouse, car and engine repair shops, carpenter shops, blacksmith shops and all the equipment and staff for the headquarters of a busy division. The railroad payroll in San Marcial is well over $25,000, which is no inconsiderable figure for a town much larger than it. The town also has a flouring mill, electric light plant, electric street lights, good sidewalks, excellent schools and a number of churches of all denominations. Its population, including the tributary settlements of Old San Marcial and Valverde, is about 2,500.

San Marcial is the center of a rich agricultural country and great quantities of farm produce are sold or shipped there, while the farmers and ranchers for a large district do their buying there. It is also an important cattle-shipping point and supply point for the stock ranches in the more inaccessible parts of the county. San Marcial is only a short distance above the great Elephant Butte project and will be connected with it in commercial ways. All these things insure a sound basis for the prosperity of the community.

MAGDALENA—SOCORRO COUNTY

UPON the western slope of the range of mountains from which the county of Socorro takes its name, and not so far from the geographical center of that subdivision, is the City of Magdalena, a hustling, bustling community in which the West of the old days is re-echoed amid surroundings which inevitably bring to mind the West of the present days. Magdalena is a city of prosperity, for tributary to it are larger regions than those whose trade comes to any other city of the State.

The City of Magdalena was founded a good many years ago, exact figures being difficult to obtain. Anyhow, it was about 1884. It takes its name from a mountain nearby, which, in turn, was named "Magdalen" by a Spanish priest who discovered on its surface a formation of rock which he believed resembled the portraits of the Magdalen he had seen. This took place centuries ago, when the Spaniards were first settling New Mexico. To this day the great rock portrait is a point of interest to all visitors and is eagerly pointed out to them by the residents.

Magdalena has about 1,300 souls as residents and is continually entertaining a floating population of considerable size from the ranches and camps west and south. Magdalena is the nearest railroad point, and consequently the shipping and buying point, for an area some two hundred miles west and two hundred miles north and south. To her stockyards come at shipping time cattle from the Blue River, in Arizona, and from the remote ranges of the Mogollons. To her stores come ranchers from distances of two hundred miles and more to lay in their winter's supply of food, saddles, clothing, hats, hardware, cartridges and the like. As a ranch supply point, Magdalena takes first rank in the cities of the Southwest.

Then there is another matter, whose importance to Magdalena and indeed to the State is not less than the vast herds of cattle which for ninety days each year pour into Magdalena as into a funnel, to be turned here and there to feed the people of the eastern states. This other industry is wool growing. Closely allied with it is the growing of mutton for the market. Into Magdalena each shipping season, which varies a little but is generally in June or thereabouts, come long wagon trains of wool. This wool, packed tight in great sacks and loaded on big four-horse rigs, comes more than a hundred miles on the average. The clip of all the flocks on the whole great region of the San Augustin plains, which reach south into Sierra and Grant counties, comes to Magdalena for shipment. Magdalena is the largest original shipping point on the Santa Fe system in New Mexico. It is also the largest wool shipping point and the largest cattle shipping point in the State.

The city is on the direct line of the Ocean-to-Ocean highway and is visited each day by a number of automobile tourists on their way across the continent. These are much attracted by features of interest nearby, including the stone portrait of the Magdalen already mentioned, the salt lake which is within a day's ride and which so far has been visited by comparatively few white people, a coal outcrop which extends for twenty-five miles, yet upon which not a pick's stroke of work has been done, the mountain scenery, and other matters of appeal or beauty. The sportsmen visit Magdalena for the reason that the city is a gateway to regions where even yet the mountain lion can be shot, where bear are to be had for the effort, where deer are a common feature of a day's outing and where small game abounds. They outfit at Magdalena and then strike into the mountains. Naturally, the place prospers on their trade and because of the advertising each gives it, more are coming each year.

The city is probably the last stronghold of the old-time cattle baron, for it is the gateway to the last of the open range, and even that is beginning to be settled up. Here, constantly encroached upon by the settler who files on the running arroyos and little mountain streams, so depriving the cowman of his water, the cattleman is making his final stand. When this is gone cattle-raising will be reformed on this continent and will be as modernity would have it—a small settler raising a dozen or so of good cattle.

Yet it must not be thought from this that Magdalena is conservative or desirous of keeping to the old way of doing things. The change is coming and not only the citizens but most of the cattlemen realize it and are preparing for it. Magdalena is as progressive a little city as can be found. It is the home of the livest bunch of good roads boosters in the State, perhaps, certainly in northern New Mexico. It is a place of good schools, being noted everywhere for the high salaries paid its instructors. It is a place of churches, having four of different denominations, all well built and well cared for. The business houses are managed on modern and progressive lines, and the buildings they occupy, as well as the residences of the city, are modern and handsome. The water supply system is modern and the water excellent.

KELLY—SOCORRO COUNTY

KELLY is the source of the zinc carbonate which furnishes the base for most of the white paint used in this country. A branch railroad from the Santa Fe main line runs to Magdalena and Kelly, making the towns readily accessible from the main line.

Kelly was originally opened as a silver-lead camp, being first worked by white men in the early sixties. The ore in those days was reduced in primitive adobe furnaces or "vassos". remains of which still remain. Not much attention was paid to the lead feature, the silver content being the one sought after. The bullion obtained in this way was shipped, with the wool raised in the section, to St. Louis. Later ores from the Kelly district furnished material for a smelter at Socorro.

As the silver became more difficult to find more attention was paid to the lead and finally the camp was regarded as a lead producer entirely. Then came the time when certain products of the camp were sent to a Missouri smelter for reduction and word came back that the smelter would buy in any quantity the zinc carbonate which appeared with the other zinc ores in the shipment. That was the dawn of Kelly's second era of prosperity. Not long after, the Graphic mine, the backbone of the district, was sold to the Sherwin-Williams Paint Company. Other mines were also sold to people who had come to recognize the zinc values in the ore. Several mills and concentrating plants were built and for a number of years the district has been worked continuously, with resultant prosperity to the town of Kelly. The production of the camp has been estimated at close to $45,000,000 since its opening.

As an instance of the way the camp is regarded, the New Jersey Zinc Company, through its western subsidiary, the Empire Zinc Company, has purchased large holdings in the region, which it refuses to sell, and at the same time is not developing. Cash prices have been paid in each instance. As a further instance, the paint concern mentioned has acquired an immense acreage since it came into the district in 1904 and has been developing systematically, putting in modern machinery, etc.

Kelly is one of three zinc-producing camps of the Rocky Mountain region, Leadville, Colorado, and Butte, Montana, being the others. Kelly produced, until the Chino mines at Hurley began to send out heavy tonnage, over a third of the mineral production of the State, or about $1,250,000 annually.

The town has two churches, two good schools, an excellent water supply and some fine large stores.

AUTO ROAD THROUGH BLUE CANYON LOOKING TOWARD MAGDALENA AND KELLY

SAN ANTONIO—SOCORRO COUNTY

A PROSPEROUS town in Socorro County on the Atchison, Topeka & Santa Fe Railroad, 85 miles south of Albuquerque and 170 miles north of El Paso. Farm, stock raising, fruit and vegetable raising form the chief industries of the immediate surrounding country. The population, including nearby settlements, is 1,500. Altitude, 4,300 feet.

San Antonio is the fourth largest town in Socorro County.

Before the Civil War coal had been discovered ten miles east of San Antonio and the soldiers mined enough to supply the smithing needs of Forts Selden, Bayard and Stanton. Many interesting and romantic traditions are told of the days when the mule teams of the U. S. Army went to the outcrop of the coal at the present town of Carthage and dug coal. In 1881, at about the time that the Santa Fe Railroad was building a bridge across the river at this point to the mines at Carthage two six-mule teams belonging to the army which had been at Carthage for coal, were caught in the treacherous sands of the Rio Grande at this point and lost and the Government drivers with them narrowly escaped their sad fate.

In 1881 upon the completion of the bridge by the Santa Fe Railroad they built their road into the coal fields at Carthage and opened mines to supply their engines with coal. Upon refusal of Congress to issue patent for the Montoya Grant, of which their coal mines formed a part, they moved camp, houses, and everything to Madrid which for many years supplied their needs thereafter.

Coal operations at Carthage for the ensuing ten years were stopped but the enterprising citiezns of San Antonio soon opened new workings and, while operations were rendered more difficult on account of the removal of the Santa Fe of their branch road, they gradually induced capital to re-enter the field and a railroad was rebuilt upon the old grade under the name of the New Mexico Midland Railway.

Alfalfa, the great Ligume crop of the West, is produced here in large quantities and shipped to the remote corners of the State, 100 cars being shipped annually from this town.

Grapes, the quality of which was declared to be equal to that of the finest Champaign grapes of France, by William Hammel of the Illinois Brewing Company, of Socorro, an old viticulturist, can be and were at one time raised in abundance at San Pedro, a small village within two miles of San Antonio, on the east bank of the Rio Grande, 250 barrels of native wine being shipped from San Antonio in one year.

At San Antonio the banks of the Rio Grande are level at both sides and there are within six miles of San Antonio forty thousand acres of land that can be put under irrigation by gravity and pumping. There are now under cultivation four thousand acres within six miles of the town. There are five villages within five miles of San Antonio, Old and New San Antonio, half a mile apart, San Antonio to the south two miles, San Pedro across the river joined by bridge both for railroad and wagon travel. At San Pedro there are fifty or sixty families and homesteads have been taken up there within three miles of town within the last three years.

San Antonio is the center of a stock-raising country of which the largest dependent area is the Jornado del Muerto (Journey of Death) of the Spaniards, where the mule-drawn stage from Las Cruces to Santa Fe used to travel by stages of as much as sixty miles from water hole to water hole.

The plain lies between the mountains on the east and the river on the west and is one hundred and fifty miles long, stretching from the Armendarys Grant below Engle to the Manazno Mountains on the north, and thirty miles wide. Upon it graze ninety thousand head of cattle, and in the fringing ranges one hundred and twenty thousand head of sheep bring wealth to the country. Twenty-five thousand Angora Goats and one thousand horses range in this vast territory.

The Nogal Canon which extends from the town of San Antonio to its headwaters thirty miles west, runs through a box canyon with sides ranging from three hundred to one thousand feet high perpendicularly, and while it furnishes mountain scenery serves the more economic purpose of San Antonio's water supply, the underflow from this stream equalling the 99.99% pure of Deming.

The town of San Antonio has a school in charge of two competent teachers, (San Antonito has its school in charge of two teachers) and San Pedro has a school in charge of one teacher all in the employ of the educational department of the State which demands certificates obtainable only by examination under the State school law.

One of the largest Catholic congregations in the county is located here under the direction of Father Pelzer.

NEW MEXICO STATE SCHOOL OF MINES

BY FAYETTE A. JONES, PRESIDENT

THE New Mexico State School of Mines was founded by Act of the Legislature of 1889. The Act provided for the support of the school by an annual tax of one-fifth of a mill on all taxable property.

Under an Act of the Legislature, approved February 28, 1891, a board of trustees was appointed. Organization was effected and immediate steps were taken towards the erection of necessary buildings. In the same year a special appropriation of $4,000 was made for the partial equipment of the chemical and metallurgical laboratories.

Early in 1892 a circular of information regarding the New Mexico School of Mines at Socorro, New Mexico, was issued by the board of trustees. In this circular the aims were fully set forth. The following year a president was chosen and students in chemistry were admitted; but it was not until the autumn of 1895 that the mining school was really opened.

In 1893 a second special appropriation of $31,420 was made to enable the School of Mines to be organized in accordance with the policy outlined by the Act creating the institution.

By Act of Congress, approved June 21, 1895, the New Mexico School of Mines received for its share of certain grants of land fifty thousand acres for its support and maintenance. From this source of revenue the School has already received more than $17,000.

In 1899 the Legislature increased the former levy of one-fifth of a mill to twenty-seven and one-half one-hundredths of a mill.

In 1901 the Thirty-fourth General Assembly recognized the growing importance of the school by further increasing the tax levy to thirty-three one-hundredths of a mill. It also authorized the bonding of any portion of the grants of lands in order to more thoroughly equip the school with buildings and apparatus.

In 1903 the Thirty-fifth General Assembly raised the millage to forty-five one-hundredths of a mill. This, with greatly increased assessed valuation of property, doubled the income of the school over that of the previous year.

Since 1903 the appropriation for the support and main-

GEOLOGICAL AND MINERALOGICAL MUSEUM

tenance of the School of Mines has been increased at each session of the General Assembly. At the first session of the State Legislature the appropriation was raised to $22,500 a year.

By the terms of the Enabling Act under which New Mexico was admitted to statehood, the School of Mines becomes possessed of 150,000 acres of land. Most of this land has now been selected and will soon become the source of a very considerable revenue to the institution.

The New Mexico State School of Mines is located at Socorro, the county seat of Socorro County, on the main line of the Atchison, Topeka and Santa Fe railway, 75 miles south of Albuquerque, and 180 miles north of El Paso. The Magdalena branch of the Santa Fe railway starts from this place.

Socorro is situated in the valley of the Rio Grande at the foot of the Socorro range of mountains at an elevation of 4,600 feet above the level of the sea. The surrounding scenery is diversified by plains, valleys, mesas, hills, and mountains. The climate of the locality is pre-eminently pleasant and healthful, and has long attracted health-seekers who would escape the rigors of less favored localities. The air is exceedingly dry and the temperature is mild and equable. Socorro's public water supply comes from warm springs that issue from Socorro mountain three miles away. The water is famed for its purity and has always been an attraction to visitors and residents.

The ground immediately adjacent to the School of Mines includes irrigable land, plateaus and mountain formations, all affording an excellent field for practice in surveying, the laying out of railroads and irrigating canals, topography, mine engineering and geology, so that students can be prepared at the very door of the school in those branches which usually require tedious excursions from most other schools. Almost the entire geological column is here exposed.

The New Mexico State School of Mines enjoys the natural advantage of being located in the midst of a region peculiarly rich in minerals of nearly all kinds, and is within easy reach of the most varied geological conditions, all of which are within a radius of thirty or forty miles of Socorro. The industrial processes connected with mining and metallurgy may be seen admirably illustrated at Magdalena, Kelly, Rosedale, San Pedro, Hillsboro, Deming, Fierro, Silver City, Pinos Altos, Santa Rita, Burro mountains, Los Cerrillos, Dawson, Gallup, Carthage, and elsewhere within easy reach of the school. These illustrate the most modern methods of mining, milling, ore-dressing, concentrating, lixiviation, cyaniding, and other metallurgical processes.

A number of mines of various kinds, smelters, irrigating systems, and other engineering works are accessible to the school. Within a few hours' ride by rail are many important mining camps. The longer excursions bring the student to some of the most famous mines in southwestern United States. Some of the oldest worked lodes in America are in this region. Gold and turquoise were first noted by the conquistadores in 1540-2 by the celebrated expedition of Francisco Vasquez Coronado, when in search of the Gran Quivira, one of the seven cities of Cibola. The first modern discovery of gold in New Mexico was made at the base of the Ortiz mountains, in Santa Fe County, in the year 1828. The first copper mined west of the Mississippi river was at Santa Rita in Grant County, in 1800. The metal from these copper mines was transported on the backs of burros to Mexico City and thence sent to the royal mint of Spain to be made into coin. The Chino Copper Company now operates these celebrated mines. Among the great wonders of the West are the ancient turquoise workings at Mount Chalchihuitl near Los Cerrillos. An ancient lode mine, known as Mina del Tierra, is situated near the ancient turquoise workings. Verily, New Mexico is the birthplace of American mining.

The history of modern mining schools shows that each becomes most celebrated along the line for which its locality is best known on account of its natural surroundings. Few institutions of learning are more dependent for success upon what may be called the accident of geographical location. It may be truthfully said that no mining school is more fortunately situated so far as natural environment is concerned than that of New Mexico.

The ideal to which the New Mexico School of Mines tenaciously holds is the practical directing of young men to take active part in the development of the mineral wealth of the world.

The school is a state institution. It was established primarily to promote the development of the mineral resources of New Mexico and to provide facilities for the young men of the State to secure a practical education in all departments of mining. Naturally, however, the institution's field of usefulness has steadily grown broader. Not only New Mexico but also other parts of the Southwest have felt its influence through its graduates in the development of the mining industries of this great region. Moreover, a considerable number of students from other parts of the country who desired to avail themselves of the peculiar advantages of this region have come to the School of Mines

for the training they needed and the number of such young men is constantly increasing.

During the entire period of his training the fact is impressed upon the mind of the student that intelligent mining is a business operation capable of being put on as secure a foundation as any other; that from beginning to end it is akin to all other great business undertakings. While lucky finds will doubtless continue to be made, mining is no longer to be considered a mere lottery appealing to the gambling propensities.

During the past quarter of a century the development of the mineral wealth of the nation has been phenomenal and the calls for adequately prepared young men to direct mining enterprises in all their various ramifications have been rapidly increasing.

Several features contribute to the success of this institution as a school of mines:

The unique natural surroundings of the school already described create an invigorating mining atmosphere which is entirely wanting in institutions remote from the mines and mountains.

In the training offered by the school there is noteworthy concentration of effort. There are many advantages in the direction of effort along few lines. In contrast with the many diversions that necessarily exist in those technical institutions of learning where all practical branches are equally represented, singleness of purpose is a leading feature of the New Mexico State School of Mines. The conservation of energy growing out of the special method of instruction happily adapts the student so that he gets the most out of his efforts.

The student is required as an integral part of his course to visit and critically inspect, under the direct supervision of his instructors, various plants and works and to make intelligent reports. Being obliged from the start to make the most of the exceptional opportunities presented, he quickly falls into the spirit of his present and future work and at once necessarily acquires for his chosen profession a sympathy that is seldom attained, except after school days are over and after long and strenuous effort.

Being within short distances of mines and smelters, the student has the opportunity of finding regular employment during his vacation and of acquiring desirable experience in practical work.

The field for scientific research in New Mexico is unrivalled and the opportunities here offered are not neglected in the plan and scope of instruction. New Mexico, so far as concerns the mountainous portions, which comprise about two-thirds of its area and are nearly all mineral-bearing, is perhaps less known geologically than any other section of the United States. A little study of the plateau region of the northwestern portion of the State has been made by the United States Geological Survey, but only in a general

LABORATORY—STATE SCHOOL OF MINES

way. No attempt has ever been made under government auspices to investigate closely the geological structure of New Mexico mountains such as have been carried out in the other Rocky Mountain states, or to study the conditions of New Mexican mineral deposits, as has been done in Colorado by Emmons, in Nevada by Curtis, in California by Becker, and in other states by other distinguished investigators.

Much of the advanced professional work of the school is of an original nature to the end that the graduates may be skilled, theoretically and practically, in the very problems which they as professional men will be called upon to solve. This work is carried on by the advanced students under the direction of the professors and involves the collection of notes, sketches, maps, and specimens, and the results of directed observations in all matters relating to the sciences and arts embraced in the courses of study. The subjects for such researches in geology and mining and in the reduction of the ores of lead, silver, gold, copper. and zinc are so numerous that it is impossible to do more here than to mention the fact that the conditions of climate, drainage, water-supply, and geological structure in New Mexico differ greatly from the conditions existing in other parts of the Rocky Mountains, thus giving rise to new problems in practice. These problems are not by any means all that deserve attention. The investigators of the

ores of iron, manganese, aluminum, cobalt, nickel, tin, and quicksilver, vanadium, and uranium, together with the beds of coal, salt, alum, building stones, mineral-paints, cement-rocks, marls, etc., are directly in line with the advanced laboratory work of the school, and every student who undertakes such work is encouraged in every possible way to accomplish the best results.

The general management of the New Mexico State School of Mines is vested in a Board of Regents consisting of five members appointed by the Governor of the State with the concurrence of the Senate for a term of four years. The board of regents elects a president from its members and also a secretary and treasurer. The appointment of a president of the faculty of the school is also made by them, as well as the selecting of a teaching staff.

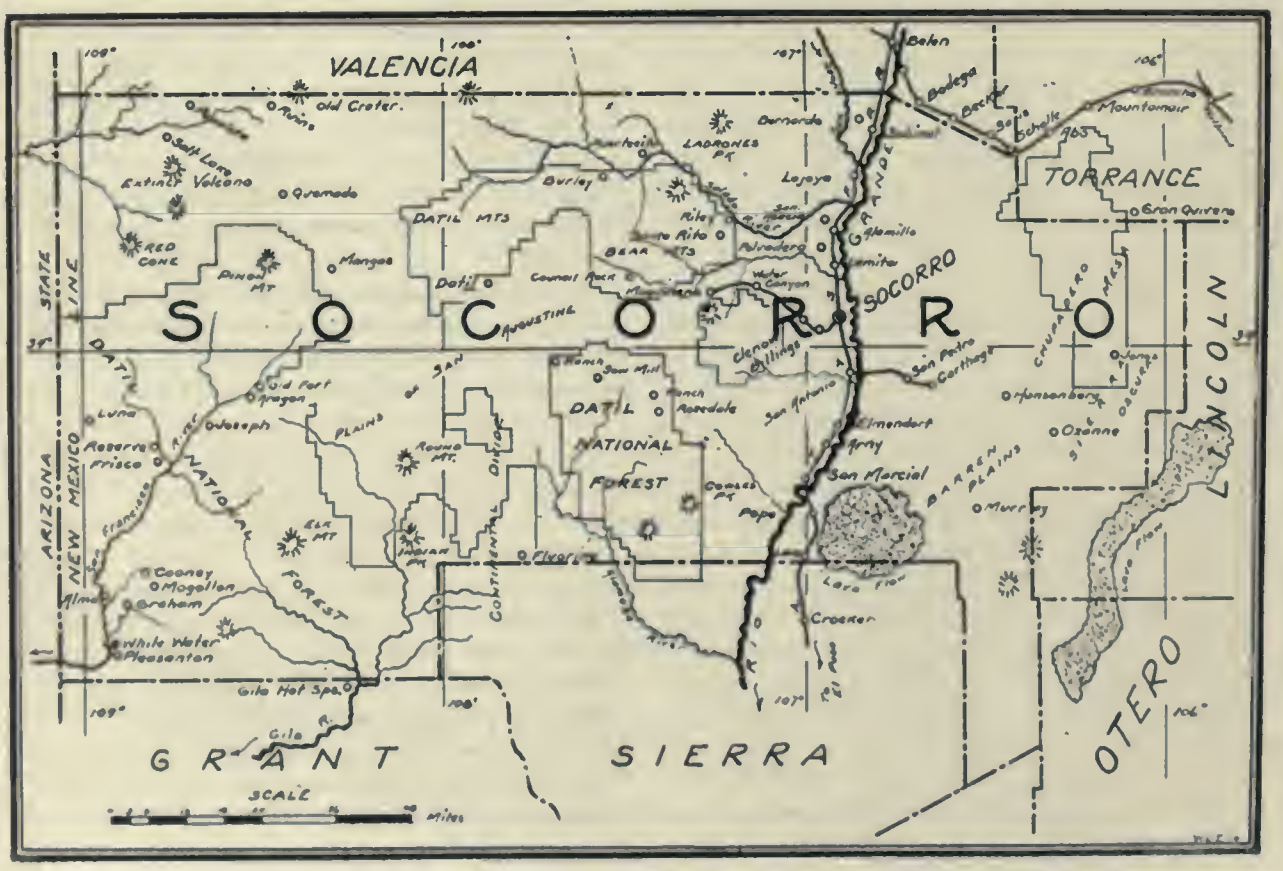
Any graduate from any recognized high school or academy of standing in any of the states of the Union will be admitted to the institution without examination. This prerequisite is necessary for all students expecting to take the full course of instruction leading to a degree.

Students desiring to take special courses without a view to graduation may do so provided they give evidence of proficiency in the prerequisite subjects and that their taking such courses does not interfere with the regular schedule of classes.

The curricula of the college are planned especially to meet the needs of students intending to engage in mining or metallurgical industries, in mine-experting or in surveying mines and mining lands. Accordingly, curricula are offered in the following:

Mining Engineering.
Metallurgical Engineering.
Geological Engineering.
Civil Engineering.

Each curriculum covers four years. Upon the satisfactory completion of either of them the bachelor's degree is given. The master's degree is conferred upon graduates of the School of Mines who have spent two years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.



GRANT COUNTY

BY E. WOODHULL

OF all the newer and less developed portions of the Southwest, Grant County, New Mexico, offers an unusually varied assortment of attractions to the prospective resident. This is due in part to the vast extent of the county, which in area equals the State of New Jersey, and in part to the irregular topography, the altitude varying from 2,500 to 8,000 feet, but most largely to its endowment by nature with a matchless climate, fertile soil and untold wealth of minerals of many kinds. Grant County merits the careful consideration of the man or woman who feels capable of meeting conditions somewhat out of the ordinary and who wishes to reap the rich rewards of the pioneer. The vast domain which constitutes Grant County is almost wholly undeveloped: its problems are still largely unsolved. To the man of originality and adaptability, backed by some daring and a good deal of perseverance, who is willing to face the problems of a new country, this portion of the southwest offers wonderful opportunities. There is very little of the sure thing about this country, but to the right man the rewards are enormous. The West is not the place for the individual who fears to take a chance and it should be avoided by the luxury loving, the conventional and the lazy.

Grant County has something to offer the healthseeker, the miner, the farmer, the fruitgrower, the stockman, the tourist and the sportsman. Healthseeker is placed at the head of the list for the reason that health is the biggest thing that Grant County has to offer. The climate of Grant

PANORAMA VIEW SILVER CITY—COUNTY SEAT GRANT COUNTY

County, while attractive all the year to the healthy, is a necessity to the person threatened with or suffering from the diseases of cooped up humanity, particularly tuberculosis. Offer a man vigorous health for a disease racked

SCENE ON GILA RIVER—GRANT COUNTY

body and matters of employment become of secondary consideration. With health he can turn to any one of several vocations and achieve success. Grant County makes its first and strongest appeal through its healthgiving climate, as to the matchless value of which there can be no question,

IN THE HILLS OF GRANT COUNTY

and it adds to this many others which offer to the man who has acquired some degree of health the means of making a living if not a competence.

These remarks apply more particularly to what Grant County has to offer aside from its great basic resource—the minerals. No county of any State in the Union can show anything like the varied mineral wealth that is to be found within the confines of Grant County. No county can show producing mines of as many different kinds nor as vast an extent of highly mineralized country. Nor is there any portion of the United States where the mineral wealth still remains in so nearly a virgin condition. There are in Grant County producing mines of copper, gold, silver, zinc, lead and iron, and known deposits of aluminum, vanadium, turquiose and others not as yet being worked. When it is taken into consideration that there is not a shaft in Grant County over 1,000 feet deep, and that the merest fraction of known mineralized areas is being mined commercially, the future of Grant County in mining can only be surmised at best. Aside from what this means to the mining man, is the important fact that this basic in-

IN THE GILA NATIONAL FOREST—GRANT COUNTY

dustry of mining, still in its veriest infancy, means a nearby market and a good market for all products of the soil, and added opportunities for the man who wishes to engage in the healthiest of all occupations in the healthiest of all climates in the world.

In common with other portions of the Southwest, the great drawback of Grant County, from an agricultural standpoint, is lack of moisture. The average annual rainfall varies from nine inches in the lower plains secttion to fourteen inches at Silver City, in the foothills, and up to twenty inches in the mountain sections. While fourteen inches of rain has been made to produce dry farm crops in some parts of the United States it will do so only in especially favorable years here where evaporation is greater and the rainfall is distributed throughout the

twelve months and not held by frost or as snow. The rainfall is sufficient to produce a growth of grass suitable for pasture, and this has been utilized for years until further development along this line, unless accompanied by the production of fodder, must be small. Outside the comparatively small areas where running water is available for irrigation, the problem of utilizing these vast stretches of fertile soil for the production of paying crops, is the one upon which depends the agricultural future of Grant County. It is needless to say that a fortune awaits the man or woman who solves the problem.

Nestled in the valleys where water can be secured by pumping are to be found numerous small ranch homes where a few acres are made to produce a living revenue and the number of these increases year by year. Many of the owners are those who were drawn here by the desire to secure the advantages of the healthful climate. The room for ranch development is practically unlimited and the cost largely that of building the house, digging the well and equipping with stock and implements. The returns in money from such a place cannot be expected to be large: they must be measured in freedom, in comfort and in health.

The area of Grant County is 7,428 square miles or 4,653,920 acres. While a small amount of this is precipitous there is scarcely an acre of it which is absolutely barren. The steep mountains produce timber and pasturage, the lower mountains are covered with a dense growth of scrub which is excellent browse for the Angora goat, and the level stretches produce hay and pasturage. Along the two rivers where running water is obtainable for irrigation, stretch farms and orchards returning their owners, by reason of their remoteness from strictly agricultural districts, a handsome yearly revenue. As the population of Grant County averages only two persons to the square mile, and at least half the people are in the towns and villages, it can be seen what wonderful room for settlement exists.

Grant County sits astride the backbone of the continent. From the northern portion of the county, which is mountainous, flow two streams of considerable size. The Gila on the west side flows in a southwesterly direction into the Gulf of California, and the Mimbres, rising in the Black Range, flows south and would eventually reach the Rio Grande and the Gulf of Mexico were it not for the fact that before it reaches the county boundary it disappears beneath the surface. Both these streams furnish water for irrigation and it is along them that the only real farming in Grant County is done. The southern half of the county is a comparatively level plateau, lying at an altitude of approximately 4,000 feet and broken by occasional peaks. This section is one vast cattle range with the exception of the Animas valley, where because of the presence of shallow water, irrigation by pumping is practiced and will eventually turn the district into a farming and fruit-growing country.

This county occupies the southwestern corner of New Mexico extending for 130 miles north from the boundary of Mexico and from 50 to 75 miles east of the boundary

SILVER CITY YUCCA GARDEN

of Arizona. It is traversed in its southern part by the main line of the El Paso & Southwestern Railroad and through its center by the Southern Pacific. The Silver City branch of the Santa Fe enters the northern half of the county and has its terminus at Silver City, the county seat. A branch of this system extends into the copper and iron mining section which centers around Santa Rita and Fierro. The El Paso & Southwestern has running rights over the Silver City branch as far as Whitewater, from which point it has recently completed the construction of a line to its immense copper holdings in the Burro Mountains.

Extending to within about six miles of Silver City on

the north and covering the greater part of this northern section of the county is the Gila National Forest. The incorporation of so great a stretch of territory within a National Forest might be assumed to be a detriment but such is not the case. The United States government simply takes charge of this land and prevents the foolish waste of the timber, by selling at a nominal figure only matured trees and seeing that in logging the timber the buyer does not destroy the new growth nor imperil the whole by leaving the slashing as fuel for forest fires. The government allots the pasturage and while protecting each stockman from intrusion by outsiders does not allow the rancher himself to overstock and thus destroy his range. The grazing fee of 35 cents per head for cattle per year is not considered exhorbitant.

Lands within the National Forest are not withdrawn from settlement, but no one is allowed to grab valuable timber by locating a homestead upon it, as has been done in other states. A tract of land that is more valuable for agriculture than for timber can be homesteaded in the usual way even in the forest. Such a homestead, however, is not allowed to include any timber land. An estimate by government experts places the amount of timber on the Gila Forest at eight billion feet. This timber, owing to the control of the government, will increase in value from year to year and be a constant source of wealth.

This northern portion of Grant County, mountainous and timbered and traversed by sparkling streams, constitutes a vast sportsman's paradise. Deer are to be found in large numbers and wild turkey are quite abundant. Bear, wolves, and mountain lion as well as smaller animals, are to be found, while the streams afford the delicious and gamy mountain trout. The climate is such at almost all times of the year as to make camp life a joy in itself and it is this combination rather than the abundance of game that makes this particular section so admirably suited to the real sportsman,—the man who goes into the hills for recreation rather than the slaughter of game. The popular custom with the residents of this part of the country, who consider a few weeks' hunting in the fall as almost a necessity of existence, is to take the wife and children along. The journey in and out on horse or burro back, the feasting on venison and fish, the life in the open, miles from any human being, constitutes an outing that as a health and energy producer cannot be equalled. Silver City is the gateway to the hunting and fishing country and capable guides can be secured there as well as horses and other paraphernalia necessary. A trip into the Upper Gila country need not be expensive and it would undoubt-

CAMP LIFE IN THE MOUNTAINS OF GRANT COUNTY

edly prove a revelation to many who have tried the better known outing resorts of the continent.

Scattered throughout the Upper Gila country are to be found numerous relics of prehistoric peoples, particularly the cliff dwellers, those interesting people who carved their homes in the cliffs, and to the person interested this section embraces one of the less visited fields for study and one where conditions are always climatically pleasing.

Grant County has been called "The Treasure Vault of New Mexico," and this very aptly describes the wonderful wealth which lies locked in these mounatins. It was the minerals that attracted the Spaniards to these parts three hundred years ago and it was the same thing which caused the hardy pioneers to brave the attacks of the savage Indians and the dangers of an unknown country. They were rewarded in gold, silver and precious stones.

The low grade deposits of copper, silver, zinc, lead and iron which the earlier explorers had to pass by as useless to them, have become, with modern methods of mining and cheaper transportation, the attractive mining features. Of these the Chino Company which is described elsewhere is the greatest example to be found in Grant County. Within five miles of the Chino are producing mines of iron, zinc, gold and lead and over vast stretches of ground where these minerals are found in combination are millions upon millions of tons of ore only awaiting a method of separation which will secure to the miner the values of all the constituents. Once this problem is solved this mineral zone, roughly speaking, 25 miles long by five wide, will become one vast mine. In the meantime operations are confined to those places where the minerals are found in simpler combinations. At Fierro the Colorado Fuel & Iron Company has been for many years cutting down and shipping to Pueblo, Colo., what is practically a mountain of iron ore. At Hanover the Empire Zinc Company operates a property in which this mineral predominates. In this neighborhood are mines which have gold as their chief product. Adjoining the Chino on the southern side are mines where vanadium and lead are the values.

The Pinos Altos district which lies six miles north of Silver City is one of the oldest camps in the county and has passed through various ups and downs to become today one of the most important in the whole district. Pinos Altos started as a placer gold camp and later, when deeper mining was undertaken, produced many rich pockets of gold, and is still producing them. In addition to the gold there are mines within a radius of a few miles which produce almost pure native silver and others in which the greater values are in zinc.

West of Silver City, extending from the city limits a distance of 15 miles, is a section that has produced about $6,000,000 in silver. Chloride Flat, lying within half a

OUTDOOR LIFE IN GRANT COUNTY

mile of the town, was the most famous producer of this group. The mining here has been superficial in spite of the enormous amount taken out. The ore was found in pockets and the camp has been quiescent for several years. Practical miners believe that were the ground opened to the second limestone contact richer ore than was found on the first contact would be revealed with values probably changing to gold. Even should this not be true, Chloride Flat, like so many other supposedly "dead" camps, will no doubt witness a grand revival. The silver country seems to extend west of Silver City as far as Black Hawk, which was a famous producer in days gone by.

The Burro Mountain district was brought into prominence by the turquoise mines there. It is now a copper camp. The mineralized area so far as proven, covers about seven square miles of country. The Phelps-Dodge Company this year completed a branch line of railroad into the Burros and is erecting there a 1,000 ton mill to handle the output of its mines.

The southerly portion of the Burros is a silver and gold country with mines which in the past have been producers and which will surely enter the producing class again.

Tributary to Lordsburg, a thriving town on the Southern Pacific railroad, is the Shakespeare mining district containing the famous 85 and other producing mines. The values here are largely copper. Sixteen miles southwest of Lordsburg the Stiens district has mines of gold and copper and ores of various kinds have been found in the wide sweep of the county extending to the international boundary.

About 45 miles west of Silver City, on the western boundary of the county, is the Carlisle district named from a famous old mine which produced its millions in gold many years ago. Undoubtedly this section will witness a revival since low grade ores in large quantities exist there over a wide range of country.

Northeast of Silver City about 45 miles is a huge deposit of aluminum oxide which will some day be made a source of this metal. Not far distant deposits of meerschaum have been worked and will receive further attention in the future.

The possibility of developing a large amount of power on the Gila River some thirty miles from Silver City has been proven and this will have an important bearing on the future of mining in all this section.

To give an adequate idea of even the extent of the mineral-bearing zones in Grant County is an impossibility in an article of this length but possibly enough has been said to indicate to those interested that there exists here a county of unusual possibilities and one well worthy of investigation.

Finally, it should be emphasized that Grant County

MOUNTAIN CLIMBING IN GRANT COUNTY

possesses a wonderfully "liveable" climate; that to the man in search of help to fight tuberculosis it is the best obtainable; that to the prospect of health it adds a world of varied opportunity for wealth.

SILVER CITY, COUNTY SEAT, GRANT COUNTY

IN THE late 70's and early 80's Silver City was the most flourishing city in New Mexico. From Chloride Flat, half a mile away, Black Hawk, 12 miles west, and Georgetown, 20 miles east, big companies were taking out fabulous quantities of silver while hundreds of small miners working on their own claims were turning in "platas" of silver to the banks and stores. On the slopes of the Pinos Altos mountains, six miles north, rich gold placers were putting men on easy street every day. Common miners were drawing $10 per day as wages. The population having been so largely drawn from the ranks of the most daring and the most reckless in the whole country the result can be imagined. One famous old saloon employed an orchestra imported from San Francisco which cost $1,000 per month and three shifts of eight bartenders each were required to serve the thirsty. The big gambling games, with stacks of gold and silver coin on the tables, never ceased from one week's end to another. As every man carried a gun killings were as frequent as other crimes were scarce.

Conditions of this kind seldom last very long. The superficial but exceedingly rich deposits of silver were soon exhausted and the placers worked out. When silver slumped in price the ruin was almost complete and it looked as though Silver City would soon be little more than a name. Georgetown, Black Hawk and Chloride Flat are today without activity although large deposits of silver ores still exist in all three places.

In the meantime the gold at Mogollon and Pinos Altos, the copper and turquoise in the Burro Mountains, the copper at Santa Rita, the iron at Fierro and the zinc at Hanover were attracting capital from all over the country, and the stock raising industry, which was yearly becoming more extensive and more profitable, kept Silver City from fading away as so many western mining camps have done. Still another factor was already exerting its influence in keeping Silver City alive. This was the climate. Among the earlier residents were a number of those who had come west because they were doomed to die of tuberculosis and their physicians recommended the west as the last desperate chance. Many of these people recovered in this marvellous climate and formed the neucleus of a population that was permanent whether times were good or not. The ideal all-the-year climate attracted others, not healthseekers, and thus the town during its years of depression maintained its existence and even grew in quite a substantial manner.

With resources of such a varied and desirable character behind it, Silver City quickly recovered from the depression following the lurid days of its early history, and

PANORAMA VIEW COTTAGE SANATORIUM—SILVER CITY'S HEALTH COLONY

from that time to the present its development has been steady and of the permanent kind that denotes solidarity. Today Silver City is a modern town of four thousand people. It has fine institutions of learning and churches,

HIGH SCHOOL BUILDING AT SILVER CITY

electric current for light and power, waterworks, sewers, and is now paving the main business streets with concrete.

As an indication of the financial standing of the town it may be mentioned that it has three thriving banks. The Silver City National, the oldest banking institution, with a capital of $50,000, has a surplus of over $100,000 and deposits of over a million. The American National, also with a capital of $50,000, has a surplus of over $50,000 and deposits exceeding $800,000. The recently organized Peoples Savings Bank and Trust Company has a capital of $100,000 and is already a factor in the business life of the community.

There are two things which distinguish Silver City from the thousands of other towns of about the same size: its unusual climate and the cosmopolitan character of its people.

Wide stretches of the Southwest are known to be favorable in the treatment of tuberculosis but there is not one spot in this whole vast region that has a climate so perfectly adapted to the cure of the white plague as Silver City. Every one of the climatic factors so important in the cure of tuberculosis are found in combination in the climate of Silver City and found throughout twelve months of every year.

Silver City has just the degree of altitude necessary to give the maximum aid to the consumptive. It has as much dryness as is possible without destroying vegetation to the point where dust storms are possible. It has more sunshine than any other health resort in the world. What is of the utmost importance it enjoys summer weather absolutely devoid of those extremes of heat so deadly to sufferers from tuberculosis. The winters are mild and bright and yet cold enough to lend snap and vigor to the constitution and to generate the life-giving appetite for fattening foods. Residents of the north may prefer to spend a winter vacation in the tropics or semi-tropics, but such a climate is not the place for the person engaged in a life and death struggle with tuberculosis. In addition, Silver City is so located among the foothills of the mountains that it is afforded unusual protection from high winds, a feature too often overlooked in seeking a climate for the health-seeker.

The unusual excellence of the Silver City climate was first noted by the experts of a government commission seeking a location for a sanatorium for the tuberculosis sufferers in the U. S. Army. They chose Fort Bayard, an old army post near Silver City, as possessing the most perfect climate to be found in the country. Their finding was corroborated by the sick reports from this station which were invariably lower than from any other place where soldiers were stationed. Fort Bayard was selected as the site for the sanatorium and after several years trial proved its worth so conclusively that over a million dollars

SILVER CITY BUNGALOW

have been spent upon it, and it is today the largest and most successful institution of its kind in the world.

As a result of its early history and the fact that its climate attracts the wealthy and cultured from all parts of the world the people of Silver City are cosmopolitan and

metropolitan to an unusual degree. This is reflected in the business and professional men of the town, many of whom left prominent positions to seek health and having found it, settled down contentedly where the climate is always sa-

SILVER CITY RESIDENCE

lubrious and where prospects for the future are as promising as anywhere in the broad expanse of these United States.

Silver City is the location of one of New Mexico's most important state institutions of learning, the New Mexico Normal School. Founded in 1894 the school early established a reputation for the completeness and thoroughness of its teaching, a reputation that has broadened as the years went by. Dr. C. M. Light, who has been president since the founding of the school, resigned last year and was succeeded by Prof. E. L. Enloe, who had been assistant president. Three principal courses are maintained; the professional, which covers six years and includes the regular high school course; the academic, covering four years and fitting students for the university; the business course, which includes bookkeeping and stenography. The Training School includes work from the kindergarten up to the eighth grade. The Summer School which lasts for eight weeks is especially for teachers although much of the academic work is covered. A correspondence department is also maintained. A faculty of fourteen is required.

The institution is centrally located in Silver City on a campus of twenty acres and the principal buildings number five. The main building is three stories in height and contains in addition to class rooms, the offices and library. The Girls' Dormitory is a commodious building with parlors, dining room, kitchen, laundry, etc. In addition to this are the training school, the manual training department and the gymnasium. The total value of the property of the institution is over $60,000.

The pioneer institution for the treatment of tuberculosis in Silver City is St. Joseph's Sanatorium, conducted by the Sisters of Mercy. St. Joseph's is pleasantly located on an eminence in the western part of the town and is admirably situated to secure protection by the nearby mountains. The main building is so constructed that the rooms front on wide porches in two directions thus affording the patient a choice according to the weather so that he may be out of doors in comfort the year around. The rooms are furnished with view to the entire comfort of the patient. For those prefering it, separate cottages are available. There is a separate infirmary for febrile cases.

Dr. Oliver T. Hyde, medical director of the institution, has had a very wide experience in tuberculosis and has made a splendid record in St. Joseph's.

St. Joseph's offers an opportunity of securing all the advantages of the matchless Silver City climate under conditions which give the sufferer every possible chance of recovery. There is expert medical care and advice, accommodations of high class adapted to the purpose in view, careful nursing and selected food, all under the supervision of members of an order who has devoted their lives to this work.

The Academy of Our Lady of Lourdes is Silver City's one private educational institution. It is one which the citizens very generally are proud to possess and glad to

SILVER CITY'S PROPOSED NEW HOTEL

recommend. The buildings are admirably located and commodious and the instruction given is efficient and thorough. Aside from general education high class instruction is given in music, languages and art, as well as fancy work and lace making. The musical department includes

instruction on the piano, organ, and stringed instruments and the art department offers instruction in all branches of painting and drawing. In combination with the healthful and pleasant winter and summer climate of Silver City the Academy of Our Lady of Lourdes is a most excellent place for girls and young ladies.

The Silver City Hotel Company, comprised mostly of local capitalists, is erecting a beautiful, four-story tourist hotel. In addition to the one hundred guest rooms, one-half of which are fitted with private bath, are ornamental screened sleeping porches to add to the comfort of the guests. The lobby, which will in a social way as well as political and otherwise, be the center of Grant County, is large and spacious and of a decorative plaster finish. Just to the back of the lobby and raised a few steps is the beautifully appointed dining room. The mezzanine floor above the lobby is devoted to parlors, rest room, writing rooms and sample room. In addition to the many attractive features of the hotel proper, the entire roof is one large roof garden.

NEW MEXICO COTTAGE SANATORIUM
SILVER CITY, NEW MEXICO

AT Silver City, New Mexico, there is located one of the best and most thoroughly equipped institutions for the treatment of tuberculosis to be found in North America. Situated in a superb climate—where the summers are cool and the winters moderate; there being an average of over three hundred days of sunshine in each year—is The New Mexico Cottage Sanatorium. It is, as its name suggests, a "cottage" institution. The cottages consist of three kind: frame, with screened-in porches, containing baths and toilets; cement, or stucco; and tent. They are built around courts or plazas, and so constructed that the ventilation is perfect. While it costs more to administer a sanatorium built on the lines of individual cottages, experience has shown that patients are happier and more comfortable in "homes" of their own, and this happy spirit tends to securing better results.

The general scheme of architecture of the institution is that famous throughout the Southwest as "Old Mission". The buildings — Founder's House; the Elizabeth D. Lowrie Memorial Administration; the Anne Thomson Infirmary; the Woodville Memorial Pavilion; the Aubrey Ferrall Lee Memorial—are of cement construction, and from these units the institution spreads itself out in a beautiful valley so surrounded by hills and mountains that there is an entire absence of dust storms which are a disagreeable feature in many places in the Southwest. An abundant supply of pure mountain water—free from alkali; a fine herd of tuberculin tested Holstein, Durham, Jersey and Guernsey cows; a cold storage and refrigerating plant; a complete system of sewage; an incinerator for the disposal of sputum, are evidences of the thoroughness and completeness of the equipment from the sanitary and business point of view.

The medical end is under the direction of one of the most competent, painstaking and conscientious specialists in the treatment of tuberculosis. A victim of the disease himself—from which he made a complete recovery in this climate seventeen years ago—he understands in an unusual degree the peculiarities of, and the perplexities and trials that confront the average patient. His rare sympathy; his kind and genial nature, and his splendid medical judgment, combine to make a stay under his excellent care a joyful rather than an irksome experience.

All the scientific methods of treatment which have proven their usefulness are employed. These include tuberculin, which is administered in selected cases, and artificial pneumothorax, or compression of the lung by means of nitrogen gas, used in patients in whom this form of treatment is indicated. A complete X-ray apparatus, and a laboratory, where many problems connected with the

A CORNER OF THE COTTAGE SANATORIUM.

disease are worked out, adds to the scientific end of the work and is an assurance and guaranty to the patient that everything connected with his welfare has been supplied by the management.

LORDSBURG—GRANT COUNTY

LORDSBURG is situated in the southwestern part of New Mexico, in Grant County. It is the junction of the Southern Pacific and the Arizona & New Mexico railroads. Over the Arizona & New Mexico road it has connection with the El Paso & Southwestern system at Hachita, in the same county, forty miles to the southeast. Thus it has the advantage of connection with the two big railroad systems of the Southwest.

Lordsburg is a division point on the Southern Pacific, the division east extending to El Paso, Texas, and west to Tucson, Arizona. It has a large railroad population, consisting of the trainmen working on both divisions and the shopmen and repairmen needed by the company here.

Lordsburg is on other important lines of travel. It is a station on the Borderland Route, the great automobile highway leading from Dodge City, Kansas, on the Santa Fe trail, through northwestern Texas, into New Mexico at Roswell, to El Paso, Texas, Lordsburg and Rodeo, New Mexico, to Douglas, Phoenix and Yuma, Arizona, and then through Southern California to San Diego and other California points.

Lordsburg is also on the Southern Transcontinental automobile route, which extends from Washington, through the southern states, joins the Borderland route at Roswell, follows it to Lordsburg, where it forks, and goes down the valley of the Gila river, through Duncan, Clifton, Solomonsville, Safford, Globe, the Roosevelt dam, to Phoenix, where it again joins the Borderland route.

Lordsburg has a daily auto stage line running to Tyrone and Silver City, in the northern part of the county, and a semi-weekly star route mail line to Redrock, a village located on the Gila river.

Lordsburg is the center of a great cattle breeding country. Thousands of cattle are shipped from here annually.

STREET SCENE IN LORDSBURG

Nowhere is a larger percentage of calves born than in this vicinity.

Lordsburg has all the necessities of modern civiliation, railroads, telegraph, local and long distance telegraph, bank, electric lights, water works, ice plant, garages, gasoline supply stations, newspaper, schools, churches, lodges, hotels, large mercantile establishments and an intelligent, up-to-date population, which will welcome the visitor, whether he comes to call or to locate.

The report of the United States Geological Survey for 1912, the last one printed, gives the following as the mineral production of this district from 1904 to 1912, inclusive:

Year.	Tonnage.	Gold.	Silver.	Copper.	Lead.	Total Value.
	Short tons.		*Fine ounces.*	*Pounds.*	*Pounds.*	
1904	250	$ 1,184	2,580	18,200	12,000	$. 5,582
1905	366	10	7,584	48,000	.....	12,079
1906	1,743	5,168	27,261	212,601	.....	64,465
1907	5,645	8,761	31,303	463,335	10,522	122,646
1908	7,532	10,617	9,889	259,079	11,363	50,534
1909	10,690	25,983	50,154	589,969	8,862	129,140
1910	29,220	59,798	130,324	1,627,591	19,662	337,742
1911	46,139	106,648	182,448	2,455,336	2,157	510,359
1912	55,340	144,859	275,251	3,155,585	4,562	835,015
Increase	9,201	38,211	92,803	700,249	2,405	324,656

Lordsburg is not in a natural agricultural section of the State, the rainfall here not being large enough for the support of the dryest of the dry farmers. However, there are many valleys where there is very rich land, and where water in abundance can be developed near the surface. In these, irrigation, by the use of pumps, is practical and economical. These valleys are being homesteaded, wells drilled, pumping plants installed, and, where water can be put on the ground, luxuriant crops produced. To the man who is looking for an opening where he can make a home, a good living and much money, the valleys of this section, which are underlaid with water, offer a great attraction. The land is owned by the Government, and can be homesteaded, or taken up under the desert land act.

Lordsburg is the center of a large mining district. There are many mines at from two to twenty miles distant that do their trading here. The second largest copper mine of the State is but three miles from Lordsburg. It produces more than two million pounds of copper per year, and the copper carries enough gold and silver to bring the value of the product to above half a million of dollars. There are many chances for the intelligent prospector to make a strike.

CHINO COPPER COMPANY

SANTA RITA | BY JOHN M. SULLY | HURLEY

THE STORY OF THE SANTA RITA DEL COBRE GRANT AND ITS DEVELOPMENT FROM DISCOVERY TO THE PRESENT DATE.

PIKE, in 1807, refers to a copper mine west of the Rio Grande, in latitude 34° North, yielding 20,000 mule-loads of metal annually; that vessels of copper are among the exports of the country. This must have been the Santa Rita mine, as Bartlett says it was worked in 1804. "This mine was discovered in 1800, by Lieutenant Colonel Carrasco, through the aid of an Indian."—Twitchell, Leading Facts of N. M. History, Vol. I, p. 475.

SANTA RITA—THE KNEELING NUN SEEN AT THE ALTAR

This bare statement marks the beginning in history of an industry which has raised the State of New Mexico from the bottom of the list in 1910 to sixth place in point of copper production among all the states of the Union—the Santa Rita copper mines. Tradition, or legend, goes back

SANTA RITA—"THE KNEELING NUN"

much further and adds not a small flavor of romance to the whole, though surely fact is romantic enough. Tradition has it that for many years prior to the date when the Santa Rita copper district was first known to white men, the Apache Indians, fiercest and most bloodthirsty of all New Mexico aborigines, had possessed knowledge of the great field of red metal, and had perhaps even known something of its uses. The Apache, being a hunter and fighter rather than given to peaceful pursuits, probably made no use of this knowledge and acquired it in his maraudings from the Pueblos or other Indians who followed the more peaceful occupations. In any event tradition has it that an Apache chief, grateful for some real or fancied service done to him by a Spanish Colonel, Jose Manuel Carrasco, an officer in charge of an army post in New Mexico, imparted to him the knowledge of the metal deposit, and some historians fix the date of this revelation as 1800. Others declare that it was in the latter part of the eighteenth century.

The occurrence of considerable exposures of the native copper metal gives ground for the belief that any Indians

who had knowledge of copper and who lived within even a large radius of the deposit obtained their metal from Santa Rita. This brings up another mooted question, for scientists and historians fail to agree as to whether or not the

1. THE KNEELING NUN. 2. THE ALTAR.

Indians of that time and place knew of copper. Suffice it that the Indians gave a copper hawk-bell to one of the companions of Alvar Nunez de Vaca, and Twitchell records the speech of an Indian chief, when Estevan, a negro, went to the pueblo of Hawaikuh, "gaily bedecked in feathers, gourds and bells," as follows: "Those bells are not of our fashion." Twitchell further comments on this statement as evidencing the fact that the Indians did have knowledge of copper and made use of copper bells for some purposes. He also makes other statements corroborative of the theory that the Indians knew and used copper. Certainly, though, there is no evidence that any New Mexican or Arizona Indians knew anything of smelting complex sulphide ores, and this would lead to the opinion that any copper they may have owned or worked had come from the native metal copper deposits of the Santa Rita district, there being no such other deposits, cropping on the surface, of this character known in the Southwest.

Carrasco evidently recognized the value of the mine immediately, owing to the fact that the native copper metal showed on the surface. It is said further that he had a knowledge of the Rio Tinto, the great copper deposit of Spain. Carrasco interested Don Francisco Manuel Elguea, of Chihuahua, a wealthy merchant, banker and subdelegate to the Spanish court, in the property. Through his large personal influence as well as his great wealth, Don Francisco was enabled to obtain a concession of the land from the Mexican Government. This concession was known as the Santa Rita del Cobre Grant, and as will be shown later, this grant forms part of the present title to the property. Tradition also has it that the earliest work was done by Spanish prisoners and convicts. Elguea bought the interest of Carrasco in 1804, and shortly thereafter made a contract to supply the royal mint with copper for coinage; the native copper metal as mined only requiring the most primitive methods to put it in condition for minting. The work in this field was the second mining work done in the territory now occupied by the United States, being preceded alone by that in the Lake Superior copper district.

Elguea made several trips from Chihuahua to the source of his fortune, and it was on the occasion of the second of these that he built a triangular fort provided with towers of the martello type at each corner, loop-holed not only in the towers but in the connecting adobe walls as well. Without doubt this fort was built not only to provide protection against the Indians, but also to safeguard the convict labor which Elguea had been enabled to obtain from the Mexican Government. While Elguea was enabled to obtain cheap labor, the cost of transportation was a costly item, and primitive smelting works were erected by him to reduce the irregular slabs, sheets and flakes of native copper into ingots that were more easily stored on mule-back or in carts.

In 1809 Elguea died, and one Juan Oñiz operated the property under contract from the widow and heirs of Elguea. The first American to visit the mine was James Pattie, a trapper, hunter and explorer, who, in his "Narrative" tells of the working of the mine by a Spanish superintendent, Juan Oñiz, for the Spanish owner, Francisco Pablo Legara. It would seem from this that probably Legara was a representative of the Elguea heirs, as there is

no evidence of a transfer of the title of the Santa Rita del Cobre Grant from the Elgueas to anyone until a transfer was made in 1873. Pattie and his associates finally leased the mine for five years, agreeing to pay $1,000 a year, and apparently worked it until 1827, when Legara was exiled as a Spaniard. The implication is that the mine was abandoned at that time. These statements are corroborated by Twitchell, who declares in his "Leading Facts," etc., that by 1825 the trapper himself was engaged in working the mine.

PARTIAL VIEW OF OLD SPANISH FORT

The Indians at that time occasioned a great deal of trouble, though trappers aided in keeping them in bounds, through treaties and sometimes by force. The Patties in 1825 made a treaty of peace with the Apaches and by inference, this was afterward adhered to by both parties with the utmost strictness. Twitchell uses the story which follows to illustrate the racial feeling between the Indians and the Spaniards which had developed by that time:

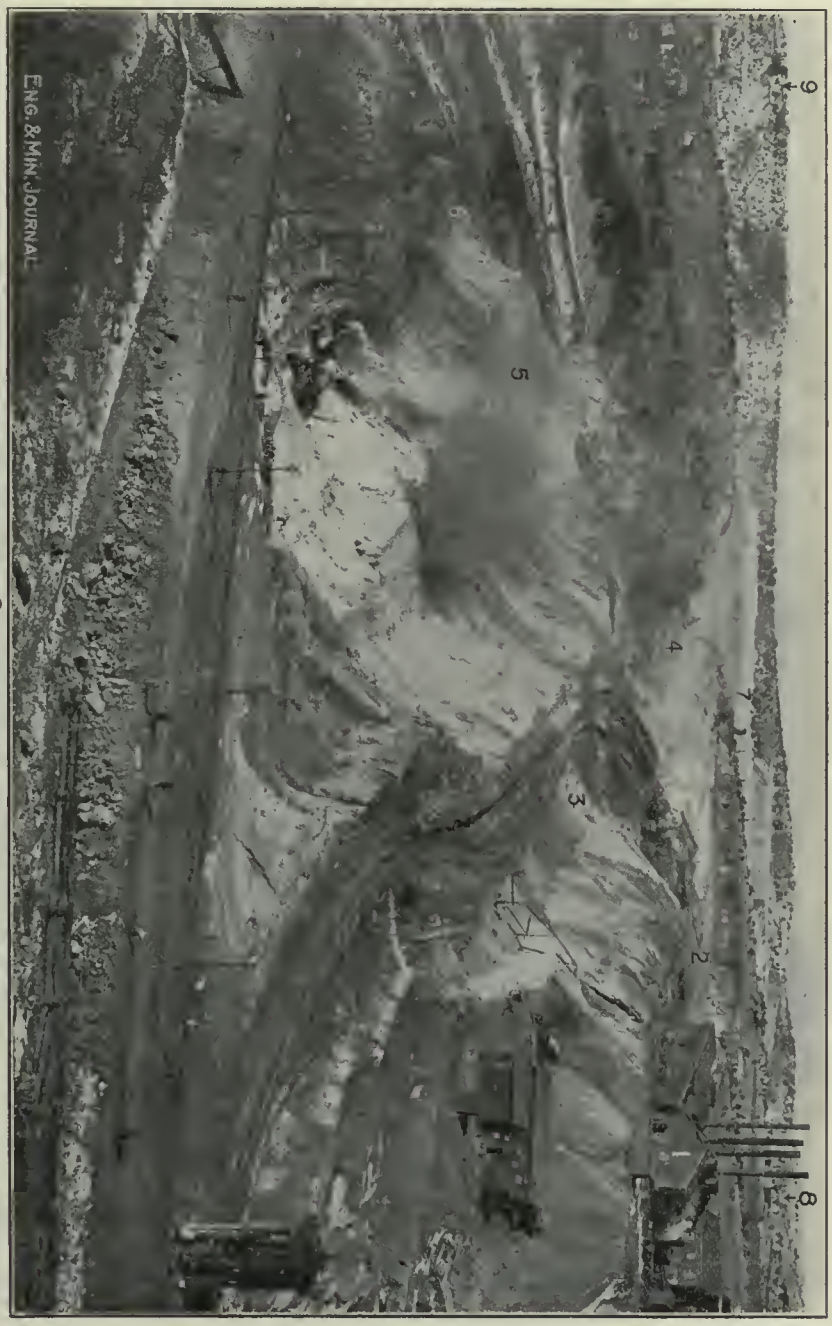
RUINS OF OLD SPANISH FORT

"One day young Pattie and two companions were out hunting deer, when they discovered the trail of six Indians approaching the mines. Following the trail for about a mile they came upon the Indians, who immediately fled. The Americans pursued and soon overtook them, when one of the Indians dodged into a ravine, where he was quickly surrounded. As soon as he saw it was impossible for him to escape, the Indian threw away his bow and arrows and begged the Americans not to kill him. One of the men rode up to him, while the other two stood with guns cocked ready to shoot if he made the least sign or motion to secure his weapons. The Indian, however, remained perfectly quiet and was quickly tied by the hands and driven ahead toward the mines. The party had gone only about a hundred yards when the Indian pointed out a hollow tree, intimating that another Indian was concealed there. He was ordered to instruct his companion to make no resistance or he would be killed. The Indian immedi-

ately came out with his bow and his hands were tied in the same manner as the other's. They were taken to the mines and put in prison. The Mexicans who were working at the mines, exasperated with their recent cruelties and murders, were determined to kill them, but their lives were spared owing to the interference of the Americans. On the day following the Indians were questioned and one of them was told to leave the camp and tell his chief to come in with all his warriors and make peace. One Indian was detained as a hostage, the other being assured that if the chief did not come in and make peace his companion would be put to death. After the Indian left, the elder Pattie, by way of precaution, put in requisition all the arms that could be found in the neighborhood of the mines, with which he armed thirty of the Mexicans working there. He then ordered a trench dug at a point one hundred yards distant from the place where the Indians were to meet with him for the consummation of the treaty. This trench was to be occupied during the consideration of the treaty, ready for any emergency should the Indians prove insolent or menacing in their conduct.

"On the fifth of August, the Indians to the number of eighty appeared. A council fire, pipe and tobacco had been prepared and a blanket spread upon which the chief might be seated. As soon as the Indians appeared they threw down their arms; four chiefs came up, and all, including the two Patties, sat down on the blanket. The subject of the treaty was discussed; the Indians were asked if they were ready to make peace, and if not, what were their objections? They replied that they had no objections to a peace with the Americans but would never make one with the Spaniards. When asked their reasons they replied that they had been at war with the Spaniards for many years and that a great many murders had been committed by both sides. They admitted that they had stolen a great many horses, but indignantly alleged that a large party of their people, who had come in for the purpose of making peace with the Spaniards, when once within the walls of the town where the peace was to be negotiated, had been brutally butchered like a flock of sheep. The very few who had escaped had taken an unalterable resolution never to make peace with the Spaniards; further stating that pursuant to their determination for revenge, great numbers of the Apache nation had gone to the Spaniards and been baptized: there they remained faithful spies, informing their kinsmen when and where there were

SANTA RITA, N. M., LOOKING SOUTH AND EAST: CENTER OF CHINO COPPER CO.'S PROPERTY
1. Manager's Residence. 2. Post Office and Lodge Room. 3. Merchandise Warehouse. 4. Santa Rita Store Co. Bldg. 5. Mine Office. 6. Staff Houses. 7. Machine Shop. 8. Compressor Plant. 9. Drill Shop. 10. Transformer House. 11. Oil Warehouse. 12. Steam Shovel Supply Warehouse. 13. Carpenter Shop. 14. Water-softening Plant on Gold Hill. 15. Santa Rita Mountain. 16. Main Yards. 17. 6300 Bench. 18. 6350 Bench. 19. 6100 Bench, of Southeast Orebody.



VIEW FROM EAST HILL, LOOKING WEST THROUGH NORTHEAST OREBODY PIT FROM EAST SIDE OF WORKS

1. Santa Rita Hoist House. 2. 6370 Bench. 3. 6340 Bench, Northeast Orebody. 4. 6300 Bench Connecting Northeast and West Orebodies. 5. 6280 Bench. 6. 6250 Bench, Northeast Orebody. 7. Waste Dump No. 3. 8. Booth Hill Company Houses. 9. Lee Hill.

favorable opportunities for plundering and killing their enemies.

"The chiefs were told that if they really felt disposed to be at peace with the Americans, the copper mines were now being worked jointly by the latter and the Spaniards; that the Indians were wrong in seeking revenge upon people who were not guilty of the crimes they had mentioned; that the Spaniards at the mines had no part in the inhuman butchery which they had mentioned, and that if they would not be peaceable and permit the work at the mines to proceed without danger from them, the Americans would consider them at war and would raise a sufficient body of men to pursue them to the mountains and kill them. The chiefs answered that if the mines belonged to the Americans, they would promise never to disturb the people who worked them. They were of this opinion and the Americans did not undeceive them as to the ownership."

About the time of the exile of Legara as an alien, Pattie tried to buy the mine. He entrusted $30,000 in gold—practically all he had—to a dishonest agent, who promptly left the country and was never heard of again. Pattie was a ruined man.

The next mention of Santa Rita was by Wislizenus, who, in his "Tour Through Northern Mexico," states that the mine at Santa Rita, the most celebrated of all the copper mines in Chihuahua, had passed through the hands of several proprietors by the year 1828, when it was in possession of a Mr. Coursier, a French resident of Chihuahua, who was reported and generally believed to have cleared in seven years about half a million dollars. Wislizenus goes on to state that the owner was enabled to monopolize almost the whole copper trade of Chihuahua through this mine, and found it a very profitable business, as the state was coining much copper money during that period. He concludes, "but at last the mine, which seems to be inexhaustible, had to be abandoned on account of the hostile Indians, who killed some of the workmen and attacked the trains." It was probably about the date of this abandonment that the Mexican troops were withdrawn from this section, making it impossible to operate the mines.

Evidently, from such records as can be found, Robert McKnight took possession of the property following the cessation of Mr. Coursier's operations, probably about 1834. It is uncertain just when he took possession, but his operations ceased in 1836. Kit Carson was in the employ of McKnight at this time, working as a teamster. In 1840 Leonardo Sesquieros took over the property and despite a great many obstacles, successfully operated it until the late fifties, the camp only being abandoned then owing to the starvation of the workers through failure of supplies, which came from Mexico, occasioned by the persistent depredations of the Apaches. For several months in 1851, the headquarters of the American commissioners of the

WASTE DUMPS

Boundary Survey were at the Santa Rita mines, Mr. John R. Bartlett being one of the commissioners. Before 1860 two men, named Sweet and Lacorte, took possession of the property and worked it, later strengthened by two others, named Brand and Fresh. It is doubtful whether they obtained a lease from the original owners of the grant, it being more likely that they filed United States mineral locations on the ground.

In 1862 General Sibley, in command of the Confederate forces from Texas, held this region for a time, and it is interesting to note that a minie ball mold was found in 1910 when part of the old fort was razed to make room for the present machine shops. It is reported that the operations of these last holders of the property were successful in so far as the mining was concerned, but the Pinos Altos gold strike had drawn away most of their workers, and the Apaches were out preying alike upon the Confederates who had control of the country and the Federals who were resisting them. These obstacles induced them to abandon the property. At approximately the same time, the place was abandoned as a military station until about 1873. Probably in the interim of these ten years the ground was located and relocated by prospectors without any regard to the original Spanish grant.

In 1873, while the Apaches were quiet, M. D. Hayes,

connected with the first smelting works in Colorado, and acting on behalf of Denver people, succeeded in buying up these claims and attempted to perfect the title by obtaining patents under the mining laws of the United States, in spite of the fact that patents had been refused by the Commissioner of the Land Office on April 21, 1870, who decided that the title to the property was vested in the Elguea heirs, under the treaty with Mexico respecting the acquired rights of Mexican citizens. The application of Hayes was denied by Commissioner Drummond on April 15, 1873, who reiterated the decision of his predecessor. From these decisions appeals were made to the Secretary of the Interior, who reaffirmed the previous decisions November 6, 1873, ruling that the claimants had, in no sense, any right to the ground, which had been known to the department for more than half a century as belonging to Elguea, and that no interest could be obtained except through the original owner. Pending this final decision, Mr. Hayes and his associates had been tracing the surviving heirs of the Elguea estate, who were found to be scattered through Mexico and Europe, and in October, 1873, title was obtained from these heirs. Steps were then taken to complete title and avoid the possibility of future question by locating the ground under the United States mining laws, and finally a United States patent was obtained. All of these papers are in possession and part of the records of the Chino Copper Company, the present owners and operators of the property.

Hayes first turned his attention to the section now known as the "Romero," which was, according to tradition, the first place shown to Carrasco by his Indian informant. Here croppings of the native metal showed, and the Romero has produced the largest percentage of metallic copper of any section of the field. A shaft was sunk through the old workings to a depth of 248 feet, and a small smelting plant was erected, which did not prove successful. Nevertheless, 40 tons of high grade ore and imperfectly smelted copper were hauled by teams through the entire length of New Mexico, by road from 700 to 800 miles in length to the nearest railroad station in Colorado and forwarded to the Baltimore Copper Works, at Baltimore, Md., and the Revere Copper Works at Point Shirley. Owing to the distance of the camp from railroad points and the great expense attached to transportation, it is probable that the property did not prove profitable during the period

No. 8 STEAM SHOVEL

GENERAL VIEW OF CHINO PLA

1. Power Plant. 2. Coarse Crushing Plant. 3. Sample House. 4. Crude Ore Bins. 5. Warehouse. 6. Concentr

GENERAL VIEW OF MINE WORKI

1. Santa Rita Hoist House. 2. Rooming House and Company Houses Surrounding. 3. Restaurant. 4. Site of Old Concentr
Bench. 11. 6280 Bench. 12. 6300 Bench. 13. 6310 Bench. 14. 6370 Bench, Northeast Orebody. 15. 6300 Bench. 16. 6350 Be
Dump No 5. 23. Santa Rita Creek. ✚ Approximate Location of United States Co

VIEW OF MINE WORKI

1. Booth Hill Company Houses. 2. Santa Rita Hill Company Houses. 3. Staff Houses. 4. Warehouse. 5. Machine Shop. 6. S
Hill. 12. Bear Mountain. 13. Twin Sisters. 14. Pinos Altos. 15. Divide Between Santa Rita and Hanover Gulches. 16. Santa
23. 6370 Bench, Northeast Orebody. 24. 6300 Bench, West Orebody. 25. Waste Dump N

ROM ROOF OF MACHINE SHOP
The Machine Shop. 8. Pipe-fitters' Shop. 9. Water-recovery System. 10. "B" Ranch Pumping Station.

ROM EAST HILL LOOKING WEST
Theater. 6. Booth Tank, Domestic Water Supply. 7. Hospital. 8. Main Yards. 9. Water-softening Plant on Gold Hill. 10. 6250 6400 Bench, Southeast Orebody. 18. Lee Hill. 19. Wild Cat Hill. 20. Waste Dump No. 3. 21. Waste Dump No. 5. 22. Waste mpany's Property is About One Mile Northwest From Chino Workings.

ROM GOLD HILL LOOKING NORTH
ovel Supply Warehouse. 7. Merchandise Warehouse. 8. Santa Rita Store Co. Bldg. 9. Pinder Well. 10. Main Yards. 11. Lee k. 17. 6235 Bench. 18. 6300 Bench. 19. 6350 Bench. 20 6400 Bench, Southeast Orebody. 21. 6280 Bench. 22. 6340 Bench. Waste Dump No. 3. 27. Waste Dump No. 5. 28. Waste Dump No. 8. 29. Ore Pile No. 1.

of this ownership, but nevertheless it was the period in which titles were cleared, the field brought under one control, and more territory opened to work.

The property was sold to J. Parker Whitney, of Boston, in 1880. Shortly after, in 1881, a concentrating mill was built near the Romero shaft, stamps being used for crushing the ore, and was operated for some time in conjunction with a smelter which made a product of black copper. The records of the assay office, which was located at that time in one of the series of old adobe buildings midway between the Romero shaft and the old fort, make interesting reading, in that they illustrate the struggles to obtain metallurgical efficiency not only in the mill but also in the smelter. The foundations and a few scattering pieces of the old machinery remained on the ground up to 1910, when the steam shovel work began. Whitney continued the Romero shaft to a depth of 500 feet, showing still further native metallic copper at that depth, occurring in the form of fine metallic flakes. During this period the property was increased by acquiring additional claims, and was divided in ownership between two companies, the Bonanza Development Company controlling the property on the south side of Santa Rita Creek and the Santa Rita Copper & Iron Company controlling the property on the north side of the creek.

It is interesting to note that between 1882 and 1884 some diamond drill holes were bored on the property. These records were of no particular use, however, owing to the fact that the locations of the holes were imperfectly recorded. One of these holes was cased and furnished a small flow of artesian water until it was destroyed by steam shovel work in 1910.

In 1897, Whitney, who owned the controlling interest in both of these companies, gave a lease and bond on his holdings to the Hearst estate, which was operating at Pinos Altos at the time, and owned a smelter at Silver City. In 1899 Whitney sold the property to a group of capitalists who were intimately associated with the organization of the Amalgamated Copper Company, this group of men making purchase of many likely copper properties at that time. Of the purchase price, $250,000 was paid to the representatives of the Hearst estate at Silver City for the release of their contracts.

VIEW FROM ORE PILE No. 1, LOOKING EAST THROUGH NORTHEAST OREBODY PIT FROM WEST SIDE OF WORKS

1. Waste Train of 12-yd. Cars. 2. Waste Train. 3. Ore Train of 50-ton Cars. 4. Santa Rita Hoist House. 5. 6300 Bench Connecting Northeast and West Orebodies. 6. 6250 Bench, West Orebodies.

A new corporation was organized, holding the property, known as the Santa Rita Mining Company, the principal stockholders being H. H. Rogers, W. D. Rockefeller, Thos. W. Lawson, A. C. Burrage, and three others. In 1891, the railroad connection from Deming to Hanover and Fierro, New Mexico, was finished, while the branch from San Jose, or Hanover Junction, to Santa Rita was completed early in 1899, two years after the sale of the property to the Santa Rita Mining Company. In 1899 development work was instituted, and a lessee's concentrator was taken over by the company, where the higher grade ores were

milled. At the same time, under the stimulus of the new operations, the system of leasing was encouraged, and a considerable part of the revenues of the company came from the royalties paid. In 1904 interest in the property was lost by the owners as the direct result of a period of low price copper, improper equipment and adverse reports, and the continued working of the property was practically turned over to the lessees, though the mill continued to operate in a desultory way.

In the latter part of the year 1904, the General Electric Company, through a subsidiary, (the Hermosa Copper Company) became interested in properties lying outside the Santa Rita holdings, and began active development work. The Hermosa Copper Company made arrangements whereby they began an investigation of the Santa Rita basin in December, 1905. This examination, which was conducted in a very thcrough manner, covered a period of some nine months before the final report was made. The General Electric Company had, in the meantime, become discouraged with their work on the surrounding claims, and nothing came of the investigation.

In 1908, the report which was made to the General Electric Company fell into the hands of President A. C. Burrage of the Santa Rita Mining Company, owners of the property. Impressed with the truthfulness of the findnigs reached in this report, he caused two engineers to visit the property at different times. Both checked the more important details forming the basis of the calculations and recommendations of the previous report. As a result he approached the stockholders of the company, who were few in number, endeavoring to interest them in the further development of the property along the lines suggested by the original report. His associates refused to undertake any further expenditures, but finally agreed not to stand in his way, giving Mr. Burrage options on their stock at agreed figures.

In May, 1908, Mr. Burrage got in touch with the engineer, hitherto unknown to him, who made the original report, and arranged for a further examination to bring the data up to date, and also undertook the development of the property by churn drills. The new report was completed in October of the same year.

The history of the efforts to raise the necessary amount of capital to carry on the plans for the development of the property is one full of pathos and human interest. Especially is this so of Mr. Burrage's efforts to interest his associates in their property, and, failing with all others, how Mr. H. H. Rogers late one afternoon agreed to stay with Mr. Burrage in the matter with the understanding that the papers were to be prepared that night and signed the next day. Early the next morning he saw in the papers that Mr. Rogers had died but a few hours earlier. This disappointment happened at the eleventh hour, but President Burrage, who had now become determined to see the property come into its own, while considering his old associates first, had not relied on their assistance entirely, turned immediately to a firm of powerful bankers with whom arrangements were made to take over and carry on the development of the property, so that in June, 1909, the old Santa Rita del Cobre Grant, with the additions to the original ground that had accumulated during all these years, passed to the powerful and intelligent mining interests who now control the Chino Copper Company.

SOUTHEAST OREBODY

1. Standard Shovel. 2. 6200 Intermediate Bench. 3. 6235 Bench. 4. 6300 Bench. 5. 6350 Bench. 6. 6400 Bench, of the Southeast Orebody.

SPECIAL MODEL, MARION STEAM SHOVEL

50-ft. Boom, 3-yd. Dipper; Dumps 32½ Feet Above Its Rail. 1. Blast-hole Churn Drill. 2. 6235 Bench. 3. 6300 Bench. 4. 6350 Bench. 5. 6400 Bench, of Southeast Orebody.

Immediately upon the acquiring of the property by the Chino Copper Company, the rate of churn drill development work was quadrupled, until by the first of January, 1914, over 520 drill holes had been put down in the ore zones and as scouts in new territory. The average depth to which these holes were drilled is over 500 feet, one hole being put down to a maximum depth of 1,670 feet. The total depths of these holes aggregate nearly 300,000 feet. Of this total drilling 95% was completed by the end of 1911, but by the end of 1909 the development outside of the original estimates based on the sampling of underground workings had shown a sufficient amount of ore to assure ample tonnage for the erection of a 2,000-ton concentrating mill. The designing of the mill had been undertaken, its site had been selected near an abandoned sidetrack on the Whitewater-Fierro branch of the Santa Fe railroad, known as Hurley, and steps taken to acquire the necessary lands. Arrangements had also been made for the water of the Apache Tejo Spring, about four miles from the mill site and 14 miles from the mine; also for other water rights on Whiskey, Cameron and Whitewater Creeks in the neighborhood of the mill site.

The Chino Copper Company publishes full quarterly reports, supplemented by very complete detailed annual reports. The data which is given in the following paragraphs have been gleaned from their 1912 and 1913 annual reports, and their quarterly reports for the year 1914: On January 1, 1914, the mining property at Santa Rita, comprising an area lying in one body, covered 2,645 acres, of which 2,412 acres were patented mining claims. The total area owned and controlled in connection with its milling camp at Hurley and its various water rights in that neighborhood contained 16,700 acres. Of this total 10,660 acres were patented, the balance being in process of patent or held as leased lands from the State. The fully developed ore at the close of 1913 exceeded 90,000,000 tons, containing an average slightly in excess of 1.8%. In connection with the mining operations there were 10 steam shovels, 21 locomotives, 50 six-yard cars, 50 twelve-yard cars, 24 twenty-yard cars and 20.3 miles of standard gauge track in use, and for the repairs of the shovels and locomotives a machine shop was in operation. The progress of the development of the property and its operation made it necessary to take care of a great number of employes, and at Santa Rita and Hurley the company has built a large number of comfortable houses that are lighted by electricity and furnished with water and connected with sewer systems. At Santa Rita, owing to the coutour of the ground and the mining operations, it was impossible to locate these houses in any regular order, but at Hurley, owing to the fact that the town is located at the edge of the plain where it breaks to the mountains, it was possible to locate the houses in a regular manner. At both places comfortable rooming houses and boarding houses are provided, as well as dormitories and mess houses for the employes. At Santa Rita a large general hospital, provided with all modern equipment, has been completed, and employes are taken care of by the physician and his staff free of expense except for the nominal sum which every employe contributes monthly to its partial support. All sanitary conditions are carefully controlled, being directly under the supervision of the hospital staff. Under the auspices of the company there are places of amusement provided, and all concessions of whatever nature are subject to the approval and oversight of the company at both places. Plans for the erection of a library, reading room and gymnasium building at each camp are under consideration.

What the Santa Rita field has produced is, to a great extent, problematical. An advance chapter from the "Mineral Resources of the United States," by B. S. Butler, dated 1912, is quoted as follows: "From 1845 to 1912 New Mexico has a recorded output of 124,353,963 lbs. of copper, or 0.71% of the output of the country since 1845. The principal production has been from the districts in Grant County." The "districts in Grant County" practically may be interpreted as the Santa Rita district.

No recorded figures are vailable for the years previous to 1845, but from the various works in which the Santa Rita del Cobre Grant is mentioned, it is estimated that previous to 1845 there were produced not less than 41,000,000 lbs. of copper, which would make the production to 1912, 165,353,963 lbs. From the annual reports of the Chino Copper Company the production for the year 1912 was 29,237,966 lbs., while for the year 1913 the production was 53,170,145 lbs., or a total for the two operating years of 1912 and 1913 of 82,408,111 lbs., making a total production, recorded and estimated, of 247,762,074 lbs. This is assuredly evidence of the extent and value of the Santa Rita district, and when it is considered that the 90,000,000 tons of ore that are now known mean an addition to the world's wealth of not less than 2,268,000,000 lbs. of copper and that there is a large portion of the territory which has still not been developed, though ore of commercial value is indicated, the importance of this industry to the State of New Mexico becomes most evident.

Without any increase in the mill capacity at Hurley there would be required more than 40 years for the extraction of the known developed ore at Santa Rita. There

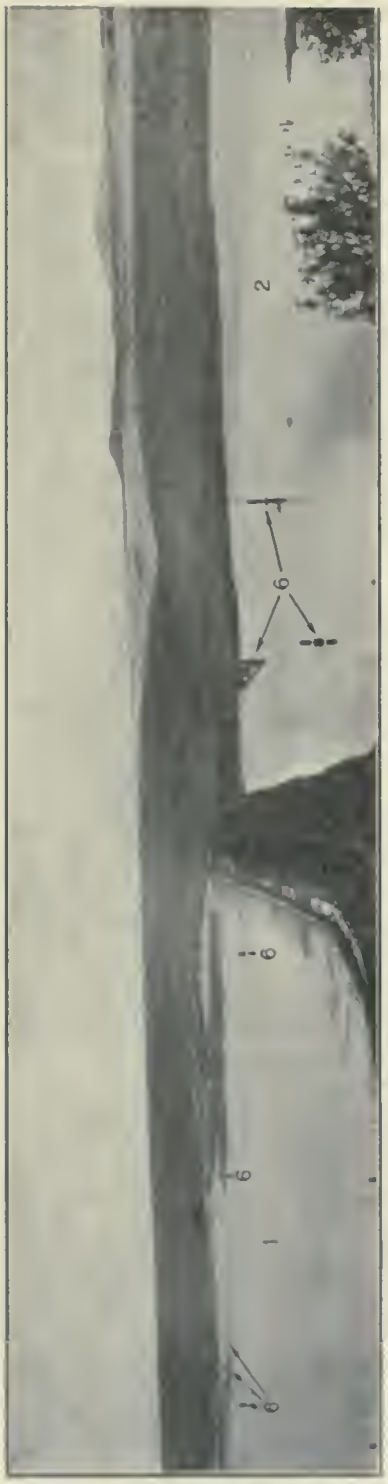
are alone in the State of New Mexico 10,000 individuals dependent on this industry. In other words, the direct employes of the Chino Copper Company, the railroad companies and the coal companies with their dependents amount to 10,000 people. The industry disburses during a year approximately $2,000,000 for its payroll account alone, it pays nearly $1,000,000 a year in freight, $1,250,000 for supplies, such as powder, machinery, etc., and over $600,000 each year is paid for coal, that goes to sustain the coal industry of New Mexico, this coal being used in its power plant at Hurley, and for the operation of its steam shovels and locomotives.

The Chino Copper Company has an authorized capitalization of 900,000 shares of a par value of $5 each. Of this authorized capital 870,000 shares are issued, leaving 30,000 shares in the treasury. The Board of Directors of the Chino Copper Company is composed of Charles M. MacNeill, President; D. C. Jackling, Vice-President and Managing Director; Charles Hayden, Vice-President; Spencer Penrose, A. Chester Beatty, Sherwood Aldrich, Mark L. Sperry, Berthold Hochechild, W. Hinckle Smith, The Executive Committee is composed of D. C. Jackling, Chairman; A. Chester Beatty, Charles Hayden, Charles M. MacNeill and Sherwood Aldrich. K. R. Babbitt is the General Counsel; Keith Stewart, Treasurer; and A. J. Ronaghan, Assistant Secretary. The general offices are located at 25 Broad Street, New York City. The transfer agents are the Bankers Trust Company of New York, and the American Trust Company, of Boston; the registrars of stock being the Guaranty Trust Company of New York, and the Old Colony Trust Company of Boston. The operating officials in New Mexico are John M. Sully, Manager; Horace Moses, Superintendent of Mines; and Wm. H. Janney, Superintendent of Mills. The consulting officials are R. C. Gemmell, Consulting Engineer of Mines; Frank G. Janney, Consulting Engineer of Mills, and Geo. O. Bradley, Consulting Mechanical Engineer, the last three named having their offices in Salt Lake City, Utah. It is interesting to note that all of the prominent officials of the company and the directors have been associated in the great success accomplished in the Utah Copper Company, the pioneer in steam shovel mining of copper ores in the United States. Beginning with June 30, 1913, dividends have been paid upon this stock quarterly at the rate of $3 per share per annum. Upon the organization of the company the stock was quoted upon the Boston Curb market at $7 per share. These prices, as development work went on, gradually increased, until at the time of the declaring of dividends they have been quoted firmly on the New York Stock Exchange at $40 per share, at which price the stock of the Chino Copper Company has become a sound investment of the highest class.

Having given the history of the Santa Rita del Cobre Grant, it may be interesting to state that Santa Rita is situated in the Central Mining District, Grant County, New Mexico, on a branch of the Santa Fe Railway System which connects at Whitewater with the Deming-Rincon branch of the Rio Grande division of the same railway company. The section of country in which Santa Rita is located is characterized by ridges having a general trend northeast and southwest, and it is situated at an average elevation of 6,300 feet above sea level. The ridges above referred to are lowest on the southwest extremity, rising gradually from the valley level in a general northeasterly direction. The ore body and the town of Santa Rita itself are located in a distinct basin. This basin has a high, abrupt barrier or rim on the east and southeast, formed by the northwestern extremity of the Santa Rita mountains, which rise to a height of from 1,000 to 1,600 feet above the basin level. The Santa Rita mountains present a prominent landscape feature by virtue of the prominent escarpment some 150 feet high forming the top. Just above the camp and at the point of the bluff is a monolith of rhyolite, which when viewed from the southwest looks like the roughly hewn statue of a nun kneeling before an altar. This monolith, which from its appearance has been termed the "Kneeling Nun," is a prominent landmark for miles, and many striking legends are associated with the mammoth figure.

Extending in a northerly direction from the Kneeling Nun is the slope of one of the ridges forming the northeasterly boundary, which is broken through by Santa Rita Creek. Further around toward the north is the main and prominent divide, rising up to a greater height than the Santa Rita mountains in its northeast trend. Northwest of Santa Rita this prominent ridge breaks down rather abruptly to a ridge which continues, gradually getting lower, until it is broken through by Hanover Creek some four miles to the southwest. A main spur from this ridge extends to the south and southeast toward a prominent foothill, extending northwesterly from the foot of the Santa Rita mountains. Thus are formed the northwest, west, southwest and south boundaries of the basin, Santa Rita creek cutting through the southwest boundary, making a break between the foothill and the ridge.

The rocks exposed in the Central Mining District may be roughly divided as follows: 1, Sedimentary; 2, Intrusive; 3, Extrusive. The sedimentary formation, of



SECTIONAL VIEW OF CHINO COPPER CO.'S MILL AT HURLEY, N. M., FROM NORTHEAST END OF DAM

1. Dam Proper and Tailings Settling-pond. 2. Flood-water Storage Reservoir. 3. Former Temporary Tailings Storage and Water-recovery Plant. 4. Power Plant. 5. Concentrator. 6. Dewatering Boxes.

which there is a large area in comparison with the intrusive exposures, consists of limestones of more or less purity and belonging to the sub-carboniferous and carboniferous series, there also being some isolated exposures of Devonian rocks. These beds vary from nearly pure limestones through cherty limes and shaly limes to shales. Through faulting there is also exposed a considerable area of Cretaceous sandstones and shales, the former in the immediate neighborhood of the intrusives appearing as quartzites. The principal intrusive rocks in the Santa Rita basin are grano-diorite, a quartz-monzonite porphyry, and another of distinct porphyritic texture which may be classed as andesite. This latter rock intrudes the two general types as also the sedimentaries, in sills, lacoliths and dikes. The boundary forming the southeast side of the Santa Rita basin is composed of two flows, the principal one being ryholite and rhyolite tufa overlying an older flow which is of an andesitic nature.

The grano-diorite is intrusive into and across the edges of the sedimentary series, which form a syncline dipping to the south from the northerly bordering ridges toward the lowest point of the basin. The area within the basin had been strongly faulted in wide zones and in two general directions. The intersections of the numerous faults have resulted in a roughly circular shear zone that has a diameter of three-quarters of a mile. This shear zone on the southeastern side of the property has a width of some three-eighths of a mile. The narrowest part is in the northwest portion where it is some 400 feet wide. Generally speaking, the center, or core, is of grano-diorite. As a result of the conditions mentioned, there is the center of the basin of grano-diorite, surrounded by shear zones which affect it at times as well as the surrounding sedimentaries, the rhyolite tufa and the quartz-monzonite porphyry, the two latter rocks being on the southeast, east and southwest. This shear zone has been the depository of the valuable copper minerals, chalcocite, cuprite and native copper. Bornite, chalcopyrite, and cupiferous pyrites also are found but to a much lesser extent than the previously named. There also occurs in small restricted areas malachite and azurite with a very limited amount of chrysocolla.

Many of the lessees in pursuing their underground workings for the extraction of the high grade metallic ores ran across evidences of the old Spaniards, finding "seroni," skeletons, and even the old "fills" of the original Spaniards, together with many of their timbers. Since the beginning of steam shovel operations some interesting finds have been made. In the stripping of the Romero section a skeleton was found of a very tall man of the Indian type, with the skull and teeth practically replaced by carbonate of copper. There was also found two copper bars, about a yard long, 1⅜ inches wide and half an inch thick. These bars were punched with a hole at the end, and showed that they had been hammered into their present shape. There have been several vessels of hammered or cast copper found in the old caved portions of the workings, and a hoe of beaten metallic copper was captured after one trip through the 72-inch by 20-inch rolls at the mill, the eye and shank being slightly damaged by the latter experience. There have also been found bullets cast out of the solid copper. On the northern extremity of the Hearst pit, while stripping, some 50 skeletons were found, lying within a small area and at a depth of about six feet under the natural surface and some 15 feet below the top of an old dump. No record could be found of the existence of such a burying ground. The native laborers who attended the shovels were very nervous about working in this locality, being superstitious as to the results to themselves.

In the same neighborhood the steam shovels uncovered a lot of old workings, filled with old timbers of juniper. Amongst these timbers were "chicken" ladders, such as are used in parts of Old Mexico today by the natives. An effort was made to save a complete set of timbering of the old Spanish type, one portion of the timbers being cut and hollowed to fit as posts to set over the horizontal timbers in their natural state. Notches were cut in these timbers to allow their being bound together by rawhide. A great many of these rawhide bindings were found in place. Being of juniper the larger part of the timbers taken from this section were found in excellent condition. Tradition has it that at one time there was a cave-in in one of the Spanish workings on the Hearst side where some 30 convicts were buried, their bodies never being recovered. The truth of this tradition will be verified when the steam shovels finally mine the ore from that portion of the deposit.

The foregoing is but a brief history of Santa Rita, and but little has been given in detail of the romance that usually follows in the wake of the pioneers with all their hopes, fears and strivings. There has been set forth by simple statement the circumstances of the discovery of the property by the European race through the gratitude of an Indian; the making use of the deposit through the channels then afforded, by use of the copper in the coinage for a Spanish province. With this outlet mining was continued for a period, then conditions changing, the wealth in the useful metal copper that lay in the ground failed of value because there was no outlet to the outside world where it was needed for greater purposes than the minting of Mexican "claque," and years of succeeding unnamed and un-

known prospectors, locating, dreaming of this vast wealth, without accomplishment, passed by; then, following the Civil War, came new pioneers to the West, seeking the development of its resources. They, too, went through their sturggles in an endeavor to place the copper in a market where there would be some returns of value to themselves, and thus to others. It was not until the beginning of the twentieth century that the advent of that great civilizer, the railroad, made it possible for these deposits of nature's wealth to be placed where they were needed. Even then, it was only the highest grade of material that could be utilized.

The people in whose hands this great wealth was at that time intrusted failed to recognize that outside of the compartively small high grade zones there was a wealth far in excess of that then being utilized. It was left for an unknown engineer, by chance assigned to this search for truth, to prove, by painstaking detail work, investigation and careful study of the correlated facts, to him who would hear that this deposit was valuable beyond the wildest dreams of all who had passed before.

It was more or less through accident that this report fell into the hands of a man who had been derided because of his primary belief in the property, and this man seized upon the facts disclosed to convince those who blamed him that his beliefs were well founded. But it was not until these facts were brought before others who had been through the same experiences and could understand, that the final success of this great ore deposit was assured.

MORA COUNTY

THOUGH one of the four small subdivisions of the State, Mora County is one of the banner agricultural producers. The county lies in the northeastern quarter of the State, somewhat near the center, and has a slope generally toward the southeast. It has the main range of the Sangre de Cristo mountains on its western boundary; some of the peaks rise to 12,000 feet or more. There are many valleys where irrigated farming is carried on, however, and the eastern section gradually becomes more and more regular. The county is exceptionally well watered and could be developed to a far higher degree than it is, there being ample facilities for irrigating a vast area.

The principal streams of the county are the Canadian, most of the county lying in its drainage area; the Pecos, and the Santa Cruz, both of which rise within its borders. The Mora river, a tributary of the Canadian, furnishes most of the water used for irrigation. There is an irrigated area twenty-two miles long and from 440 yards to three miles wide along this stream and its extension, the Agua Negra. Along the Guadalupita there are lands five miles long and three miles wide which are irrigated, and in the extension of this district to Lucero there is a strip ten miles long and a quarter of a mile across. The Caherry, Watrous, La Cueva and Llano del Coytoa districts also have considerable irrigated areas. The total irrigated land in the county was 19,080 acres in 1910, with 32,668 acres included in private and co-operative irrigation projects. The irrigation is mostly from streams, though there is a small amount of irrigation water taken from springs.

There are 88,013 acres of national forest land in the county, from which a great deal is cut every year. The principal portion of this is included in the Pecos forest, whose game and fish attract many hunters and tourists each year. This forest, with the Mora grant, covers the entire western portion of the county.

There are very promising mineral indications in the mountain sections. At Rociada some development work has been done, also at Coyote. There are large deposits of good brick clay, red and white sandstones, and limestones, all of good quality, in the county. There are workable deposits of coal also.

Mora County has about forty miles of the Santa Fe main line within its borders and is crossed by the El Paso & Southwestern line to Dawson.

There are 64,400 acres of agricultural lands in Mora County, valued at $332,000, and 512,000 acres of grazing lands, worth $321,000. The mineral lands do not appear on the tax rolls, since so little development has been done. The timber lands in private ownership, of which there are 1,521 acres, are valued at $3,424.

There are 1,988 farms in Mora County, 730 of them being of less than 100 acres extent, while sixty-one are of more than 1,000 acres. Most of them, however, are of between 160 and 174 acres. Farm products in the county are worth $558,000 a year, which places Mora County very near if not at the top of New Mexico agricultural counties. The principal crops are cereals, hay and forage, vegetables and fruits in the order named.

MORA COUNTY BOASTS OF FINE ANGORA GOATS

There are 601,515 acres in farms in Mora County, 36.6 per cent of the total.

Livestock is also an important industry in this section, the annual receipts from the sale and slaughter of animals

being $588,000. In addition to this wool and mohair clipped from the county's producers of these staples each year are worth $64,580. Poultry and eggs bring in $8,765 a year and dairy products $3,200.

The county has $81,000 invested in 4,600 horses, has 162 mules worth $4,900; 10,600 cattle, worth $114,-700; 60,000 sheep, worth $82,000 and goats and swine worth $4,700 more.

Shares of bank stock owned in the county are valued at $11,100 and town lots at $28,500, with improvements worth almost as much more. The railroads in the county are valued at $857,000. The valuation of the county is $6,084,410, on one-third of which taxes are required to be paid.

Of the area of the county, there are lands open to homestead entry as follows: Under the Clayton land office, 52,900 acres, arid, broken and grazing land, all of which is surveyed; under the Santa Fe land office, 162,-888 acres, of which 141,724 acres are surveyed. About three tiers of townships on the eastern end of the county, and one or two isolated regions, are subject to entry under the enlarged homestead act.

The county has a population of 12,611 according to the 1910 census, but the 1914 school census shows 4,288 persons of school age in the county, which would indicate a population of about 14,850 in all. The county has thirty-four schools, taught by sixty-six teachers, all of which have at least a five months' term.

The county has shipping points along the Santa Fe and El Paso & Southwestern, the principal ones being Wagon Mound, Watrous, Shoemaker, Roy. Other important towns are Mora, the county seat, in the western portion of the county; Guadalupita, Holman, and Gascon.

A great deal of road improvement is being done in Mora County and as the natural roads are very good anyway under ordinary circumstances, a fine highway system is resulting. The county recently let contracts for two bridges at Watrous, which will close a bad gap in the transcontinental auto routes which follow the Santa Fe trail.

WAGON MOUND—MORA COUNTY

THE city of Wagon Mound, probably the largest settlement of Mora County, has always been a point of some importance in northern New Mexico. In the early days it was an important station on the Santa Fe trail. Later it was important as one of the few towns so far north, and later still it has come into prominence as an agricultural center. All sorts of farming has been carried on near Wagon Mound within the last few years, the discovery that the rainfall was sufficient to grow crops there without irrigation having helped materially in the development of the community.

Wagon Mound is now on the Santa Fe trail automobile route to the Pacific Coast, a fact which insures the daily passage through the place of at least five cars and this year the number has been several times that. It is surrounded by beautiful country,

than of the eastern idea of New Mexico, and has a picturesque setting at the foot of the "wagon mound".

Wagon Mound was formerly called Santa Clara. Stories differ as to how it obtained its present cognomen, but the most reasonable one is to the effect that the town was named for the great isolated butte or mound which stands about it and which is said to resemble a prairie schooner when seen from a certain point. The place is the center of a large sheep and wool producing section for which it is the shipping point. With other industries in and around the place, there is every reason for it to evidence the prosperity which it displays to the observer.

A remarkable feature of the place is its schools. Although its population is only about 1,600 souls, it has four schools. Two of these are private schools, one of which has an enrollment of twenty-five. All grades, including the tenth, are taught and the attendance is very good. The teaching staff is excellent.

Wagon Mound has three large mercantile houses, two modern hotels, a good garage and a prospering bank. The development of the surrounding region from a strictly grazing country to one verging closely on the strictly agricultural has aided in the growth and prosperity of the place and as this development continues to its logical end the town will continue to grow. The so-called "dry" farming has made a marked success near Wagon Mound, oats and alfalfa doing especially well there. There are several good business opportunities in Wagon Mound.

WATROUS—MORA COUNTY

WATROUS is an important railroad point of Mora County and one of the largest communities of that section. Watrous is much interested in livestock, though the region immediately surrounding it is a field of success for agriculture in almost any form, due to the large supply of water for irrigation purposes, and the heavy rainfall which makes irrigation unnecessary in many instances.

Watrous has a population of about 500 souls. It has good public schools where all the grammar grades are taught, several churches and some rather large mercantile houses which supply the cattle and sheep ranches which make Watrous their shipping and supply point. Near the town are grown considerable quantities of beans, buckwheat, kafir corn, cane and millet. Crops of these are certain every year and there are some good crops of wheat, oats and barley matured in the vicinity. Watrous is an important shipping point for wool, sheep and cattle raised in the regions east and west of the railroad line which crosses Mora County from north to south. The prosperity of the place is secure in its position as a shipping and supply point for the stock ranches but the development of the agricultural lands in the section is yearly bringing a great measure of progress and advancement to the town.

VALMORA SANATORIUM AT WATROUS

It is located on the route of the Old Santa Fe Trail, where now thousands of automobiles travel east or west each year, replacing the stage coach traffic of the old days with one much faster and much more to the benefit of the country traversed.

TORRANCE COUNTY

THE county of Torrance is one of the latest to be created in the State of New Mexico and is chiefly remarkable for the rapid growth the dry-farming system has made there in recent years. Dairying has also had large advances. The county contains considerable timber and lumbering is an important industry in the Manzano mountains in the eastern section. Some mineral has also been located there and in the Gallinas range.

Torrance County lies almost at the geographical center of the State. It has no streams and is principally grazing country, though agriculture has prospered in the more heavily watered sections and wherever wells have been put down. Water can be obtained for irrigation at many points in the county from an underflow which seems to reach a wide area. Torrance County has an area of 3,330 square miles, or 2,156,160 acres. Of this there are 615,981 acres under the Santa Fe land office open to homestead entry, of which 468,141 are surveyed, and 166,472 acres under the Roswell district, all of which has been surveyed. A very large area, nearly all the public land, in fact, is open to enlarged homestead entry.

There are 359,683 acres of national forest lands in the county, most of which is in the Manzano mountains and on the attendant slopes.

Torrance County has good schools and pays its teachers well. Term runs from five months, the state minimum, up to nine, in the different districts. The school population in 1914 was 2,184. There are forty-three school buildings and the county employs fifty teachers.

There are good natural dirt roads in Torrance County. The Gran Quivera highway crosses the county from southeast to northwest. It reaches through several other counties and is the first highway of its general direction in the State. The main east and west road is a part of the Panhandle-Pacific highway and is a very good road on which much maintenance work is done. The main north and south road is in very good condition and is being improved.

The county has three railroads in it, the Belen cut-off of the Santa Fe system, the El Paso & Southwestern's line northeast from El Paso to Tucumcari, and the southern end of the New Mexico Central, which connects with the Rock Island. There are several good towns along these railroads, furnishing easy markets and shipping points for the farmers and stock-raisers. Among these are Mountainair, the smallest city in the world where a Chautauqua is held each year; Willard, Torrance, Moriarty, Estancia, McIntosh, Duran and Encino.

There are 2,069 farms in the county, having a combined area of 369,774 acres, or 17.1 per cent of the total area of the county. Most of these farms are in 160 acre class, being, in fact, homesteads, but there are a vast number in the class of 260 acres and over and five have more than 1,000 acres each. The most important crops are cereals, vegetables and hay and forage, in the order named. Farm products are worth $233,000 annually.

Although it has been pushed back somewhat of late years by the dry-farming and dairying lines, livestock remains the most profitable industry in Torrance County. Its annual revenues from stock sold and slaughtered total $232,000, with $129,000 added from wool and mohair sales. Eggs and poultry bring in $13,000 a year. There are 2,170 horses in the county, 350 mules, 2,900 cattle, 50,000 sheep and some goats and swine, the whole having a value of $176,000. The county has $11,700 in bank stock, $41,000 worth of town lots, whose improvements are worth about as much more; some saw mills and salt gathering plants, $7,000 worth of telegraph and telephone lines and about one and two-thirds millions of dollars worth of railroad lines.

The population is 10,119, according to the 1910 census, and the assessed valuation $7,888,071, taxes being paid on one-third of this, according to law.

Torrance County has 361,000 acres of agricultural land, valued at $445,000, but the method of classification is evidently different in this county from any other, dry-farming land being classed as agricultural. There are 13,855 acres of grazing land, worth a dollar an acre; 3,960 acres of timber land in private ownership.

BERNALILLO COUNTY

A GREAT IRRIGATED FARMING DIVISION OF NEW MEXICO

BY H. B. HENING

BERNALILLO, one of the original counties, created when New Mexico became a territory of the United States, has been reduced by a long succession of new county creations until it is now the State's smallest political division. It is located close to the geographical center of the State; its eastern end being covered by the towering Sandia and Manzano mountain ranges, its western half being a succession of high mesas rising toward the Continental Divide and suited only for grazing, save where the Puerco river supplies a meager and uncertain water supply for scattered tracts of irrigated land along its narrow valley.

The Rio Grande, New Mexico's principal river, runs almost through the center of the county, from north to south, flowing within a mile of the city limits of Albuquerque, and creating a valley from two to seven miles wide in which lies one of the most fertile agricultural areas in the west. Incontestable and adequate water rights are owned in this valley for an acreage considerably larger than that which is now being reclaimed by the government's great Elephant Butte storage project, 180 miles to the south. This area of approximately 250,000 acres offers an exceptionally attractive field for development, especially for the small farmer who is equipped to undertake intensive farming. It has the advantages of abundant and certain water supply through the most economical form of irrigation, the old-time community ditch, or acequia; ideal climatic conditions and markets in Albuquerque and through splendid railroad facilities, which cannot be over-supplied. Practically the entire population of the county live in Albuquerque and in this tributary valley, and outside of Albuquerque the population is almost wholly agricultural.

The irrigation system is an enlargement of the primitive community acequia which the first Spanish explorers found the Indians using. Farmers in a given district band together and build a ditch to serve their lands, diverting the water from the Rio Grande by wing diversion dams of logs and earth, and apportioning the cost of maintenance according to the number of acres and volume of water used. There are twelve large community canals of this kind in the county and a number of smaller ones. Cost of water under this system is the lowest of any irrigation system in the world, frequently being as low as 90 cents an acre a year. On the other hand the system is wasteful of water that is precious. A majority of the canals are maintained along the original ditch lines of the Indians, laid out centuries ago, and wander over the landscape almost at will, resulting in large waste of land and serving less than one-third of

BERNALILLO COUNTY COURT HOUSE—ALBUQUERQUE

the total acreage for the irrigation of which water rights are available.

The reconstruction of this community ditch system, its concentration into main canals on either side of the river, and its extension to take in all the land owning water rights, form the chief development work before the community, now possible through laws permitting bonding of lands for district irrigation and drainage projects. A survey of Bernalillo County has just been completed which opens the way to immediate carrying out of these necessary projects. Adjustment of water rights in the Rio Grande watershed, following completion of the Elephant Butte project, will release water for a considerable additional acreage. In the meantime the supply for the ditch systems now in use in this county is adequate and never-failing.

Because of the primitive character of the irrigation system lands along the community ditches can be bought at prices which are very low, when compared with land prices generally in the irrigated west. Land with water rights may be had within five miles of Albuquerque as low as $50 an acre; while improved, irrigated farms within three miles of the city limits may be bought as low as $100 an acre. The possibilities of this cheap land are seen immediately when it is stated that highly improved land close to the city limits of Albuquerque, now being farmed intensively, is held at $1,000, $1,500, and $2,000 an acre. It is not a district for the homesteader, for there are no homestead lands open to entry in the entire county which are suitable for farming. Nor is it a district for the settler without means and expecting to farm "upon a shoestring". But for the practical farmer of moderate means, who is prepared to buy a tract of this land, to equip it properly and to farm it intelligently and thoroughly, the opportunity for large and quick profit in the section of the Rio Grande Valley immediately tributary to Albuquerque probably has no equal in the whole of the United States. To the practical farmer of irrigated land, prepared to finance his preliminary operations it is as nearly "a sure thing" as any human undertaking can be.

The climate in this valley is almost ideal and climate, weather conditions, character of water and of soil are adapted to all forms of general farming, truck farming, vine culture and fruit growing, with the single exception of the citrus fruits for which the winters are too severe. The first frosts come in mid-October and the last in early April, but the winters are open and except for six weeks in mid-winter when at this altitude—4,900 feet—nights are quite cold and snow flurries frequent, outdoor farm work is possible the year through. The main field crop is alfalfa which grows for four cuttings each season and produces, under careful farming, two tons to the acre per cutting Although alfalfa prices generally are high enough to make selling the crop in the open market a strong money maker, many farmers now are beginning to feed their hay, finding a larger profit in fat cattle and sheep and in the large and certain profits from dairy stock. The Albuquerque creamery, the largest in the State, made 435,000 pounds of butter in 1914 and paid farmers $101,000 for cream. It was the creamery's first full year of operation. Its estimated production for 1915 is 750,000 pounds of butter.

Poultry farming is a proven industry with quick and heavy returns. The annual New Mexico poultry shows, held in connection with the State Fair, and the Albuquerque mid-winter poultry shows have been pronounced by

NEW SCHOOL HOUSE AT LOS PADILLAS, DISTRICT No. 6

experts the equal in character of exhibits of any in the West.

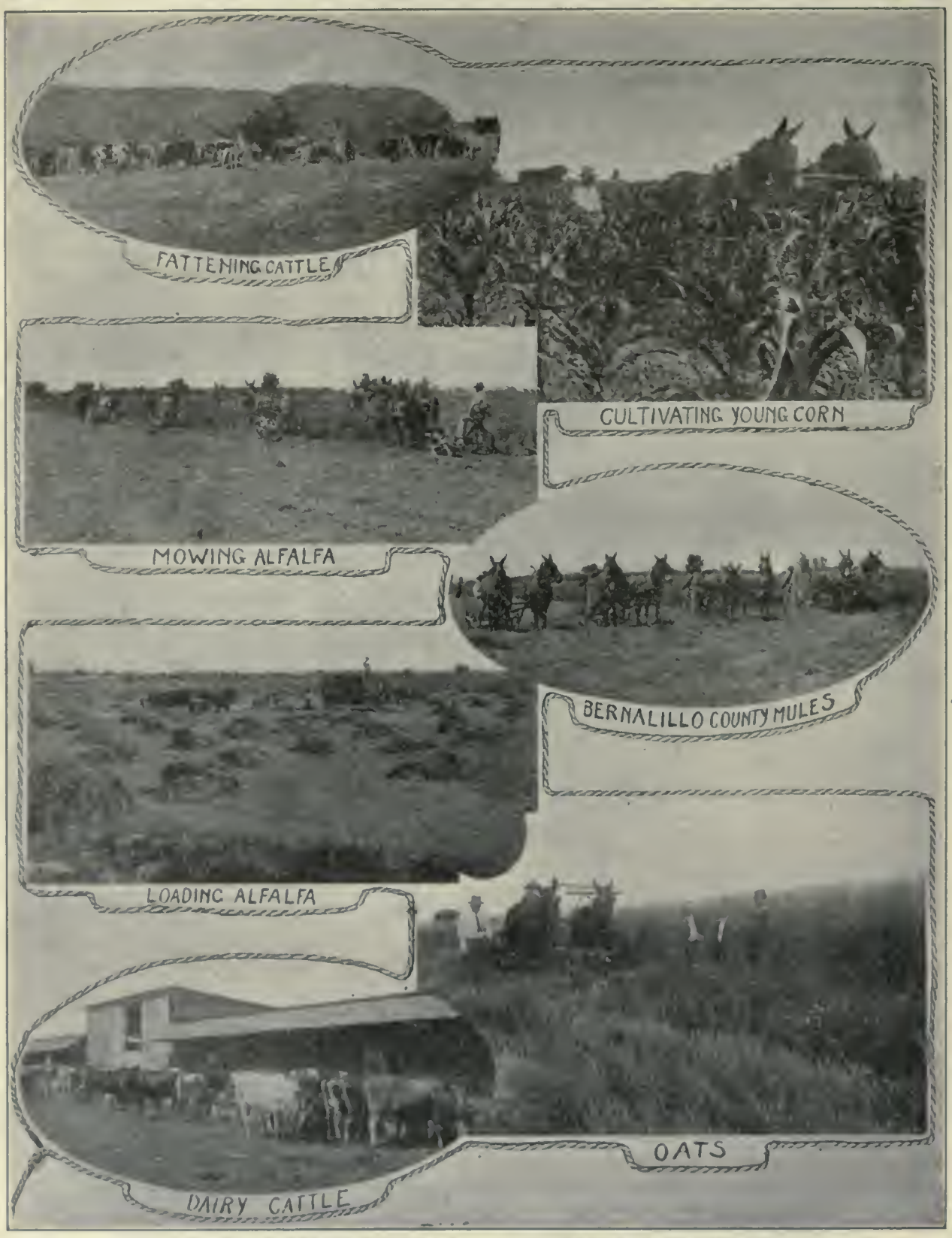
Apples, peaches, apricots, plums, pears produce enormous crops in this valley of the highest class of fruit. Modern orchard culture is just in its beginning, but the results obtained prove beyond any question where the greatest farm profits of the valley eventually will be found. Grape culture also is a maker of money. The Spanish Mission grape, introduced by the early Spanish pioneers, and now native to the region, is one of the most delightful of table varieties, and fair for wine making. But almost every variety of grape known on the continent has been tried in this valley and has succeeded. The light, sandy soil and the clear, pure air and almost continual sunshine produce a grape of most superior quality.

NEW SCHOOL BUILDING AT RANCHOS DE ALBUQUERQUE, DISTRICT No. 4

Especially for fruit and grape growing the first level or bench lands along the valley furnish an exceptionally attractive opportunity for development. There are approximately 100,000 acres of these lands, held generally in small tracts to be had at from $25 to $100 an acre, and which can be irrigated by pumping from the inexhaustible underflow of the Rio Grande, with a lift varying from ten to sixty feet. Power lines already have been extended for five miles north and south of Albuquerque and a number of pumping plants are in operation. Government and other irrigation engineers, after years of study, have concluded that at least two-thirds of the whole annual flow of the Rio Grande watershed runs through the several sand strata beneath the river bed. This series of strata extend clear across the valley in Bernalillo County and provide an inexhaustible water supply for pumping. Very extensive development will be carried out with these bench lands, and by pumping for the irrigation supply during the next few years, and large profits will be realized from the development. It is an opportunity in western irrigable land which is worthy of very careful investigation by any man looking for a home or a land proposition based on plain provable, clean-cut merit.

Stock farming in Bernalillo County will be confined chiefly to feeding. A large number of the wealthiest stockmen in the State make their homes and headquarters in Albuquerque, and about two-thirds of the entire cattle and sheep and wool business of the State passes through that city's markets and banks, but the stock for the most part is grazed in other counties of less restricted grazing area. The grazing lands of Bernalillo County, aside from the Sandia and Manzano mountain ranges, covered by the Manzano national forest, are limited in area and of inferior quality as compared to grazing lands elsewhere in the State. The county's chief resource is its agricultural land in the Rio Grande Valley and with this enormous resource its future growth in farm area and wealth is certain.

While still in the prospecting stage, the making of a great mining district has been opened up in the Sandia and Manzano mountain ranges which cover the eastern end of the county and stand as a protecting wall again winter winds. A vein of lead-zinc ore, identified as the same vein, has been traced by reliable mining engineers for a distance of fifteen miles through these mountains. In places it has been opened up on rich ore faces and in the opinion of a great many engineers the district will show very large deposits of both lead and zinc as development proceeds. Some gold has been encountered and two large deposits of copper have been opened up. Transportation facilities will be required for profitable mining of the latter, but the zinc and lead ores are sufficiently rich to permit of hauling fifteen to twenty miles to the railroad. The mining prospects of Bernalillo County were never brighter.



RANCH SCENES IN BERNALILLO COUNTY NEAR ALBUQUERQUE

TRADE CENTER OF THE STATE

ALBUQUERQUE

BY H. B. HENING

METROPOLIS OF THE STATE

ALBUQUERQUE is New Mexico's largest city and the chief business center of the State. Its people are accustomed to speak of it with a pardonable boastfulness, as "the biggest little city in the United States". The boast is founded largely on fact, for Albuquerque, although its population is relatively small—about 25,000 within a radius of three miles of its business center—through its established reputation as one of the great health resorts of the continent, through varied industries, and through the widely varying industries and resources of the great trade territory surrounding it, has a cosmopolitan population, an industrial and trade range and a business volume which give it all the atmosphere of the larger cities of the West.

The original settlement was founded by the early Spanish colonists who followed the Conquistadores, and was named for the Duke of Albuquerque. The cathedral of San Felipe de Neri, in the old village, was built in the seventeenth century, and stands, restored, in its original form. The present city, however, was not founded until 1879 when the Santa Fe railroad neared the northern New Mexico line, and the Atlantic and Pacific, now the Santa Fe coast lines, began its construction from Albuquerque to the coast. The railroad from the east was completed into Albuquerque in 1880 and the town became, almost immediately, the trade center of the State and of a territory with a radius of 250 miles in every direction and to the north and west of nearly twice that distance.

Located almost in the geographical center of the State, Albuquerque's position as a trade center has been strengthened by almost all the railroad construction which has followed the pioneering of the Atchison, Topeka and Santa Fe. Lines of that system reached north, south and west into a larger part of the State, and when in 1911 the Atchison's east and west line was completed into Texas

COMMERCIAL CLUB BUILDING—ALBUQUERQUE

and the gulf, the city became the center of a four-point railroad star, the railroad, as well as the trade center of the State.

The strength of Albuquerque's industrial position may be better understood when it is said that three of the

ICE AND COLD STORAGE PLANT—ALBUQUERQUE

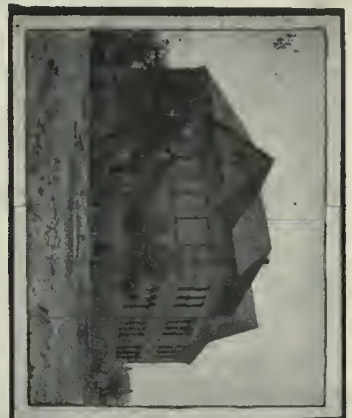
State's greatest industries, livestock, agriculture and timber, center here. New Mexico livestock transactions represent a gross business of ten million dollars yearly in sheep and wool and half as much again in cattle. Two-thirds of this business is handled through Albuquerque firms, commission houses, banks or livestock owners. The third district headquarters of the national forest service are located here, the district offices having charge of forests of New Mexico, Arizona, Oklahoma and Arkansas. The huge plant of the American Lumber Company, with a daily capacity of 300,000 feet, is within the city limits, and the general offices of the Santa Barbara Tie & Pole Company also are in Albuquerque. This latter company operates in northern New Mexico, driving its logs and ties down the Rio Grande with the summer flood waters, a distance of 200 miles or more.

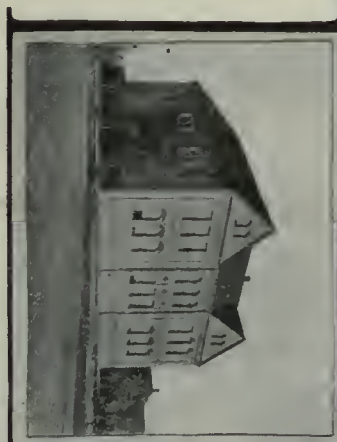
The city's trade position is best shown by its banks and wholesale houses. The First National, with capital and surplus of $400,000, has total resources of approximately $5,000,000, the strongest bank in the two far southwestern states The State National, a husky ten-year-old institution has resources of approximately two and a half million. The Citizens Bank is a young and rapidly growing bank with a state charter, and two flourishing trust companies complete the city's equipment of financial institutions. Nineteen wholesale establishments, covering practically all staple lines, with trade covering not only New Mexico but southern Colorado, west Texas and Arizona, have their main offices and warehouses in Albuquerque. These establishments form a wholesale community which might properly be expected in a city of 250,000 instead of 25,000. And this is one feature of Albuquerque which must be kept in mind for a proper appreciation of the city's financial and trade position. It is a small city, in population, but it has a tributary trade territory, range and farm and forest, of which any city in the nation, large or small, could be fairly boastful. There is no city of double the

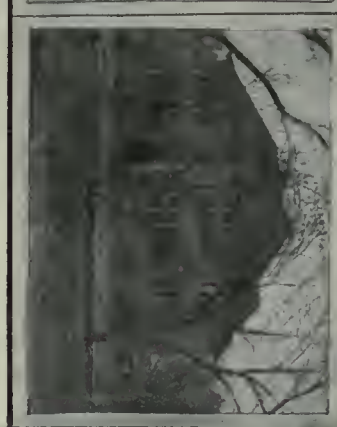
ALBUQUERQUE WOOL SCOURING MILLS
Over 100 Employes Handled Over Forty-Two Million Pounds of Wool In Last Ten Years.

population, in the entire country which has so large a trade range, including resources and development opportunities as varied. That is the reason Albuquerque is an opportunity city. It is the center of and in immediate touch with the greatest undeveloped section of the continental United States. New Mexico's resources of coal, the metals, forests and agriculture have barely been scratched. Its livestock possibilities are but half developed; and to all of these fields of almost boundless opportunity, Albuquerque is the gateway, as it will remain the center as development proceeds.

Experts, scientific students of the national scourge, tuberculosis, have designated the region within a radius of twenty miles around Albuquerque, as "The Heart of the Well Country," the region above all others in the western hemisphere where climatic conditions are best adapted to the successful treatment of diseases of the throat and lungs. There is an area, of which Albuquerque is the center, extending for twenty miles up and down the Rio Grande Valley and of an average width of twenty miles, in which the average rainfall through thirty-five years of government recorded observation, is less than eight inches annually. The elevation is approximately 4,900 feet. There are three hundred days of sunshine, upon an average, in every year. High mountain ranges to the north and east protect the region from winter winds and guard against extremes of heat or cold. These conditions students of climate as it relates to the treatment of tuberculosis, pronounce most favorable of any to be found even in the Rocky Mountain plateau. The result has been to attract national attention to Albuquerque as a health resort. The Presbyterian church has placed its national sanitarium for tuberculosis here, as has the Methodist church. The city is being favorably considered by the Loyal Order of Moose and the Independent Order of Odd Fellows as the location for the great sanitaria these orders propose to build. A number of private institutions, thoroughly modern in equipment, are filled to capacity and hundreds of people from all parts of the United States make their homes in Albuquerque primarily for health. Albuquerque has only recently begun the exploitation of its great climatic resources. The response has been instantaneous in a great influx of healthseekers; people who are building homes and whose expenditures contribute materially to the city's prosperity.







ALBUQUERQUE IS PROUD OF HER FINE SCHOOL BUILDINGS

While Santa Fe is New Mexico's seat of government, Albuquerque is the State's educational capital. The University of New Mexico is located here, occupying a large tract of land on the brow of the mesa which overlooks the

INDIAN CURIO BUILDING—SANTA FE RAILROAD STATION—ALBUQUERQUE

city and the Rio Grande Valley; its unique buildings, copies of the best architecture of the Pueblo Indians, and standing out strikingly against a background of towering mountains, housing one of the best equipped of western Universities. The institution, in addition to its state support by direct appropriation, has an endowment from the federal government of a vast area of valuable land, given when New Mexico became a state.

The city's public school equipment is adequate for a city of a hundred thousand people, centering around a modern high school building completed in 1914 and representing an investment of $125,000. Five ward school buildings, all modern in every respect, complete the city school system. St. Vincent Academy, a Catholic school for girls, has a patronage gathered from all parts of the Southwest, as has the Immaculate Conception school, for boys. The United States Indian Training school, the largest of the government institutions of the class in New Mexico, represents an investment of $250,000 and cares for 400 Indian boys and girls. The Harwood schools for boys and girls, the Menaul Mission school, and the Rio Grande Industrial school are denominational institutions of state-wide scope. The Albuquerque Business College has a state-wide patronage. Educationally, Albuquerque's equipment is superb.

All of the principal churches have their own buildings in Albuquerque, nearly all of them modern and many of them architecturally beautiful. This is especially true of the Catholic churches, of which there are three. The cathedral of San Felipe de Neri, in the old village of Albuquerque is a perfect type of the later Spanish architecture in New Mexico, while the Immaculate Conception cathedral is a beautiful modern church. The Methodist denominations, the Presbyterian, Congregational, Baptist, Christian, Lutheran, all have their own buildings, and Temple Albert, the Jewish synagogue, is an especially fine building. The churches are well supported with growing congregations in every instance.

Late in 1914 Albuquerque in a campaign of ten days raised $75,000 for a Young Men's Christian Association building, which is now under construction. The Young Women's Christian Association has owned its own building for a number of years. The Albuquerque Woman's club owns its own home, a one-story building built by the club, especially for club purposes and serving all the purposes of a social center. The Country club completed its own building in 1914, an attractive club house in mission style, located near the University campus and surrounded by golf links, tennis courts and with all the equipment of a first-class country club.

The city's chief community institution, however, is the Commercial club, an organization of business men founded when the modern city was founded and since that time the motive power behind every important forward movement. The club owns and occupies its own building, a handsome three-story brownstone structure in the center of the city,

HIGH SCHOOL BUILDING

built at a cost of $75,000 when Albuquerque had less than 10,000 people. It is one of the best known community organizations in the West and is as vigorous and as effectively active today as when first established.

The various fraternal orders are especially strong in Albuquerque. The Masonic Temple, a beautiful building, was completed in 1912. The Odd Fellows, the Knights of Pythias and the Elks own their own buildings, the latter

GARDEN TRUCK UNDER GLASS AT ALBUQUERQUE

now being remodeled from a theater building, for which it was originally built, into a fine modern three-story club house. The other leading fraternal orders own their buildings or have well appointed lodge quarters.

Albuquerque's public utilities are in private ownership, but are modern, well managed and efficient. The water supply, obtained from wells at varying depths, is abso-

BERNALILLO COUNTY ONION FIELD

lutely pure and abundant. Water rates are moderate and the service excellent. The electric light and power plant and gas plant are thoroughly modern and adequate for all demands. The city is well lighted from boundary to boundary and an ornamental lighting system contributes materially to the attractiveness of the business district. Nine miles of trolley line reaching all sections of the city furnish good transportation service.

The city owns its own municipal building, completed in 1914 without a bond issue, the work being paid for from current funds surplus as completed. It houses the police station, all city offices and one of the city's two fire stations, both of which are equipped with thoroughly modern motor-driven apparatus. The city government is the old form of mayor and aldermen, elected every two years, but is singularly free from any taint of corruption and generally recognized throughout the Southwest as a model of clean efficiency. Vice is rigidly controlled and saloons, operating under high license, are carefully supervised. In proportion to population, Albuquerque has less of serious crime

TRUCK GARDEN NEAR ALBUQUERQUE

against its record for the past ten years, than any other city in the country; the result of a small, but thoroughly efficient police force.

The city's sanitation equipment is modern and adequate, a new sewer system having been completed in 1912 at a cost of about $450,000. This, with several miles of paved streets, covering the whole of the business district and several residence streets, and about fifty miles of cement sidewalks and crossings, and well-organized health department combine to make Albuquerque a healthy and pleasant residence city.

The Raynolds free public library, a three-story brick and stone building, the gift to the city of Joshua Raynolds, is a well-stocked institution, maintained to meet the city's needs.

The government building, erected at a cost of $200,000

in 1911, has now become inadequate for the needs of postoffice, federal court and other purposes and an appropriation of $200,000 for enlargements is pending before congress.

This, briefly, is Albuquerque's municipal equipment. The public spirit of its people will keep it adequate to meet every demand as the demand arises. For the public spirit and community loyalty of Albuquerque is proverbial in New Mexico.

During 1914 the Atchison, Topeka & Santa Fe began construction of additions to its already large locomotive and car repair shops in Albuquerque which when completed will have cost $2,000,000 and will give employment to two thousand men. This will mean a railroad payroll alone sufficient to support a good sized town. When there are added the other well established local industries and the rapid development now general throughout Albuquerque's trade territory, it is clear that growth and development on an important scale are immediately in prospect for New Mexico's chief city.

UNIVERSITY OF NEW MEXICO

BY DR. DAVID ROSS BOYD, PRESIDENT

THE last three years have turned the fortunes of the University of New Mexico into a channel somewhat different from that they have pursued in former days and have placed the institution on a firm foundation for future prosperity. The present aim of the University is that which has made other state institutions most successful, namely, to make it "the servant of all the people".

CAMPUS AT UNIVERSITY

The University at present is offering courses in all branches of engineering, in the arts and letters branches, in educational and advanced pedagogical work, and in several extension departments. The extension departments were arranged that the institution might be able to carry its work to those who were unable to attend it in person and that communities might call upon it for expert research, information or opinion in matters of science or public economy.

The University has 145 students, of whom all but six are of college standing. Until the high schools of the State are sufficient in number and standing to enable all their graduates to enter college immediately upon leaving them, the University will be compelled to give sub-freshman instruction and it is in this department that are en-

rolled the six students mentioned. This enrollment is the greatest, in point of college students, that the University has ever had. In total figures it is double that of two years ago. From all indications, it will be doubled once more in another two years.

The University now has a campus of 315 acres, over 250 acres being added in the last year. It is housed in thirteen buildings, the three most important of which are valued at $100,000; the others are valued at $27,800. Its equipment is valued at $45,000, which makes the total physical valuation of the plant $202,800. The annual appropriation made by the legislature in the past has gradually increased until for the past two years it was $45,000. The University also has income from its lumber and salt lands, of the last named of which it owns practically all there are in the State. These are very valuable. All told, the University owns about 400,000 acres of land, a great deal of which is still to be selected.

The library of the institution contains some 12,000 volumes exclusive of duplicates and unbound pamphlets. There are department libraries in each of the sections where reference books must be used in actual class work. The library is a depository for federal documents and consequently has a vast amount of reference material which is available for public use.

The president of the University and a committee named by him are vested with the power of choosing the State's representatives at Oxford as Rhodes scholars and have so far sent five men abroad to take advantage of the opportunities so presented.

The University was created as a territorial institution by act of the legislature, January 28, 1889. The passage and introduction of the act which created the institution was due to Bernard S. Rodey, since called the Father of the University, in honor of whom Rodey Hall is named. When the State was erected from the territory the institution was continued under the constitution as a state affair. It is non-sectarian in character and tuition is free to all residents of the State of New Mexico.

The government of the University has always been in the hands of a board of regents, five of whom are appointed by the governor with the confirmation of the senate, the governor himself and the state superintendent of public instruction being the other two. The first regents were Elias S. Stover and Frank W. Clancy.

Former Governor E. S. Stover was the institution's first president, being succeeded by Hiram Hadley as vice-president in charge, then by C. L. Herrick, William George Tight, Edward McQueen Gray and the present president, Dr. David Ross Boyd.

The first building to be erected was the one now known as Administration Hall, where in June, 1892, the first course was offered, a summer normal course. In 1896 the gymnasium followed, then the Hadley laboratory, since destroyed, and the power plant, dormitories and other structures, including the new engineering building.

If three years of college work are done prior to the work in the school of pedagogy, the degree of bachelor of pedagogy is conferred upon its graduates. Otherwise certificates showing the amount of work done are given. These entitle the holder to practice teaching for three years without examination, are, in fact, equivalent to a second grade teachers' certificate.

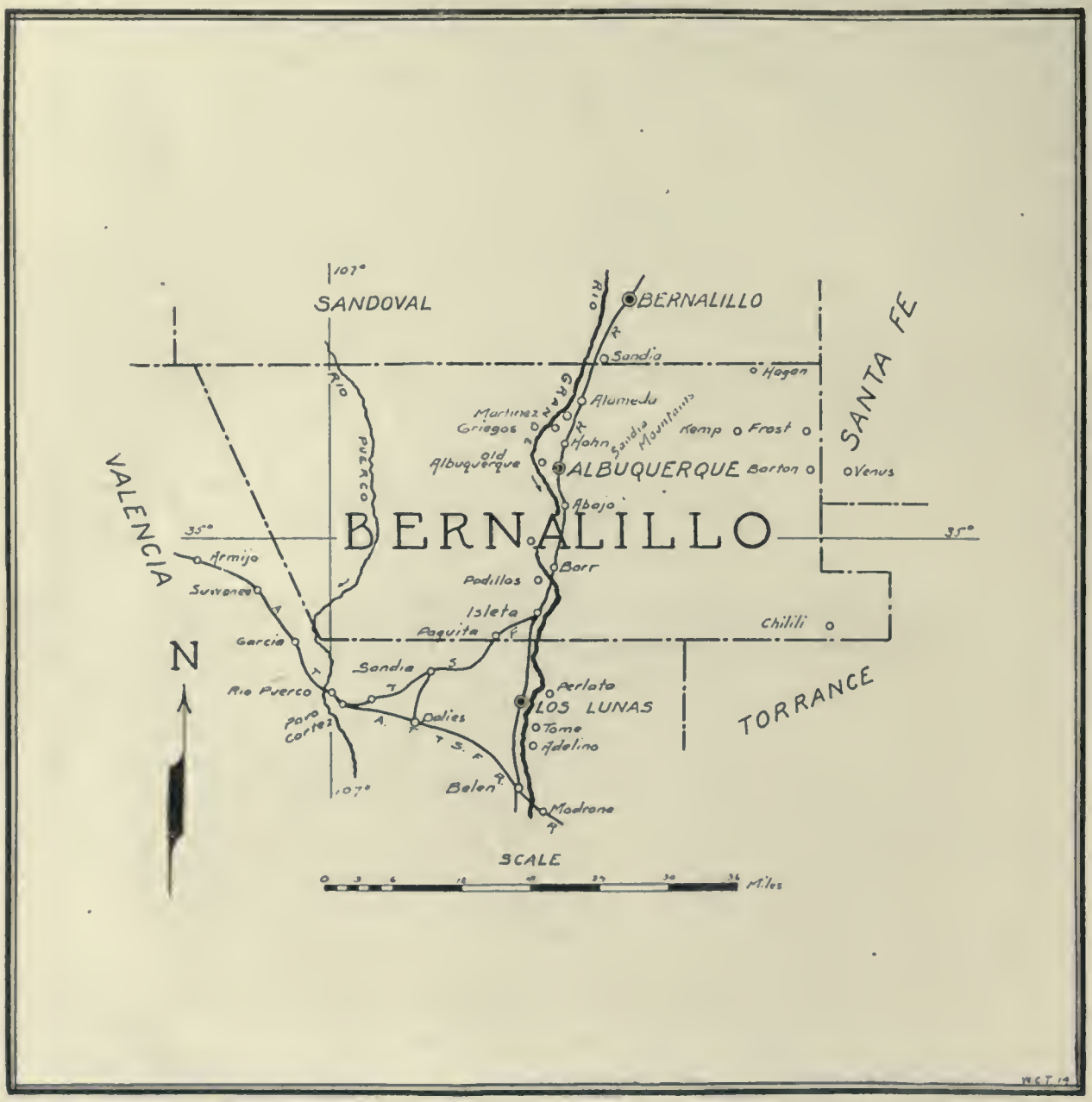
The school of applied science affords courses in electrical, mining, mechanical, civil and chemical engineering, with several variations. Ample laboratory facilities of the finest grade are on hand and the University exhibits great liberality in providing apparatus for special research work by advanced students. The elementary work in the engineering courses is largely standarized, specialization being confined more to the later years.

The arts and letters college offers attractive courses in ancient and modern languages, history, English, music and other branches. The degree of B. A. is given in each branch section of the University, but the requirements are particularly difficult.

One hundred twenty hours of "A" work are demanded for graduation of an arts and letters student, while slightly more is asked of a science student. If the grading falls below A, which is reckoned as ninety per cent or more, one additional hour is demanded for each seven hours of such delinquent work. If the grading falls below eighty per cent, or the lower limit of the "B" grade, one additional hour is demanded for each fourteen hours of such delinquent work.

The University has recently added materially to its faculty and plans still further advancements in the near future.

One of the most striking features of the institution is the uniform application of an unique style of architecture. The buildings are all designed in imitation of the dwellings of the Pueblo Indians, and afford an attraction for the University at once unique and pleasing. The types followed in general line at the University are to be found in the Pueblo of Taos, where the pure Pueblo type of dwelling is best preserved. Owing to this feature the institution has attained a good deal of publicity over the country and has developed a special appeal among its students and others who have been in contact with it and observed its buildings.


BERNALILLO
SANDOVAL
SANTA FE
VALENCIA
TORRANCE
107°
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BERNALILLO
ALBUQUERQUE
Old Albuquerque
LOS LUNAS
Sandia
Hagen
Alameda
Martinez
Griegos
Kemp
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Hohn
Sandia Mountains
Barton
Venus
Abajo
Armijo
Suwanee
Garcia
Rio Puerco
Paro Cortez
Sandia
Dalies
Belen
Madrone
Perlota
Tome
Adelino
Isleta
Paquita
Padillos
Barr
Chilili
Rio Grande
SCALE
Miles

CHAVES COUNTY

THE county of Chaves, second largest subdivision of the State, is a striking example of the change from strictly grazing or livestock communities to agricultural or intensive cultivation communities as characteristic of New Mexico, and this despite the fact that large areas of Chaves County will never be brought into cultivation. The county in former days was entirely a stock-raising community. When beef was high, it was prosperous, when that staple went down, its prosperity declined. Of more recent years, however, the use of electricity for pumping irrigation water from the underflow has been developed and worked out to its highest efficiency in the Pecos Valley section of Chaves County, while the discovery and development of a large artesian belt in the same section, and of a shallow pumping belt of even greater dimensions, combined with this to bring the naturally fertile soil of the section into productivity.

Where once was waste land, arid bench and rolling swale, is now graded and leveled orchard or field. The Chaves County valley section has come into its own, and done so with sufficient emphasis to make the county as a whole able to stand on its feet and accept comparison with any agricultural county in the State as a producer of field crops, horticultural products, garden stuff and many specialized crops.

Chaves County has an area of 9,599 square miles, or 6,021,120 acres, being exceeded in size only by Socorro County, which is approximately fifty per cent larger. It is a plains country almost entirely, though on its western boundary the foothills of the White and Sacramento mountains break the terrain somewhat. On the southwestern edge lie the Guadalupe mountains. The principal stream is the Pecos river, which divides the section from north to south and receives the flow of such tributaries as the Arroyo Yeso, Arroyo Conejos, Deep Creek, Salt Creek, the Hondo, the Berrendo and the Rio Feliz. The county has some valuable timber lands, as more than 30,000 acres of woodland are included in farms and the national forest territory within its boundaries totals 69,760 acres.

CHAVES COUNTY COURT HOUSE

Within the last few years the improved land in Chaves County farms has increased more than fifty per cent. At

present the area included in its farms is 1,049,696 acres, or considerably more than one-sixth of its total area. Of these farms twenty-nine are of more than 1,000 acres, which in itself is evidence enough of the importance of the area as a stock producer. Most of the farms of the county are between 260 and 499 acres in area, though there are great numbers of them which have less than 100 acres. In fact, the large number of small farms is an indication of the practice of intensive cultivation in this county. According to the tax rolls, there are 145,794 acres of agricultural land in private ownership in the county, having a value of $1,583,567. There are still large areas of government land subject to entry, the Roswell land office having jurisdiction over 1,596,583 acres, of which 1,048,703 is surveyed, and the Fort Sumner office having jurisdiction over 803,521 acres, all of which is surveyed, of these lands. This is characterized as broken, rolling and grazing. Nearly two-thirds of this land is subject to enlarged homestead entry.

FARM HORSES—ROSWELL

The principal crops of Chaves County are hay and forage products, which are worth three-quarters of a million dollars annually, cereals, and, some distance behind them, fruits and nuts and vegetables. The farm crops are worth $1,020,514 a year.

CUTTING ALFALFA NEAR ROSWELL

The importance of the livestock industry to the county is evidenced amply by the census report of the annual value

of animals sold or slaughtered by Chaves County growers. This report places the value of such stock at $2,375,744, without the value of the wool clip, which is worth $233,-378 a year additional. Dairy products are worth more than $84,000 a year beside, while poultry produces $76,-052 every twelve months. The county has 568,566 acre of grazing land in private ownership, valued at $379,767. The total number of cattle owned within its borders is given by the tax rolls at 59,729, about three-sevenths as many as are owned in Grant County, the only one which exceeds it. These cattle are valued at $688,628. The Chaves County sheep, which number 107,487, are valued at $241,306. The 10,537 horses of the county are valued at $210,567, and the 1,500 mules at more than $60,000. The excellence of this stock is evidenced by the high total valuation in proportion to the number of stock listed. Both goats and swine are raised in Chaves County in considerable numbers.

TWO-YEAR-OLD ORCHARD AT ROSWELL

There are more than $566,000 worth of town lots in Chaves County, with improvements that are worth $850,-000. The development of irrigation pumping by electricity has called forth important electric developments, which are listed as worth $75,000. The telephone and telegraph facilities of the section are valued at $38,910

SIX-YEAR-OLD ORCHARD AT ROSWELL

and the railroads at $595,620. The county has the second largest listing of merchandise stocks in the State. Chaves County has $325,420 worth of bank stock. The county ranks first in number of automobiles owned.

INTERIOR OF ELECTRIC BARN

The total valuation of the county is $20,371,155, taxes being levied against one-third of this, according to law. This is the highest total valuation of any county in the State.

ELECTRIC DAIRY BARN—ROSWELL

The schools of Chaves County are among the best in the State. There are sixty-two school buildings in the county, 116 instructors holding forth in these. The 1914 school population was 5,370, indicating a total population of approximately 18,000. The 1910 census gave the county a population of 16,850. Of this 6,172 is in the city of Roswell. The population at the time of the twelfth census was only 4,773. The percentage of illiteracy among the males of voting age was three and four-tenths at the time of the thirteenth census, while ten years before it had been nine and two-tenths.

The thirteenth census, which has the latest available figures on irrigation in the county, gives the total acreage irrigated in the year it was taken at 56,064 acres, or about

nine-tenths of one per cent of the total area of the county, but it is certain that this has increased materially since that time. However, it was about 9,000 acres more than any other county irrigated the same year. There are 10,000 acres in the county under federal reclamation projects, which, however, irrigated but 1,200 acres in 1909. Co-operative enterprises included 9,600 acres the same year, and commercial enterprises some 31,000, 8,450 acres and 12,500 acres, respectively, being irrigated by projects of these classes in 1909. The same year individual and partnership enterprises irrigated 33,814 acres, the projects being capable of irrigating 55,703 acres. There are 471 individual irrigation enterprises in the county. Flowing wells to the number of 404 produce, at maximum flow, 428,640 gallons of water a minute for irrigation purposes. One hundred thirty pumped wells are capable of producing 50,000 gallons a minute additional. The water sources are about evenly divided between streams and wells, though springs and lakes furnish a small amount of water. Of the wells, most water is taken through natural flow, while from the streams gravity brings the water for all but about 200 acres. The county has an exceedingly

ROSWELL ARTESIAN WELL

LEA HALL—NEW MEXICO MILITARY INSTITUTE

large amount of money invested in irrigating enterprises of various characters, many times what was similiarly invested a decade ago.

One of the most striking features of the Chaves County agricultural, horticultural and livestock enterprises is the uniform high character of the material used in each instance and the correspondingly high returns. The cattle are very largely of the Shorthorn and Hereford varieties. The old type of Texas Longhorn has disappeared from the region. His place is taken by a single animal which, perhaps, eats as much as two of the old type but brings seven times as much in the beef market and a little less from the glue factory. The sheep are blooded animals, or are being bred up from blooded rams, for the growers have found that the high grade sheep eats no more than the "scrub" but brings in several times as much for his wool. The raising of hogs and mules for the market is attracting the attention of many of the valley farmers, while in the past year the fattening of beef cattle for the market has been taken up by the growers and alfalfa raisers in co-operation. This has given evidence of eventually becoming very profitable, and in addition will keep large amounts of money within the state that now go to Colorado, western Kansas and Texas.

The principal towns of Chaves County are Roswell, Hagerman, Dexter, Lake Arthur, Kenna and Lower Penasco.

The county seat is Roswell, a bustling little city which prides itself on its large area, wide streets, numerous churches, fine business blocks, stable and prosperous banks and unusually large mercantile establishments.

Hagerman is exceeded in size only by Roswell. It is a shipping and supply point for a large and extremely fertile area of orchard and farming land and was named in honor of J. J. Hagerman, whose enterprise and sagacity were largely responsible for the development of the Chaves County valley region. The irrigation enterprises of the section are noteworthy.

Dexter and Lake Arthur are more recent settlements but are prospering and are filling the demand for shipping and supply points at closer intervals in the valley. Both have substantial foundation for their continued prosperity as they are solidly founded on good agricultural regions.

THE GILKESON HOTEL AT ROSWELL—J. E. GILKESON, PROP.
One of the Finest Hotels in the Southwest

ROSWELL, NEW MEXICO
COUNTY SEAT—CHAVES COUNTY

ROSWELL, the seat of Chaves County, has the distinction of having the finest public buildings of any town in the State with the possible exception of the Capital.

The county court house, built of gray brick, at a cost of $175,000 all told, is the finest structure of its kind in the Southwest. The high school building cost $75,000, the federal building $75,000, the various structures of the New Mexico Military Institute represent an investment of $175,000, the Masonic Temple cost $75,000, and so on through a list of the very highest class structures.

Roswell has a population of about 8,000 and the standard of intelligence is very high. It has a school system costing around $200,000 with a staff of forty-eight teachers, and the course of instruction is complete and modern, all the way from the kindergarten to the ranking high school of the State. The Catholics also maintain a fine system, and the New Mexico Military Institute, the great school for boys, ranks high in the grading of the national government.

Under the state law all education is free.

Roswell's equipment as a city includes a fine municipal water plant, sewers, a model telephone system, one of the finest electric light and power systems, gas and ice plants, churches of every denomination, all secret societies, two daily newspapers, fine hotels, hundreds of splendid homes, the beginning of an elaborate system of street paving, four national banks with a combined business of over $2,000,000, a well-organized and efficient Commercial club, organized retailers, a battery of state militia with an $150,000 equipment, a model fire department, and all other city appurtenances.

Roswell as the center of one of the greatest range cattle sections in the United States, is fast coming to be a notable dairy center. Some of the dairies are equipped with electric machinery, silos, and stocked with the finest grades of cattle. Of the total county valuation of over twenty millions, a large part is represented in cattle, and both the beef and the dairy sections are steadily increasing.

In 1914 the total value of the herds of Chaves County placed in the markets aggregated more than a million and a half dollars, and 1915 will be larger still.

ROSWELL HIGH SCHOOL

Roswell is the center of one of the greatest artesian basins in the world, which furnishes water not only for the city itself but for irrigation over a vast area. These wells are from 250 to 1,100 feet deep, and flow up to 3,000 gallons per minute, of absolutely pure water.

The wells and the rivers supply vast irrigated areas, over 50,000 acres of general farm lands, worth from $40 to $500 per acre, and make possible the great valley staple, alfalfa, of which over 1,700 cars were shipped in 1914, not counting the heavy tonnage ground into meal and used for feed.

Roswell is the center of 25,000 acres of the finest apple orchards in the world, and the area of the trees is constantly increasing. The industry under proper conditions is highly profitable, many cases of a net profit of $500 per acre having been reported.

All other fruits do well, but apples are the great fruit staple, and under modern methods of control and care and frost fighting, the croppage is certain. All farm crops yield abundantly.

The Roswell Commercial Club answers any question.

A BEAUTIFUL ROSWELL COTTAGE

ROSWELL RESIDENCE CORNER

NEW MEXICO MILITARY INSTITUTE

THE State's distinguished military training school for young gentlemen is located at Roswell.

The well-known remark that a man should exercise great care in selecting his grandparents appeals to principals of schools whose founders selected unfortunate sites.

The authorities of the New Mexico Military Institute have nothing to regret. In 1898 the State opened at Roswell a school so favored in location and so adequate in equipment that its extraordinary success has not been surprising.

For Roswell is a town where nature is lavish in the things that make for health. The Pecos river flowing past and the hundreds of artesian wells form a rich oasis in the arid Southwest, a veritable garden spot. Here, at an elevation of 3,700 feet, is the forty-acre campus, studded with trees and grass flats. The air is clear, dry, and bracing; air with the tang of outdoor life; air that means health and vigor and keenness of mind. With the sun shining every day in this unrivaled climate, open-air sports and open-air drill are daily builders of physiques that stand the test of

THE NEW MEXICO MILITARY INSTITUTE BAND

time. Physical examinations are made upon entrance.

To the climate of Roswell add a military system that yearly wins the highest ranking bestowed by the United States government. Military training is especially effective under the spell of the West. All the broadness, the big, self-reliant way of doing things, the love of action, so typically western, seem to be of the essence of military instruction. The spirit of the section makes executive ability and self-command easy to develop.

CADETS ON DRILL

DEXTER, NEW MEXICO—CHAVES COUNTY

ALFALFA farms produce from six to eight tons of baled hay in a year that sells at from $10 to $12 loaded on the cars direct from the harvest fields. The farmer is independent of droughts, and a failure of the alfalfa crop is unknown.

There are two well-proven agricultural methods of making money in the Dexter country. One of these is alfalfa raising and the other is fruit farming.

Of these two there is none more certain of immediate returns than the alfalfa farm, with its four and five harvests a year, with its wealth-producing fields that stand for years without re-plowing, and which makes money for its owners in winter as well as in summer.

The region in and around the town of Dexter, N. M., is not the only prosperous part of the Pecos Valley, but it is one of the best parts. It has the largest scope of country subject to irrigation, the largest scope of fertile land, and the largest water supply.

The town of Dexter is one of the youngest towns of the Pecos Valley, and is steadily growing. It has never been boomed, but its growth has been along conservative lines and it is certain to continue to grow.

Of last year's crop of alfalfa hay, between 1,200 and 1,300 cars were loaded at the local switch of the Santa Fe railroad. Together with the hay that has and will be shipped from two other sidings, one two miles and the other five miles distant from Dexter, a total of over 1,500 cars will be the total of the hay crop that was raised in the Dexter country and which was not used locally. This is a conservative estimate, and in all probability the figures will be greater than this by the time all the hay is shipped.

There is now a well-established market for the produce of the alfalfa fields. Hay buyers stand ready to pay cash for the baled hay delivered on board cars at the railroad sidings. The market has been constantly growing and the demand increasing with the increase in production due to new fields being sown to alfalfa. The big state of Texas continues to take the most of the hay, but several hundred cars are shipped into Tennessee, Louisiana, Mississippi, Alabama, and even as far east as Florida, the Carolinas and Virginia.

Wherever Pecos Valley hay and particularly the hay raised by the careful farmers of the Dexter country has found an opening it has made a reputation for itself and has created a demand for more.

It has been learned that horses doing light work will thrive on alfalfa without grain; that the grain ration may be always cut down if alfalfa is fed. As a milk producing feed for dairy cattle it has no equal.

The yield in the Dexter country varies from five to eight tons to the acre for the four and five cuttings made during the summer. The best farms have produced more than eight tons to the acre for fields of more than 100 acres. Better records than this have been made on smaller areas. A yield of six tons to the acre is generally counted on for the year.

Last year the price during the summer averaged $10.50 per ton delivered on board the cars direct from the harvest fields. The winter prices range higher. At the time this is written $14.50 is being paid for first quality hay.

The soil in the Dexter country varies from an adobe loam on the uplands to a darker sandy adobe soil on the bottoms.

The supply of water is more than ample. The principal sources of water supply are the artesian wells and the Hagerman Irrigation Company's canal.

The supply of artesian water is greater here than at any other point in the valley. The wells are from 800 to 1,100 feet deep and were drilled at a cost of from $3,000 to $4,000. The flows vary from 1,000 gallons per minute to as high as 3,000 gallons per minute. A well is counted upon to irrigate at least eighty acres, and several wells supply adequate water for 300 acres.

The town of Dexter is situated in the center of the district irrigated by the Hagerman Irrigation Company's canal. The canal supplies water for 10,000 acres of alfalfa and fruit land. This company contracts to deliver 30 inches of water a year per acre at a cost of $1.25 per acre, and has always been able to deliver more than their contract calls for.

The market price of a developed alfalfa farm at the present time varies from $100 to $300 per acre, according to the productiveness of the land, and location as to loading point. Raw land capable of being made into alfalfa may be bought at from $50 to $150 an acre.

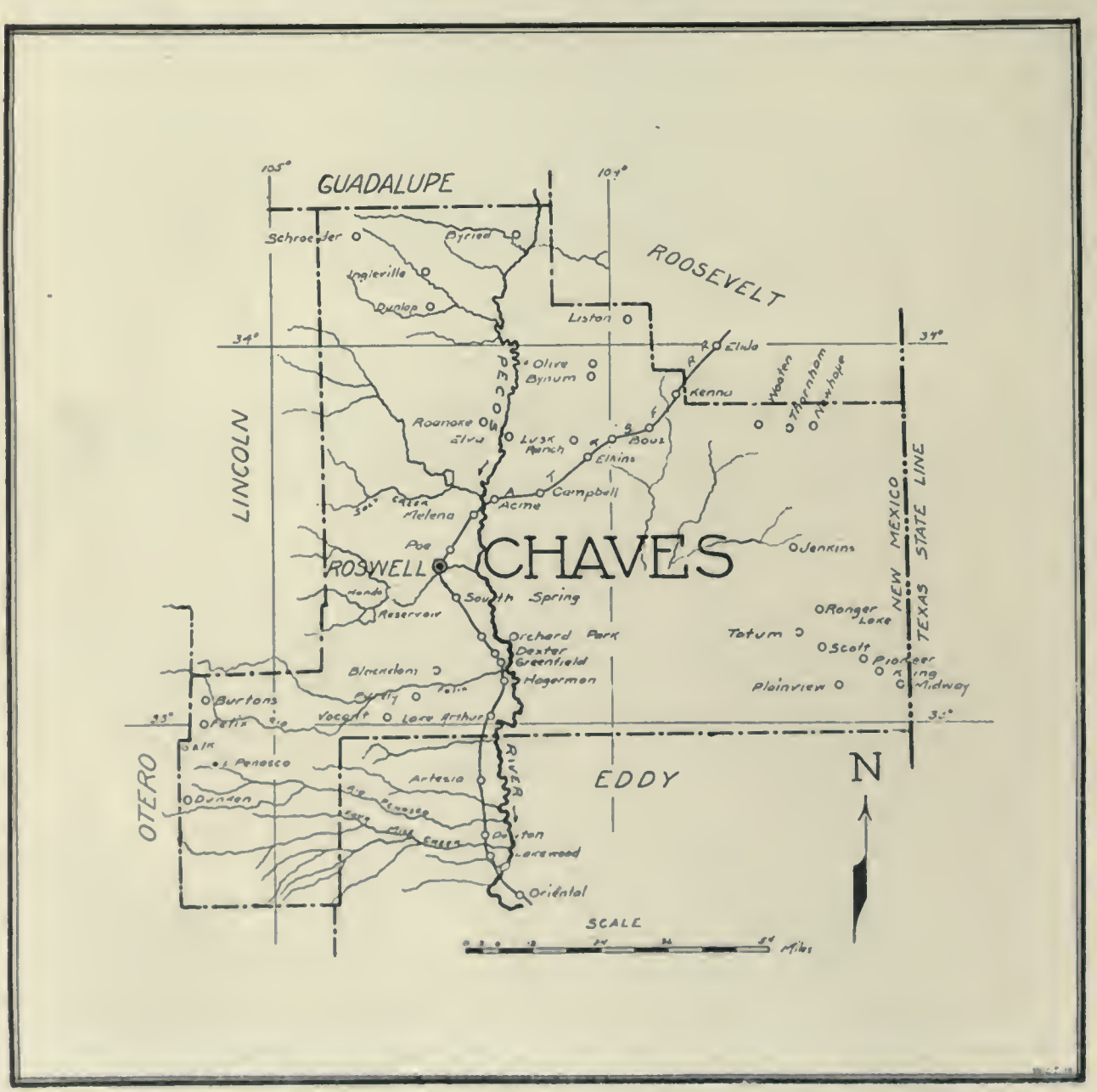
Land values have grown remarkably during the past few years. Land that is not for sale now at $200 to $250 an acre was bought six and seven years ago at from $25 to $50 an acre, and in some cases for $10 and $15 an acre. It has not yet reached its maximum.

Farmers have discovered that one of the principal by-

products of an alfalfa farm is livestock. Nowhere can good horses be raised as cheaply as on alfalfa. Colts running on alfalfa pasture develop good bone and large size without grain.

Dairying has as yet received but little attention; yet there is no doubt but that there is a great future for this kind of farming for alfalfa pasture and alfalfa hay are unexcelled as feedstuff for dairy stock.

This section of the new State affords a climate that is marked with mild winters, temperate summers and almost perpetual sunshine—sunshine that is at once germ-destroying, health-giving and invigorating. It has most of the advantages of the much-advertised California coast without some of its disadvantages while at the same time its development has not reached the high mark in real estate values so much in evidence on the Pacific coast. The Dexter country offers an agricultural proposition that will prove healthful and profitable.



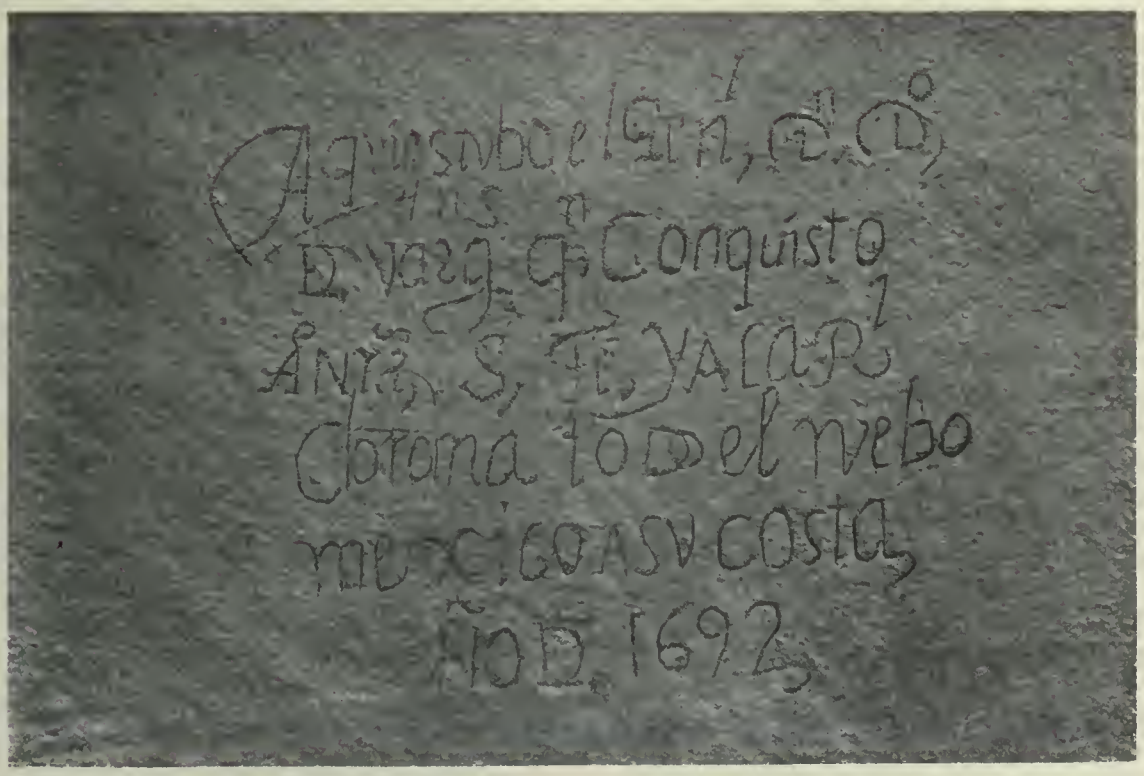
VALENCIA COUNTY

BY H. H. SCHUTZ

VALENCIA COUNTY is a domain of 9,472 square miles, extending from the Manzano mountains, east of the Rio Grande, to the Arizona line. Its elevation varies from 4,900 feet in the Rio Grande Valley to 11,389 feet at the top of Mt. Taylor, lying among some of the most remarkable volcanic buttes in the world. The population of about 15,000, less than two to the square mile, indicates the nature of most of the county to be that of grazing land. With the exception of some 55,000 acres of agricultural land in the valley of the Rio Grande and several thousand more at a few places farther west, there is at present little land used for farming. The grazing lands produce grama and other grasses in sufficient quantities to abundantly feed the 150,000 sheep and upwards of 75,000 head of cattle and horses estimated to be on the scattered ranches.

The Albuquerque to El Paso branch of the Santa Fe Railway extends across the east of the county, while the main line passes through from east to west. The early completion of the National Old Trails Highway from east to west and the Ocean to Ocean Highway, running north and south, will give Valencia County two main arteries which will no doubt soon be connected by good roads with the farthest limits and settlements.

The ordinary minerals, including vast deposits of coal,



INSCRIPTION OF DE VARGAS THE CONQUEROR, ONE OF MANY ON FAMOUS INSCRIPTION ROCK—IT IS DATED 1692

Alfalfa produces four cuttings that average one ton each. are found in many localities, but they have been but slightly developed. Game is most plentiful at all times of the year. The wild animals include deer, puma, coyote, wolf, badger, skunks, beavers, hares, rabbits, prairie-dogs, ducks, geese, swans, cranes, herons, gulls, eagles, hawks, crows, ravens, quail, doves and turkeys. Parts of the Manzano and Zuni national forests lie within the boundaries of the county which provide lumber, fire-wood and grazing as

APIARY AT BELEN

well as ten per cent of their income to the public school fund. In the valleys, there is little tree growth besides that of cottonwood and willow.

The towns, of which Belen is the largest, are few and far between except in the Rio Grande Valley where are situated such old settlements as Los Lunas, the county seat, Peralta, Tome, Valencia and Jarales. These were settled some 200 years ago by the Spaniards who secured large grants of land from Spain. The descendants of the first settlers still live here, pursuing an easy-going existence as small farmers. As a consequence, a small part of the agricultural land has been developed and only awaits the coming of progressive American farmers to make the county take its place with those parts of the State where immigration from the states has made itself felt.

The agricultural valley lands are mainly a rich sandy loam, ideal for crops of all kinds and can be bought at from $30.00 to $50.00 an acre. Bordering the valley lands on either side are the bench lands, or mesas, of excellent fertility which may be had for $10.00 to $15.00 an acre. Due to their gentle slope, depth of soil and elevation above the valley, the mesa lands are the best kind for orchard purposes. The soils of the valley and irrigated highlands are generally deep and without danger of ever becoming exhausted on account of the regular deposition of plant food carried by the irrigation water both in suspension and in solution.

The same process, though on a smaller scale, which formed the farming lands of the county is still an important factor, for every irrigation brings increased soil deposition and fertility. While the problem in many parts of the world is how to make lands produce as formerly, there is little to fear here from soil depletion as the irrigations of one year replace as much plant food as is removed by three tons of alfalfa hay. The Rio Grande Valley soils are as rich as those of the famous valley of the Nile. The Pueblo Indians have lived here for centuries and are today cultivating their lands with increasing results.

Ten to twenty acres of land should support a family with ease. When well worked, even so small a unit as 20 acres is considered larger than one man can properly cultivate. Put into orchard or garden truck, with alfalfa enough to feed the teams, 20 acres of land will, when the trees are in full bearing or the truck garden well organized, yield sufficient to make the owner independent. Too much cannot be said of the opportunities in fruit-raising. Apples are free from all serious pests with the exception of the codling-moth, and when orchard-heaters are used in case of occasional late frosts and the fruit is thinned in the spring, one may be certain of a good crop that always brings profitable prices. The fact that pear orchards in many parts of the country are dying from blight makes those here, where pear-blight is unknown, ever more valuable. There are pear trees in the lower Rio Grande Valley more than a century old, yet they still bear. Peaches bring good returns in three years, growing to perfection and the vineyards produce grapes and wine famous wherever known.

The satisfactory climatic conditions favor the growing of a great diversity of crops. The mean temperature is 54 degrees; the rainfall approximately 10 inches, with but an average of 38 days of cloudiness during the year. Alfalfa, wheat, corn, oats, barley and the sorghums grow very well, as do apples, pears, peaches, plums, cherries, apricots, nectarines, grapes, blackberries, dewberries, currants, strawberries, asparagus, celery, cauliflower, cabbage, sweet potatoes, chile, onions, garlic, beans, root-crops and other vegetables. Wheat has been known to yield 960 bushels on 32 acres of raw land and 2,500 bushels on 60 acres of old alfalfa land. One acre of grapes has produced 15,000 pounds; a half-acre of chile, $200.00; and $600.00 worth of watermelons were sold off of less than an acre. Oats have averaged 40 pounds per bushel and wheat from this region has won first awards at two world's expositions.

There are good opportunities here for hog-raising, dairying, poultry-raising, bee-keeping, stock-breeding and stock-feeding. One hog-raiser made $1,500 in two years, starting with ten sows. Eggs bring 60 cents a dozen from November to February in our nearest markets. With the abundance of alfalfa and sweet clover, it is possible to extract 100 pounds of pure white honey per year from single bee-hives. Sheep are shipped to Colorado and Kansas for fattening with thousands of acres of alfalfa, grass and grain to be had here and winters which lack the severity found farther north. With the exception of the small

ORCHARD AT BELEN

amount carried on at Belen, there is no dairying and all butter is shipped in from the north.

Labor is plentiful for all kinds of work and is fairly satisfactory. There is no portion of the State where such a large proportion of small farmers own binders, threshers, mowers and sulky-plows as in this region. Hired help can be secured at $1.00 a day or at 75 cents a day with board. For ditch-cleaning or leveling land, team, scraper and driver are to be had at $2.00 a day without board or feed.

The water supply for irrigation is plentiful and is seldom so low as to cause loss. No cash outlay is required for irrigation water, the tax consisting of a certain amount of labor during the annual ditch-cleaning. For this purpose the expenditure varies from $1.00 to $2.00 per acre. The water rights have belonged to the lands for centuries and go with them unquestioned when deeds are transferred.

That farming under irrigation conditions is profitable on a large scale as well as on a smaller one, has been demonstrated on the two large farms in this section. The Southwestern Farm is owned by a number of St. Louis capitalists who have shown their faith in the future of this valley by developing 4,000 acres of land which it has been their object to make into the best as well as the largest of New Mexico irrigated farms. The Otero Farm consists of 2,600 acres of rich bottom land which produces alfalfa, grain and bottom hay.

Fuel is cheap and wood can be had almost for the hauling from the Manzano and other mountains. Coal at Raton, Cerrillos and Gallup within a comparatively short distance will do much to develop the resources of the county. At present, the only industries outside of farming, stock-raising, merchandising and a certain amount of lumbering are those of flour-production and ice manufacturing. There is a 150-barrel mill, also a 100-ton ice factory at Belen, and a smaller flour-mill at Los Lunas.

Every settlement has its school and teachers, consequently, English is spoken by most of the younger generation and many of the older people. A county high school has been established at Belen. The schools of the county compare favorably with those in other parts of the State and are finding themselves pressed to keep pace with the growing appreciation for education among a people who are beginning to feel the need of instruction to meet the changes brought about by increasing competition. Practically every community has its Catholic church, while the larger places also have Protestant churches to exert their influence for good.

With so many undeveloped resources and latent possibilities, Valencia County must soon take its place with the regions similarly favored. The ever-growing demand for meat, wool and foodstuffs of all kinds and the fact that land is becoming settled elsewhere which is in many cases of much smaller merit, must quickly bring to the fore the many advantages to be had here for a comfortable and profitable existence.

PERALTA AND TOME

PERALTA is a town of about 800 people, lying in the upper reaches of the broad portion of the central Rio Grande Valley, on the east side of the Rio Grande. It has five large mercantile establishments and a good flouring mill, where much of the wheat grown in the valley is milled.

Peralta is one of the smaller settlements that dot the fertile valley every few miles, affording markets and supply points for the many farmers. Like many others, it is a comparatively old settlement, as the valley where it is located has been cultivated for many years. It is a prosperous place, because it is supported by the rich farming area around it.

Another important settlement of the same class is Tome, also located in the valley. Tome has a population of over 600. It has the characteristic straggling formation along the road that so many Mexican valley towns possess, the houses fronting on the road and the farms stretching back to the foothills. There is an old church at Tome which has more than ordinary interest, having been built early in the eighteenth century. The town itself has a very interesting history, having been attacked frequently by the Apaches, beside possessing much of interest in relation to the Spanish occupation.

INSCRIPTION ROCK AT EL MORA, NEAR ZUNI INDIAN RESERVATION

LOS LUNAS, COUNTY SEAT, VALENCIA COUNTY

LOS LUNAS, the county seat of Valencia County, is one of the oldest settlements in the Rio Grande Valley, having been the residence of the Luna family, for whom it was named, for over 200 years. The settlement is larger than it appears at first, having an actual population in the town of about 1,000, while there are countless small settlements nearby which are tributary to it in a trade sense and whose marketing and selling are done in Los Lunas.

Los Lunas is situated on the Santa Fe railroad's north and south line, not far from the Rio Grande river, in whose valley it lies. There are few of the activities of the country town, there being only some mercantile establishments, a good flouring mill and the court house and county jail to lift it from the common level. But in volume of business done, in amount of produce shipped out, and in the incoming freight handled through Los Lunas, the place is unusual.

Situated as it is near the head of the wider portion of the Central Rio Grande Valley, it has a vast area from which to draw business. The valley both north and south of Los Lunas is densely cultivated and much business is

ROASTING CHILI AT LOS LUNAS

done even so far north as the Pueblo of Isleta, the Indians from that section hauling fruit and grain to Los Lunas to market. The soil in the region of Los Lunas is a fine sandy loam, an alluvial soil entirely, deposited by the river in ages past and constantly enriched through irrigation. The cultivated portion of the valley at present consists exclusively of those lands capable of irrigation but in the near future pumping will bring the upper bench lands into cultivation.

While cereals and field crops generally are an important factor in the total production of the region, fruits are gradually gaining more and more attention. The soil and clime seem to be just right for fruits, especially apples and

THOROUGHBRED STOCK AT PERALTA

peaches and great yields of these are obtained each year. Other small fruits also do well. The apples would doubtless be in much greater demand were they properly exploited under a trade name and in a fancy package, for in size, color, flavor, shipping and keeping qualities, they are second to none. Splendid plums are also raised near Los Lunas.

While the lands in the valley near Los Lunas are mainly in the hands of small owners who till them in person, of late years capital has been attracted by the possibilities of the valley and one concern, which started with only a few hundred acres, now owns more than 6,000 which it is bringing into cultivation and bearing as rapidly as possible. This is not a colonization plan but simply a farming proposition of general though extensive type. Everything is being raised on these acres that will grow anywhere in the temperate zone, even to tobacco, and, experimentally,

cotton. Everything that is being raised is being sold, for markets are plenty near to home.

Grains, fruits and produce from Los Lunas have taken many prizes at the state fairs and the valley is gradually coming into its own as an intensive farmers' paradise.

The town of Los Lunas itself is a thriving and prosperous place. It is especially proud of its new courthouse, which is very handsome, and of the progress the community has made in the last few years. Among the points of interest of the town are the residence of the Luna family, already mentioned, the plant of the farming corporation to which allusion has been made, and the fruit orchards. There is an aggressive and thriving commercial organization at Los Lunas which has done and is doing much to bring the community before the eyes of the general public a a good place to live and a good place to farm.

The roads both in and out of the town are very good and are being improved rapidly and consistently.

BALING ALFALFA AT THE RATE OF A BALE A MINUTE AT LOS LUNAS

BEANS ARE A SUBSTANTIAL AND SURE CROP IN VALENCIA COUNTY

BELEN—VALENCIA COUNTY

BELEN, the largest settlement in Valencia County, is an important point both as a railroad center and as the market and shipping point of a large agricultural region of unusual wealth. The Rio Grande Valley, for many miles of its length only a mile or two wide, spreads out at Belen so that the city itself is the center of a fertile region, susceptible of irrigation, some six miles wide and a score long. Also at Belen the main east and west line of the Santa Fe crosses its main north and south line. The place is a division point and holds the record for tonnage and number of cars handled on the Santa Fe in the State.

The soil around Belen is a rich sandy loam, whose fertility is something at which to wonder. Four cuttings of alfalfa a year are the rule in the Belen section, and sometimes five. The average yield of this staple crop is from

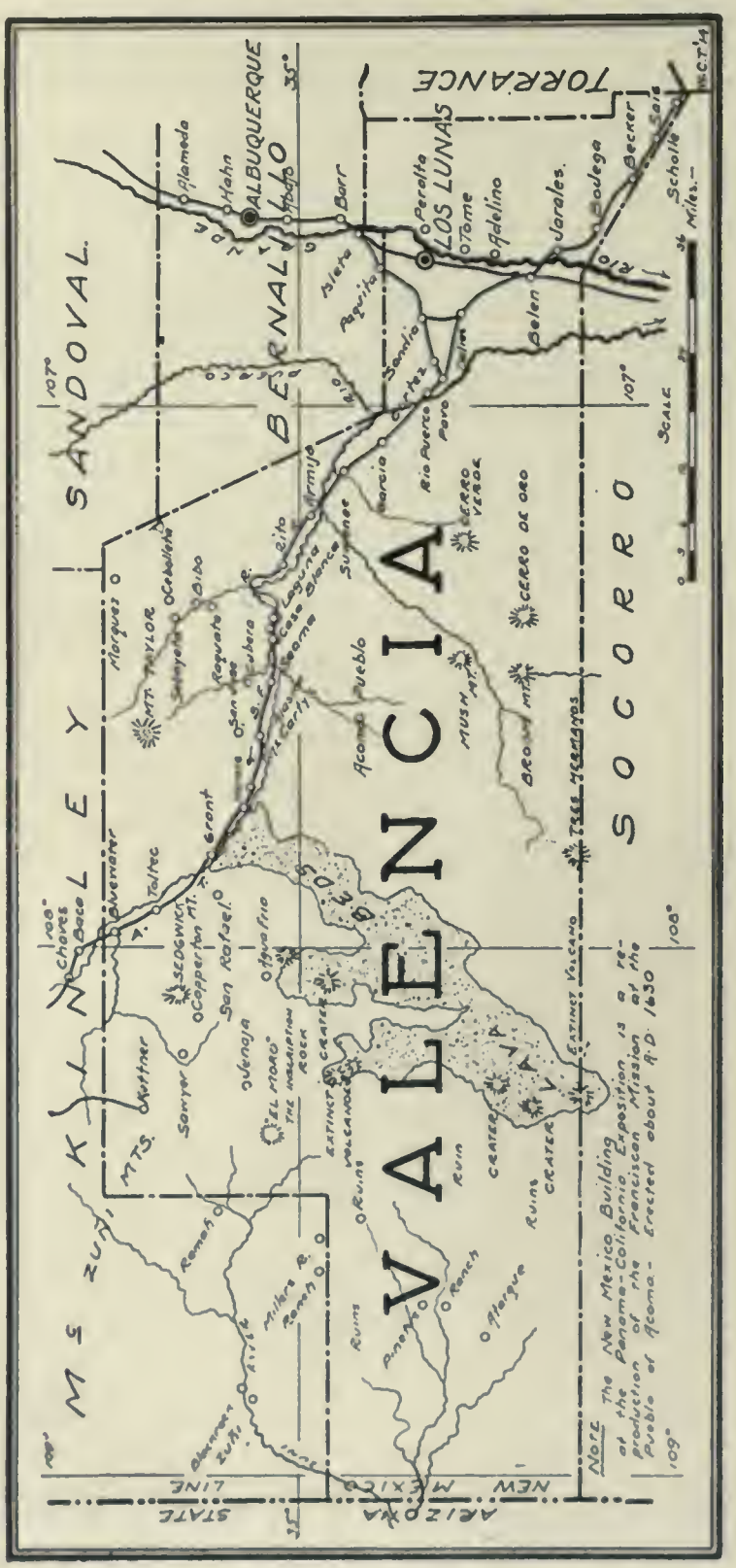
FIRST NATIONAL BANK AT BELEN

five to seven tons to the acre a year. As the expense of planting and cultivating alfalfa is little, this represents a very handsome profit. The cereals do exceptionally well in this region, which is known all over the State as a banner wheat producer. Wheat from the Belen valley has taken first prizes wherever exhibited, even at the world's fairs of recent years. The average yield of this staple crop in this section is from forty to sixty bushels an acre. Somewhat higher yields are not uncommon. Corn does well and oats is remarkably prolific here. The cereals have been cultivated in this section from time immemorial. As an evidence of the importance of wheat in this section it may be stated that Belen has the largest flouring mill in the State.

Fruits do well near Belen also. There are thousands of acres on which orchards might be made to produce wonderful revenues, were the capabilities of the region only exploited as they deserve. The valley lands are irrigated directly from the river, but above these, and largely uncultivated and therefore available at a moderate price, are the bench lands on which water may be obtained at a depth of thirty-five feet or so, much less than is the distance to water in other successful pumping areas in the State. These lands are as fertile as those lower. The reason of their present lack of cultivation is simply lack of facilities to get the water. But on them, and indeed all over the valley, can be raised the finest of apples, pears, peaches, plums and other fruits to be found in the entire State.

This wonderful fertility and the constant additions being made to the cultivated area would alone assure the prosperity of the city, but as a division point of the Santa Fe lines it has a pay roll of $35,000 a month. The Santa Fe shops, a large roundhouse, a large coaling station, yards which contain many miles of trackage, a handsome depot and a hotel at this point. Many train crews make their homes in Belen. The Santa Fe has recently completed, at a cost of $150,000, a hundred-ton ice plant at Belen, to furnish ice for the fruit shipments from California east, all of which, with most of the east and west traffic, pass through this point.

The homes in Belen are substantial, dwellings that might be classed as "shacks" being conspicuous by their absence. The schools are housed in substantial and beautiful brick buildings and rank with any in the State. There are several churches in the city, the Lutherans, Methodists, Episcopalians, Christians and Catholics owning their own edifices. There are several large mercantile establishments which supply the nearby agricultural area and the grazing areas further back from the river. The town is an important market and shipping center for the valley and for the tributary stock-raising section. Its climate is good, even for New Mexico. The town has a national bank and a hustling Commercial Club. The population is about 2,100.


VALENCIA
SANDOVAL
BERNALILLO
TORRANCE
SOCORRO
ALBUQUERQUE
LOS LUNAS
Alameda
Hahn
Barr
Peralta
Otome
Adelino
Jarales
Bodega
Becker
Scholle
Belen
Sandia
Cortez
Paro
Rio Puerco
Cerro Verde
Cerro de Oro
Laguna
Acoma Pueblo
Grant
Sedgwick
Copperton
San Rafael
Ojo Caliente
Quemado
Ojo Frio
Quemado Mts.
Sawyer
Ranch
Milers R.
Ruins
Afterglow
Extinct Volcano
Extinct Craters
Crater
Ruin
Ruins
Mt. Taylor
Marquez
Cubero
Rio Puerco
Rio Grande
Zuni Mts.
Chaves
Becker
Scale
Miles
Note: The New Mexico Building at the Panama-California Exposition is a reproduction of the Franciscan Mission at the Pueblo of Acoma. Erected about A.D. 1630
State Line
New Mexico
Arizona

SAN MIGUEL COUNTY

BY GEORGE A. FLEMING

THINK in terms of square miles of an area three times as large as the combined states of Delaware and Rhode Island, larger than the state of Connecticut and a little more than half as large as the states of Vermont, New Jersey and Maryland respectively. This then will give you an idea of the size of San Miguel County, covering as it does 5,000 square miles of territory.

From the date of Kearny's occupation of New Mexico in 1846 San Miguel County has had steady growth. From March, 1870, to December, 1880, the first paper was published in Las Vegas; the Santa Fe railway reached

COUNTY COURT HOUSE, LAS VEGAS

the eastern borders of the county; the first bank was opened; the first Episcopal church was erected; the Las Vegas Street Car Company was incorporated; and, on July 7, 1880, General U. S. Grant and his wife were given a public reception and banquet at Las Vegas.

Strange as it seems in these days of enlightenment there are many people who whenever the name of New Mexico

SUMMER STUDENTS OF NEW MEXICO NORMAL UNIVERSITY AT LAS VEGAS HOT SPRINGS

is mentioned think instinctively of cactus, desert and desolation. While this may be true of a small portion of southern New Mexico it cannot be true of northern New Mexico, where is situated San Miguel Conuty. A glance at a map will show you at once that it is in practically the same zone as southern Colorado, and who dare say Colorado is a land of "sun, silence and adobe"? Its climate, because of its location and altitude, has been pronounced as near perfect as a climate can be.

San Miguel County's location with the Rocky mountain chain on its westward side and the Turkey mountains to the north leaving the county spread out on a sloping plain to the southeast guarantees an equable and healthful climate while the altitude of between 6,000 and 7,000 feet makes almost certain an annual rainfall far beyond the needs of the farmer.

The winters in New Mexico are milder than in Colorado while in the northern parts the summers are cooler,

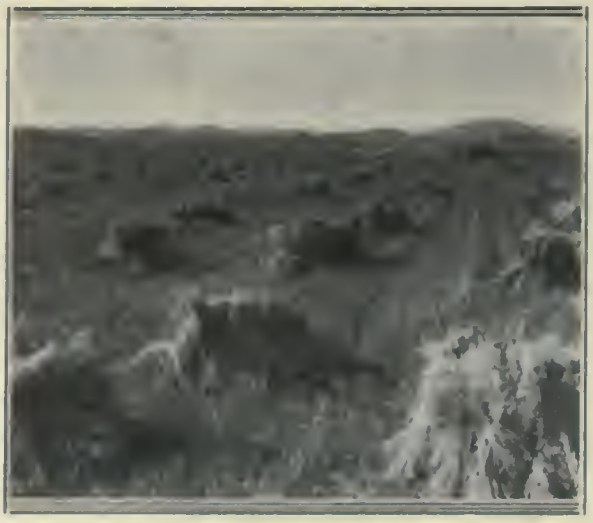
thus offering a more even temperature throughout the year.

Las Vegas has been considered by experts as the natural sanitarium of the United States, combining more advantages than any other place in America. Its thermal waters

MEXICAN BEANS RAISED WITHOUT IRRIGATION
Las Vegas Recently Sent Car Load of Beans to War-Stricken Countries

are the equal of the Hot Springs of Arkansas, while the climate is infinitely superior. There is no malaria, no excessive heat nor cold, no mosquito pest, no tarantulas, no snakes, no rats. The air is pure, dry, rarified, and highly electrified—a certain cure for tuberculosis if taken in time.

In the way of health and pleasure resorts, especially during the summer season, Las Vegas and the adjacent country is unrivaled. In a radius of 20 miles, in romantic mountain glens and beside babbling mountain brooks, are the Las Vegas Hot Springs, Harvey's, El Porvenir, Valley Ranch, Windsor's, Rociada, and other places where health can be recovered and life becomes a pleasure.



IRRIGATED LANDS TRIBUTARY TO LAS VEGAS

The Pecos National Park, set apart by the government to be preserved in a state of nature, is of easy access from Las Vegas, and is a hunter's paradise and a great national recreation place.

The county is one of the best watered portions of New Mexico. With its mountain ranges, snow-capped almost the year round, the streams which flow out of them and across the level plains are certain of a good flow at all seasons. Springs are abundant, while well water is found at a moderate depth anywhere one chooses to drill.

Few other counties can compete with San Miguel in its agricultural possibilities. With streams full of water for irrigation purposes and an annual rainfall sufficient to make farming without irrigation profitable, the farmer can take his choice of the two methods. The country needs farmers to take up and bring under cultivation its vast areas.

ONE OF SAN MIGUEL COUNTY'S LEADING CROPS

During the past few years there has been much said concerning so-called "dry farming". In San Miguel County "dry farming" is hardly the phrase to apply, when it is remembered that at Las Vegas the average annual precipitation is nearly nineteen inches, 80 per cent of which falls during the growing months. In the higher regions of the county the rainfall is considerably more than in Las Vegas. Wheat, oats, corn, beans, barley, alfalfa and all kinds of vegetables are staple crops, and in addition there have been introduced kaffir corn, milo maize, sorghum, field peas, durum wheat and a variety of dry farming crops.

To summarize briefly; here is a county with wonderfully productive soil, and rainfall adequate if not abundant, building material of all kinds within its borders, fuel in ample quantities, a superb climate conducive to the best of health, and above everything a market immediately at

hand, at prices considerably higher than those of the eastern markets.

The community of Las Vegas is the fortunate possessor of an heritage worth millions of dollars. This is the vast Las Vegas Land Grant, containing 437,000 acres, much of the land admirably suited to agriculture, part of it heavily timbered, other parts holding yet unknown values in deposits of the finest marble and building stone, copper and other minerals. Thousands of acres of this land have been sold and many well-improved farms and ranches of from 100 to 5,000 acres attest the fertility of the soil and its adaptability to stock-raising.

About 15,000 acres have been retained by the trustees of the grant to be brought under irrigation by a storage system which has been partially completed. At the present time work on the system is delayed by reason of a lack of funds, and an exceptional opportunity awaits the man or men with capital to take hold of and complete this project. To any one willing and able to undertake the work the grant board will deed the land outright as a bonus, and will, in addition, supply a portion of the needed capital.

San Miguel County is one of the leading livestock counties of New Mexico. Its boundless prairies, great mountain ranges, creeks, rivers and springs of purest mountain water, ample shelter in the foothills and canyons make it an ideal country for the stock-raiser. Since 1835 the ranges of San Miguel County have been well stocked with

SCENIC HIGHWAY IN SAN MIGUEL COUNTY

IN THE CANYON BEYOND EL PORVENIR, A FAVORITE SPOT FOR TROUT

cattle, sheep, goats, horses, and, more lately, mules, and the range feed shows no signs of dimunition. Of the grasses most prevalent are the gramma, buffalo and bluestem.

Of cattle San Miguel has in round numbers 80,000 head. There are few large herds in the county, the most of the holdings being in small herds of from 50 to 500 head.

There are some 500,000 sheep and goats in the county, all being in small holdings. The grade of the sheep is fully up to that of New Mexico's best sheep raising districts and the average shearing is about five pounds to the animal. There is no industry that offers more alluring returns for an investment than the sheep business here in San Miguel County.

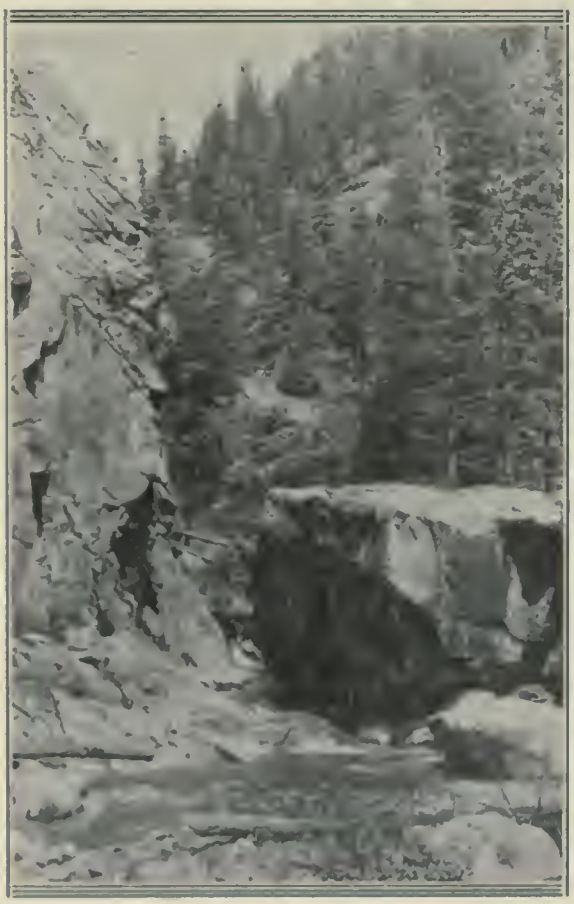
In goats, the holdings are mainly of the Mexican type, there being but a few of the Angora bread here. There is a wide field open for these valuable animals in the foothills whose brushy slopes are unfit for any other stock and in which goats of all breeds find a most ideal range.

Under the dry farming methods where the stock-raiser will raise a few hundred tons of forage, kaffir corn, sorghum and the like for winter feeding, and allow his animals to run on the open range in summer, more than twice the number of livestock can be safely and successfully raised in the county. The day of the large herd is gone, and in its place comes the small holder, who, following out the plan outlined above, can surely prosper and be secure

in his investment. To such San Miguel County offers a most satisfactory and pleasant location, and whether it be cattle, sheep, or horses, there is no better place in all the West for the prospective settler.

In San Miguel County there is a vast store of mineral wealth embracing gold, silver, copper, tin, aluminum, mica, coal, iron, zinc, lead, alum, asbestos, gypsum, fire-clays, and marble. These mineral deposits have had very little systematic development or exploration as yet, and their possibilities, while truly great, are almost wholly undeveloped.

In educational matters the county is well prepared to meet the closest inspection of the intending settler. Her public schools are numerous and her corps of teachers as



BEYOND EL PORVENIR

good as can be found anywhere, while in the higher educational lines the city of Las Vegas is the home of the splendidly equipped and administered New Mexico Normal University. The public schools of Las Vegas and East Las Vegas compare favorably with the best schools in the East.

The Presbyterians, Methodists, Roman Catholics, Baptists, Mennonites, Christians and Lutherans have

A SUMMER CAMP AT THE FOOT OF HERMITS PEAK, EASILY ACCESSIBLE OVER THE SCENIC HIGHWAY

churches in the county and in Las Vegas and there is also a Jewish Temple and a Y. M. C. A. in Las Vegas.

To the autoist, the recreationist and the lover of outdoors and nature generally the region which centers in Las Vegas is a wonderful store of interest as well as a region which affords each marvelous opportunities. There are acres upon acres of the finest wooded country in the West, where giant pines mingle their perfume with the bracing air of the mountains and silvery trout disturb the babble of the streams with the splashes from their leaps and darts here and there. In the deeper recesses of the mountains are deer that will give the huntsman every opportunity to display all his knowledge of wild life and animal characteristics before they are bagged. Farther from the haunts of men are bear and mountain lions and there are still to be had wild turkey for he who is sufficiently accurate a marksman.

The whole area of the great Pecos forest, whereon are the largest stands of timber in the State, is available for the classes named. On this are dozens of streams worthy of a name and countless smaller tributaries, all kept well stocked with trout and other game fish. Though there are numerous summer settlements on this forest and some permanent towns, there are plenty of places so far removed from man's invasion that game is easy to find in them. There

is every opportunity for the hunter who will to get into regions little disturbed by his fellows and enjoy unrestricted pleasure in his search for either large or small game. The game birds native to the State, or imported for stocking purposes, are to be found in this area in the same proportions as elsewhere.

Nor is the oportunity to summer beneath the pines or to hunt in distant canyons in the winter the only one afforded at Las Vegas or in the surrounding territory. There are several places where well-managed tourist resorts have been developed and these are yearly enjoying a greater patronage. Among these is El Porvenir, which lies sixteen miles from the Meadow City, being reached over the magnificent Scenic Highway. Ten of these miles lie in Gallinas canyon, where the scenery is of a sort to stagger one unused to the grandeur and vast spread of western mountains. Hard by El Porvenir Hermit's Peak rears it shaggy head, offering a safe but difficult climb of two hours duration. From the top of this peak can be seen a panorama of mountain, valley and plain which is unequalled even in this portion of the country. There is excellent hunting and good fishing nearby and the dry invigorating air makes the place of distinct value as a health resort.

OLD CHURCH AT LAS VEGAS

At the foot of Hermit's Peak, a mile from El Porvenir, is Camp Montezuma, a summer tent city. This camp offers a happy medium between a hotel vacation and actual roughing it. Its surroundings are of splendid beauty and its opportunities for hunting and fishing as good as those at El Porvenir.

Another resort, Harvey's Mountain Home, is probably the highest point in the country where actual cultivation of the ground is carried on. This spot has an altitude of slightly over 10,000 feet. The game is especially abundant near this point, bear, mountain lion, wolves, deer and turkey being available for all who dare face the carnivora or have the ability to trail the herbivora.

From Las Vegas it is easy to reach numerous points of historic interest. At San Miguel, readily seen from the window of the passing trans-continental train, Coronado settled after his long and bitter search for La Gran Quivira. Near the same town were defeated the Texas invaders who came under the guise of a trade excursion but really meant to annex the region to the Republic of Texas. Through Las Vegas itself passed General Stephen W. Kearny when he marched into New Mexico on a "conquest" in which not a shot was fired, but which nevertheless added the present domain of New Mexico to the United States. Throughout the county of San Miguel are other spots of as great interest, while there are places without number made historic by fights with the Indians, early settlements and the like.

If, after reading the above, you were to ask what, in our judgment was the one thing we felt was one of our biggest assets if not the biggest, we should unhesitatingly reply, our Climate and Scenery. The stock-raising and farming are fairly well known by a large number of people outside our State, but comparatively few know of our marvellous climate and unrivalled scenery. And so as a last word we would leave with you an excerpt from a talk given at the Las Vegas Commercial club by a man prominent in Colorado and New York City. In particular he referred to a trip over our "Scenic Highway," which is only the smallest part of what lies beyond: "I have never taken a trip anywhere that compared with this one. The boasted wonders of the Garden of the Gods are nothing compared with it. If its beauties could be known throughout the East, thousands of people who at present pass through Las Vegas on the palatial trains of the Santa Fe on their way to California and the Grand Canyon, would stop off at Las Vegas and take this trip before completing their journey. It is an asset which even the people of Las Vegas themselves do not fully appreciate, but the time will come when no lover of beautiful scenery who can avail himself of the opportunity will pass it by."

LAS VEGAS, COUNTY SEAT, SAN MIGUEL COUNTY

LAS VEGAS, on the main line of the A. T. & S. F. railroad, about a hundred miles south of the Colorado line, has a population of close upon ten thousand people, electric light and street car system, modern sewerage, and inexhaustible supply of clear mountain water distributed under a gravity system, handsome schools and public buildings and a citizenship prosperous, cultivated, hospitable and progressive. It possesses all the opportunities of a new country, with practically all the modern conveniences of an up-to-date eastern city of twenty-five thousand inhabitants.

Climatic conditions make it the heaven of the tired and worn health-seeker, its latitude and altitude combining to produce both summer and winter comfort that can scarcely be surpassed. Cool summer nights and winter weather that is in the main scarcely more than bracingly cool are, to the city, assets as valuable as the thousands of acres of tributary ranch and farm lands.

In the heart of the Rockies, a few hours motor trip will land one in the midst of as beautiful mountain scenery and as fine fishing and hunting as can be found in any part of America. Bear, deer, grouse, quail, ducks and geese, mountain trout and lake bass abound in the near vicinity, and at Harvey's or El Porvenir, nearby summer resorts, one can most agreeably spend the summer months, hunting, fishing or loafing, according to his tastes and temperament.

ELKS' CLUB, LAS VEGAS

OPERA HOUSE, LAS VEGAS, HOME OF LAS VEGAS COMMERCIAL CLUB

Las Vegas has long been the center of a great cattle and sheep industry which is at present developing to such an extent as to promise more for the future of the city than had ever heretofore been thought possible. Dry farming in this region has passed through the experimental stage, and as a result of the knowledge acquired by five of six years of faithful effort the farmers have come to realize what has long been an accepted fact in the East and Middle West, that it pays much better to market the crops right on the farm by feeding them to stock than to haul them to town, and so there has emerged the small stockman who now raises small grain and forage crops, without irrigation, to feed during the winter, when necessary, to his cattle, sheep or hogs.

The settler who "stuck" and mastered the discouragements and difficulties of the first few years of life in a new country, and under new conditions, has prospered, and is now steadily increasing his holdings.

The city, however, is only in minor degree dependent upon the dry farmer and his development along the lines of a small stockman, for tributary to Las Vegas is a large area of irrigable land estimated at over a hundred thousand acres. The Mora and La Cueva systems contain twenty thousand acres, the Hand system thirty thousand acres, the Watrous and Cherry Valley country, ten thou-

sand acres, and the Pecos and Tecolote country thirty thousand acres.

Large ranches in the counties of Mora and San Miguel graze hundreds of thousands of sheep and cattle on more than a million acres of land, and with the passing of the open range the stock industry is taking on a phase new to these parts. Closer, better, business management is placing the large ranches on a firmer, more substantial financial basis; new ideas and new methods are replacing old and antiquated ones, and as a result these ranches are now paying dividends never dreamed of in "the good old days".

Las Vegas is the center of all these progressive activities, and even during times of almost nation-wide financial stress, prospers; and, in a steady, conservative way, grows and develops.

The educational advantages offered here are exceptional for a city the size of Las Vegas. Of public schools, there are five—three grade schools, one high school and the Normal University, the last of which has of late under a very aggressive and efficient management taken such strides that at present it has the highest enrollment of any educational institution in the State. The main building, built of San Miguel County red sandstone and set upon a commanding elevation, is most striking in appearance and most substantial in its proportions. The high school, though not so large, is of quaint and peculiarly attractive design, and is also built of the county's red sandstone. The grade schools are spacious, well equipped and largely attended. Aside from the public schools, the Sisters of Loretto conduct a school for girls, and the Christian Brothers a school for boys. The efficiency of these time-honored and self-sacrificing educators needs no comment. On the east side, the congregation of the Immaculate Conception Church (Catholic) has lately ventured a Parochial School undertaking, and the work done there compares most favorably with that of the public schools.

The hospitals of the city are all well-conducted institutions. The Sisters of Charity maintain Saint Anthony's Sanitarium, large, spacious, well ventilated and equipped, and upholding in every respect the well-earned reputation of that famous order of Sisterhood. The Las Vegas hospital is managed by the Ladies of the City, and has long been one of the city's most useful and justly cherished institutions. In connection with both of the above institutions are numerous commodious tent cottages designed especially for the care and treatment of tubercular patients, for here in the "Heart of the Well Country" is most certain and speedy relief found for that dread disease. The rates are reasonable, and the care and sympathetic treatment accorded patients all that could be desired. The Railroad Division hospital is located here, also the State Hospital for the Insane.

ST. ANTHONY'S SANITARIUM, LAS VEGAS

The moral tone of the city is striking and refreshing. The larger part of the population is church-going, and nearly all of the different denominations are strongly represented. The Catholics have two church buildings, the Methodists, Episcopalians, Presbyterians, Baptists and Christians each have one. The Jewish people worship in a handsome synagogue.

The Y. M. C. A. is considered one of the most important factors in the life of the community, and is the center of activity for the athletic and social life of a large number of the boys and men. It is housed in a handsome building representing an investment of over $25,000, and containing large gymnasium, swimming pool, recreation rooms and dormitory.

CASTANEDA HOTEL, THE HARVEY HOUSE AT LAS VEGAS

Las Vegas has several wholesale houses, among which are Gross, Kelly & Company, Charles Ilfeld Company and Appel Brothers. These concerns have branch houses in many other cities of the State. They handle immense quantities of all classes of merchandise and do a large trading business in hides, wool and the produce of farms and ranches.

Las Vegas has four banks, all doing a large and conservative banking business. The banking and business interests of the city have at all times shown themselves willing to support any and every project of merit for the betterment of Las Vegas.

Practically all the fraternal orders are represented in Las Vegas by active local lodges, chief among which are the Masons, Elks, K. of P., Moose, Woodmen of the World, Odd Fellows, Fraternal Union of America, Redmen, Fraternal Brotherhood, Modern Woodmen and Knights of Columbus.

The Elks' lodge is housed in a beautiful $45,000 home, while the Masonic orders own the substantial three-story, brownstone building adjoining the opera house.

THE SCENIC HIGHWAY NEAR LAS VEGAS

The Commercial club is a live organization, ever active in any work looking to the upbuilding of the community.

For such further information as may be desired, address the Secretary, Commercial Club, East Las Vegas, New Mexico.

STOCK RANCH IN SAN MIGUEL COUNTY

We the citizens of Las Vegas, being proud of the wonderful achievements accomplished during the past and realizing the still greater growth and development of our city and county which the future holds forth, believe this to be a most opportune time to relate to the world the prosperous condition of our community and to invite the business man, the professional man, the home seeker and the health seeker to our midst.

Las Vegas boasts of her unrivaled climate, her unexcelled Educational Institutions, the Public Schools and Normal University; handsome Libraries, Churches of all denominations, its substantial Public Buildings and business blocks. A city of beautiful homes, well paved streets, electric street car service, electricity for light and power, purest water; a city of unlimited resources, of modern and metropolitan retail establishments. An era of prosperity pervades Las Vegas; here health and wealth await you. Las Vegas banking institutions are examples of financial stability and solidity.

LAS VEGAS WELCOMES YOU

NEW MEXICO NORMAL UNIVERSITY

ORIGIN AND PURPOSE

BY FRANK H. H. ROBERTS, PRESIDENT

IN 1893 the Hon. Felix Martinez and Senator Albert B. Fall, members of the Territorial Council of New Mexico, prepared a bill, and secured its passage, creating the New Mexico Normal School at Silver City and the New Mexico Normal School at Las Vegas. By special law the name of the normal school at Las Vegas was changed to the New Mexico Normal University in 1899, and its powers were enlarged so that the school might exercise the functions of a college of education. Such a school has a double purpose: to train young men and women to be efficient teachers, who are leaders in the higher and better phases of the social life of the State; and to furnish a pedagogical laboratory, where the State tests out new theories of education, thus winnowing the wheat from the chaff, and holding fast to the good and discarding the unsound.

The Normal University has fulfilled this two-fold mission during its entire existence, which began with the opening of its doors on October 3, 1898. It held its first graduating exercises in 1899, when a class of five was graduated, every member of which became a teacher. Since then it has continued to train and to graduate strong, purposeful young men and women, who have performed distinguished services to the State. Yet it is only in recent years that it has reached every section of the State. All short courses have been eliminated, and the longer courses have been enriched and made more difficult, yet the graduating classes from the six-year normal have steadily increased in numbers.

On the other hand, the Normal University has not overlooked its duty to the State in the matter of new theories and new material for educational purposes. As early as 1899 Manual Training was given a place in the school. In 1908 Domestic Science in its various phases was introduced and since 1910 a short course in Agricultural Pedagogy has been offered. The recent development in industrial education has justified the Normal's action in the matter of these three branches of learning. It has now brought to the State the Montessori method to test it out, to find out its strong points and its weak points, to answer the question, "Is it an addition to our educational system that is worth while?" and if found good, to adapt it to our conditions. After thoroughly testing it, a bulletin will be issued by the authorities of the school, presenting to the teachers of the State the results of this investigation.

NEW MEXICO NORMAL UNIVERSITY AT LAS VEGAS

The New Mexico Normal University is neither partisan nor sectarian, yet it inculcates loyalty to the highest

ideals of life. It aims to inspire its students to live in harmony with the highest moral, religious, political, social and professional ideals of the world.

The school is recognized, by the great universities, as doing work of the first order and its graduates are granted certificates, without examination, in such progressive states as California, Washington, Idaho, and twenty others.

Its student body has grown rapidly in recent years. In 1909-10 it numbered 295, and in 1914-15, 659, an increase of 123 per cent in four years.

A summer school has been maintained since 1904. It has grown from 79 in 1910 to 382 in 1914, an increase of 467 per cent in four years.

The faculty is made up of men and women from such institutions as Chicago, Ohio, Indiana, Oxford (England), Denver, Wisconsin, Johns Hopkins, and Missouri. Many of them are graduates of normal schools of high rank, as well as college trained.

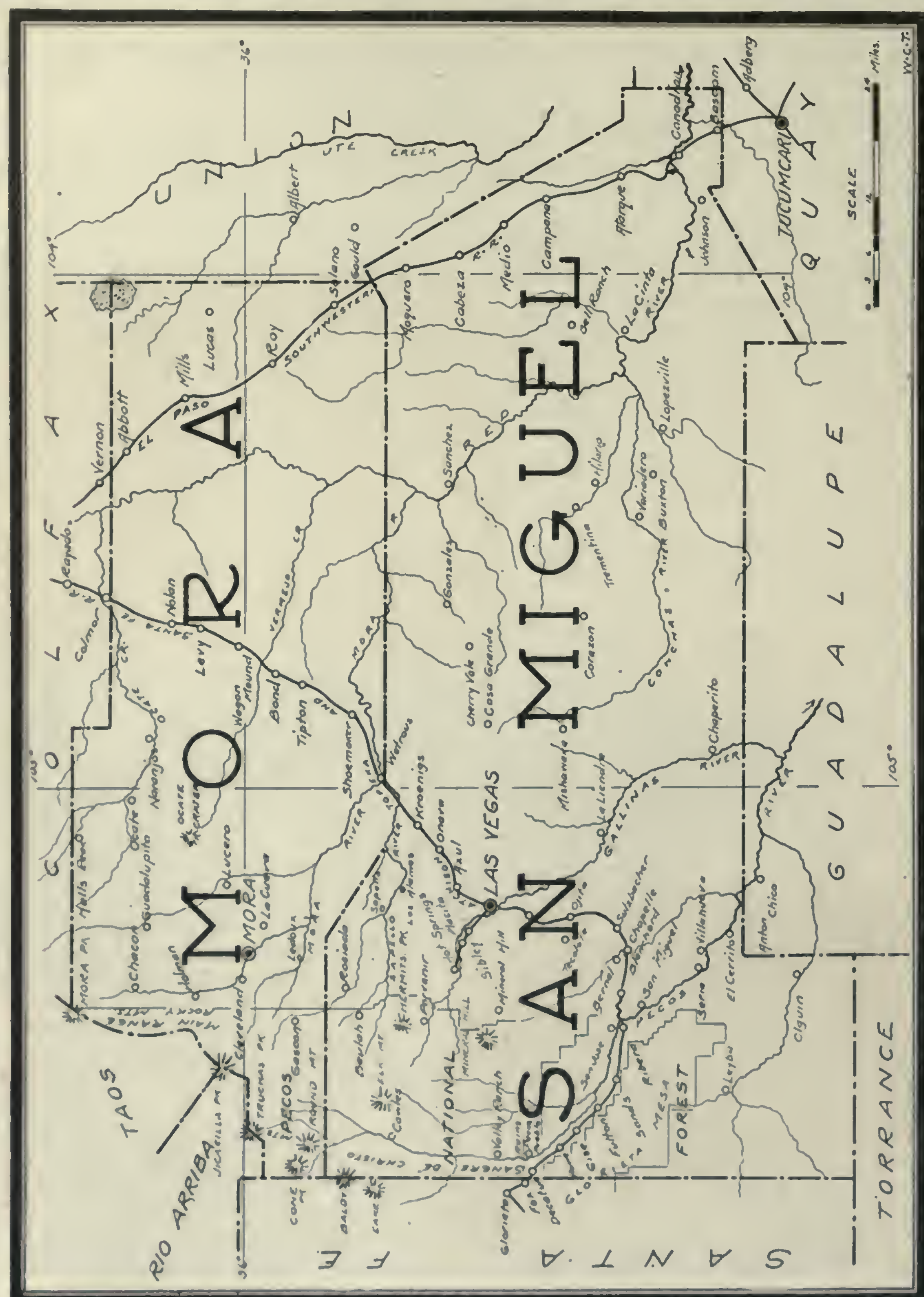
The Normal University is located in the heart of the city of Las Vegas, a moral and intellectual stronghold.

The New Mexico Normal University comprises four schools: The Training School, The Academic School, The Normal School, The Summer School.

With the following departments: Psychology, Education, Methods, History, Economics, Ancient Languages, Modern Languages, English, Science, Household Arts, Manual Arts, Mathematics, Political Science, Social Science, Commercial Branches, Music and Art, Oratory, Student Welfare.

Attendance—	1908-09	1909 10	1910-11	1911-12	1912-13	1913-14	1914-15
Normal and Academic	55	97	118	145	143	184	192
Training School	129	120	165	179	154	176	148
Summer School	64	70	69	160	192	290	382
Music Department	30	30	28	22	19	..	..
Totals	278	317	380	506	507	650	722
Less names repeated	12	22	30	83	65	78	63
Net Totals	266	295	350	423	442	572	659

HERMITS PEAK, ONE OF THE MOST BEAUTIFUL SPOTS IN THE STATE, NEAR LAS VEGAS


MORA
SAN MIGUEL
COLFAX
GUADALUPE
QUAY
TORRANCE
SANTA FE
TAOS
RIO ARRIBA
LAS VEGAS
TUCUMCARI
MORA
Watrous
Wagon Mound
Roy
Solano
Springer
SCALE
Miles.
W.C.T.

SANTA FE COUNTY

THE county of Santa Fe might well be called the "oldest county" of the State and of the country as well, for it not only is the oldest seat of government on American soil but it contains so many other "oldest" features that it well merits some title emphasizing its antiquities.

The county of Santa Fe is not today one of the largest counties in the State, but there was a time in the past when it was one of four subdivisions of the entire Spanish settlement of New Mexico, a community then including the whole state of Arizona as well as the present community of New Mexico. Today it has an area of 1,980 square miles. Of this area there are still open to homestead entry 307,173 acres, of which 113,160 are yet to be surveyed. There are 37,809 acres of land in the county classed as "agricultural" on the tax rolls, worth $231,000, and there are 1,297 farms in the county, having a combined area of over 236,279 acres. Most of these farms are in the three to nine acre class, though many are in the 160 acre class. There are nine which have an area of over 1,000 acres.

CLIFF DWELLINGS IN PAJARITO PARK NEAR SANTA FE

However, the trend is toward small farms in this section, a very large percentage of the cultivated acreage being in farms of fifty acres or less. Santa Fe County's total agricultural returns are about $220,000 annually, hay and forage crops being by far the most important ones, though cereals, vegetables and fruits and nuts, especially the later, are important.

INDIAN ROCK PICTURES IN PAJARITO PARK

The large amount of good open range for stock, together with the number and frequency of water supplies, provides ample pasturage for a large number of cattle and sheep, and the livestock industry is a very important one to this county. The annual receipts from livestock sold and slaughtered amount to about $210,000, while the wool clip brings in another $50,000 a year. The grazing lands of Santa Fe County total over 365,000 acres, valued at more than $270,000. There are in the county 2,050 horses, worth over $52,000; 3,688 head of cattle, worth $54,417; 11,600 sheep, worth $11,492, and a few goats and swine.

The mining industry of Santa Fe County is an important one. There are rich coal fields and the

A QUAINT OLD CORNER IN OLD SANTA FE

precious metals have hardly been scratched, in comparison with the amounts yet to be brought forth, though gold was mined in the region before the rush to California in the middle of the last century. Only 1,780 acres of coal-bearing lands are in private ownership, and these are valued at slightly more than $50,000. Improvements on them are worth $23,000 more, according to the tax rolls, while non-coal mineral lands are held at $93,000, with their improvements.

Lumbering, while not so prominent as the other industries named, will undoubtedly become more so each year and in the future may overshadow the others. The national government has reserved 151,898 acres of timber land in the county for national forests, and considerable cutting is going on from these stands. The timber lands in private ownership are negligible, but there is a considerable industry in cutting from stumpage bought from the forest service.

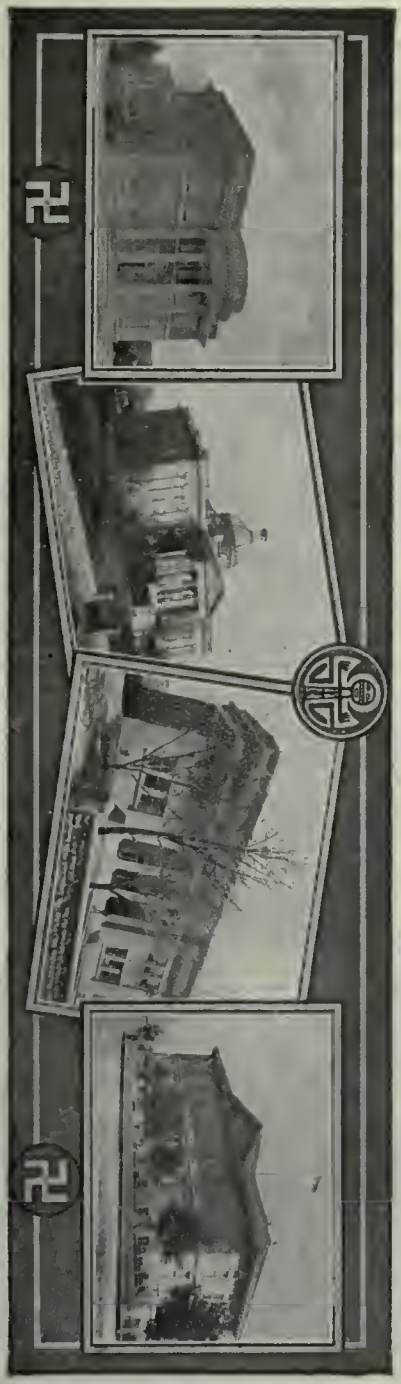
Town lots in Santa Fe County, practically all in the city of Santa Fe, are worth $186,700, while improvements thereon are $383,000 in value, or something more than double. Electric light plants in the county are worth $13,000, water plants $33,000, telegraph and telephone installations over $17,000, railroads, of which there are more than 100 miles in the county, $1,026,442, and bank stock owned in the county, $112,039. The total valuation of the county is $9,084,339, on which taxes are required to be paid on a one-third valuation.

Santa Fe County has fifty-two schools, taught by seventy-four instructors, and its school population in 1914 was 6,497, indicating a total population of 22,700. The 1910 census gave the county a population of 14,770, of which over 5,000 was in the city of Santa Fe. This gives a school to each thirty-four square miles, or thereabouts, but since so large a portion of the county, especially in the mountain districts, is uninhabited, school facilities are, if not adequate, at least fairly so. School improvement is being carried on in Santa Fe County at a rapid rate and the district will soon rank at the head for rural schools.

The school houses are being built of modern materials and in accordance with the latest ideas in school design, while the one-room adobe of former years has been completely wiped out. The school term is in no case less than five months, even in the most isolated districts, while in most of the schools it is nine months.

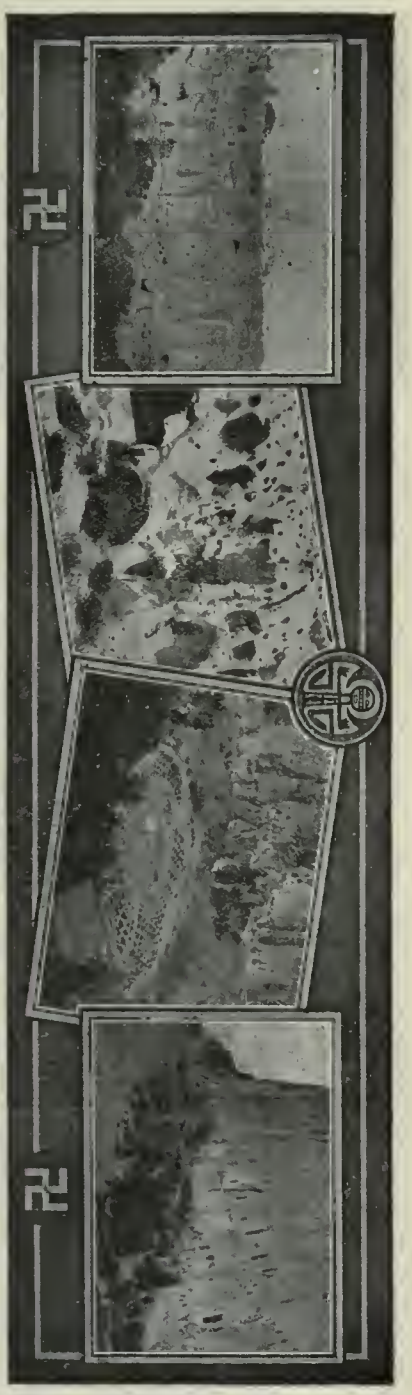
The general topography of the county is rough and broken, though the southern portion widens into broad rolling plains of a fertile character and throughout the region there are fertile valleys and mountain parks. In these agriculture flourishes to a remarkable degree. Indeed, the fertility of the soil is amply shown by the great number of small farms in the region, all of which support at least one family. There are over 400 farms in the county which have fewer than nine acres. Fruit raising is an important industry, the finest products of the horticultural industry being produced in Santa Fe County. The region raises splendid apples which for flavor, size, color, shipping qualities and keeping qualities are not to be excelled in the West. Small fruits, especially plums and peaches, are also raised in profusion and of the highest quality. The region has a great advantage over other sections in that its altitude causes fruits and produce to mature late in the

FORT MARCY HILL—SANTA FE



PUBLIC BUILDINGS AT SANTA FE

PUEBLO OF TESUQUE



CLIFF DWELLINGS AND RUINS OF INDIAN PUEBLOS WEST OF SANTA FE

BURRO ALLEY, A PICTURESQUE SPOT IN OLD SANTA FE

year, so that prime peaches and plums are being produced at Santa Fe long after the season on these has ended elsewhere, thus fattening the pocketbooks of the horticulturists by bringing top prices for out-of-season fruit.

The rolling plains and the less tillable mountain areas form the principal range for stock. On the upper sections of the county the sheep graze and on the plains are many herds of cattle. Fattening of cattle for the market has not yet been taken up heavily in this county but there are countless opportunities for doing so, especially as the feed crops grow abundantly and are to be had cheaply.

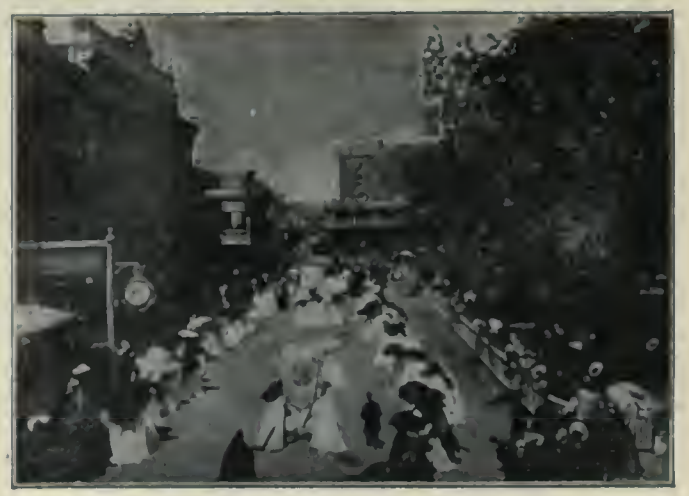
The mountain countries are also the center of the mining industry—except the coal mining—and the timber industry. The principal gold mines are the placers at several points in the Ortiz mountains and the so-called "new" placers at Golden. There have been years when these placers yielded as much as $80,000 in dust and nuggets and single nuggets worth $3,400 have been found in them. On the Ortiz Mine grant is the Ortiz Mine, the site of the first stamp mill in the West. Then there are the turquoise mines at Cerrillos and Turquesa, the former of which has been worked since pre-historic days. It was from this mine that the Tiffanys for many years secured the entire supply of the blue stone which found the market. At San Pedro there is a well-developed copper mine and a smelter which handles its product. The Cerrillos district has been prominent in silver, lead, and zinc fields since its discovery in 1879, but is not now a producer. There is a group of molybdenum claims in the canyon above Santa Fe and a low grade gold mine near these. There are several gold prospects in the Sangre de Cristo range, immediately north of Santa Fe. There are large mica deposits near Nambe and extensive undeveloped iron deposits near Glorieta, from which some ore has been shipped. Near Santa Fe is found a splendid brick clay and at Lamy and Cerrillos are good sandstone beds. Marble is found near Santa Fe. There are also good gypsum and building stone deposits.

The principal coal camp is at Madrid, where the fuel mineral was taken out as early as 1869. An interesting feature of this field is the close proximity in which bituminous and anthracite coal are found. There are other coal deposits southeast of Madrid, on the Galisteo and near Santa Fe.

Santa Fe County is crossed from east to west by the Santa Fe railway, which has seventy miles of line within its borders. The same road has a branch line from Lamy, a junction point, to Santa Fe and a short branch from the main line into the coal areas at Madrid. The Denver & Rio Grande enters the county from the north, having a present terminus at Santa Fe, and from that point south extends the New Mexico Central, which connects with the Rock Island system at Torrance.

As in all good farming counties, settlements are frequent in Santa Fe County. It is difficult to travel anywhere except in the more remote sections and not find a village or town every few miles. The county was the scene of the first settlement of the Spaniards and parts of it have been farmed continuously since their advent. Indeed, the portions of it surrounding the Indian pueblos were being farmed long before that time.

Santa Fe County is especially well watered, the principal stream being the Rio Grande, though part of the county is in the Pecos drainage area. Other streams are



CORPUS CHRISTI DAY, SANTA FE

the Santa Cruz, Nambe, Pojoaque, Santa Fe, Santa Clara, Tesuque, Dalton, Macho, Indian, Holy Ghost, Manzanares, Glorieta, Apache, Rio de los Indes, Galisteo, Arroyo Hondo, Chiquito, Chupadero and Frijoles, some of which drain west to the Rio Grande and some east to the Pecos, while one, at least, drains east to the Rio Grande. There is a considerable underground water supply.

The principal mountain ranges are the Sangre de Cristo, San Pedro, and Sandia mountains, while the foothills of the Valles, Cochiti and Jemez mountains are in the wester- portion.

Santa Fe, the county seat and capital of the State, is the principal city, but there are numerous small farming settlements and a great number of Pueblo Indian communities. These include Pojoaque, Santa Cruz, Tesuque, San Ildefonso, Chimayo, Lamy, Agua Fria, Galisteo, Cienega, Cieneguilla, and others.

SAN MIGUEL CHURCH
Believed to Be the Oldest Church Building in the United States Still Being Used for Public Worship; Built About 1607; Destroyed in 1680; Rebuilt in 1710; Renovated in Recent Years.

COUNTY SEAT OF SANTA FE COUNTY

SANTA FE

CAPITAL CITY OF NEW MEXICO

NESTLING between the outstretched arms of the Sangre de Cristo mountains lies the city of Santa Fe, capital of New Mexico and the oldest seat of government on American soil. Santa Fe is not only the State Capital but the capital of that mysterious world of the ancients who populated the cliff dwellings and the Indian pueblos which succeded them. Though the cliff dwellers are gone and the Pueblos are not so numerous as in former years, Santa Fe retains the atmosphere of age and the peculiar relation to the events of that era which distinguish it among all American cities. At the very doors of the city are twenty thousand cliff dwellings to puzzle the archaeologist and ethnologist with stories of a bygone time; easily accessible from the city are dozens of Indian villages where may be observed in all their ancient fullness the rites and ceremonies which were practiced ages before Columbus dreamed his immortal dreams.

Santa Fe is beyond all doubt the imperial city of the artist, the student, the historian and the traveler. Stretched around in over an area of 2,500 square miles are remains of civilizations contemporary with the mammoth and the great lava flow. Within the same area are living examples, in the Pueblo Indians, of the civilization which followed. Within the city itself are the oldest house and the oldest church now standing on American soil, the Palace of the Governors, where Spaniard, Pueblo Indian, then Spaniard again, then Mexican, and Pueblo Indian and finally American rulers have held sway and exercised authority over New Mexico. Bare mention of these places is like the mere hazy outline of a portrait whose completion would take years of time and reams of paper. Santa Fe is rich in all that tends to interest the archaeologist, the traveler, the historian, the individual of any class who cares for knowledge of man's existence in former times.

Though the Spaniards who built the city brought with them from Granada distinct evidences of Moorish influence, Santa Fe is not a city of tapering spires and dizzy minarets. Instead there are the flat-topped adobes, quaint portals, the carved vigas and massive buttresses of an architecture as distinctly unique as it is distinctly American. The blue skies of Granada are there, but they are bluer than ever Boabdil viewed. The sunshine of sunny Spain is there, but it shines more days in the year than ever Spain saw. And instead of the countless beggars of Mediterranean ports are quaint but proud Mexicans and Indians who would scorn the tourist's proffered baksheesh.

In 1606, so the books say, Juan de Oñate founded the city of Santa Fe on the ruins of two small Indian pueblos, and not long after were laid the foundations for many buildings of importance, some of which exist today. The old church of San Miguel is one of these. It was partially burned in the Pueblo uprising of 1680, but was restored later, as an inscription carved into one of the vigas advises. The altar paintings lay claim to even greater age and are by the greatest Spanish masters of that time.

Another of these ancient buildings is the Palace of the Governors, now a seat of culture and education instead of a government almost feudal in its absolute dominion. This building has many historic associations.

The center of the city, geographically and industrially, is the Plaza. Here Oñate camped in 1606. Here the Pueblos burned the archives of the province when they rose in 1680. Here de Vargas halted in triumph after his re-conquest. Here General Kearny planted the American flag in 1846. There is not an event of importance in the history of the State, from the first coming of the Spaniards to the last few years, with which the Plaza is not intimately connected. In this Plaza is the end of the Santa Fe Trail, over which flowed for years a commerce so rich that not even enormous taxes could check it.

THE PLAZA AT SANTA FE

Not far from the Plaza is the Cathedral. The present structure is modern but contains a number of interesting old masters and a reredos given by Governor del Valle and his wife in 1761. Behind the altar are buried two Franciscan friars killed in the Indian uprising. The church on

HIGH SCHOOL—SANTA FE

the site of which the Cathedral stands was built in 1711. A portion of this still stands immediately in the rear of the Cathedral.

On the hill above Santa Fe is the garita, the old Spanish prison, where malefactors and traitors were confined and executed.

Not far from the Plaza is the "Oldest House," which tradition has it was built by the Pueblo Indians before the founding of Santa Fe, and which has been continuously occupied since. It was formerly two stories high but the upper story was removed not many years ago and the place has been frequently renovated inside.

From Santa Fe it is an easy trip to the Puyé, Rito de los Frijoles, Pajarito and other canyons where are to be found mile after mile of cliffs honeycombed with the dwellings of prehistoric peoples. The whole region from Gallinas creek to the Cañada de Cochiti, and from the Jemez mountains east to the Rio Grande, is included in this area where prehistoric races dwelt. Pajarito park is in the center of it, and on this are found the finest of the cliff dwelling remains. These dwellings are actually carved out of the tufa of the cliffs, the marks of the ancient stone implements employed being still plainly visible.

Near Santa Fe are most of the Pueblo Indian communities, places whose residents are thought by some to be descended from the cliff dwellers. Taos, most important of these, is not far away on the north, San Ildefonso is to the west, across the Rio Grande; Santa Clara, San Juan, Picuris, Nambé, with its famous waterfall, are north of Santa Fe; Jemez, Sia and Santa Ana are west, and along the Rio Grande to the south are many more, beginning with Cochiti, at the lower end of White Rock Canyon, and ending with Isleta, a few miles south of Albuquerque. Santo Domingo is the largest of these near Santa Fe.

But pueblos are not all. There are the Stone Lions of Cochiti, carved no one knows when or by whom; the Painted Cave, the pictographs on many a cliff; the kivas, the millions of shards of glazed and decorated pottery, the metates, the arrowheads and stone implements to be picked up, the thousand and one things to be found within a short distance of the capital.

Less than six miles from Santa Fe, on the Arroyo Hondo, are the remains of a communal village which has been partially excavated and which has furnished quantities of interesting and informative relics. A mile nearer, at Agua Fria, is a mound covered with thousands of pieces of ornamented pottery. Partial excavation shows it to be a ruined communal dwelling of indefinite size. On the Tesuque river are similar ruins.

Southwest of Santa Fe are the turquoise mines of Cerrillos, where Tiffanys secured most of their supply of the blue stone for years. The workings are the oldest mines

SCOTTISH RITE CATHEDRAL

in the United States, having been operated by the Pueblo Indians in time immemorial.

At San Cristoval, near Galisteo Lake, are the ruins of the pueblo of the same name, as well as the remains of several communal dwellings which antedated it many years,

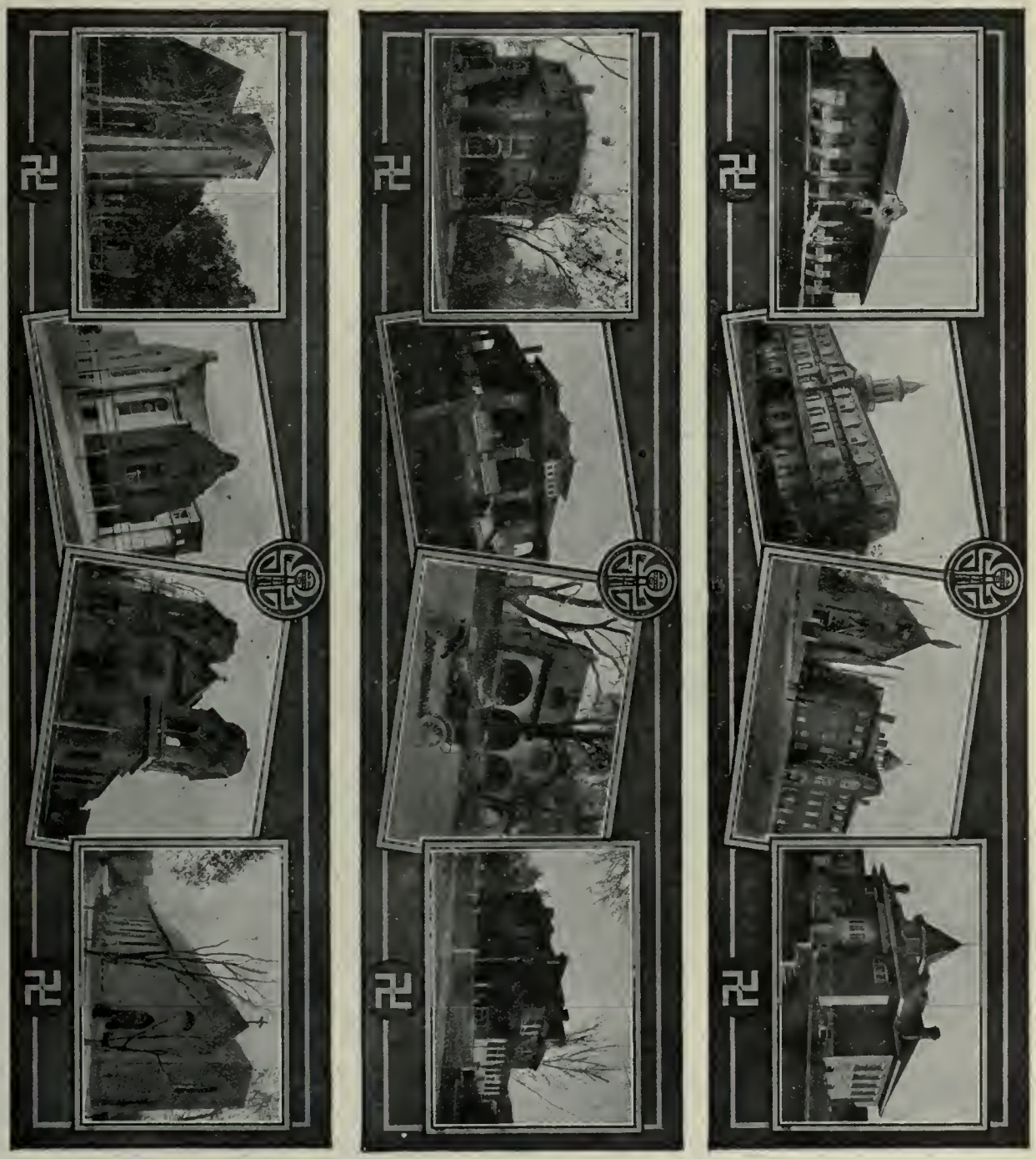
probably centuries. Some of these are veritable cliff dwellings, being built in the edge of a narrow and precipitous canyon. Above are some curious examples of pictured rocks.

All these listings of points of interest, however, barely hint at the scenic beauties of the region centering about Santa Fe. They make no mention of the splendid roads which radiate from this ancient capital and make every one of the points mentioned easily accessible by automobile. And there are excellent trails suitable for horseback travel which lead to all of these and many more. It is impossible to go into great detail within the narrow confines of so brief an article as this; it must be left for the guide book to tell, or for the tourist to discover for himself, what a wealth of romantic, scenic and historic interest awaits at Santa Fe. The wayside shrines, the drives and trails that lead through pine-clad foothills to snow-covered peaks, the forests alive with game, the waterfalls and the picturesque canyons, must sing their own song. So must it be with the Indian pueblos, examples of the first purely American architecture.

Santa Fe enjoys one of the most perfect climates to be found on the globe. Sunshine and sparkle in the air and the almost complete absence of moisture unite to produce a condition invigorating and delightful. Cool summer nights, when blankets are always in demand, alternate with summer days when the thermometer hesitates long before it climbs to ninety and has never been known to reach ninety-eight. The winters are mild, zero weather being an exception. Even on the coldest winter day, one may stroll in the sun with comfort and pleasure. There are no sudden changes of temperature. The sun shines in Santa Fe an average of nine and two-tenths hours a day, according to official weather bureau statistics, and there have been winter months that recorded as much as ninety-eight per cent sunshine. The humidity of the region is relatively low.

A PICTURESQUE SPOT NEAR SANTA FE

Santa Fe has many miles of cement sidewalks. Its water system is one of the best in the State, pure mountain water being impounded in a series of reservoirs and brought down to the city through a modern distributing system. A modern electric plant supplies light and power. The city has many large mercantile establishments, being important as a market and supply point for a large area in Santa Fe



EDUCATIONAL INSTITUTIONS—RESIDENCES—CHURCHES AT SANTA FE

and other northern New Mexico counties. It has three railroads, being on a branch line of the Santa Fe system extending to Lamy as well as being the northern terminus of the New Mexico Central and the southern terminus of the Denver & Rio Grande. Ever since the days of the Santa Fe Trail it has been a thriving commercial center.

Because of its health-giving climate there are several sanatoria in and near the city, all specializing in the treatment of tubercular complaints. It has excellent public schools, and is indeed the seat of the oldest college for young men west of the Missouri and the oldest academy for the higher education of girls in the same region. It has two Presbyterian mission schools, two Indian industrial schools, an orphans' asylum, a public library, many churches, some of them very fine structures, and other interesting buildings and institutions. Being the capital, it has the capitol building, a handsome brick and stone structure, a handsome executive mansion, the state institution for the deaf and dumb, the penitentiary and other state activities.

There are also a pretentious armory for the local organizations of the National Guard, a federal building of gray stone on a splendid plan, a court house which is a model of modern ideas and convenience, two good theater buildings, and a Scottish Rite cathedral which is a replica of the Alhambra on a smaller scale. The civic organizations of the city include a woman's board of trade and a chamber of commerce, both of which are keenly alive to the welfare of the city and are active in measures for its growth. It is the archiepiscopal see of the Roman Catholic church, the county seat, headquarters of the federal, state district and state supreme courts, a federal land district, the federal weather bureau for the State and other activities.

One of the most important of these centering at Santa Fe is the Santa Fe national forest, which has an area of 1,457,769 acres, almost all of it a true sportsman's paradise. On this forest, which is rapidly becoming a state playground for all classes, are to be found quantities of game and fish and many are the cottages built along its sunny streams by perennial vacationists. There are 580,000,000 board feet of timber now available for use on this forest and 476,000 cords of fire wood. The forest is easily accessible from Santa Fe, either by automobile or wagon.

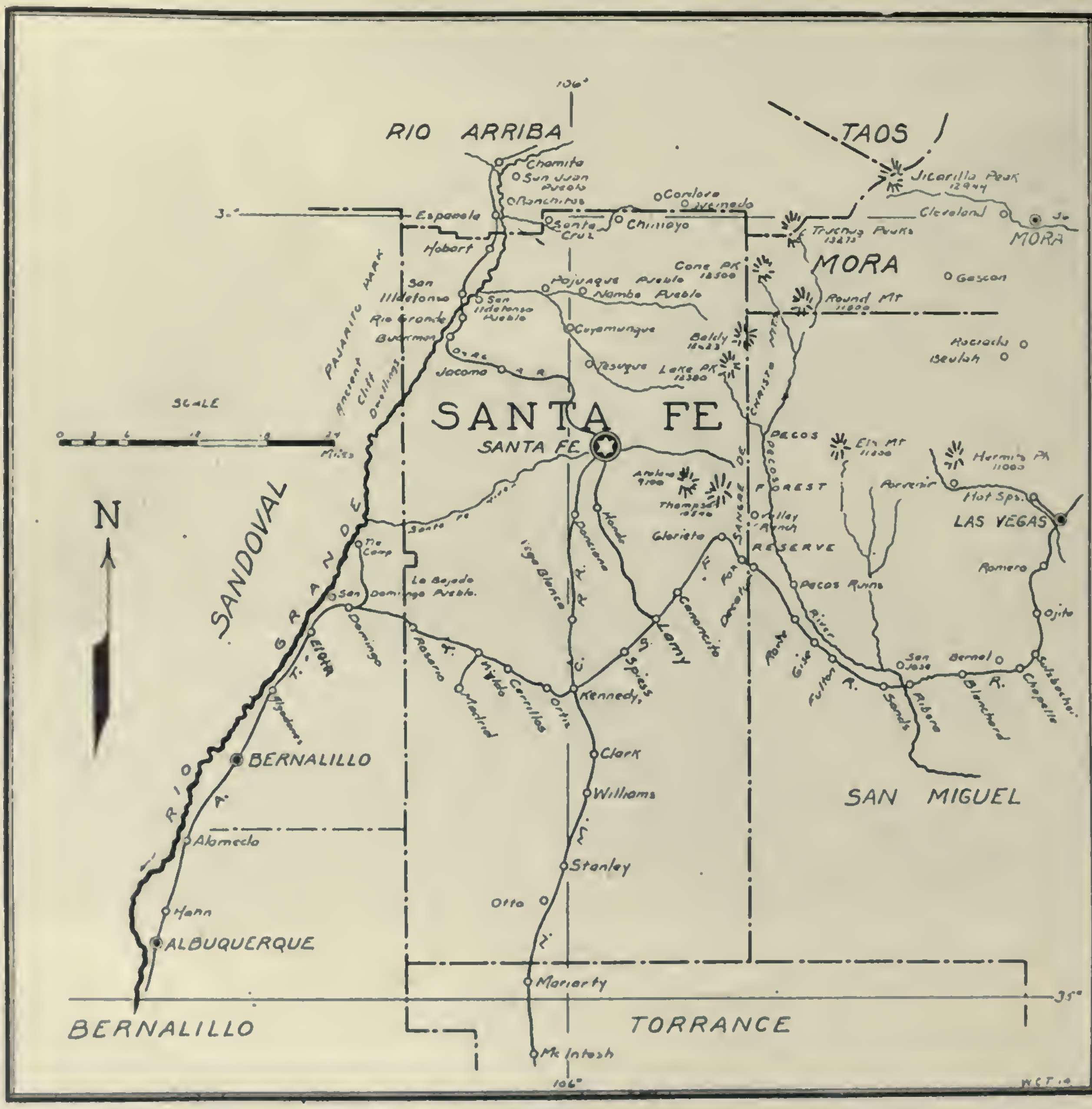
HOTEL DE VARGAS—SANTA FE—W. G. SARGENT, PROPRIETOR

Any story of Santa Fe would be incomplete without mention of the roads which center around it. It is the terminus of the old Santa Fe Trail, now in use again as a highway for automobile traffic. The Camino Real, the principal state road, passes through it on the way from Raton to the southern state boundary. The Scenic Highway leads out from it toward the north, through the Santa Fe forest, its thirteen switchbacks rising one above another as it climbs into the mountains. The Gran Quivira highway makes it one of its termini. And there are countless local roads that lead off into the valleys and hills to Indian

pueblos, trout streams or delightful nooks. All these roads are good, many of them being well improved and drained. None of them are impractical for a motor car.

Santa Fe has good hotels and restaurants and tourist traffic is catered to. The itching palm is not in evidence and there is no disposition to exploit the visitor in any way. The sights are free to all and a characteristic welcome is extended to those who care to avail themselves of it. Santa Fe has an open door and a spirit of friendliness and fair dealing for all who visit her.

WOODY'S MILL ON ROAD SANTA FE TO TAOS


RIO ARRIBA
TAOS
MORA
SANTA FE
SANTA FE
SANDOVAL
SAN MIGUEL
BERNALILLO
TORRANCE
BERNALILLO
ALBUQUERQUE
LAS VEGAS
SCALE
N
Chamita
Espanola
Hobart
Santa Cruz
Chimayo
Nambe Pueblo
Pojuaque Pueblo
Jicarilla Peak
Cleveland
Gascon
Round Mt
Cone PK
Baldy
Lake PK
Pecos
Forest
Reserve
Glorieta
Pecos Ruins
Hot Sps.
Romero
Ojito
Lamy
Kennedy
Cerrillos
Madrid
Ortiz
Clark
Williams
Stanley
Otto
Moriarty
Mc Intosh
Alameda
Hahn
Rio Grande
Thornton
Domingo
Algodones
Ribera
Blanchard
Chapelle
San Jose
Bernal
Sands
Fulton
Galisteo
Canoncito
Spiess
Vega Blanca
Donaciano
Rosario
Kayne
Jacona
Tesuque
Buckman
Pajarito Park
Ancient Cliff Dwellings
La Bajada
106°
35°

DONA ANA COUNTY

DOÑA ANA COUNTY is one of the oldest in the State and at one time was one of the largest. Its present area is 3,818 square miles, though formerly it included all of southwestern New Mexico and a large part of what is now Arizona. The county lies in the southern part of New Mexico, just above the Mexican and Texas boundary lines, and is on both sides of the Rio Grande, its principal stream. The general topography is that of a sloping valley with its higher part at the north with mountain ranges along the boundaries. At the north are the Caballos; along the eastern edge are the Organ, San Andreas, Black and Franklin mountains. Across the Rio Grande, at the western edge of the county, are the foothills of the Goodsight mountains. Just southwest of Fort Seldon are the Bobleros. The greatest elevation in the county is Organ Peak, which is 9,118 feet high. The county generally lies between the elevations of 3,500 and 4,500 feet. It has an exceptionally mild, equable and dry climate.

The principal industry at present is agriculture, though mining is very important. Mining, in earlier days, completely overshadowed agriculture, for the Apache Indians prevented the early settlement of the Mesilla Valley, the principal agricultural section, until after the American occupation. Now the agricultural lands on the tax rolls are valued at $1,973,700, there being 112,500 acres of them.

APPLE ORCHARDS PAY FROM $1,000 TO $1,250 PER ACRE IN THE VALLEY

ALFALFA PRODUCES UP TO SIX AND A HALF TONS AN ACRE PER ANNUM

Now there are large reclamation works going on in the county which will make it even more profitable to carry on farming there than it has been in the past. These irrigation works will also end the use of pumps for obtaining irrigation water everywhere except in the higher bench countries.

The census of 1910 gave the county 851 farms, an increase of something over twenty-five per cent in a decade, but this has been far outstripped since the days of the enumeration, as can be seen from the fact that the census showed but 88,535 acres in farms in the county, including grazing lands. With the grazing lands in private ownership added to the agricultural lands already mentioned, the county has nearly 140,000 acres in farms. Taking the census figures, the latest available, as a basis, Doña Ana County has agricultural resources worth $800,000 a year, but this must be largely increased to obtain a fair estimate. The principal crops are hay and forage, cereals, fruits and vegetables. The region is famous as a producer of fine

fruits, its peaches, cantaloupes and small fruits bringing in a tidy revenue each year and being known in the far east. The cantaloupes especially are of unusually high quality and are early in the market.

That intensive cultivation is well worked out in this section is evident from the large proportion of the total farm acreage which is held in plots of forty acres or less and the fact that there are but three farms in the region which are of more than 1,000 acres in extent.

WHEAT IS A FAVORITE CROP FOR DIVERSIFYING

Although this is an important agricultural county, yet its livestock interests are by no means inconsiderable. There are 11,000 cattle in the section, valued at $128,000, while the sheep, numbering 4,000, are worth $5,480 in addition. Horses, of which there are 3,600, are worth more than $74,000. There are a few goats and some swine in the county, the business of feeding swine for the market having been taken up with great success.

The mining land and improvements are valued at $47,000. The Organ mining district has been a producer for years. It was discovered in 1849 and it is estimated that it has furnished close to $1,000,000 worth of lead, silver and gold since that time. On the east side of the Organ range is Gold Camp, which has also produced considerable values. The Hembrillo district, at the south end of the San Andreas mountains, is a producer. Prospecting has been done in the Doña Ana mountains, and indications there are good.

But when all is said and done, it is to agriculture that the county owes its prosperity. In its two valleys, the Mesilla and the Rincon, there are countless orchards and farms whose wonderful fertility is rapidly making their owners wealthy. The greatest cultivation area surrounds the town of Las Cruces, the county seat, where the valley is about three miles wide and seven long. Here peaches and grapes are raised in profusion. Trees come into bearing here in two years, and the mild climate, especially that of winter, makes it possible to raise semi-tropical products. Pears, plums, apples, nectarines, almonds, pecans and English walnuts are grown. The amount of cereals grown is shown by the prosperity of the valley's six flouring mills. Celery, garden truck and berries are grown easily and these, with all the rest of the valley's products, find a ready market in the nearby cities. Alfalfa is a staple crop in the valley, six cuttings a year being usual. Profits are large. From Rincon south the Rio Grande has a plentiful underflow and this can be utilized to bring into production bench lands which are now too high to come under ditch.

Exclusive of the Elephant Butte project, there are 77,500 acres of land in the county included in irrigation projects. The majority of these are co-operative, only a few being individual enterprises.

In city and town lots the county has $272,000, with $228,000 more in improvements. Electric light plants are worth $6,500 and telegraph and telephone installations $27,000. There are 160 miles of railroad in the county, worth $2,216,899. Of these the Santa Fe traverses the county from north to south and the Southern Pacific and the El Paso & Southwestern from east to west. Bank stock owned in the county is worth $60,000. There is $5,000 invested in manufacturing plants and about $100,000 in merchandising propositions. The total valuation of the county is $16,507,833, taxes being assessed against one-third of this, as required by law.

The only stream in the section is the Rio Grande, whose course for 100 miles lies within the county. The principal towns aside from the county seat, already mentioned, are: Anthony, Berino, Chamberino, Doña Ana, Hatch, Mesilla, Mesilla Park, Organ, Rincon, La Mesa, Cambray, Mesquite, Leasburg and Fort Selden.

At Mesilla Park are located the State Agricultural College and a government experiment station.

THE MESILLA VALLEY

BY R. B. BASSETT

THE greatest garden spot in all the Southwest is the Mesilla Valley. This statement is meant, in its broader sense, to include also the Rincon, Las Palomas and El Paso Valleys, for all four are but segments of one great valley of the upper Rio Grande. Of the four, however, the Mesilla is by far the largest, both in size and in ultimate possibilities.

The Mesilla Valley includes 85,000 acres of land irrigable under the Elephant Butte project, and considerable mesa land which will not—at least for the present—be so irrigated. Of this amount, a little more than one-half is at present under irrigation.

For unknown centuries, according to Indian tradition which is given the color of extreme probability by all the known facts in its history, the Mesilla Valley has been irrigated. It was a paradise of fertile gardens when the first white men came tramping through the Southwest. It reminded the adventurous Coronado of "the gardens of fair Aragon". It was clothed with fields of maize, with patches of chile, with broad acres of potatoes and succulent herbs. It was watered by the ditches and canals which the Aborigines had constructed at infinite cost and pains to convey the waters of the Rio Grande to their fields. It supported a large and prosperous population, whose treatment of the earlier wandering Spaniards led to

GRAPES DO WELL IN THE MESILLA VALLEY

the establishment of missions for their enlightenment and to the introduction of various fruits and vegetables and methods of agriculture which had been unknown to the Indians.

Among the innovations was the grape. This flourished as it did in but few other localities. Wine presses followed, and it is not so many years ago that the town of Juarez, Mexico, maintained a large and elaborate estab-

BALING ALFALFA IN THE MESILLA VALLEY

lishment where wine and vinegar were manufactured from the grapes produced in the Mesilla and El Paso Valleys.

The advent of the white race, however, had the same effect upon the Indian population of the Mesilla and adjoining valleys that it has had upon them wherever else the two races have come into juxtaposition. The one waned and the other waxed. As the white settlements grew in numbers and in strength, the red men became fewer and weaker.

Unfortunately, for a long time, also, the increase in the numbers of the whites failed to keep pace with the diminishing of the red men. For lack of toilers to till them, fields that had flamed with chile or purpled under their wealth of grapes or rustled to the clashing spears of the ripening maize were left untended, and the mesquite and the tornillo stole in, unbidden guests, to feast over the abandoned board. The ditches filled with silt and trash. The borders were broken, or blended into the general level. Bit by bit the strip of irrigated land narrowed toward the river banks, and bit by bit the semblance of semi-arid mesa encroached toward it.

Then there came another and possibly more potent cause that worked toward the diminishing of irrigation along this stretch of the Rio Grande. Following the advent of the miners among the mountains along the upper reaches of the river, and the sawmills that gnawed away the timber, the

Rio Grande assumed a more sullen and capricious character. It came roaring down in sudden floods during the wet season, and sometimes went quite dry in its bed for weeks together when the weather had long been dry. It introduced two new elements of uncertainty and of danger—danger to crops and ditches by flood, and danger to crops by drought.

It cost much money and labor to renew the canals, to rebuild the diversion dams and headings and to restore the borders which recurrent floods either washed out or silted up. It placed a discouraging handicap upon the settlers who were dependent upon these things. On the other hand, when vineyards which had flourished for years died in a season because the river utterly failed and no water could be had for their irrigation, there seemed to be small incentive to replant them, for who could say how soon another season of total drought might come?

The result of all this was that argricultural and horticultural interests in the Mesilla Valley (and in the Las Palomas, Rincon and El Paso Valleys) languished for a time. But those settlers whose fortunes were wrapped up in lands in these valleys, and who firmly believed in the possibilities of irrigation here, realizing their inability to cope single-handed against the caprices of the river, appealed to the United States government for assistance. The result of that appeal was the Elephant Butte project.

It took years and years of patient and unremitting effort to bring it to pass, but when it finally came it was worth all the years and all the effort that it cost. The project is now nearing completion. It is so near that water is already being stored behind the $7,200,000 concrete dam which Uncle Sam has constructed at Elephant Butte, New Mexico, and the construction of diversion dams and irrigation canals for the purpose of delivering the stored water upon the lands to be irrigated, is in full swing. That water will be used on the crops of 1915.

The dam at Elephant Butte, and the system of canals and ditches below it, constitute the most gigantic undertaking of the Reclamation bureau. The Elephant Butte dam will store more than twice as much water as will be stored by the celebrated Roosevelt dam. It will create an artificial lake a mile and a quarter wide, 66 feet deep and with a shore-line of 200 miles. That lake will hold so much water that even if the Rio Grande should dry up and no rain fall for nearly three years, the irrigated lands below the dam would not suffer for water. It will provide so much storage capacity, after each season of irrigation, that the most tremendous flood that could possibly come (humanly speaking) would have no adverse effect upon the valley below it. It has effectually and forever placed the Rio Grande in control. It has eliminated all of the problems that hitherto attended irrigated farming in the Mesilla Valley. It has reduced farming in this fertile section to a practical, dead certainty.

For the soil, to begin with, is the richest alluvium in America if not in the world. It is built up of countless de-

CABBAGES AND OTHER GARDEN TRUCK MAKE PRODIGIOUS CROPS IN THE MESILLA VALLEY

posits of silt, spread over the valley during the centuries when the Rio Grande in flood was unhampered by the Elephant Butte dam. It is rich in all the elements of plant life, and capable of producing and sustaining the most varied and luxuriant vegetation.

The climate is particularly favorable to agriculture. The records of the United States weather bureau show 329 sunshiny days in 365. There is an active growing season of nine months. The only question that has ever confronted the farmer in the Mesilla Valley has been that of moisture, and the big dam has answered that.

The fact is that the Mesilla Valley farmer grows not a single crop per annum on his land, but a succession of crops—from two to four full crops on the same soil every year. Not only is his yield per crop astounding to those who are used only to the ordinary run of agriculture, but he makes the same land yield him several crops each year; so that it is neither necessary nor desirable that he should have the enormous acreage which he would consider necessary in less favored sections. There is a fortune in forty acres of Mesilla Valley land if it is intensively farmed—an independent fortune for every man who can get the land and who has the knowledge and energy to so farm it.

One of the farmers near Las Cruces, which is the largest

city in the Mesilla Valley, is J. G. Stuart. Mr. Stuart came eight years ago from the cattle belt of the Northwest. He has 30 acres of apple trees in full bearing—Gano, Black Twig and Winesap apple trees — and this year

LORETTO ACADEMY—SCHOOL FOR GIRLS—
LAS CRUCES

picked $1,000 worth of apples from each acre of his apple orchard. He has also five acres of pear trees, principally of the Bartlett variety. These bore about $800 worth of pears per acre last year.

Apple trees come into full-bearing in the Mesilla Valley in seven years. Bartlett pears reach full-bearing in five years after the trees are set out. The Bartlett pear appears to take with special kindness to the soil and climate of the Mesilla Valley, and produces here such fruit as can be found in very few places in the world.

A near neighbor of Mr. Stuart is A. S. Robertson, who in December, 1914, was feeding 140 head of white-faced Hereford calves on ensilage made from amber cane grown on land which had already produced an oat crop. The oats, which were harvested in June, produced 75 bushels per acre. By the first of July Mr. Robertson had his cane seed in the ground and had the water turned on. October 1 he cut the cane and converted it into ensilage. It yielded 14 tons of ensilage per acre. It cost him $2 a ton to put it into his silo. It needs no prophet to foresee that he will get several times that much out of it, feeding it to his cattle.

Up in the Rincon Valley is a farmer named H. T. Williams. Mr. Williams has only 47 acres—says he doesn't want any more and can not see why any man should want more of this valley land. Mr. Williams is making his farm yield practically all that he consumes, with a surplus of every crop. He grows alfalfa—which is one of the chief crops in the Mesilla, Rincon and El Paso Valleys. He grows Berkshire and Poland China hogs. He has six acres of general orchard, rapidly coming into full-bearing. He is going into poultry on quite a large scale. There is no discouragement around his place.

What these men have done hundreds of others are doing all over the Mesilla Valley. The Santa Fe railroad runs its whole length, and is nowhere more than six or seven miles distant from any point in it. An interurban electric line is contemplated. The whole valley is dotted with towns and villages. It is destined, no doubt, to become as densely populated, and more thriftily productive than Belgium in her palmiest days.

The largest town in the Mesilla Valley is Las Cruces. This is in every sense an up-to-date municipality. It has good streets, to match the splendid roads that run through the valley. It has good stores and plenty of them. It has fine public schools with modern buildings. It has a famous academy for girls, conducted by the Sisters of Loretto. It has a population of 5,000. It has electric lights and city water. It has a good ice factory and cold storage plant. It has two flour mills. It is building a canning factory and a creamery. It is headquarters for the United States court of the third district of New Mexico. It is headquarters of the Elephant Butte Water Users' Association. It has a number of banks. It has good churches

ELEPHANT BUTTE DAM IN DECEMBER, 1914—
80 PER CENT COMPLETE

and two newspapers and one magazine. It has a beautiful situation. It has a welcome for every newcomer who brings with him the intention to do his best to become a good citizen.

Only two miles away, at Mesilla Park, stands the New Mexico College of Agriculture and Mechanic Arts. This is a magnificent institution, and is most magnificently practical and helpful in its methods. This school is a boon to the farmers who settle in the Mesilla Valley. It gives gratuitous advice, even sending experts to the farm to pronounce upon the problems that perplex the agriculturist. It makes analyses of soil and publishes bulletins that are of inestimable value to the farmers in the Mesilla Valley. It encourages the farmers, by every possible means, to learn how to make their lands more productive and their work more pleasant.

Finally, it must not be overlooked that the farmer who comes to the Mesilla Valley, or who settles in Las Cruces, is not bringing his family into an uneducated, unprogressive community. Brought together from all parts of the United States, there are no more cosmopolitan or broad-minded people anywhere. The social life is excellent, and those who come from the most cultivated communities will not feel themselves cast among strangers here.

THE NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS

:-: BY M. L. FOX :-:

THE New Mexico College of Agriculture and Mechanic Arts, located at Mesilla Park, near Las Cruces, is classified by the United States commissioner of education as one of the six highest rated institutions of the kind in the entire country.

Owing to the liberal support given by the nation, the State of New Mexico and the various county appropriations, the Agricultural College is able to employ more than fifty teachers for the purpose of carrying out the scheme of education laid out by it in all of its various departments.

It provides for the student an excellent liberal arts course, the equal of that of the best colleges of the country, and rigidly maintains its high standard of requirements for all degrees conferred.

Experts teach practical agriculture on the large irrigated farm, keeping in mind at all times the especial needs of the State of New Mexico, differing as they do from the soil and climatic conditions of every other section of the United States. A gratifyingly large number of the graduates of the school engage in farming, horticulture or livestock raising. There is a growing demand for them as foremen for large agricultural, livestock and orchard enterprises.

Careful attention is given to animal husbandry—an industry scarcely second to any other in the western states. Already valuable services have been rendered in the matter of the best foods for cattle, hogs and sheep, the elimination of disease, and the best breeds for New Mexico.

Farm extension brings the scientific knowledge of the faculty experts direct to the farmer. It assists him in the selection of the right crops for his farm, as shown by soil analysis and the amount of water at his disposal. The prevention of disease, and how to treat disease after its appearance in his crops, his poultry or livestock has the closest attention of the county agent.

Competent instruction is given in the mechanical arts with a view to qualifying young men for such professions. The interest in carpentry, brickmaking and bricklaying, the manufacture of wagons and buggies, the repair of automobiles, blacksmithing and cooperage has been stimulated to a high degree and scores of experts are turned out from the institution each year.

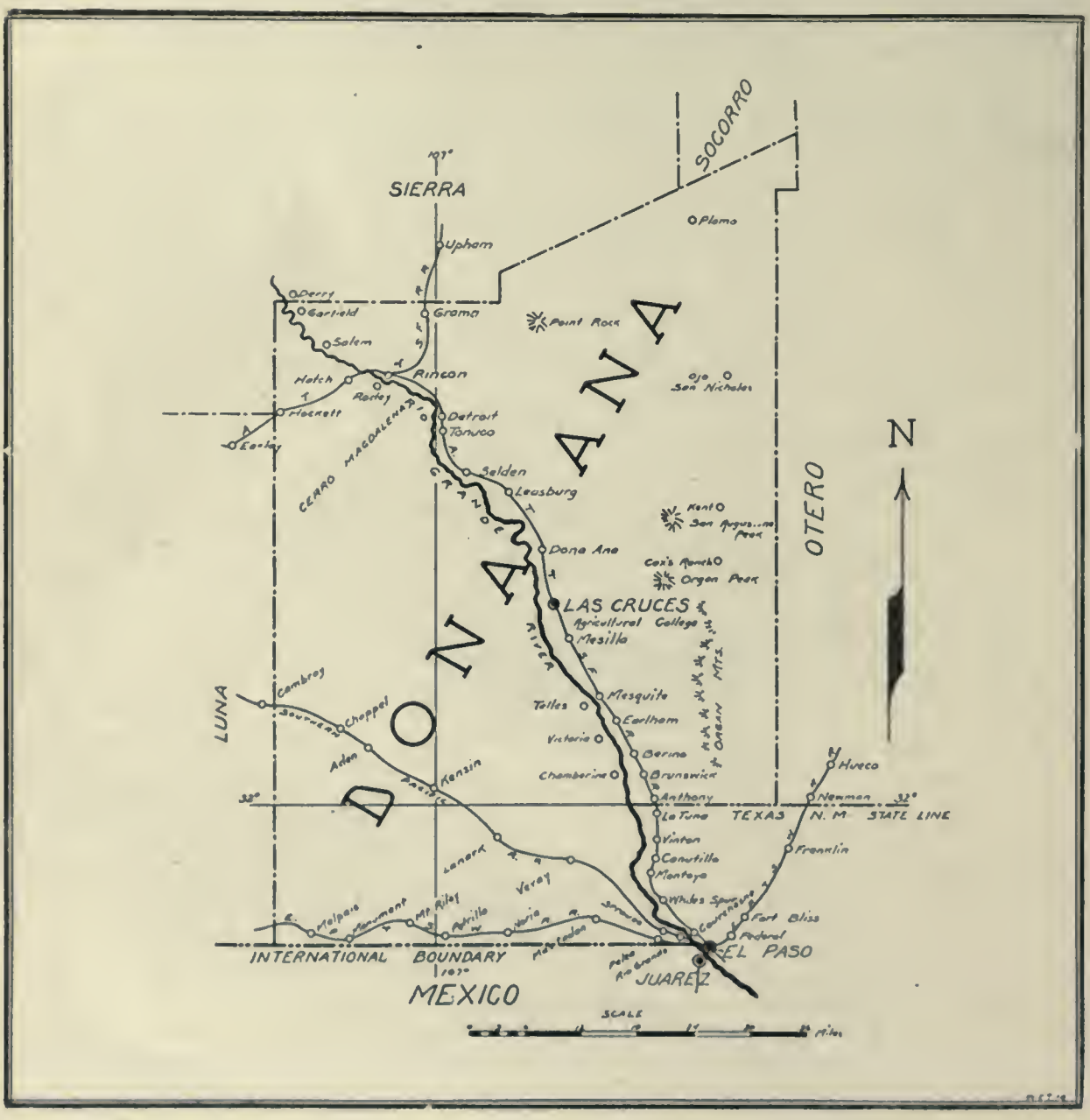
Perhaps no school in the nation is better equipped for the instruction of girls in domestic science. The classes in cooking, dressmaking, canning fruits and vegetables—in fact everything that a housewife should know—are conducted throughout each semester. The attendance on these classes is large and the work has shown marked results in hundreds of communities of New Mexico. In fact it has been revolutionary in thousands of homes, bringing into them new and up-to-date ideas of economy and efficiency in their management.

The enrollment of students of the New Mexico College of Agriculture and Mechanic Arts is far greater, in proportion to population, than in the agricultural college of any other state of the Union, and the attendance grows year by year as the practical advantages of the institution become apparent to the people of New Mexico.

The location of the New Mexico College of Agriculture and Mechanic Arts is peculiarly fortunate. It is in the center of the great Elephant Butte project by which many thousand acres of rich lands are to be reclaimed from the desert. For the growing of alfalfa, fruits (of all sorts except citrus), melons, grapes and garden vegetables, the Mesilla Valley is not excelled anywhere in the world.

Whatever product can be raised in the Southwest is found on the College farm, together with all the problems incident to its production. Every insect enemy known elsewhere is found there, studied, fought and conquered. Every plant disease, not of insect origin, known to any section of the Southwest, is found in the valley, and has been mastered, or is being mastered, by College experts.

In other words, the Agricultural College not only fits the students for life in New Mexico, where most of them expect to make their homes, but it fits them for agriculture, horticulture and the livestock industry anywhere in the great arid and semi-arid regions of the West.


DONA ANA
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GRANDE
Selden
Leasburg
Kent
San Augustine Peak
Dona Ana
Cox's Ranch
Organ Peak
LAS CRUCES
Agricultural College
Mesilla
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Mesquite
Tellez
Earlham
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Berino
Chamberino
Brunswick
Anthony
La Tina
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N. M.
STATE LINE
Vinton
Canutillo
Montoya
Whites Spring
Cambray
Souvenir
Chappel
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Lanark
Verey
Monument
Mt Riley
Akrillo
Huerfano
Hueco
Newman
Franklin
Fort Bliss
Federal
EL PASO
JUAREZ
INTERNATIONAL BOUNDARY
MEXICO
SCALE

EDDY COUNTY

THE HOME OF THE CARLSBAD PROJECT, AND THE GREATEST ARTESIAN WELLS ON EARTH, WHERE AGRICULTURE AND HORTICULTURE HAVE REACHED THEIR HIGHEST DEVELOPMENT UNDER IRRIGATION

BY A. M. HOVE

EDDY COUNTY is located in the extreme southeastern corner of New Mexico, between parallels of latitude 32 degrees and 33 degrees and longitude 103 degrees and 105 degrees. The altitude is the lowest in the State. The climate is superior for healthfulness and comfort. The resources are many, but still largely undeveloped. Grassy plains and mountainsides invite the stock-raiser on the range. The Pecos river and tributaries and artesian wells furnish an abundant and reliable water supply for irrigation, about eighty thousand acres being now under irrigation.

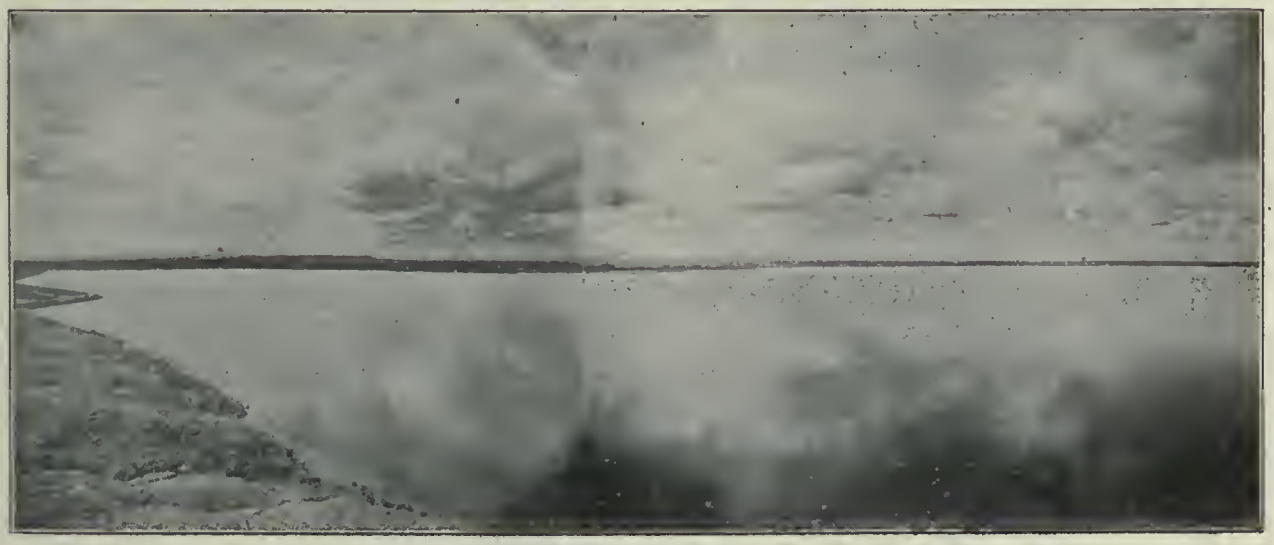
The county is well suited for growing many crops, including deciduous fruits, cereals, cotton, alfalfa and practically every crop adapted to a warm temperate zone. Peaches, pears, apples, European grapes, cantaloupe, cotton, alfalfa and other products usually top the market for high quality.

Conditions are favorable for dairying, stock-growing and feeding, and other industries. The 1914 tax rolls show 66,287 head of cattle, 66,845 sheep, 11,909 Angora goats, and 10,000 horses and mules in the county. The Santa Fe railway crosses the county, giving access to good markets.

NEW EDDY COUNTY COURT HOUSE—CARLSBAD

A net of telephone lines covers the valley and plains. Roads are being generally improved and every part of the county will be connected with the state highway through the valley. There are nine newspapers, a number of high schools and about forty rural schools.

The resources are many in Eddy County and it is the



VIEW OF LAKE McMILLAN

land of opportunity for the farmer, stockman, fruit grower, and the investor. It has an ideal climate, reliable water supply for irrigation, productive soil, progressive people, good markets, good schools. But Eddy County needs more people, and invites the closest and most careful investigation of its resources.

Irrigation is the art by which man utilizes the life-giving waters, and, as it were, acting in the place of God, distributes them to the hungry plant life, and spreads them on the broad, fertile acres, causing the land to blossom with many and varied products, that he may build himself a home, and be enriched thereby.

Eddy County boasts of the most modern and scientific methods of irrigation that have been successfully attempted. The Carlsbad project is wholly within Eddy County, as is also the greatest artesian belt in the world. Under either of these systems of irrigation, with the ideal conditions surrounding it, farming loses its uncertainties. The farmer is

EDDY COUNTY BANNER CROP—ALFALFA

not dependent upon the uncertainty of rainfall, but has within the hollow of his hand, dependent upon his own energies, the means by which water, that great life-giving necessity, may be applied as he wills it.

As the Carlsbad project and the artesian belt are described in detail elsewhere in this book, to which reference is made, we will pass on to other subjects.

The variety of crops grown on the farm is unlimited. Pecos Valley pea green alfalfa is the banner crop of Eddy County, there being approximately 30,000 acres grown; with a large increasing acreage each year. The principal marketing place is Texas, where it commands the highest price, and is convenient to the Pecos Valley and to which freight rates are not excessive.

Cotton, Indian corn, feterita, kaffir corn, milo maize, and various other feed crops are grown in abundance.

Cotton, a comparatively new crop, is fast increasing in acreage. It is very productive, of a high quality, and averages a bale to two bales per acre under irrigation.

INDIAN CORN

The plan of intensified farming, dairying, hog-raising, poultry-raising, and the feeding of cattle, sheep and hogs, is becoming more and more general. The scientific methods used in farming under irrigation in Eddy County, that are being used in connection with stock-raising and feeding, are fast bringing Eddy County to the front as the banner agricultural county of the State.

Stock-raising is the oldest industry in Eddy County, and

COTTON GROWING BETWEEN PEACH TREES AT RIO PECOS ORCHARD

is the largest industry at the present time. During the year 1914 the total sales of cattle, sheep, goats, horses and hogs exceeded two million dollars.

The abundance of native grasses, the ease with which water is obtained, the mild open winters, make this one of the favored sections in the United States for the raising of livestock.

It is not claimed that Pecos Valley soil, water, and sunshine, without the aid of man's work will change a barren country into a land blossoming with plenty; but we do claim that with wise husbandry, under the direction of such men as Francis G. Tracy and Charles H. McLenathen, the barren wastes can be made an ideal home and one of the favored spots of the earth.

COTTON PICKING TIME

ESPERANZA FARM—CARLSBAD

After a careful study of the needs of the farmer under the Carlsbad project, these men were convinced that it was a useless waste to ship poor cattle, sheep, hogs, and alfalfa hay out of the valley. Instead, they believed that the feeding of the hay at home and the shipping of the fattened stock and the growing of better horses and cattle, would be the greatest improvement that could be accomplished.

In order to satisfy themselves and for the purpose of demonstrating the fact to others, they established what is known as the Esperanza stock farm. It contains 800 acres of patented land, of which 300 acres are irrigable under the Carlsbad project, and about 900 acres of range pasture, being situated about two miles east of Carlsbad, bordering on the Pecos river for two and a half miles, and runs back to the open range.

They are raising on this farm fine French coach horses and thoroughbred Durham cattle. They are growing alfalfa, kaffir corn and milo maize in abundance. Everything that is grown on the farm is fed on the farm. They are now feeding approximately 150 head of calves. What is being done here is opening up a new line of industry in Eddy County. Nothing is being wasted in the way of feed, while the cheap open range reduces the cost of growing the stock to a minimum.

PEACHES AT RIO PECOS ORCHARD

Since the establishment of this farm, many other farms of like character have been established; and are now being conducted on a large scale in Eddy County. The people of the Pecos Valley, and especially of Eddy County and the Carlsbad project, owe a great deal to Francis G. Tracy and to Charles H. McLenathen; they have, with an abiding faith and a firm belief in the possibilities of the Pecos Valley, stood for it and fought for it, and now their fondest hopes are being realized.

The Carlsbad Orchard & Plantation Company owns a farm of more than two thousand acres, about six miles below Carlsbad on the east side of the Pecos river, having a private water right from the river for irrigation of their

lands. This company have been specializing in alfalfa during the past two years. They have also shipped several cars of Denia onions.

Denia onion growing in the Pecos Valley is fast becoming one of the leading industries. The keeping qualities and flavor of the onions grown in the valley are unexcelled.

The Harroun Land Company owns a large tract of land about twelve miles south of Carlsbad. This company, like the Carlsbad Orchard & Plantation Company, has a private water right from the Pecos river, having thirty-two hundred acres of land. The farm is devoted to alfalfa and hogs and is fast becoming one of the leading individual projects of the valley.

The Black River Land & Cattle Company has a private water right from Black river, a tributary of the Pecos, for one thousand acres of land. They have in addition to the irrigable land, ninety thousand acres of grazing land, about ten thousand acres of which is in private ownership, the balance being leased state land. This company is combining cattle-raising and cattle-feeding, raising their own forage and alfalfa for the latter purpose, having one of the most modern diversion dams and canal systems in the State.

There are many small irrigated farms scattered over the county where irrigation is being done successfully from small streams, natural springs, or wells.

"Will trees grow?" This was the question asked by everyone when the first settlers came to the treeless Pecos Valley twenty-five years ago. The popular opinion was that they would not grow. Nevertheless, when the town of Carlsbad was platted, cottonwood stakes were driven on both sides of all the streets, as well as along the various irrigation ditches. A visit to Carlsbad at this time will answer the above query.

Now, after twenty-five years the "treeless" Pecos Valley has become covered with orchards of peaches, apples, and other deciduous fruits. The streets of every town are lined with shade trees. Fruit is being shipped by the train load. The reputation of the Pecos Valley is fully established as the producer of perfect peaches, apples, pears, plums, nectarines, prunes, the European or California grape, and pecans and other nuts.

The Carlsbad district is specially adapted to the peach, producing a peach perfect in shape, coloring, flavor, texture and shipping qualities. In the northern part of the county the apple has received more attention, and many paying orchards are located near Artesia and Hope.

The grape is just beginning to receive attention. The quality of the various table and wine grapes is unusually high. One vineyard of California grapes at Artesia has returned from $400 to $500 a year per acre. Peach trees have yielded $15 to $27 per tree. A cherry tree five years old produced 140 pounds of fruit. An apple tree now nine years old has netted the owner $30 each season for the past four years.

The average net income from orchards ranges from $100 to $300 per year per acre.

The perfectly natural question arises here: Can this produce and fruit be marketed after it is raised? Let us

RIO PECOS ORCHARD IN BLOOM

look into that subject. Texas, the largest consuming market in the United States today, is just next door to us. And Texas alone can consume twice the quantity of produce now being shipped out of the Pecos Valley. We have a lesser freight rate into Texas than has any other competing producing state. We can sell our goods for less money at a greater profit than can Arizona, Colorado, or California. Texas coast towns will very soon be among the largest of exporting stations in the United States. This will mean a many times magnified demand for all kinds of fruits, produce and grains.

Late one evening in January, 1890, the stage-coach, after a two days' journey from Pecos, Texas, arrived at a small village known as Eddy, New Mexico. From it alighted a young easterner, Francis G. Tracy. Soon after getting located he began to dream dreams of what could be done in the most fertile valley, the Pecos Valley, the garden spot of the Southwest. He believed that, together with the fertility of the soil, the wonderful climatic conditions, and the opportunity to apply water at the proper time and in the proper quantities, fruits of a more delicious flavor and higher quality could be produced, superior to any grown in the United States.

Suiting the thought and opportunity offered him to the occasion, he planted a small peach orchard. The many failures and triumphs of the first attempts to raise peaches in the Pecos Valley, if written would read like a fairy-tale. Suffice it to say that, being successful in a small way, he, together with Charles H. McLenathen in 1907, decided to plant a commercial peach orchard.

The experience that both had gained since Mr. Tracy began to plant fruit in the early nineties, guided them in the selection of land, and the variety of trees. A hundred and five acres of the choicest river bottom land, with a soil depth of twenty feet, was selected and prepared. This land is located in La Huerta, a suburb adjoining Carlsbad on the north, and is under the East Side canal of the Carlsbad project.

It is undeniably the best orchard land in the Pecos Valley, and is the largest single planting of peaches in New Mexico. A heavy planting was made the first year, and a second the following year. A perfect stand was obtained. During the first years, cotton was grown between the rows of trees for the purpose of keeping the land properly cultivated, and to help carry the expenses. The fourth season the first commercial crop was harvested.

NURSING THE BABY PEACH—RIO PECOS ORCHARD

The peach from the Rio Pecos orchard has become famous in the fruit markets of the United States. Its delicious flavor and richness are the acme of peach perfection. Nowhere do peaches attain the size, texture, color and shipping qualities as do those produced in the Pecos Valley. The uniformity of size and the firmness of the fruit make the Rio Pecos peach the premium taker on all the largest markets. The crop begins ripening about June 20, with the Mamie Ross variety, the most delicious of early peaches, followed by the Carmen and Superb.

Then come the peaches which have made the Rio Pecos orchard famous: the pink and white of the Champion, and the red and yellow of the Elberta, which attain a size and take on a perfect blush that no other peach-growing district can equal. These are followed by Crawford Late,

STREET SCENE—CARLSBAD

and other later varieties, lasting until October. The fruit is carefully thinned in the early spring to insure the best commercial fruit.

The Rio Pecos orchard has private railway siding, packing shed, store house, loading platform, complete smudging outfit, including storage oil tanks, etc. Expert fruit growers who have visited this orchard pronounce it the best they have ever seen. The growth of the trees is remarkable, and their uniformity is unusual in peach growing districts.

One of the most if not the most remarkable feature of the Rio Pecos peach orchard, which is also true of other peach orchards in Eddy County, is the fact that spraying is unnecessary as there never has been an indication of any of the pests more or less common in other peach-growing districts.

The amount of irrigation water needed is comparatively small.

What is true of Mr. Tracy's efforts on a small scale in the past, is now being more than realized on a larger scale. He has conclusively proven that peach-growing on a commercial basis is not only a pleasant occupation, but is highly remunerative from a financial standpoint.

Nestling among the trees and surrounded by broad acres of alfalfa, is the county seat of Eddy County, "Carlsbad, the beautiful". Its streets are broad and well-kept, its lawns a verdant green, splashed with the brilliant color of flowers. The city looks just what it is, a beautiful oasis in the great semi-arid region of which it is the center.

The climatic conditions of Carlsbad are unrivaled the world over. Its altitude is approximately 3,100 feet, protected on the west, north and east by sheltering hills, the winters are delightful. It has a population of 3,500, and is a modern city in every way. A water system, furnishing the very best "aqua pura," telephone exchange, electric light and power, sewer system, two national banks, two newspapers, modern hotel, six churches, ice factory, three garages and machine shops, large mercantile establishments, the most up-to-date stores in the Pecos Valley.

The people of Carlsbad are justly proud of their public schools. Its new $15,000 school building is constructed on the most modern plan of any school building in the Southwest. It boasts of a wide-awake commercial club, woman's club, and many other fraternal and literary organizations.

It is all in all the best little city in the Southwest. A good place to live.

Artesia, one of the most thriving and progressive towns of the Pecos Valley, is situated in the heart of the world-famous Pecos Valley artesian belt. The country surrounding Artesia is one of the most productive and highly cultivated farming districts in New Mexico. It is a comparatively new town, being little more than ten years old, having a population of approximately three thousand; it is a modern town in every way, having an excellent electric light

PACKING PEACHES—RIO PECOS ORCHARD

system, telephone system, sewer system, steam laundry, ice plant, and is justly proud of its own municipal waterworks system.

Its business houses are substantial and prosperous.

Like the rest of the Pecos Valley, alfalfa is the principal

crop grown in the Artesia district. It supports a large alfalfa mill, and ships hundreds of cars of hay per annum.

It is here they raise the delicately tinted, finely textured, richly flavored Pecos Valley cantaloupe that has won a name for itself on all of the large eastern and southern

MILES OF CEMENT WALK—CARLSBAD

markets where it commands the highest price. The people of Artesia and vicinity believe in their community, and are always found pulling together and boosting for Artesia, thus assuring its future.

Lakewood, situated on the west shore of Lake McMillan, is one of the most thriving, prosperous, up-to-date little towns in the Pecos Valley. It is the principal truck-growing section of the entire Pecos Valley, and has become famous in the past few years on account of the superior quality of the Lakewood tomato. The Lakewood tomato is fast taking its place at the top, and commands the highest price in the markets of Texas, Oklahoma, Kansas, Colorado, and Arizona. The size and contour of the fruit (for is it not a fruit?) makes such an even, uniform pack, and the color is so perfect that the demand for them far exceeds the supply. They command a premium on all markets and especially so on the Texas market.

In 1914 there was approximately 300 acres grown, from which were shipped seventeen cars of fresh tomatoes, and in addition to that, thousands of crates were shipped by express; express shipments continue until about January 1.

There is a canning factory at Lakewood that has canned about 67 cars of tomatoes since its installation three years ago. The "Lakewood Brand" canned tomato is acknowledged to be the best canned tomato on the market today.

In addition to tomatoes, cantaloupes and Denia onions are extensively grown, several cars of each having been shipped during 1914.

Hope is located about twenty miles west of Artesia on the Penasco river. It is noted for its wonderful apple orchards, and seems to be so situated as to be an ideal place for the growing of fancy apples. The warm days of early fall and the frosty nights combine to make flavor and color on the apple all that can be desired. It is fruit perfection. This is true not only of the Hope district, but of the whole Pecos Valley, where fruit raising is fast becoming the leading industry.

Dayton is a small town on the A. T. & S. F. railway, and is noted principally for her oil fields. She has one well, producing from thirty to fifty barrels per day. Oil development is in its infancy in Eddy County, but there is no doubt but what there will soon be developed one of the greatest oil fields in the United States. The topography of

CARLSBAD $15,000 SCHOOL BUILDING—SUNSHINE IN EVERY ROOM

the country, geological formation, and reports of oil experts, all point to this fact.

At the little station of Oriental there is located a cement plaster mill, which ships on an average of one car of high-grade plaster per day.

Otis is situated in the heart of the alfalfa growing section of the Carlsbad project; the farmers own and control a co-operative creamery, which has been in operation the past two years and is fast growing to be one of the leading industries of the valley.

McKITTRICK CANYON, ONE OF EDDY COUNTY'S COOL RETREATS

Loving and Malaga are also situated in the alfalfa growing district of the project, there being a cotton gin at the former place; and they are both prosperous, thriving towns.

ONE OF EDDY COUNTY'S MANY BEAUTY SPOTS

The eastern part of Eddy County is a part of the Great Plains; during the past few years practically all of this country has been settled up. Dry farming methods have been found satisfactory, and an abundance of feterita, milo maize, kaffir corn, and other forage crops are being raised. This country, which until a few years ago, was entirely uninhabited and over which ranged thousands of cattle, has been homesteaded and is now being developed.

Water has been developed by sinking wells, and in some sections an abundance of water has been found at approximately twenty-five feet, where pumping plants are being installed and irrigation is being done by that method. The stock industry, instead of cattle roaming at will as in the past, is being conducted and is prospering under more modern and efficient methods, thus increasing the returns both from the stock grown and farm products raised.

The towns of Lovington, Knowles, Monument and Eunice are prosperous villages; the prospects for a railroad through this country in the near future are very promising.

OUTDOOR LIFE, EDDY COUNTY

The Alamo national forest in the western part of Eddy County, which includes the Guadalupe mountains, comprises one of the most scenic sections in New Mexico. A highway is under construction from Carlsbad to the town of Queen, situated at the top of the Guadalupes, which will make it possible to reach a cool mountain resort within less than two hours' time from Carlsbad by automobile. In this mountainous section are found many narrow fertile valleys, where the finest of fruits and vegetables are grown. Many cattle, sheep and Angora goats range throughout these mountains.

For the person who is a lover of the great out-doors, Eddy County offers many inducements. Large game is found in abundance in the foothills and mountains west of Carlsbad. The Pecos river and its tributaries are well stocked with bass and numerous other game fish.

The plains, fields and arroyos are fairly alive with the native crested blue quail, and the hunter who is fleet of foot and quick of eye, will find quail shooting a most exhilirating sport.

Lakes McMillan and Avalon are national bird reserves, upon which no shooting is permitted, thus affording a rest-

EDDY COUNTY 1,500 GALLON PER MINUTE
SIPPLE WELL

and quick of eye, will find quail shooting a most exhilarat-hunting on the smaller lakes and streams where wild ducks go to feed by the thousands. The entire length of the Pecos river, and the cornfields adjacent thereto, in the early morning, is a lively and noisome scene. An evening spent duck shooting is one long-to-be-remembered experience.

Eddy County has always taken the lead in all good roads movements, and has rapidly come to the front during the past few years in good roads building. There is already a network of good roads connecting all of the towns in the county. During the past few months there has been considerable goad roads enthusiasm which is being kept up by the Carlsbad Good Roads Association, and the Good Roads Association of Eastern New Mexico, the latter comprising the counties of Eddy, Chaves, Roosevelt, Curry and Lincoln.

WATERMELONS—CARLSBAD

The counties of eastern New Mexico are all united for the construction of a north and south highway throughout the Pecos Valley, working in unity with Reeves County, Texas, on the south and with other New Mexico counties on the north, thus constructing a north and south highway that will open to New Mexico the travel of southern Texas, and will give the people of southern Texas an opportunity to spend the summers in the coolness of our mountain resorts. Eddy County is contemplating the immediate issue

EDDY COUNTY UNDERGROUND WATER SUPPLY—
2,000 GALLONS PER MINUTE

of $60,000 in bonds for the purpose of carrying out the good roads plan.

The character of the soil here is such that roads can be built at a comparatively low cost.

Eddy County has made phenomenal progress along educational lines in the past few years. There are approximately 3,850 children of school age in Eddy County, practically all being enrolled in the schools. There are twenty-eight school districts employing eighty-eight teachers. There was spent during the past year for school purposes $65,000.

Under the county high-school law, four high schools were established, located at Carlsbad, Artesia, Hope and Lovington. These schools are intended to meet, and do meet, the needs of four natural geographical divisions of the county. In these high schools there have been added to the course of study theretofore taught, manual training, domestic science and commercial science. There are twelve schools in Eddy County doing one or more years of high school work. The teachers employed are college graduates, and the course of study pursued admits pupils after graduation, to the best colleges in the country. It is the smaller village and rural schools of which Eddy County can justly boast.

There are approximately forty rural schools. The progress made in these schools during the past few years has kept pace with the fast developing country. Teachers' salaries have increased, and teachers of unusual ability are employed in our rural schools. Several up-to-date rural school buildings have been recently erected and have been provided with the latest and best equipment.

No country can expect to make rapid advancement unless the proper educational facilities for the children are maintained. Eddy County is proud and justly so of her public school system.

For those unfortunate persons afflicted with lung or throat trouble, we want to place before you some facts concerning the benefits to be derived from atmospheric and climatic conditions. Some have come among us who, with weakened limbs and hollowed eyes, devoid of hope, and discouraged, have, after remaining in Eddy County's exhilarating air for a few months, where is is "so easy to breathe,"—that is the condition in a word, it is easy to breathe,—taken a new lease on life, as it were; color returns to pallid cheeks, and God's own sunshine and the bigness of the open-air country bring renewed hope and strength of mind and body.

Eddy County offers the most golden of opportunities just now for the investor and home builder. Rich valley lands, which have been waiting for generations for only the long, cool draught of life-giving water to give forth from the rich soil the green of grasses, trees and grains, is possible only of attainment at this time for reasonable prices and on easy terms.

The irrigation season is long, opening March 1 and closing from November 1 to 15. Alfalfa, well taken care of, is cut five times each season and may be pastured through the winter besides. Winter grain may be followed with some other crop the same season.

The climate is so mild and dry that dairying, stock-feeding, hog-growing, poultry-raising, bee-keeping, and similar industries may be carried on without expensive equipment of buildings. By proper rotation green feed may be available practically all the year.

Eddy County offers the home builder and investor the opportunity of good land at reasonable prices, located near stations and good schools, with the convenience of rural delivery of mail, telephone, and electric light and power.

One trip into the valley will convince the most skeptical that we have a wonderful country, a good place to live, and opportunities for all.

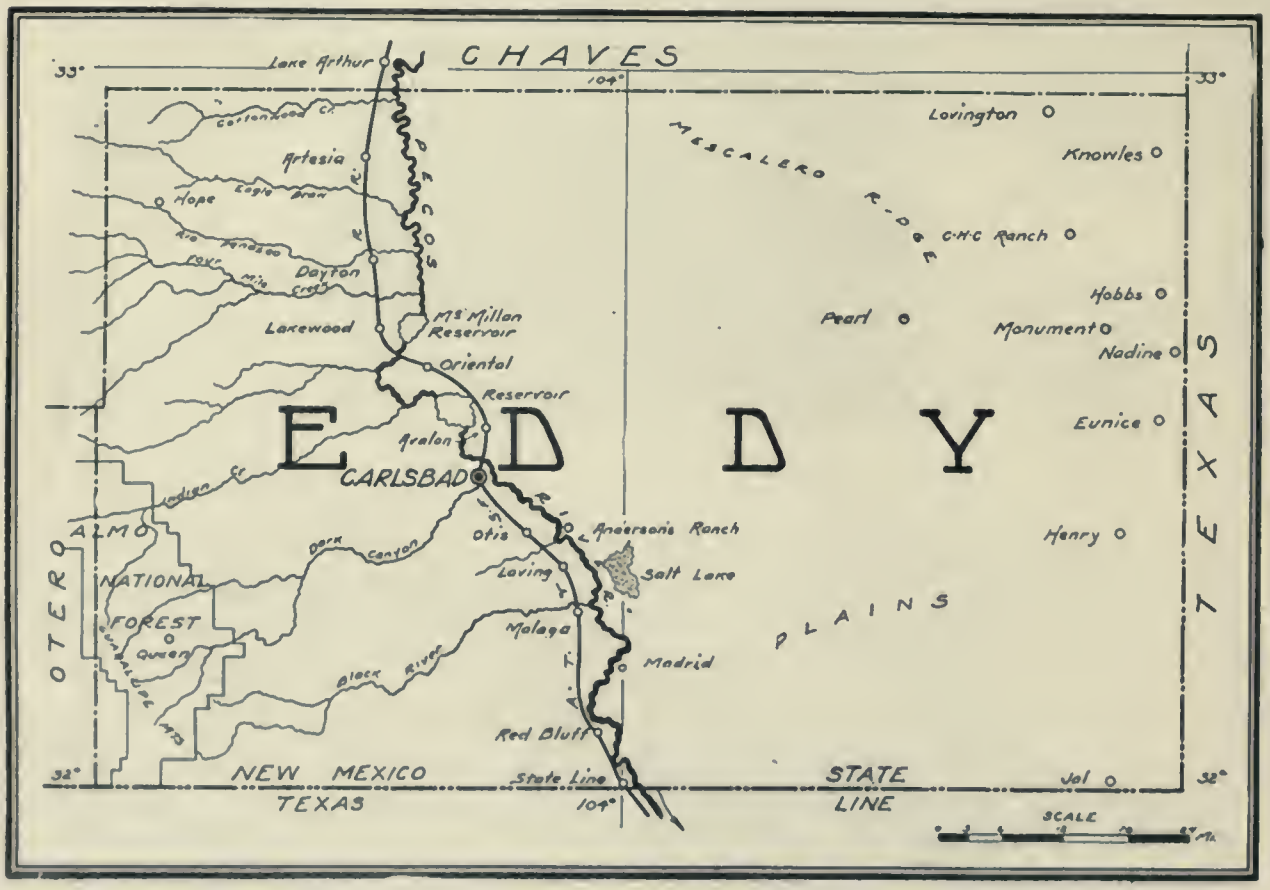
THOROUGHBRED HEREFORD BULLS

SOME GRAPES

PACKING CANTALOUPES

DUROC JERSEY HOGS ON PASTURE

DUROC JERSEY HOGS AT FEEDING TIME


CHAVES
Lake Arthur
33°
104°
Cottonwood Cr.
Artesia
Hope
Eagle Draw
Rio Penasco
Dayton
Lakewood
Ms Millan Reservoir
Oriental
Reservoir
Avalon
EDDY
CARLSBAD
Indian Cr.
ALMO
NATIONAL
FOREST
Queen
OTERO
Dark Canyon
Otis
Loving
Anderson's Ranch
Salt Lake
Malaga
Black River
Madrid
Red Bluff
PECOS
MESCALERO RIDGE
Lovington
Knowles
C.H.C. Ranch
Hobbs
Pearl
Monument
Nadine
Eunice
Henry
PLAINS
TEXAS
Jal
32°
NEW MEXICO
TEXAS
State Line
STATE LINE
SCALE

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No. 4 is the Calisher Realty Co.'s building, of which he is President. The building is occupied by Everybody's Department Store.

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C. N. COTTON COMPANY

GALLUP, NEW MEXICO

Largest Dealers in Navajo Blankets in the Country

ANY traveler passing through Gallup will find it well worth his time and effort to stop over there and visit the great "Indian Rug Room" of the C. N. Cotton Company. This concern is the largest single dealer in Navajo blankets and rugs in the country. Its president, C. N. Cotton, is the pioneer Indian trader of this section of the country. There are no better judges of Indian blankets than Mr. Cotton and the assistants trained by him and nothing but the best finds itself on his shelves or piled on the floor of his warerooms.

The Cotton Company demands that the Indians weave only the best of blankets for trade with them, all native wool warps, as the cotton warp has been found to be a failure. The blankets are obtained at reasonable prices since goods are given for them in trade and no actual cash is used in acquiring them.

Mr. Cotton has been intimately connected with the business of making and selling Navajo blankets for the past quarter of a century, in fact, the manufacture of the blankets on a commercial scale, and, to a large degree, the present prosperity of the Navajo Indians are due to him. Mr. Cotton, while a trader on the Indian reservation, saw that the Indians must have more to trade than pelts and wool if either he or they were to make any money. He encouraged them in making blankets for sale and succeeded in putting the business on a substantial basis.

It was the development of this business which led to the abandonment of the little trading post and the establishment of the central supply house in Gallup, where the company now has its home. This establishment has large and commodious offices, ample sales rooms, handsome sample rooms and seven warehouses with a total floor space of over 50,000 square feet. There are blankets of all sizes and weaves to be seen there, valued at from comparatively little to anything you choose to name, for the price varies not only with size and weight but each blanket has an individual value because of weave and design.

Genuine Navajo blankets are never made in duplicate patterns and as there are no such things as standard sizes among the Indians it is rather difficult to classify or catalog them. The Cotton Company, however, has prepared a handsome brochure telling of the making of the blankets, work of the concern in putting them before the world as a commercial article and illustrating some of the handsomest and most typical designs. This booklet is sent to all interested people. The blankets are coming into use a great deal as carriage and automobile robes, since they are heavy and shed water well and it is next to impossible to wear them out. They are also being used for rugs and slumber robes, in fact, wherever bright color and quaint design are attractive.

Genuine blankets may be obtained from the Cotton Company by express upon bank reference or suitable commercial rating. Delivery is free when cash accompanies the order. The Cotton Company guarantees that all its blankets are genuine Navajo woven, as it has not a single blanket of other make in its establishment.

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