5-9-1955

# A Study of the Influence of the Atchison, Topeka, and Santa Fe Railroad Upon the Economy of New Mexico 1878 to 1900

Jim F. Heath

INFLUENCE
OF THE
A. T. & S. FE
RAILROAD

HEATH

# A STUDY OF THE INFLUENCE OF THE ATCHISON, TOPEKA, AND SANTA FE RAILROAD UPON THE ECONOMY OF NEW MEXICO 1878 TO 1900

By

Jim F. Heath

A Thesis
Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts in Economics

The University of New Mexico
1955

This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of the University of New Mexico in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

E. H. Castetter
DEAN

5/9/1955
DATE

Thesis committee

Richard S. Duncan
CHAIRMAN

M. Wolman

David Hamilton

TABLE OF CONTENTS

TABLE OF CONTENTS, CONTINUED

LIST OF TABLES

LIST OF TABLES, CONTINUED

## LIST OF FIGURES

# CHAPTER I

# INTRODUCTION

## The Problem

Statement of the problem.--In 1873, Governor Marsh Giddings commented that "New Mexico is learning new methods of production as a territory. There is a desire for progress and education." Continuing, Giddings pointed out two things badly needed by the new territory. One was a means of giving information to the world about the features and potentialities of New Mexico in order to draw men of means, talents, and ambitions to the area.[1] The other was some system of transportation and

---

[1]Marsh Giddings, Governor's Message, Territory of New Mexico (Santa Fe: New Mexico Printing Co., 1873), pp. 4-5.

---

inter-communication by which these men could come into the territory with greater ease and comfort, less expense, and whereby products could be transported to commercial centers of the East at a reasonable cost. Giddings noted that the latter need should be met soon by the arrival of railroads in New Mexico.[2] The problem dealt

---

[2]Ibid., p. 12.

---

with in this paper is how well the first and the dominant railroad in the territory, the Atchison, Topeka, and Santa Fe, performed the role of the railroads predicted by Giddings. In brief, this study deals with the influence of the Atchison, Topeka, and Santa Fe Railroad Company upon the economy of New Mexico between the coming of this transportation service in 1878 and the turn of the twentieth century.

Delimitation of the problem.--Only one railroad, the Atchison, Topeka, and Santa Fe, was chosen for this study because of two reasons. First, the Santa Fe Railroad[3] was the first railroad to enter the territory,

---

[3]For convenience of variance and shortness the Atchison, Topeka, and Santa Fe Railroad will frequently be referred to by its most common name, the Santa Fe.

---

having arrived in late November, 1878. Second, ever since railroads have been in New Mexico, the Santa Fe and Santa Fe controlled companies have operated well over half of all of the track miles in use. Because of these two facts a study of this company's influence upon the economy of New Mexico should be particularly representative of the effects upon the economy by all railroads. The Atlantic and Pacific Railroad Company will be included in this study because it was controlled by the Santa Fe Railroad Company through stock ownership,

although operated under separate title, until July 1, 1902, when it became part of the Atchison, Topeka, and Santa Fe in name as well as in ownership. A previous change in title had occurred June 24, 1897, when it was changed to the Santa Fe Pacific Railroad Company.[4]

---

[4]James Marshall, The Railroad That Built An Empire (New York: Random House, 1945), p. 444.

---

The years 1878 to 1900 were ones of great change in the economy of New Mexico. This period was chosen for the study because the first railroad, the Santa Fe, entered New Mexico late in 1878, and the subsequent years represent the time in which the influence of this new means of transportation would have been most obvious in the territory. For purposes of comparison various statistics from the 1870 census report will be used. Although it would be useful, information from census records before 1870 will not be considered, since all data before the 1870 census includes Arizona as part of New Mexico, the territory having been divided in two in 1863.

## Purpose and Importance

A country without adequate transportation has been described as like soil without water.[5] The railroad

---

[5]Rowland Thomas, "The Story of the Santa Fe," World's Work, X(September, 1905), 6618.

---

was the first of what may be called modern transportation facilities in New Mexico, and, as such, its coming caused many striking changes in the way of life and in the economy of the territory. Economist Douglas Knoop has written that

> Railways are of enormous importance to society; transportation shares in production of all commodities to some degree, so all producers and consumers are directly interested in the price of railway services; railways also have a great influence on the distribution of population.[6]

---

[6]Douglas Knoop, Outlines of Railway Economics (London: MacMillan and Co., Limited, 1913), pp. 6-7.

---

The primary purpose of this paper is to attempt to determine by the use of available material just how important a role rail transportation played in New Mexico. Economic studies by persons like Knoop indicate that the railroad generally has a tremendous effect upon the economy of a region.[7] This study is aimed at

---

[7]Other economic sources giving similar views of the influence of the railroad upon the economy are Katherine Coman, The Industrial History of the United States; H. H. McCarty, The Geographic Basis of American Economic Life; John Moody, The Railroad Builders; George Soule, Economic Forces in American History; and Bower Aly, American Railroads.

---

evaluating the extent of this influence upon New Mexico in a twenty-two year period. By studying the general

economy and specific industries of the territory in this era, it will be possible to recognize the change from a primitive, crude economy to a prospering one, fully aware of its expansion potential and of the dynamic business life of the outside world.

By evaluating the part of the railroad in this change, more light will be thrown upon the characteristics of the economy of New Mexico fifty to seventy years ago. Consequently, current economic problems may be judged with a broader knowledge about the economy of the region in the past. Also, more will be known about the influence of transportation upon the economic life of the area. The time between 1880 and 1900 may be called the beginning of the present type of economy in New Mexico and the arid Southwest, for the arrival of the Santa Fe heralded the replacement of mercantile capitalism by the industrial capitalism still present today.[8]

---

[8]William J. Parish, "Charles Ilfield, Sedentary Merchant in the Arid Southwest, 1865-1884" (Unpublished D.C.S. dissertation, Graduate School of Commerce, Harvard University, 1949), pp. 251-252.

---

The latter system became dominant when adequate transportation facilities made possible the easy movement of people and goods into the territory. Large numbers

of people brought large amounts of capital, which necessitated banking and removed the natural factors of environment which had made mercantile capitalism possible for many years.[9]

---

[9]See section on Trade in Chapter IV.

---

This paper is thus intended to meet the usual goals of a study in the field of economic history. Anything and everything which has occurred since the beginning of time, whether in the field of music, art, medicine, science, or economics, has been history. This subject is designed to study a period of history from an economic standpoint in a particular geographic region. No mere chronological report is given about New Mexico during this era. Rather, an attempt is made to analyze various factors and measures of the economy during this time. It is sincerely hoped that more knowledge on this subject will be of value to future studies of the economy of New Mexico.

In no way is this study designed or aimed to be a history of the Atchison, Topeka, and Santa Fe Railroad, for this has been admirably done by writers like James Marshall, Glenn Bradley, and L. L. Waters. In this effort, the interest in the Santa Fe will be centered upon its activities in New Mexico. However, some background

history of the line is important to the reader in appreciating the setting for the action with which the paper is specifically concerned. Therefore, chapter two is included to provide information of this type about the Santa Fe Railroad Company and also about early overland trade in New Mexico.

## General Sources

To secure the necessary information for this subject it was necessary to utilize a large number of varied sources. Numerous publications of the Bureau of Immigration of the Territory of New Mexico between 1880 and 1900 were valuable in preparing many parts of the paper. Likewise, the reports of the various governors of the territory to both the Secretary of the Interior and the Territorial Legislature provided important first-hand material. For statistical data the census publications of the Federal Government were necessary sources, while territorial newspapers, community histories, and general comprehensive histories of New Mexico were helpful to varying extents. Special note should be given to the study of Charles Ilfield, an early sedentary merchant of New Mexico, by W. J. Parish of the University of New Mexico, for not only its wealth of material on trade in the territory, but also because it helped to give the writer a much clearer insight in the general economy of New Mexico before 1900.

## Organization of the Paper

The first chapter serves merely as the introduction to this study. Chapter two presents background information of interest and value to the reader on early trade and transportation in New Mexico before the coming of the railroads. In addition the chapter gives a history of the Santa Fe Railroad, its founding, and its entrance into and growth in New Mexico during the period being studied.

Chapter three deals with the influence of the Atchison, Topeka, and Santa Fe upon the general economy of New Mexico, 1878 to 1900. Specifically, population, development of commercial centers, property valuation, and tourist attractions are considered.

Chapter four surveys the influence of the Santa Fe upon the major economic industries. Agriculture, stock raising, manufacturing, mining, and trade are separately studied to the extent that available material allows. Chapters three and four are thus the real heart of the study and their length corresponds to their importance.

Chapter five summarizes the paper and presents the conclusions drawn from the material studied. Throughout the thesis, heavy emphasis is placed upon statistical evidence which backs up various points of importance, thus numerous tables, charts, and maps are used.

## CHAPTER II

## TRANSPORTATION AND TRADE IN NEW MEXICO IN THE NINETEENTH CENTURY

### Overland Trade with the United States

New Mexican trade before 1804.--Settlements had been established in the New Mexico Territory for over two hundred years before any type of trading ventures were carried on between the United States and the New Mexicans. During the two centuries preceeding 1800, all of the export and import commerce engaged in by the few thousand souls living in this isolated region was with the city of Chihuahua, some 600 miles to the south. Over a desolate trail which followed the sandy banks of the Rio Grande were carried the necessities of life for the inhabitants of New Mexico in exchange for the furs, hides, and craft goods available in the northernmost province of the Viceroyalty of Mexico. The Spanish rulers kept Mexico under strict control in ways of trade, excluding all commerce from the United States, except what was allowed to pass through the tightly-controlled port of Vera Cruz. Goods arrived there from the United States by sea in restricted quantities, and if any reached New Mexico, they were delivered by carts over

a long, tortuous trail at an exhorbitant cost to the purchasers.[1]

---

[1]Paul Horgan, Great River (New York: Rinehart and Co., Inc., 1954), II, 495-496.

---

First American expeditions to New Mexico.-- Despite Spanish restrictions on trade from the United States, efforts were made early in the nineteenth century to establish commercial connections with New Mexico. Supposedly the first American to enter this region was James Pursley, a Kentucky trader and trapper, who arrived in 1804 and remained in Santa Fe, at first by choice and later by compulsion. The initial attempt to take goods into the territory for sale was in 1805 when a Kaskaskia, Illinois merchant, William Morrison, engaged a French Creole trapper, Baptiste LaLande, to convey a shipment of merchandise to Santa Fe. The Frenchman successfully reached that city, sold the goods, and then, ironically, decided to remain, taking Morrison's property for his own.[2]

---

[2]Joseph Gregg, Commerce of the Prairies (Philadelphia: J. W. Moore Printing Co., 1849), I, 16-17.

---

Pike's expedition.--In 1805 Lieutenant Zebulon M. Pike and fifteen men were dispatched by General James

Wilkinson to examine the plains region of the Louisiana Purchase and to enter New Mexico from the north. The Spanish government learned of this and sent warning of Pike to Santa Fe. Consequently, one hundred Spanish troops and five hundred New Mexican militia under Lieutenant Don Facundo Melgares moved east from Santa Fe to intercept the Americans. However, Melgares met with no success and returned to Santa Fe in October, 1806 after a fruitless six months search.[3] Meanwhile,

---

[3]Horgan, op. cit., II, 403-404.

---

Pike and his men explored the Rocky Mountains and on January 30, 1807 arrived on the banks of the Rio Grande, which they first believed to be the American-claimed Red River. Near by, they decided to construct a stockade and rest the weary party for a time. Knowing that he was close to Santa Fe, Pike deliberated as how to best make contact with the Spanish without arousing suspicion. At the time, the United States and Spain had a mutual guarantee treaty which protected the right of seeking the recovery all just debts or demands before the legal and authorized tribunals of either country. In view of this treaty Pike determined to send a member of his expedition, Dr. John Hamilton Robinson, to Santa Fe under the pretense of collecting Morrison's claim

against LaLande. Information would naturally be given about the American party, and then the Spanish officials would send men north to take the American expedition to Santa Fe. In this way it was hoped to accomplish the purpose of the Pike company--to gain a knowledge of the country, of the prospects of trade, and of the strength of Spanish forces.[4]

---

[4]Zebulon M. Pike, Exploratory Travels Through the Western Territories of North America (London: Paternoster-Row, 1811; reprinted, Denver: W. H. Lawrence and Co., 1889), pp. 228-233.

---

Robinson was successful in his mission, and on February 16, 1807 Spanish troops rode into Pike's stockade. Pike then pretended to believe that he was in American territory on the Red River instead of in New Mexico on the Rio Grande, finally allowing the Spanish officers to convince him of his error. The subsequent travels of Pike and his men to Santa Fe and on to Chihuahua is a fascinating and familiar tale, but one not necessary to this study.[5]

---

[5]For these details see Ibid., p. 246 ff.

---

Pike found certain citizens of New Mexico decidedly interested in establishing trade relations with the United States, and his expedition may be credited with

doing much to establish commercial contacts between the two areas. Actually, very little trade resulted until after Mexico won its independence from Spain in 1821. Robert McKnight and a party of fifteen men heard of Pike's expedition and went to Santa Fe in 1812 with the intention of starting up active trade relations. However, they were taken prisoner and held in Chihuahua for nearly nine years until Mexico was able to firmly secure its independence.[6]

---

[6]Gregg, op. cit., I, 20.

---

New Mexican trade after 1821.--In 1821 Captain William Becknell and four others journeyed west for the purpose of trading horses and mules to the Indians and catching wild animals to take east. However, Captain Becknell and his party met a wandering group of Santa Feans who persuaded the Americans to accompany them to their city. Despite having only a trifling amount of merchandise, Becknell and his companions realized a handsome profit from trading in Santa Fe. The following year Becknell took a pack train of goods to New Mexico, again making a fine profit.[7]

---

[7]Gregg, op. cit., I, 21-24.

---

The real Santa Fe trade got underway in 1824 when eighty traders under Becknell arrived in New Mexico with between $25,000 and $30,000 worth of merchandise hauled by wagons. This was the first use of wagons on the overland trail, and they proved to be highly successful.[8] With the New Mexico trade business booming, Senator

---

[8]William Becknell, The Journals of Captain William Becknell (Columbia: Missouri Historical Review, 1910), pp. 67-69.

---

Thomas H. Benton of Missouri proposed on January 3, 1825 that the United States Senate authorize a survey to be made to determine the most suitable route between Missouri and Santa Fe. On March 3, President James Monroe signed the bill providing $10,000 to survey the road and $20,000 for treating with the Indians for right-of-way. Two weeks later three Commissioners, Benjamin H. Reeves, Pierre Menard, and George C. Sibley, were appointed to make the proposed survey. Menard subsequently resigned and was replaced by Thomas Mather.[9]

---

[9]Kate L. Gregg, The Road to Santa Fe, The Journals of George Sibley (Albuquerque: University of New Mexico Press, 1952), pp. 4-8.

---

The survey was started immediately, and in their final report of October 27, 1827 the commissioners expressed

their belief that the road would be an important trade path:

> When the highway, now opened from Missouri to Santa Fe Shall be cleared of the "Pirates of the Plains" (Indians), there is good Reason to believe that the Trade between the two countries in that direction, will assume a character, and employ an account of capital, not only greatly advantageous to those immediately engaged in it, but beneficial in no trifling degree to Some of the manufacturing interests of the United States.[10]

---

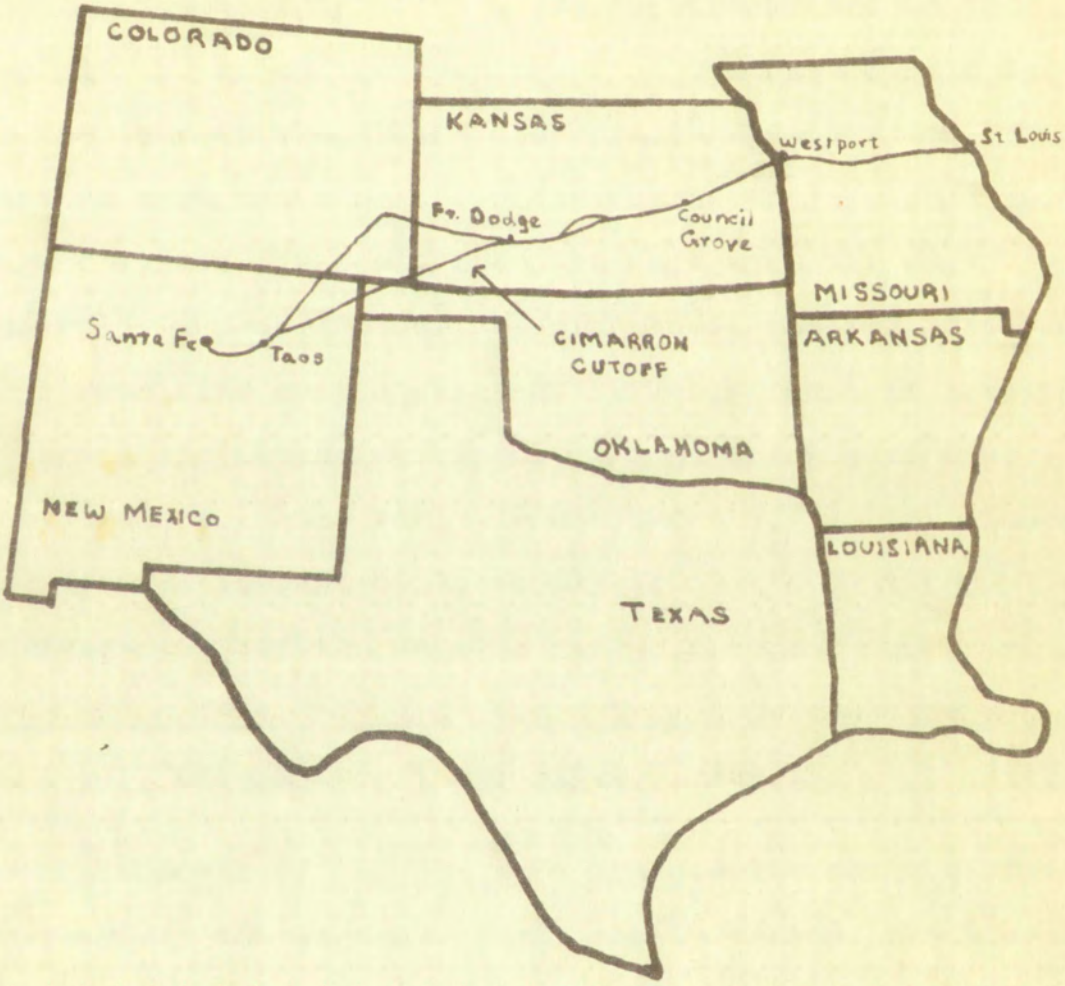
[10] Kate L. Gregg, op. cit., p. 210.

---

Subsequent trade missions to New Mexico followed closely along the road laid out by the Commissioners, as shown by Figure 1, a map of the Santa Fe Trail. Notice the option of the traders either to go through Cimarron Canyon, which avoided the mountains, or to go over the mountains at Raton Pass. The former route was the shortest, and, being virtually level, was much the easiest for wagons. However, there was a constant and severe shortage of water on this route and the traders and their animals often suffered badly from thirst and extreme heat. On the other hand, the Raton Pass route was longer and much steeper, but water was plentiful and the surrounding country was much superior to the land through which the Cimarron route passed.[11]

FIGURE 1

THE SANTA FE TRAIL




Source: Kenyon Riddle, Records and Maps of the Old Santa Fe Trail (Raton: Raton Daily Range, 1949), maps 2 and 5.

---

[11]General William J. Palmer, Report of Surveys Across the Continent in 1867-68 on the Thirty-Fifth and Thirty-Second Parallels (Philadelphia: W. B. Selheimer, Printer, 1869), pp. 9-12.

---

The citizens of New Mexico were amazed at the rapidity at which the American trade increased, for the journey across the plains was anything but easy and simple. Indians were numerous and often fierce and warlike; raiding renegades often attempted to take over the wagon trains; and cold, hunger, thirst, blazing heat, vast prairies, and high mountains caused constant hardships on a trip between Missouri and Santa Fe. The Indian menace was so severe that traders in the early 1830's successfully petitioned the Federal Government to supply troops to accompany the caravans part of the way.[12]

---

[12]Joseph Gregg, op. cit., I, 28-31.

---

Growth of the Santa Fe trade.--The cargo carried westward by the wagons was remarkably varied, containing textiles of all sorts, from calico to velvet; clothes for men and women, including ribbons, handkerchiefs, gloves, and hats; building materials, glassware, tools, paper, ink and paints. On their way home the Americans carried gold and silver received in payment plus buffalo rugs, furs, wool, and Indian and Mexican craft goods. In

---

[11]General William L. Sherman, journal of a journey across the Territories in 1853 as an aide to Governor Isaac I. Stevens, in Hazard Stevens, The Life of Isaac Ingalls Stevens (Boston: Houghton, Mifflin and Company, 1900), pp. 9-12.

---

The soldiers of fortune mentioned earlier had a rapidity at which the adventure first attracted, for the journey across the plains was anything but easy. The Indians were numerous and often fierce and warlike, and the emigrants often attempted to take over their property and could hunger, thirst, sickness, very frequently and high mountains caused considerable hardship on a trip from Missouri and Iowa to. The Indian menace was so severe that leaders in the early 1850's successfully pressured the Federal government to supply escorts to protect the caravans part of the way.[12]

---

[12]Joseph Gray, op. cit., p. 25-27.

---

Growth of the Santa Fe trade.--The conquest of the Southwest by the Mexican was remarkably rapid, considering textiles of all sorts, from silks to velvets, clothes for men and women, including shoes, hats, clothing, gloves, and hosiery; building materials, iron, tools, paper, ink and paints. On which, and more the Mexicans carried gold and silver received in exchange for furs, furs, wool, and Indian and Mexican trade goods. In

addition the traders often drove herds of Mexican mules and asses, which brought good profit in the East. As a general rule, the westward drive to Santa Fe took seventy days, while the return, with lighter wagons and increased knowledge about the trail, took about forty.[13]

---

[13]Horgan, op. cit., II, 501-504.

---

Total value of merchandise carried over the Santa Fe Trail in 1831 was around $15,000, but only fifteen years later the amount had increased to an estimated $1,752,250, and by 1876 the trade value was well over two million dollars annually. In 1859, 5,405 men, 1,532 wagons, 4,377 mules, 360 horses, and 12,545 oxen labored in hauling 7,660 tons of merchandise over the trail. Ten years later these figures had doubled.[14] Much

---

[14]William Ritch, Santa Fe: Ancient and Modern (Santa Fe: Bureau of Immigration, 1885), p. 30.

---

of this trade was in turn shipped on the Chihuahua. It was reported that in the 1820's one-seventh of the total goods entering Santa Fe from the east was sent on to Chihuahua. This figure increased to account for two-thirds of the trade between Santa Fe and Chihuahua in 1843.[15] Naturally,

---

[15]Joseph Gregg, op. cit., II, 160-162.

---

after the United States took over New Mexico in 1846, this amount was reduced sharply.

By the 1870's the length of the Santa Fe Trail had been shortened considerably by the advance of railroads across Kansas. Anglo-Americans had by this time become important in the affairs of New Mexico, particularly in trade and commerce, and most of the New Mexico merchants looked longingly towards the railroad as the key to increasing their business. Santa Fe retailer Elias Brevoort wrote in 1874 that "the necessity and importance of the early construction and operation of railroads in New Mexico are constantly becoming more obvious." To Brevoort and other businessmen the railroad would not only give them access to a wider variety of merchandise, but it would also bring new money and population to the territory.[16] Overland trade through the

---

[16] Elias Brevoort, New Mexico, Her Natural Resources and Attractions (Santa Fe: Printed and Published by Elias Brevoort, 1874), pp. 110-112.

---

use of wagons and pack trains was the only available method of importing and exporting goods in New Mexico prior to 1879, and, although the amount of trade which flowed in and out of the territory was slight by modern standards, it played a vital role in the pre-railroad life of the region. However, when the steel rails were pushed into

New Mexico, overland shipment of goods by pack and wagon trains on the Santa Fe Trail yielded to modern railroad transportation.

## The History of the Atchison, Topeka, and Santa Fe

Founding of the Santa Fe Railroad.--From its earliest history, the Atchison, Topeka, and Santa Fe Railway is connected closely with Colonel Cyrus K. Holliday. Colonel Holliday came west to Kansas in 1854 and played an important part in gaining the admission of that state to the Union. It was Holliday's dream to build a railroad from Missouri to Santa Fe over the old Santa Fe Trail, and since the Kansas Legislature was prone to grant railroad charters freely in the days before the Civil War, Holliday and some friends were able to obtain a charter for the Atchison and Topeka Railroad Company in January of 1859. Colonel Holliday was the author of the company's charter which called for one and one-half million dollars of stock in $100 shares. The charter allowed the amount of stock to be increased, but it stipulated that it could not exceed the amount actually spent on the road. Official organization of the company took place September 15-17, 1859 in Atchison with thirteen directors subscribing to 52,000 shares.

Kansas citizens were enthusiastic and quickly approved land grants to finance the railroad at a convention

called for that purpose.[17] M. J. Parrott, the Kansas

[17]Glenn D. Bradley, The Story of the Santa Fe (Boston: The Gorham Press, 1920), pp. 54-58.

delegate to Congress then submitted a request to that body for Federal Government approval of the land grant. Although easily passed, the press of the Civil War delayed the actual signing of the bill by President Lincoln until March 3, 1863. In its final form the measure provided for land for two railroads: one to be built from Leavenworth, Kansas via Lawrence toward Galveston Bay in Texas and the other from Atchison via Topeka toward Santa Fe. The provisions of the law provided for the railroads to receive every alternate section, ten sections in width, on both sides of the main lines and their branches. The bill also stipulated that the roads had to be completed within ten years after construction began or else the companies would lose their land.[18] The Kansas Legislature subsequently passed an

[18]Ibid., pp. 62-64.

act in 1864 allowing a county to subscribe to, take stock in, and issue bonds up to $200,000 for a railroad company passing through its borders.[19]

[19]Ibid., pp. 65-66.

Start of construction.--Ground was broken for the Atchison, Topeka, and Santa Fe early in November, 1868, near Topeka, Kansas. It was two years later before Atchison to the east was connected with Topeka by rails, and despite the excitement and enthusiasm generated by the beginning of actual construction, progress on the line was very slow. Nevertheless, even when only a few miles of track had been laid, the benefits of the railroad to Kansas began to be obvious.[20] However, by

---

[20] Ibid., pp. 75-77.

---

1871 a mere 137 of the 469 miles from Atchison to the Kansas-Colorado border had been built, and less than two years remained of the ten years allotted by the land grant act to finish construction in Kansas. However, the Santa Fe engineers, under Albert A. Robinson, proved equal to the task, laying 362 miles of track in just twelve months and crossing the Colorado line on December 28, 1872.[21] As the railroad moved west, wild

---

[21] Ibid., pp. 84-86.

---

boom towns sprang up along the line, like Hays, Sheridan, and Dodge City. For a time each served as the terminal site of the railroad. When the Santa Fe built on west,

taking the construction workers and commission houses with it, some of these settlements withered away, while others continued to prosper as supply centers for the growing agricultural population. The aforementioned commission houses, like Otero, Seller, and Company and Chick, Browne, and Company, established their headquarters in these terminal towns, supplying merchants in areas to the west not yet reached by the railroad with goods. As the railroad moved west, however, so did the commission houses. A rough, rugged breed of men followed the railroad west and provided many of the legendary tales of the wild frontier.[22]

---

[22]Miguel A. Otero, My Life on the Frontier, 1864-1882 (New York: The Press of the Pioneers, 1935), p. 25.

---

By 1873 the United States was in the depths of one of the most severe depressions in its history. Had it not been for this misfortune the Santa Fe would have probably reached New Mexico about five years before it finally did. Prior to the depression Henry Strong, then President of the Santa Fe, together with some Dutch associates interested in the Maxwell Land Grant, had arranged to construct the line from its terminus near Granada, Colorado to Cimarron, New Mexico. However, the panic of 1873 caused the plan to be abandoned. The decision to

drop this plan kept Cimarron from gaining the importance later obtained by Trinidad and Raton because of the railroad.[23] With the revival of business conditions in 1875-

---

[23]Ralph E. Twitchell, The Leading Facts of New Mexican History (Cedar Rapids, Iowa: The Torch Press, 1912), II, 483, note 393.

---

1876, the Santa Fe again began westward construction, following the route of the Santa Fe Trail rather closely. The annual report of the directors of the railroad to the stockholders in 1877 stated that

> In accordance with the design of the original projectors of your road, the Directors have matured a plan to extend your line into New Mexico in the vicinity of Santa Fe in the year 1878; and they trust that this moment will be approved by the stockholders of this road.[24]

---

[24]Fred Gurley, New Mexico and the Santa Fe Railway (San Francisco: The Newcomen Society in North America, 1950), p. 13.

---

The actual entrance of the Santa Fe into New Mexico will be detailed in a later section.

The Atlantic and Pacific Railroad.--As pointed out in the introduction to this paper, the Atlantic and Pacific Railroad in New Mexico was controlled by stock ownership by the Santa Fe from the time that it was built in 1882. However, the name was not changed to the Atchison, Topeka, and Santa Fe until 1902. How the

Santa Fe obtained this ownership should be explained here. The Atlantic and Pacific Railroad was chartered by Congress July 27, 1866 with permission to build along the thirty-fifth parallel to the Pacific. Between 1866 and 1872, the Atlantic and Pacific leased several small railroad lines, mainly in Missouri, until by the latter year it controlled 844 miles of track. However, after 1872 the company became insolvent and failed to pay interest due on bonds. As a result, the line and its charter were sold September 8, 1876 to the St. Louis and San Francisco Railroad for $450,000, the buyer planning to build west under the Atlantic and Pacific charter.[25]

---

[25]Charles F. Coan, A History of New Mexico (Chicago: The American Historical Society Inc., 1925), I, 446.

---

Then on November 14, 1879 President Thomas Nickerson of the Santa Fe and President James D. Fish of the St. Louis and San Francisco Railroad Company reached a preliminary agreement by which the Santa Fe would provide the connection from Eastern Kansas to Albuquerque, with both companies financing the building of a line to the Pacific along the thirty-fifth parallel under the old Atlantic and Pacific charter. The final contract between the two companies was signed January 31, 1880. According to the terms of the agreement, the Santa Fe acquired half interest

in the Atlantic and Pacific, and it was determined that the St. Louis and San Francisco would carry all business between Eastern Kansas and St. Louis.[26]

---

[26] L. L. Waters, Steel Rails to Santa Fe (Lawrence: University of Kansas Press, 1950), p. 66.

---

Entrance of the Atchison, Topeka, and Santa Fe Into New Mexico

Early railroad attempts in New Mexico.--Although the Santa Fe was the first railroad actually to build into New Mexico, there were several prospects of rail transportation in the territory twenty years before the arrival of the Santa Fe. On January 26, 1856 the Territorial Legislature by a special act approved the organization of an early Atlantic and Pacific Railroad in New Mexico. Within the next ten years, three other railroad charters were approved by the territorial law makers.[27]

---

[27] The other three lines were the New Mexico Mining and Railroad Company, New Mexico Railway Company, and the Kansas, New Mexico, Arizona and California Railroad and Telegraph Company.
Local and Special Laws of New Mexico, 1884 (Santa Fe: New Mexican Printing Co., 1885), pp. 698-742.

---

All of these lines planned to build towards the west coast through New Mexico. Unfortunately, none of these early projects ever materialized, so New Mexico remained without railroad transportation until 1878.

The Santa Fe Railroad nears New Mexico.--Late in 1872 the Santa Fe crossed into Colorado, but even before that Chief Engineer A. A. Robinson had begun to examine several possible routes to follow in building into New Mexico. In 1874, after carefully examining the Raton Pass area, Robinson decided that it would be better to direct the line from Dodge City, Kansas west to Wagon Mound, New Mexico via the old Cimarron cut-off of the Santa Fe Trail. By this route it would be possible to skirt most of the mountains. However, when the line reached Pueblo, Colorado it was decided that local interests like the coal fields at Trinidad were too important to by-pass.[28]

---

[28]Waters, op. cit., pp. 54-55.

---

Actually, there was considerable debate among the officials of Atchison, Topeka, and Santa Fe as to the profitableness of extending the line into New Mexico at that time. The territory was still very sparsely settled and seemed to offer no immediate revenue equal to the cost of building over the Rocky Mountains to get to the territory; since the mountains made the cost of construction very heavy.[29] The board of directors and

---

[29]Bradley, op. cit., p. 147.

---

President Nickerson pointed out that the Santa Fe Trail business was only something over two million dollars annually, an amount a railroad could move easily within one week.[30] However, there were some in the Santa Fe

---

[30]Marshall, op. cit., p. 131.

---

official family who believed that the railroads could create a profitable business in regions like New Mexico and Arizona. In addition there was a strong desire among the leaders of the line to build a through line on to the Pacific Coast where the real opportunity for a successful railroad seemed to be.[31]

---

[31]John Moody, The Railroad Builders (New Haven: Yale University Press, 1919), p. 158.

---

The Santa Fe secures a charter to build in New Mexico.--While the officials of the Santa Fe Railroad deliberated over whether or not to build into New Mexico, a movement was underway in the territory to make it harder for the Santa Fe to come into New Mexico. The Southern Pacific Railroad Company had already been chartered in New Mexico and was building towards the New Mexico border. This company looked upon everything in the Southwest as its private preserve and it determined to keep other railroads out of New Mexico if possible.[32] The Southern

[32]Marshall, op. cit., p. 131.

Pacific found strong anti-Yankee sentiment present in the New Mexico Legislature, and this made its task easier. A member of the legislature is reported to have said in reference to Santa Fe Railroad representatives:

> We don't want you damned Yankees in the country. We can't compete with you; you will drive us all out, and we shall have no home left us. We won't have you here.[33]

[33]Coan, op. cit., p. 392.

Chiefly because of such influence as mentioned here, a new law incorporating railroads was introduced by the Honorable John S. Crouch of Dona Ana County to the Legislature. A Weekly New Mexican editorial commented that the bill was very good and should be passed.[34]

[34]Weekly New Mexican, February 2, 1878, p. 2.

The Legislature approved it February 2, 1878 and provided among other things that before filing an article of incorporation, the company must have actually subscribed to the capital stock of the corporation at least $1000 for each mile of proposed main road and branches, and at least ten per cent must be paid in to the corporation.[35] Since the Santa Fe was short on cash,

[35] Acts of the Legislative Assembly of the Territory of New Mexico, 1878 (Santa Fe: Charles W. Green, Publisher and Printer, 1878), Ch. I, §3, February 2, 1878.

this part of the act was a major barrier to construction of the railroad in New Mexico.[36]

[36] Marshall, op. cit., p. 131.

It was at this point that the Santa Fe officials got busy. The Weekly New Mexican of February 9, 1878 lists among guests arriving at the Exchange Hotel of Santa Fe during the past week, F. W. Pitkin of Pueblo, Colorado, W. B. Strong of Topeka, Kansas, and Miguel A. Otero, I of El Moro, Colorado.[37] Pitkin was Governor of

[37] Weekly New Mexican, February 9, 1878, p. 2.

Colorado, Strong was General-Manager of the Santa Fe, and Otero was a prominent New Mexico citizen who at the time was a commission merchant then living at El Moro who had been following the Santa Fe as it built west. Upon investigating the possibilities for incorporating their company, Strong and the others found that the new railroad act had not yet gone into effect. That meant that railroads could still incorporate under the old General

Incorporation Act without the undue restriction of having to have ten per cent of the total capitalization actually paid into the company treasury.[38] Acting quickly, Strong,

---

[38]Bradley, op. cit., p. 148.

---

Pitkin, and Otero chartered the New Mexico and Southern Pacific Railroad Company on February 6, 1878 for the purpose of constructing and operating the Atchison, Topeka, and Santa Fe Railroad in New Mexico. Strong was named president of the company with Otero as vice-president, W. W. Griffin of Santa Fe as treasurer, and Jefferson Raynolds, a Las Vegas banker, as secretary. An executive committee composed of William Breedon, J. L. Johnson, Edward Hatch, Henry C. Nutt, and Henry M. Atkinson, all of Santa Fe, also was selected.[39]

---

[39]Weekly New Mexican, March 9, 1878, p. 1.

---

The Santa Fe was aided in some ways by the provisions of the new railroad incorporation act. For instance, it provided

> To aid and encourage construction of railroads in this Territory, all property of every kind and description of every corporation formed under this act shall be exempt from taxation of every kind and description until the expiration of six years from and after the completion of its road or roads; and the minimum charges for fares freightages as fixed by this act shall not be reduced so as to affect any such corporation until

> the surplus earnings of its roads and telegraphs shall exceed ten percent of the cost of the construction and equipment of its roads and telegraphs, including the cost of right of way, depots, shops, water rights and saloons.[40]

---

[40] Acts of the Legislative Assembly of the Territory of New Mexico, 1878, op. cit., Ch. 9 §2, February 2, 1878.

---

The Santa Fe received this and other benefits of the new act, even though it was incorporated under provisions of the old general incorporation statute. No provision was made for the territory to subsidize railroads, but counties were authorized to issue bonds to assist in the construction of railroads passing through the county up to five per cent of the assessed value of real and personal property of the county.[41]

---

[41] Acts of the Legislative Assembly of the Territory of New Mexico, 1872 (Santa Fe: Charles W. Greene, Publisher and Printer, 1872), Ch. 30, §1, February 1, 1872.

---

New Mexico rail construction begins.--President Nickerson and the board of directors of the Santa Fe were disappointed at no subsidy having been granted to aid in construction of the road. Although still leery of the profitability of railroading in New Mexico, they yielded to the appeals of General-Manager W. B. Strong and authorized the spending of $20,000 to survey from

La Junta, Colorado into New Mexico. This amount was not enough to build even two miles of track in the mountains, but Strong was determined to go ahead. He at once sent Chief Engineer Robinson to obtain the right-of-way over Raton Pass from Uncle R. L. "Dick" Wooten who owned the toll-road over the only suitable route through the mountains. On February 26, 1878 Wooten approved the Robinson offer and the Santa Fe won the so-called "battle of Raton Pass" from the competing Denver and Rio Grande Western Railroad by right of prior construction.[42] Track-laying crews placed the first

---

[42]Marshall, op. cit., p. 132. The story of the securing of the right-of-way is a fascinating one and is recommended to the reader.

---

track on New Mexico soil on November 1, 1878, and the first engine rolled into the territory about December 1, 1878 by use of a shoo-fly switch-back over the top of the pass. The switch-back was used for several months until the necessary tunnels were completed.[43] In March, 1879

---

[43]Ibid., pp. 141-142.

---

the railroad founded Otero, about eight miles across the state line, to serve as its forward headquarters. Thus after years of expectancy and several fruitless attempts, New Mexico, at last, had a railroad.

Growth of the Santa Fe Railroad in New Mexico

The railroad builds west.--Otero, the first railroad town in New Mexico thrived for only a short time. Less than a year after its founding, track was laid into Las Vegas, and the commission houses, following their custom of doing business from the westermost railroad town, moved to that city. Shortly afterwards, it was decided that the railroad headquarters should be moved back closer to the mountains to Willow Springs, soon to be re-named Raton. Thus, within two years after its founding, Otero was only a ghost town.[44] As the Santa Fe built into the territory,

---

[44] Jay T. Conway, A Brief Community History of Raton, New Mexico, 1880-1930 (Raton: Gazette Print, 1930), p. 6.

---

newspapers debated the coming of the rails. One editor wrote "the railroad will make a sleepy village spring from silence and plodding soberness into the full life and activity of a modern city." Some citizens, like many Spanish ranchers, opposed the railroad because they feared it would do away with many of the old business methods to which they were accustomed.[45] However, in general the people

---

[45] Erna Ferguson, "From Redskins to Railroads," Century, CLIII (November, 1926), 30.

---

anxiously awaited the coming of the railroad as a stimulus

to economic and social progress for New Mexico.

The railroad by-passes Santa Fe.--By July of 1879 the Santa Fe was in operation as far into New Mexico as Las Vegas. It then became known that it was impractical to build the line through Santa Fe, according to the survey made by W. R. Morley, locating engineer of the Santa Fe. The people of that city were naturally greatly upset over this report and some of the citizens of the capital city charged that Morley had recommended by-passing their city because of personal reasons. They reported to General-Manager Strong that Morley and some of his friends, notably Frank Springer and J. M. Cunningham of Las Vegas, bore a strong opposition to T. B. Catron and R. H. Longwill of Santa Fe, and that it was personal bias which caused the unfair survey of the possibility of a line to Santa Fe. As a result, the Santa Fe hired an experienced, unbiased, outside engineer to make another survey. His report jibed with Morley's and sealed the decision to go through Lamy, eighteen miles south of the capitol.[46]

---

[46] Twitchell, op. cit., II, 486, note 396.

---

As a result of this decision, President Nickerson wrote a letter to the people of Santa Fe explaining why the railroad would not be built through their community

and offering them three alternatives if they wanted rail transportation:

> (1.) If Santa Fe County would donate $175,000 in thirty year seven per cent gold county bonds to the railroad, the Atchison, Topeka, and Santa Fe would build and operate a branch to Santa Fe.
>
> (2.) If Santa Fe County wanted to build their own railroad line, which would meet the inspection of the chief engineer of the Santa Fe Railroad, then the Santa Fe would furnish rolling stock and operate the line.
>
> (3.) Santa Fe County could organize a railroad company and build and operate their own line.

A citizens committee met after receipt of this letter and selected the first alternative unanimously, although reducing the amount from $175,000 to $150,000.[47] The Atchison,

---

[47] Weekly New Mexican, July 19, 1879, p. 2.

---

Topeka, and Santa Fe accepted the proposal of Santa Fe, and on Monday, February 9, 1880 the last spike was driven in the branch between Lamy and Santa Fe, and the first locomotive arrived "amid a wild celebration," according to the Weekly New Mexican of February 14, 1880. The same issue of this paper also carried an editorial commemorating the fact that "the lumbering stage and semi-monthly mail ended with the railroad, and people now won't feel so isolated, because they can keep up with the world." At last, the old Santa Fe Trail was replaced by 860 continuous

miles of rail.[48]

---

[48] Weekly New Mexican, February 14, 1880, p. 2.

---

Railroad construction down the Rio Grande Valley.--From Lamy the Santa Fe construction crews turned south down the fertile Rio Grande Valley. Here, the track-laying went fast. Albuquerque was connected by rail on April 15, 1880, and by March of the next year the Santa Fe had reached Deming thus intersecting the Southern Pacific Railroad Company and establishing the second transcontinental railroad in the United States.[49] By July the Santa Fe had reach-

---

[49] The first transcontinental railroad across the United States had been completed at Promontory Point, Utah, in 1869 when the Union Pacific, building west, and the Central Pacific, building east, met and joined their lines.

---

ed the Texas line and El Paso marking the completion of a railroad from the Northern to the Southern boundaries of the Territory of New Mexico. Meanwhile, construction on the Atlantic and Pacific line had started from a junction with the Santa Fe line near Albuquerque in late 1880, and by summer of 1881 it was completed into Arizona. By the end of 1881 the Santa Fe had completed most of its main-line building in New Mexico until after 1900. In the intervening years only short branches, mainly to booming mining areas, were constructed.[50] Figure 2 on the next

[50]See Appendix I for chronological development of Atchison, Topeka, and Santa Fe in New Mexico, 1878 to 1900.

page shows railroad lines in New Mexico in 1890. Note the predominant position occupied by the Atchison, Topeka, and Santa Fe organization. At that time the Santa Fe operated some 716 miles of road, while the Santa Fe-owned Atlantic and Pacific operated another 160 miles; so that all together the Santa Fe either owned or operated well over half of the 1350 miles of railroad in the Territory.[51]

[51]Max Frost, New Mexico, A Bureau of Immigration Publication (Santa Fe: New Mexico Book and Job Printing Department, 1895), p. 23.

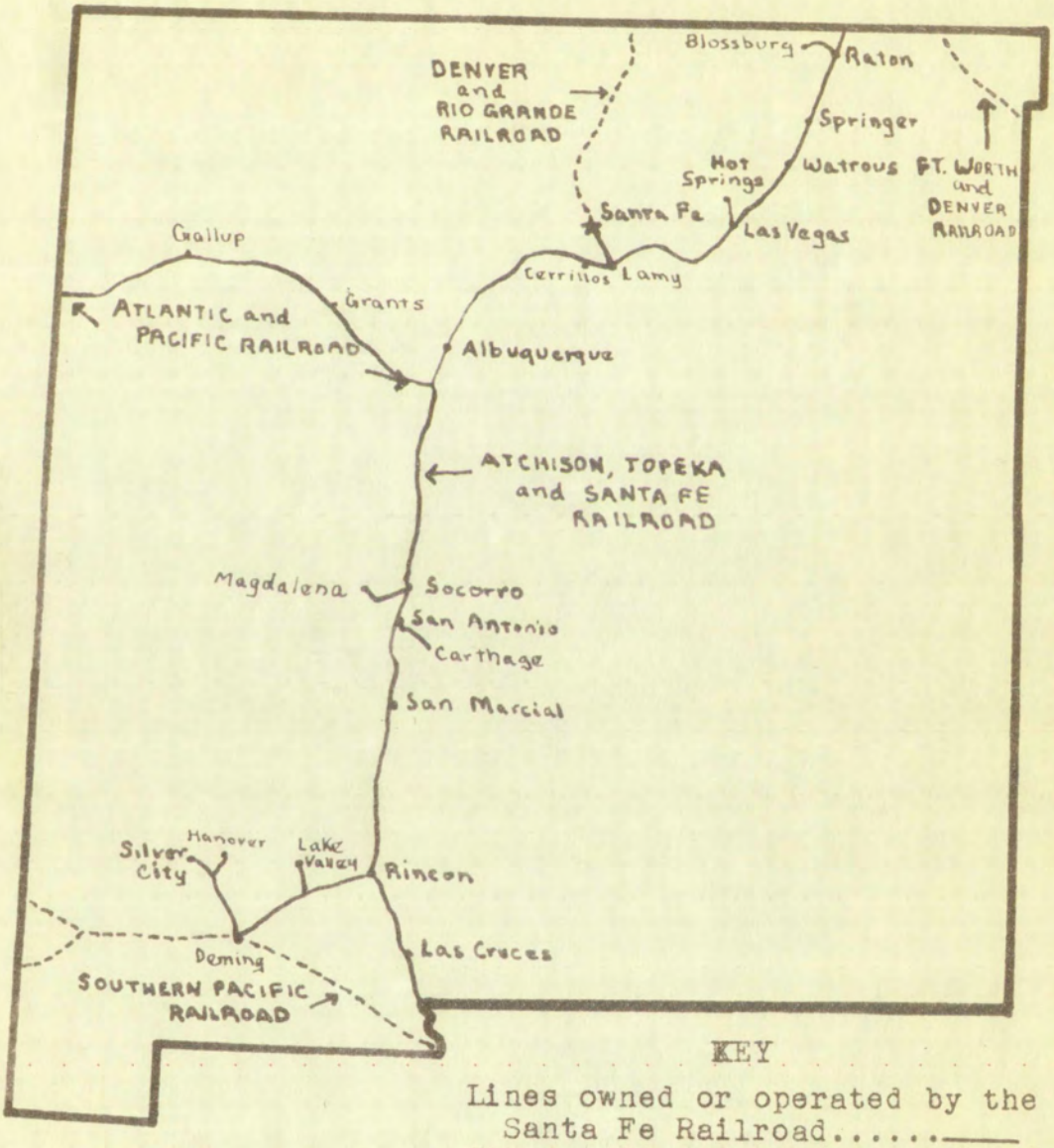
The Santa Fe prospers in New Mexico.--The Atchison, Topeka, and Santa Fe in common with other Western railroads prospered and became powerful by building straight into underdeveloped and thinly settled country far from the center of civilization, developing these regions, and thus creating potential business for the railroad.[52] Such was

[52]Bradley, op. cit., p. 150.

the case in New Mexico. The Santa Fe was constantly alert to ways of developing the territory, for by so doing, the railroad's business would be increased. The railroad made

FIGURE 2

RAILROADS IN NEW MEXICO IN 1889




KEY

Lines owned or operated by the Santa Fe Railroad.....———

Other railroad company lines.....- - - -

Source: Pocket Map and Shippers' Guide, 1892 (Chicago: Rand, McNally and Co., 1892).

it possible for tourists to come to New Mexico in comfort, and the Santa Fe encouraged Easterners to come and view the newly opened region. The Santa Fe was also active in the coal business, buying many thousands of acres of coal land, operating the mines, using part of the product for its line, and selling part of it to areas like Texas, Kansas, and Arizona which lacked high-grade coal. In addition the Santa Fe was willing to cooperate with territorial officials in publicizing New Mexico by reducing rates by one-half for people attending the first Territorial Fair in Albuquerque in 1881 and by distributing thousands of copies of publications of the Territorial Bureau of Immigration.[53]

---

[53] Resources of New Mexico, A Bureau of Immigration Publication (Santa Fe: New Mexico Book and Job Printing Department, 1881), p. 4.

---

The Report of the Territorial Governor in 1903 by Miguel A. Otero probably best sums up the position of the Santa Fe in New Mexico. The report said:

> The Atchison, Topeka, and Santa Fe has always enjoyed a commanding position in the railroad situation of the territory from which it draws a gratifying amount of passenger and freight traffic. The railway company in turn is fostering industries and encouraging immigration along its lines. The coal fields, mining districts, agricultural sections, stock ranges, and scenic and historic attractions reached by this line mean an ever increasing revenue for the railroad and the territory.[54]

---

[54] Miguel A. Otero, Report of the Governor of New Mexico to the Secretary of the Interior, 1903 (Washington: Government Printing Office, 1903), p. 360.

---

# CHAPTER III

# INFLUENCE OF THE ATCHISON, TOPEKA, AND SANTA FE RAILROAD UPON THE GENERAL ECONOMY OF NEW MEXICO

## General Conditions

Although the Santa Fe Railroad was built through New Mexico mainly to complete a transcontinental connection to the Pacific Coast, it nevertheless greatly stimulated all phases of economic life in the Territory of New Mexico. With the arrival of the railroad the population turned its attention away from the old way of life featuring subsistance agriculture, small-scale mining, and the most primitive methods of hand manufacturing to the advantages of modernization made possible by this new means of transportation. Numerous economists have commented on the beneficial effect that railroad transportation has upon the economy of a region. George Soule wrote in his book Economic Forces in American History that

> The building of vast railroad systems involved the direct employment of a large number of workers and the purchase of materials which in time led to the employment of many more workers. Investments in new productive plants and equipment is a major stimulus to economic growth.[1]

[1]George Soule, Economic Forces in American History (New York: William Sloane Associates, Inc., 1952), pp. 104-105.

Katherine Coman in Industrial History of the United States commented in a similar vein, stressing the advantages of lowered transportation costs and the increased prices for crops and lands along the road made possible by the coming of rail facilities to an area.[2]

[2]Katherine Coman, The Industrial History of the United States (New York: The MacMillan Co., 1914), p. 251.

To a great degree the benefits from the railroads mentioned by Coman and Soule on a national level were true in New Mexico as well. New Mexico historian Ralph E. Twitchell has written, for instance, that

> The advent of railroads in New Mexico was the beginning of an era of permanent prosperity for the people of the territory. The people then awakened to the fact that New Mexico was really in touch with the enlightened progress and modern methods of people of the Eastern states.[3]

[3]Twitchell, op. cit., II, 482.

Various other chroniclers of the territory expressed similar views, such as "no enterprise has had such effect on the modern history of New Mexico as the construction of the railroad",[4] and "the development of New Mexico began only

[4]Horatio O. Ladd, The Story of New Mexico (Boston: D. Lothrop Company, 1891), p. 405.

with the introduction of railroads."[5] Thus the railroads

[5]Illustrated History of New Mexico (Chicago: The Lewis Publishing Company, 1895), p. 143.

emerged as the keystone of the New Mexico development boom which began in the early 1880's. Subsequent examinations of the various phases of economic life will be made in this study to show the effect of the railroad on each. It will be shown that upon efficient and convenient methods of transportation depends to an important extent the forces of industry and commerce and numerous other factors that are the basis of modern civilization. The railroad was important in many ways to the economic life of the Western settler, both directly and indirectly. For instance the coming of the railroads to Western areas like New Mexico was an important reason for the ending of the Indian struggles which hampered the early settlers. The railroads brought modern customs and large numbers of people to the West, thus creating an impossible situation for warring Indians.[6]

[6]Palmer, op. cit., p. 187.

This proved true in all of the regions of the West.

An indication of the reaction of most New Mexicans to the coming of the railroad may be gleamed from the joint resolution passed on February 13, 1880 by the Territorial Legislature. This resolution enthusiastically welcomed the Santa Fe Railroad to the city of Santa Fe and to the territory. In part the resolution read as follows:

> Resolved, that the Legislature of New Mexico observes with pleasure and satisfaction the completion of a line of railroad to the city of Santa Fe, the capital of the territory, and the rapid expansion of the same southward through the great valley of the Rio Grande.
>
> That this event may well be regarded as the most important in the history of the territory and as the beginning of a new era, in which, through development of its resources and the improvements which are certain to follow the establishment of means of rapid communication with other points of the country, New Mexico may be expected soon to take the position in the American Union to which she is by nature justly entitled.[7]

---

[7] History of New Mexico, Its Resources and People (Los Angeles: Pacific States Publishing Co., 1907), II, 896.

---

A vivid illustration of what modern transportation facilities meant to the average citizen is the testimony of Colonel Max Frost, long-time Secretary of the Bureau of Immigration, who told of traveling from Trinidad, Colorado to Las Cruces and Silver City, New Mexico in early 1878. Travel then was extremely tedious in an uncomfortable stage coach at a rate of about five miles an hour. Less than two years later Colonel Frost reported of covering the same route, but at that time "the speedy steel rails" made the trip

a pleasure.[8]

---

[8]Miguel A. Otero, Report of the Governor of New Mexico to the Secretary of the Interior, 1900 (Washington: Government Printing Office, 1900), p. 35.

---

Prior to the Civil War, railroad leaders worked on the theory that their roads must be built into regions already prosperous and well-developed before a rail line could be successful. However, after 1865 this principle was abandoned, and the railroad became an advance agent for civilization, pushing out into regions that were almost destitute of population and which had not felt the stimulating influence of outside capital. Following the trail of government exploring parties, the steel lines moved farther and farther west, helping to develop resources wherever they were built.[9] Throughout the West, the various

---

[9]Ibid., pp. 35-36.

---

phases of economic life began to be carried out with new enthusiasm and incentive after the arrival of the Santa Fe Railroad. The effect of this railroad upon the general economy of New Mexico will now be studied. An examination of specific industries will be made in the next chapter.

## Population

Railroad aid in Western immigration.--The railroads were one of the most active organizations in encouraging

Western immigration. They gave able assistance to state immigration and publicity agencies through agencies of their own by advertising extensively the advantages of the West. They encouraged foreign immigrants to go west by meeting the immigrants' ships and putting them on proper trains at special rates to take them to new homes.[10]

---

[10]Robert E. Riegel, The Story of the Western Railroads (New York: The MacMillan Co., 1926), p. 279.

---

It was the coming of the railroad that spurred the New Mexico Legislature into passing an act on February 15, 1880 creating the long needed Bureau of Immigration. The Atchison, Topeka, and Santa Fe gave close co-operation and valuable assistance to the new officials of this organization in their duties. The Report of the Bureau of Immigration for 1882 gives an idea of how active and extensive this aid was. The report goes to considerable length in thanking the Santa Fe for distributing four editions of Illustrated New Mexico, a Bureau of Immigration publication seeking to draw new people to the territory. The report also expressed appreciation to the Santa Fe for giving 10,000 copies of a comprehensive map of the territory to the Bureau.[11] These are samples of the numerous efforts

---

[11]Report of the Bureau of Immigration, Territory of New Mexico, 1882 (Santa Fe: New Mexican Printing Co., 1884), pp. 7-8.

---

of the Santa Fe to encourage people to move to New Mexico. The railroad also sought to build up a good tourist trade to the territory by such ways as constructing a branch line to the popular Las Vegas Hot Springs and constructing a modern, deluxe hotel at that site.[12] By increasing

---

[12]William G. Ritch, Aztlan, The History, Resources and Attractions of New Mexico (Boston: D. Lothrop and Co., 1885), p. 73.

---

tourist trade the Santa Fe not only boosted passenger travel, but also gave people from the East an opportunity to view the advantages of New Mexico, thus indirectly, at least, boosting immigration. A system of excursion parties at very low rates was initiated to encourage home-seekers to visit the territory. This was a method which paid off handsomely in Kansas by inducing many thousands of people to visit and settle in that state.[13] The Santa Fe also

---

[13]Edmund G. Ross, Report of the Governor of New Mexico to the Secretary of the Interior, 1887 (Washington: Government Printing Office, 1887), p. 3.

---

occasionally extended financial help to the Bureau of Immigration for use in publishing and distributing various publicity magazines.[14] It was natural for the railroad to

---

[14]Biennial Report of the Bureau of Immigration, Territory of New Mexico, for the Years 1889-1890 (Santa Fe: New Mexican Printing Co., 1891), p. 8.

---

do this, for increased population meant more traffic and profits for the company.

Territorial leaders appreciated the help of the railroads greatly because they realized the value of new settlers migrating to New Mexico. Speeches and publications by officials of the territory invariably stressed the need of men of talent and capital who desired to help build New Mexico. A more concrete example of the value of increased population is the case of the state of Michigan, which in 1872 was able to attract 11,923 new citizens. If each contributed but $100 to the wealth of the state, it still increased the state's total wealth by almost one and one-quarter million dollars in one year.[15] New Mexico

---

[15]Giddings, op. cit., p. 10.

---

keenly recognized its need for the increased skills and capital and the added value that new citizens would contribute to the wealth of the territory.

Increase in population.--The population of the territory did increase considerably after the coming of the railroad. In the twenty years between 1880, which was two years after the entrance of the railroad into New Mexico, and 1900 the population increased from 119,565 to 195,310, a percentage gain of 63.9 per cent. The density of population per square mile, meanwhile, rose from 0.98 persons to

the square mile in 1880 to 1.61 in 1900.[16] Figure 3 shows

---

[16]U. S. Bureau of the Census, Compendium of the Tenth Census of United States: 1880, Pt. I (Washington: Government Printing Office, 1888), p. 43.

U. S. Bureau of the Census, Abstract of the Twelfth Census of the United States: 1900. (Washington: Government Printing Office, 1902), p. 32.

---

the increase of population between 1870 and 1900. It is invalid to go back any farther than 1870 for statistics for comparisons, because, as previously stated, until the 1870 census, Arizona was included with New Mexico in census figures. Between 1870 and 1880 the population gained by 80.4 per cent, while in 1890 the increase for the previous decade was 28.5 per cent, and in 1900 there was a 27.5 per cent gain over the previous census. These increases, although important, do not compare with gains registered in other Western states and territories, like Arizona which had increases of 318.72, 48.4, and 39.3 per cents in 1880, 1890, and 1900 respectively. Actually, between 1880 and 1900 only one state or territory in the West, Nevada, failed to increase in total population by a greater percentage than did New Mexico.[17]

---

[17]U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. I (Washington, Government Printing Office, 1892), p. 4.

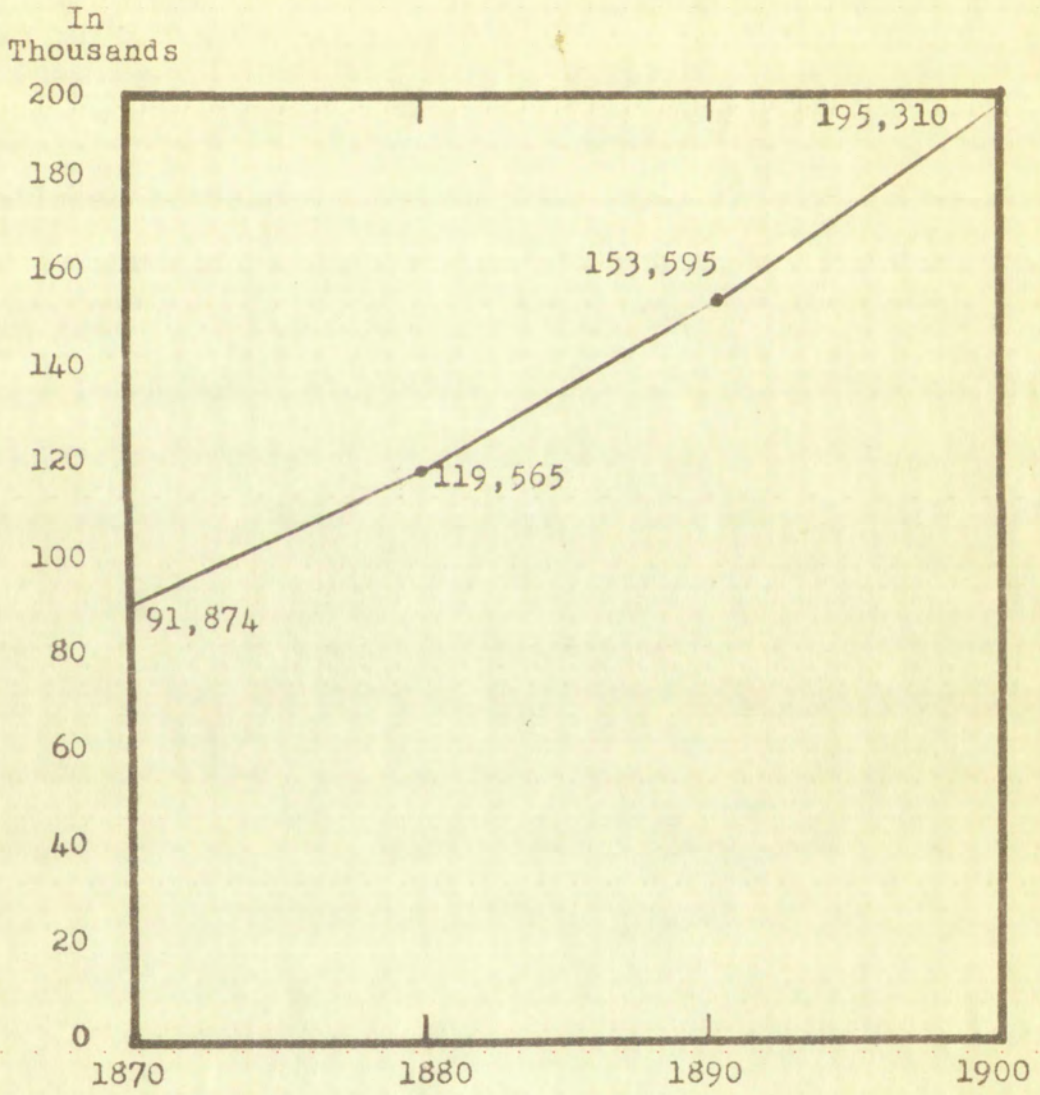
U. S. Bureau of the Census, Abstract of the Twelfth Census of the United States: 1900, op. cit., p. 35.

---

FIGURE 3

POPULATION IN NEW MEXICO AT DECENNIAL CENSUSES

1870 - 1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Population, Vol.I (Washington:Government Printing Office, 1902), p.464.

Considering these statistics, doubt may reasonably be expressed as to whether the arrival of the Santa Fe in New Mexico really caused a large increase in population in the territory. A sound and solid gain in total populous did appear, but it was not great enough to keep up with other Western areas who received the same benefit from expanded railroad transportation in this era. However, the 28.5 per cent increase registered by New Mexico by 1890 for the past ten years was the first time that population in the territory increased faster than population in the entire United States, percentage-wise, since New Mexico became part of the Union in 1846. The percentage of increase for the whole nation for that period was 24.9 per cent.[18] Something

---

[18]U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. I, op. cit., p. 4.

---

caused this occurrence, and it is reasonable to conclude that the arrival of the railroad played an important role in this happening.

At first, the varied group of roughs which traditionally followed railroad construction made up most of the new arrivals in the territory, but gradually large numbers of settlers began to come to New Mexico whose labor was directed at developing the resources and potential of the region.[19] The influx of the Anglo-Americans also served

[19]Helen Haines, History of New Mexico (New York: Historical Publishing Co., 1891), p. 259.

to prod the native Spanish population, which by tradition was inclined to move rather unhurriedly, into a state of expanded activity. The old settlers soon became aware that they must act quickly and with decisiveness if they were to hold their own against the new population in developing the area's resources.[20]

[20]Weekly New Mexican, May 3, 1880, p. 1.

Concentration of population.--Having seen that population increased in New Mexico after the entrance of the Santa Fe and other roads at a significant, if not phenomenal, rate, it is necessary to determine whether or not the coming of the Santa Fe caused the growing population of the territory to settle close to the path of the railroad. It is impossible to do this by studying the population figures of the various counties because of two reasons. First, the vast size of the counties at that time would make it difficult to draw any conclusions of value. Second, the rapid formation of new counties in the territory during this period, seven being formed between 1880 and 1900, would complicate such a study. It is thus necessary to use the population figures for the major towns in the territory to trace any

possible pattern of population concentration along the rail line.

Federal census studies give no breakdown on population in New Mexico by any smaller units than counties until 1890. However, in that year seven New Mexico communities were listed as having over 1,000 residents, as shown in Table I. Two of these, Raton and Deming, owed their existence strictly to the Santa Fe, and two others, Albuquerque and Las Vegas, were so influenced by that railroad that new towns were started about one mile from old towns because that was where the railroad tracks were built. In addition, all seven of the towns were touched by the Santa Fe, either by the main or a branch line. Virtually the same situation existed in 1900 when only Roswell of towns in New Mexico of 1,000 inhabitants or more was not on the Santa Fe or a Santa Fe controlled railroad line. Of the towns in this class listed in 1890 only Socorro and Deming had lost in population, all of the others having increased in size.

Actually, urban population in New Mexico during this period accounted for a very small portion of the total population compared to other states. For instance, in 1890 the urban ratio in the territory was only 6.2 per cent as against 35.4 per cent in the United States and 48.6 per cent in California.[21] It is obvious from these

TABLE I

POPULATION OF NEW MEXICO TOWNS OF OVER 1,000 INHABITANTS, 1890 AND 1900

| 1890 | | 1900 | |
|---|---|---|---|
| Town | Population | Town | Population |
| Santa Fe | 6,185 | Albuquerque* | 6,238 |
| Albuquerque* | 3,785 | Santa Fe | 5,603 |
| Las Vegas* | 2,385 | Las Vegas* | 3,552 |
| Socorro | 2,295 | Raton | 3,540 |
| Silver City | 2,102 | Gallup | 2,946 |
| Raton | 1,255 | Silver City | 2,735 |
| Deming | 1,136 | Roswell | 2,049 |
| | | Socorro | 1,512 |

*Because of the split in the new and old towns caused by the location of the railroad, there were probably actually more people living in the immediate vicinity of these towns than the census lists. See these towns in the next section on Commercial Centers for an explanation of this division between the new and old towns.

Sources: U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States, Pt. I (Washington: Government Printing Office, 1892), pp. 280-282.
U. S. Bureau of the Census, Twelfth Census of the United States, 1900. Population, Vol. I (Washington: Government Printing Office, 1902), p. 464.

[21] C. R. Niklason, Commercial Survey of the Pacific Southwest, Domestic Commerce Series No. 37 (Washington: Government Printing Office, 1930), p. 469.

figures that towns did not play a major population role in the life of New Mexico. However, it is well to note that the towns which were important in the territory, chiefly as supply centers, were all on the Santa Fe line in 1890, and all but one were on that line in 1900. This points up the strong influence which the Santa Fe exerted upon the economy of New Mexico in this era. The railroad carried needed supplies into and raw materials out of the territory. The centers responsible for this flow of goods naturally congregated around this artery of transportation.

Growth of Commercial Centers

As the Santa Fe moved west, board shacks and business houses went up in increasing numbers. Amusement places such as saloons, dance halls, gambling dens, and the like were found in almost every railroad town, but there were also new general stores, eating places, and barber shops. Along with the roughs who followed the railroads were many people who made up a stable element, and it was this latter group which eventually stayed in the railroad towns and helped build them into prosperous communities.[22] Old towns

[22] Maurice G. Fulton and Paul Horgan, New Mexico's Own Chronicle (Dallas: Banks-Upshaw and Co., 1937), p. 283.

boomed and new towns sprang up almost overnight as the Santa Fe pushed into New Mexico bringing new people and fresh capital. It was natural that certain towns would develop to handle the business brought about by this activity. It is these population centers and the influence that the Santa Fe played upon their economic life that this section will analyze.

Raton.--Prior to the summer of 1880, the site of Raton was only a collection of a few houses going by the name of Willow Springs. However, when the Santa Fe decided to move its division headquarters from Otero back to Willow Springs, activity began which led to the development of an important economic center. The settlement began to be called Raton, because of the adjacent Raton Pass and Raton Peak, about the same time that it started to come to life.[23]

---

[23] F. Stanley, Raton Chronicle (Denver: World Press Publishing Co., 1948), pp. 16-17.

---

The Santa Fe not only located its headquarters at Raton, but also many important repair shops. By 1882, that railroad had no less than twelve buildings in Raton involved in handling the affairs of its line between Albuquerque and Topeka, Kansas.[24] Shortly after the town was started, the

---

[24] The buildings were: a main shop, a blacksmith shop, a boiler house, a master mechanics office, a car machine

shop, an engine house, a coal house, a dry kiln, a car building shop, a transfer table building, a paint shop, and a brass and iron foundry.

A Complete Business Directory of New Mexico, 1882 (Santa Fe: New Mexico Printing and Publishing Co., 1882), pp. 40-41.

---

Santa Fe founded a subsidiary company, the Raton Coal and Coke Company, and began to mine the extensive coal deposits which had been known to be in the region since the 1860's. This added greatly to the boom going on in Raton, and more and more settlers located there. By 1890 the community boasted a population of 1,255, while by 1900 the number had increased to 3,540. In early 1882 the Santa Fe built a three mile branch to Blossburg in order to have easy transportation for the valuable coal.[25] In a little over

---

[25]Conway, op. cit., pp. 7-8.

---

a year Raton grew from nothing to an estimated 1,000 people supporting two weekly newspapers, a bank, three hotels, and numerous stores, and with rosy prospects for the future.[26]

---

[26]E. M. Chase, The Editor's Run in New Mexico and Colorado (Montpelier, Vermont: Argus and Patriot Steam Book and Job Printing House, 1882), p. 164.

---

That the railroad was vital to the economic life of the town may be observed from a report that in late 1881 the Santa Fe, through its railroad and subsidiary coal mines,

had a monthly payroll of $30,000.[27] It is easy to see

---

[27] Ibid., p. 40.

---

that Raton was more than just mildly influenced by the Santa Fe Railroad, for the Santa Fe caused it to be founded and provided the basis for its existence.

Springer and Watrous.--As the Santa Fe moved south towards Las Vegas in the summer of 1879, numerous other settlements of local prominence developed. Springer was one of the more important of these centers and in many ways was typical of numerous other small communities along the line. With the Santa Fe making it easy to bring supplies in from Eastern markets, Springer blossomed into a prosperous site for trading with stockmen in a large, surrounding area. Porter and Clothier typified the kind of stores found in such towns. Occupying a 150 foot-long building, this establishment offered a wide variety of goods, most of which were carried in by the railroad. Although the stockmen came in rarely, they usually bought $300 to $1200 worth of goods each trip, assuring the merchants of a thriving business.[28] Although similar to Springer in most aspects,

---

[28] Ibid., p. 43.

---

Watrous acquired more of a reputation as a stock shipping

point than did the former town. Cattle and sheep raisers from miles around drove their stock to the rail head at Watrous, making it the economic headquarters for Moro County.[29]

---

[29] A Complete Business Directory of New Mexico, 1882, op. cit., p. 93.

---

Las Vegas.--In 1880 Las Vegas was considered the commercial center of Northern New Mexico and was believed to have an excellent future.[30] Having grown slowly since

---

[30] William M. Berger, Berger's Tourist Guide to New Mexico (Kansas City: Ramsey, Millett, and Hudson, 1883), p. 23.

---

its founding in 1832, Las Vegas awaited the coming of the railroad with high hopes of sharply increasing its role of dominance as a trade center. The town merchants, whose stores surrounded the traditional plaza, were so anxious to possess the advantages of easy and cheap transportation offered by the railroad that they even offered their personal notes to the Santa Fe to aid in its construction. As early as January 11, 1873 the Las Vegas Gazette carried a notice of a local merchants' group which promised:

> The said committee shall be and is hereby authorized to donate and concede to the constructors of railroads, such unoccupied lands of the aforementioned grant as shall be necessary for the

> railroad tract; provided that the railroad shall pass through the lower town of Las Vegas or in its proximity and that the depot shall be erected in the close vicinity of the town.[31]

---

[31]Parish, op. cit., pp. 201-202.

---

Despite the offers of the plaza merchants, however, the Santa Fe found it better not to build its track into Old Las Vegas. Instead, when the railroad reached Las Vegas in July, 1880, it passed about one mile from Old Town, being built across the Gallinas River, and causing the growth of East Las Vegas around the site of the Santa Fe depot. It would appear to have been sensible for the merchants of the plaza to have moved to a location in close proximity to the rail station in order to avoid the expense and trouble of a mile-long wagon haul. However, many of the merchants, like Charles Ilfield, chose to remain in the Old Town where they had a valuable clientele established. These proprietors feared that their numerous Spanish-speaking customers would not be inclined in the least to journey across the river to East Las Vegas, which was heavily populated by Anglo-Americans. The problem was alleviated to some degree in the spring of 1882 when the Santa Fe constructed a branch line up Gallinas Canyon to the Las Vegas Hot Springs, giving the Old Town merchants a spur track only one-quarter of a mile from the plaza.[32]

[32] Ibid., pp. 205-207.

Both divisions of Las Vegas benefited from the arrival of the Santa Fe. Lands which had before been used only for farming and grazing became valuable for streets and buildings, causing real estate prices to climb sharply. By 1882 the rapidly modernizing city possessed gas lines, a telephone exchange, a public water works, and two busy banks.[33] Meanwhile, commercial activity in the city was

[33] Chase, op. cit., p. 155.

made more competitive when two large commission houses, Otero, Sellar, and Company and W. B. Chick and Company, which had followed the Santa Fe west from Eastern Kansas, decided to establish their prospering businesses permanently in Las Vegas. The decision of the two companies to remain here added emphasis to claims of promising prospects for the future of the city. The center of a vast grazing area and the largest shipping-point for wool in the territory, Las Vegas benefited greatly from the railroad.[34]

[34] G. W. Prichard, Report of San Miguel County, A Bureau of Immigration Publication (Santa Fe: New Mexican Printers, 1882), pp. 10-14.

The previously mentioned Santa Fe branch to the Las Vegas Hot Springs was another unmixed advantage to Las Vegas City. The Santa Fe not only built a branch line to cover the six miles to the springs, but it also bought and remodeled the Montezuma Hotel at Hot Springs making it a first-class Fred Harvey Hotel. For the first time visitors from the East were able to travel comfortably and quickly to the medicinal waters of the springs. Many notable and prominent travelers, like President U. S. Grant, took the opportunity of enjoying this attraction and viewing New Mexico. Since the tourists had to pass through Las Vegas, this city gained constant knowledge of Eastern customs, added income, and frequently new settlers because of the branch to Hot Springs.[35]

---

[35] A Complete Business Directory of New Mexico, 1882, op. cit., pp. 105-106.

---

Santa Fe.--When the officials of the Atchison, Topeka, and Santa Fe decided to by-pass Santa Fe on the main railroad line, it doomed that city to a lesser position among the commercial centers of the territory. Nevertheless, the completion of the branch road from Lamy on the main line to Santa Fe in February, 1880 was an event which generated great excitement in the capital city. Mayor J. O. Sena of Santa Fe, in dedicating the branch,

enthusiastically declared that the railroad would enable New Mexico and his city to bring out their hidden resources in minerals and agriculture. Chief Justice L. Bradford Prince of the Territorial Supreme Court similarly commented that the railroad was the key to developing the economy of the territory.[36] As the previous section on population

[36] Weekly New Mexican, February 14, 1880, p. 2.

showed, the railroad did not cause Santa Fe to increase in size. Rather it remained near status quo. However, E. M. Chase, a Vermont newspaper editor, observed in visiting the city in late 1881 that the railroad had put new spirit in the old town. Chase pointed out that the influx of Americans had put the emphasis on modern styles and caused Santa Feans to realize that their city must progress in order to hold the capital of the territory.[37] On the

[37] Chase, op. cit., pp. 150-151.

date of the completion of the branch railroad to Santa Fe, President Thomas Nickerson of the Atchison, Topeka, and Santa Fe wired a congratulatory message to that city expressing his belief that Santa Fe would soon become a great business center.[38] Despite the optimism expressed

[38] Weekly New Mexican, February 14, 1880, p. 2.

by Nickerson about the future commercial importance of Santa Fe, any great boom in trade failed to occur, and the business which had flowed to that city over the old Santa Fe Trail shifted to the growing cities on the main railroad line.

Albuquerque.--No city in the territory was affected to quite the extent by the coming of the Santa Fe as was Albuquerque. Before the arrival of the railroad in April, 1880, this community, which had been founded in 1706, consisted of nearly two thousand persons living along the east bank of the Rio Grande. When the first train arrived, not much of a celebration was possible, since the settlement was almost two miles distant from the terminus of the railroad. Henry Tice, an early employee of the Santa Fe, described New Albuquerque at the time of the arrival of the first train in this way:

> The depot was an aggregation of old boxcars and there was not a building on the townsite. The first merchant was on the grounds, however, with a stock of goods. He had no tent or other covering. He had pre-emptied a six foot square of ground, had dug a hole in the sand about a foot deep for his cellar, which he filled with the bulk of goods from his barrel in which the bulk of goods had arrived, had taken a few broken boards and placed them over the barrel for a bar. With such a set-up he sold whiskey and beer for two-bits a drink--take your choice.
>
> Lots were for sale for ten dollars each, make your own selection. No lots had yet been sold. Talk about acres of diamonds. They were right there in the sand. And we didn't even see them.[32]

---

[39] Waters, op. cit., p. 60.

This situation definitely did not last long, however, for the New Mexico Town Company, having obtained a title to the land around the railroad station, divided the acreage into 1200 lots, streets, and alleys, and began selling the plots of ground with excellent success.[40] Being near

---

[40]William C. Hazeldine, Report on Bernalillo County, A Bureau of Immigration Publication (Albuquerque: Journal Book and Job Office, 1881), p. 12.

---

the site where the Atlantic and Pacific and the Santa Fe Railroads intersected, at Belen, and being located near the center of the territory, the future for Albuquerque looked particularly bright in 1881.

The Atlantic and Pacific Railroad began construction of repair shops and round houses in Albuquerque in late 1881 with 1500 men being employed in the construction of the facilities. Lots adjacent to the railroad buildings were reported to have sold for between $200 and $500.[41]

---

[41]Chase, op. cit., p. 138.

---

Within a year after the first train arrived, Railroad Avenue, which ran parallel with the tracks, was described by Chase as solid with buildings for three-fourths of a mile with lots selling at up to $500 each. Railroad Street, running at right angles with Railroad Avenue towards Old Albuquerque,

was said to be completely built up for one-third of a mile.[42] The Business Directory of New Mexico, 1882 gives

[42] Ibid., p. 139.

a good picture of the numerous stores and businesses of all descriptions. The Directory notes a brick factory, two lumber mills, a woolen mill, and foundry and machine shops, indicating at least a limited degree of manufacturing. By 1882 Albuquerque also boasted street cars, connecting the old town with the new, and a telephone exchange.[43]

[43] A Complete Business Directory of New Mexico, 1882, op. cit., pp. 23-25.

The rich agricultural land along the Rio Grande also enhanced Albuquerque's position. In addition a variety of minerals were known to exist in the surrounding locality, and the cattle and sheep raising industry in the near-by area added to the income of the city. Cash receipts for freight to and from Albuquerque between April 16, 1880 and March 1, 1881 totaled $628,407.11, providing a measure of the business done by the Santa Fe in its first months in this city.[44] This was quite a sizeable amount for one

[44] Hazeldine, op. cit., p. 13.

station in view of fears expressed by Santa Fe Railroad

officials concerning the expected small amount of traffic which would occur in the territory. The early boom caused by the arrival of the railroad continued at a slackening rate in the years which followed. Albuquerque continued to grow not only in population, as shown in the preceding section on population, but also in importance, becoming the dominant commercial city in the territory.

Socorro.--Another city blessed with a central location in the territory, an advantageous location in the rich Rio Grande Valley, and surrounding mineral wealth, which was spurred to life by the coming of the Santa Fe in early 1881 was Socorro. The mineral wealth of the adjacent area had long been known, but mines had been worked but sparingly until the adequate transportation facilities made possible by the Santa Fe became available. Then, large numbers of miners and businessmen with capital for investment caused mining interest to reach a high pitch. Hotels, saloons, and trade stores were built in large numbers as the town began to prosper. Local banks were able to loan money at the high rate of eighteen per cent on gilt edge security with plenty of takers. The Santa Fe had a monopoly on freights, of course, but few people rebelled against high freight rates charged because, as is shown in the subsequent section on trade, railroad rates were considerably less than wagon rates. D. A. Beckwith, editor of the

Socorro Miner, commented about the Santa Fe:

> Everyone is so grateful to that company for penetrating the territory and opening it up to the world that little fault is found with the tariff.[45]

---

[45] Chase, op. cit., pp. 130-134.

---

Socorro continued to boom until the late 1890's when the decline in mining caused a decrease in population.

Las Cruces and Deming.--In the southern part of the territory Las Cruces and Deming evolved as leading commercial centers after the arrival of the Santa Fe. The former, located in the heart of the rich Mesilla Valley, was a garden spot for luscious fruits, and the railroad made possible an exchange of products under profitable conditions. As a result, Las Cruces became an important trade headquarters for its local area.[46] Deming

---

[46] A Complete Business Directory of New Mexico, 1882, op. cit., p. 49.

---

was founded because of the coming of rail transportation. The Santa Fe arrived at the site of this sun-baked community in March of 1881 making a junction with the Southern Pacific Railroad and forming the second transcontinental line. It was natural that a town of some importance would be built at such a strategic junction. Within a few months

various railroad shops and offices had been erected, and Deming became a wholesale center for Southern New Mexico. The only customs house on the Mexican line was located there adding to the commercial importance of the town.[47]

---

[47]Ritch, Aztlan, op. cit., p. 122.

---

Despite the importance of this rail junction, Deming lacked the lure of the mines that was present in nearby Silver City, and thus never had a large population before 1900.

Silver City.--This city, while incorporated in 1870, began to expand in importance only after the railroad's presence generated mining activity in the territory. As its name implies, Silver City was in the center of a rich mining area, and by the late 1880's approximately forty mining districts of note were located within a seventy mile radius. An established community, Silver City became a thriving commercial site by supplying goods to the many mines in the area.[48] Although it was the arrival of the

---

[48]A Complete Business Directory of New Mexico, 1882, op. cit., p. 80.

---

railroad in 1880 which caused mining activity to boom and Silver City to prosper, no main rail ever passed through this city. In fact, until 1884 the main mode of transportation was a freight wagon and stage line to the rail

junction at Deming. However, in that year the Silver City, Deming, and Pacific Railroad was built and leased by the Santa Fe, thus insuring Silver City's place as the supply center for the mining districts.[49]

---

[49]Marshall, op. cit., pp. 404-405.

---

Gallup.--Along the Atlantic and Pacific line which was built west along the thirty-fifth parallel, only Gallup developed as a commercial center of any importance in New Mexico. Before the railroad's arrival, Gallup was known only as a stagecoach station having a handful of residents. However, with the Atlantic and Pacific came a number of settlers, principally coal miners, traders, and businessmen. From its start as a tent city in late 1880, Gallup grew into a typical frontier town by 1883 with twenty-two saloons and two dance halls. The chief occupations of the citizens were coal-mining in the near-by mines and furnishing supplies for the miners and numerous reservation Indians in the area. Although Gallup never reached the importance of Albuquerque, Las Vegas, or Silver City as a commercial center, it nevertheless played a significant part in trade operations in its local region.[50]

---

[50]E. Grant Crans, The Book of Gallup (Gallup: E. Grant Crans Publisher, 1928), pp. 4-6.

---

Summary.--Despite the low percentage of urbanization in New Mexico, the growth of these various communities because of the entrance of the Atchison, Topeka, and Santa Fe into the territory is a positive evidence of the great influence that this railroad had upon the economy of New Mexico.

## Property Valuation

Probably no measure of economic growth in New Mexico illustrates the great influence of the railroad as strikingly as does property valuation. Valuation figures are useful because they give a picture of the worth of real and personal property in a specific area, thus giving an idea of the recognized wealth of that region. However, such an analysis of wealth is possible only from true valuations, not from assessed valuations. According to the definition of the United States Bureau of the Census, assessed valuation is:

> Valuation given to real estate and personal property for purposes of taxation. It covers but a portion of total property since much is exempt by fraudulent means.[51]

---

[51] U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III, op. cit., p. 948.

---

On the other hand:

> True valuation is the estimated fair selling price of all tangible property at the date taken.

It is not for taxation purposes.[52]

---

[52] Ibid., p. 943.

---

The definitions give apt reason why this paper will study true valuation figures, for they are the only ones which give a valid presentation of property wealth in New Mexico. Valuation of property was only $20,813,768 in the territory in 1860, and only increased to $31,349,793 in 1870, and to $49,000,000 in 1880. However, between 1880, when the Santa Fe was building across New Mexico, and 1890 true property values increased by 372.5 per cent to $231,459,897.[53]

---

[53] Ibid., p. 954.

---

True valuation of property for 1900 showed another increase to $268,285,425 or a gain of 15.9 per cent.[54]

---

[54] U. S. Bureau of the Census, Wealth, Debt, and Taxation, 1907 (Washington: Government Printing Office, 1907), pp. 42-43.

---

True valuation per capita.--Another interesting view of the growth of true property value after 1880 is shown in Table II, which gives true property valuation on a per capita basis for 1870, 1880, 1890, and 1900 in New Mexico and various other geographical divisions of the United States. In the table carefully note the tremendous boost registered between 1880 and 1890 by New Mexico and

TABLE II

TRUE VALUATION OF REAL AND PERSONAL PROPERTY PER CAPITA FOR GEOGRAPHIC DIVISIONS OF THE UNITED STATES BY DECENNIAL CENSUSES, 1870 TO 1900

| Division* | True Valuation of Property per Capita in Dollars | | | |
|---|---|---|---|---|
| | 1870 | 1880 | 1890 | 1900 |
| United States | $ 780 | $ 870 | $1,036 | $1,165 |
| North Atlantic States | 1,243 | 1,209 | 1,232 | 1,535 |
| South Atlantic States | 384 | 495 | 579 | 640 |
| North Central States | 735 | 932 | 1,129 | 1,270 |
| South Central States | 334 | 435 | 569 | 583 |
| Western States | 843 | 1,291 | 2,250 | 1,925 |
| New Mexico | 341 | 410 | 1,507 | 1,374 |

*Divisions of the United States include the following states: North Atlantic Division: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, and New Jersey. South Atlantic Division: Delaware, District of Columbia, Maryland, West Virginia, Virginia, North and South Carolina, Georgia, and Florida. North Central Division: Ohio, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Missouri, and Kansas. South Central Division: Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Texas, and the Indian Territory. Western Division: Montana, Colorado, Wyoming, New Mexico, Arizona, Utah, Idaho, Nevada, Oregon, California, and Washington.

Sources: Bureau of the Census, Wealth, Debt, and Taxation, 1907 (Washington: Government Printing Office, 1907), p. 44.

the Western States Division in per capita valuation. As the table shows, other regional divisions had much less spectacular increases in this period. One factor which held true for all of the Western states during this ten-year spread was that it was an era of vast railroad construction. This expansion of rail facilities was opening up the West, making it aware of modern technology, and stimulating multiple forms of economic endeavor. Although population was increasing at a rapid pace in this area, property values were growing at a much faster rate, thus causing the big jump in property values per capita.

Table III illustrates in percentages the increase on a per capita basis of property valuation between ten-year censuses in the several geographic regions of the United States. This table shows that until the 1880-1890 era New Mexico per capita increase in property values was very similar to most of the geographical divisions and the United States as a whole. However, in the 1880-1890 period no other region, nor the entire United States, could come close to matching the New Mexico percentage growth, although all divisions showed an increase and the Western States Division had a very substantial gain. Since this ten-year span represents the establishment of railroad transportation in New Mexico, it appears reasonable to conclude that this factor played a major part in

TABLE III

PERCENTAGE OF CHANGE IN TRUE VALUATION OF REAL AND PERSONAL PROPERTY PER CAPITA BETWEEN DECENNIAL CENSUSES FOR DIVISIONS OF THE UNITED STATES 1870 TO 1900

| Division* | Percentage of Change | | |
|---|---|---|---|
| | 1870-1880 | 1880-1890 | 1890-1900 |
| United States | 11.5 | 19.1 | 12.5 |
| North Atlantic States | -2.6 | 1.9 | 24.6 |
| South Atlantic States | 28.8 | 16.9 | 10.5 |
| North Central States | 26.8 | 21.1 | 12.5 |
| South Central States | 30.2 | 30.8 | 2.4 |
| Western States | 53.1 | 74.3 | -14.4 |
| New Mexico | 20.2 | 267.6 | -9.7 |

*For content of the divisions see Table 2.

Source: Table II.

the increase in property value in the territory. Note that between 1890 and 1900 the Western States Division and New Mexico both showed declines per capita. This was natural, since economic conditions began to stabilize after the boom of the previous decade, while population continued to increase.

Detailed breakdown of true valuation figures.--Table IV presents a detailed breakdown of the total true valuation estimates for 1890 and 1900. These figures are useful in studying the various facets of the economy. Although a breakdown in even greater detail would be better, such data is not available. Unfortunately, similar detailed valuation studies are not given by census reports prior to 1890. The comparisons which would be possible if the 1880 breakdown was available would be very helpful. Table IV shows that the railroad industry, which before 1878 accounted for not one dollar of the valuation totals, accounted for a major portion of the full amounts in 1890 and 1900, being second only to real estate in size of dollar-value. Railroads gave the territory a new source of taxable revenue; although railroad property was exempted from taxation for six years after the completion of the road.[55] An interesting fact is that the value of

---

[55]Ritch, Aztlan, op. cit., p. 79.

TABLE IV

TRUE VALUATION OF REAL AND PERSONAL PROPERTY OWNED AS GIVEN IN DETAIL, 1890 AND 1900; NEW MEXICO

| 1890 | | 1900 | |
|---|---|---|---|
| Item | Amount | Item | Amount |
| Real Estate & Improvements | $113,729,183 | Real Estate & Improvements | $134,691,119 |
| Live Stock, Farm Implements | 7,538,320 | Live Stock | 32,083,000 |
| | | Farm Implements | 1,115,832 |
| Mines, Quarries & product on hand | 21,692,388 | Gold & Silver Coin & Bullion | 3,421,069 |
| Gold & Silver Coin & Bullion | 2,524,943 | Machinery, Mills & Manufacturing & product on hand | 1,115,832 |
| Machinery, Mills & product on hand | 471,948 | Railroads & their equipment | 52,590,000 |
| Railroads & their equipment, including street lines | 75,469,333 | Street Railroads, Telephone & Telegraph, & Utilities | 4,425,265 |
| Telephone & Telegraph | 614,372 | Miscellaneous, Including industry products and Mines & Quarries | 38,807,530 |
| Miscellaneous | 9,419,410 | | |
| TOTAL | $231,459,897 | TOTAL | $268,285,425 |

Sources: U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890 (Washington: Government Printing Office, 1892), pp. 952-953.

U. S. Bureau of the Census, Wealth, Debt, and Taxation, 1907 (Washington: Government Printing Office, 1907), p. 36.

railroad property in 1890 was by itself 53.9 per cent greater than was the full $49,000,000 of property valuation for the territory in 1880. According to these figures the valuation of New Mexico property obviously boomed between 1880 and 1890 in virtually all economic areas. Stockmen, farmers, miners, and traders thus all benefited from the increase in valuation which occurred at the coming of the railroad. Railroad property valuation by 1900 was lower than in 1890 because of depreciation in value of much railroad equipment and because of the shifting of some railroad shops and equipment crews out of the territory.

Taxable Property.--While true valuation of property increased at a prodigious rate between 1880 and 1890, assessed valuation, which is the basis for property taxation, failed to quite keep up at such a torrid pace. Total assessed valuation increased 194.6 per cent during this period, from $14,675,209 to $43,227,686, against the 372.5 per cent jump registered by true valuation.[56] Between

---

[56]U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., p. 1506.

U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III, op. cit., p. 960.

---

1890 and 1900 the two types of valuation increased at more nearly the same speed, 9.3 per cent for the assessed, which climbed to $47,158,607, against 15.9 per cent for the

true.[57] An even more striking indication of how assessed

[57]U. S. Bureau of the Census, Wealth, Debt, and Taxation, 1907, op. cit., p. 44.

valuation failed to match the skyrocketing true valuation is the fact that in 1880 assessed valuation was equal to 30 per cent of true valuation. However, in 1890 and 1900 the percentage declined to 18.7 and 17.6 per cent respectively. This data on the rise of true valuation of property in New Mexico between 1880 and 1900 adds important evidence of a positive nature to the contention that the Santa Fe and other railroads had a beneficial influence upon the economy of New Mexico.

Tourist Attraction

The importance of the Santa Fe in causing tourists from other places to visit New Mexico has been mentioned frequently in past sections, but some points need to be reconsidered here. The healthful, mineral hot springs located near Las Vegas, at Jemez, and at Hudson, near Deming, were probably the biggest drawing cards for visitors to journey to New Mexico during the period under study.[58]

[58]Ritch, Aztlan, op. cit., p. 72.

Rail transportation made it a relatively easy matter for travelers to visit these popular places in comfort and at

reasonable expense.

In addition, after the completion of the railroad, more and more people began to discover the healthful magic of the territory's high, dry climate for tuberculosis. Reports of various medical men of the time lauded New Mexico for its healthful climate. For instance in 1885 Dr. Lewis Kennon, an experienced physician who had been employed by the United States Army for many years, commented that "the lowest death rate from tubercular disease is found in New Mexico."[59] Professor Oscar Leow wrote in Wheeler's

---

[59] Ibid., p. 69.

---

U. S. Geological Survey that "science as well as experience has demonstrated beyond a doubt that for consumptives, the climate of New Mexico far surpasses that of Minnesota, California, or Florida."[60] Although some of the early

---

[60] Ibid., p. 72.

---

claims of a perfect health climate in New Mexico have been exploded by advanced medical knowledge, such comments and experiences as the above helped the territory to gain a name as a health center. This reputation helped to draw both tourists and settlers to the territory.

The pleasing climate and magnificent scenic beauty of the region also attracted visitors to New Mexico. Many

of these travelers liked what they saw well enough to move permanently to the territory. The tourists also brought new money into New Mexico, which they spent during their travels. In these ways the economy of the territory benefitted just as it benefits today from tourist trade.

## CHAPTER IV

## INFLUENCE OF THE ATCHISON, TOPEKA, AND SANTA FE RAILROAD UPON SPECIFIC INDUSTRIES IN NEW MEXICO

No study of the influence of Atchison, Topeka, and Santa Fe Railroads upon the economy of New Mexico during this period would be complete without a careful, detailed analysis of the specific industries in the territory. In the early 1880's the leaders of New Mexico were well aware of the economic advantages possessed by the territory. They realized that the coming of the railroad should be a strong factor in stimulating the various phases of economic life in the region and in causing outsiders to migrate to the territory to benefit from the promising potential of the area. Chief Justice L. B. Prince of the Territorial Supreme Court was one of the most active boosters of New Mexico, serving as the first president of the Bureau of Immigration. In an interview given while in New York City, which appeared in the July 12, 1881 issue of the New York Tribune, Prince summed up quite handily the prospects for the economic success of an individual in New Mexico. Some of his comments bear repeating here

as an introduction to this survey of industries in the territory during this period. Prince told the reporter:

> The territory presents a good field for men of enterprise and push, particularly if they have a little capital. All kinds of businesses flourish in the rapidly building towns. Capital finds very profitable employment in stock raising, mining, and various useful enterprises. Some woolen mills and tanneries would be a great success.

Prince went on to caution that not every one would succeed, but only those who had drive, skill, and initiative.[1]

---

[1]Resources of New Mexico, op. cit., p. 49.

---

In the 1880's most citizens of the territory agreed with Prince that New Mexico had a very bright future.

That the value of the railroad to the industries of the area was readily appreciated may be evidenced from a newspaper editorial originally published in the Mining Record[2] and which was reprinted in the October 11, 1879

---

[2]The Mining Record was published in Silver City, New Mexico.

---

issue of the Weekly New Mexican. This article called the railroad extension into New Mexico "one of the most important enterprises of the times and one fraught with immeasurable beneficial results to the general business and the industry of the whole country." The story pointed out that railroad transportation would stimulate development

of pastoral, agricultural, and mineral resources. Utilization of such resources would, as in California, in turn give renewed impetus to industry.[3] The need for capital

---

[3]Weekly New Mexican, October 11, 1879, p. 1.

---

to expand the industries of New Mexico was particularly pressing, and it was the hope of the residents of the territory that the railroad would encourage owners of capital to visit the area and invest in its resources. The various industries will now be examined in detail in an effort to determine whether or not the Santa Fe actually influenced each one, and if it did, in what way and to what extent.

## Agriculture

Characteristics of agriculture before 1880.--Agriculture in this section refers to the raising of crops and omits stock raising, which will be considered separately. Several distinct characteristics differentiate crop raising in New Mexico from most other farming regions. The most striking is the very light amount of annual precipitation received in the area which makes almost ninety-eight per cent of the land useful only for grazing unless irrigation is used.[4] As a result, agriculture in New Mexico has

throughout the years been confined largely to the river valleys where water was accessible for easy irrigation. Before 1880, crops were raised almost completely to fulfill local market demands, for with ox-drawn wagons and pack trains furnishing the only facilities for shipping goods, it was impossible to profitably send food products to distant points either in or out of the territory. Leading crops raised for use of the local populous were mainly stock items like corn, wheat, beans, fruits, oats, barley, inferior tobacco, and table vegetables. The techniques and tools used in cultivation of these products were largely of the most primitive type, with wooden plows, sickles, winnowing forks, and thrashing stockades being used by most farmers.[5]

---

[5]Lewis Wallace, "Report of the Governor of New Mexico," Reports of the Governors of Arizona, Dakota, Idaho, Montana, New Mexico, Utah, and Washington Territories to the Secretary of the Interior for the Year 1879 (Washington: Government Printing Office, 1879), pp. 39-40.

---

As might be expected, land was plentiful for use by early settlers, but most of it was of no value for farming. However, Governor Edmund G. Ross estimated in 1887 that of the 78,374,400 acres within the boundaries of the territory, nearly 40,000,000 acres could be successfully utilized for agricultural land if a sufficient water supply

could be guaranteed.[6] The great bulk of this land was

---

[6]Ross, op. cit., p. 17.

---

likewise available under the liberal terms of Homestead Laws, which allowed possession of 160 acres at $1.25 per acre after fourteen months continuous residence and title without payment for the land, except for nominal land fees and the cost of publication, after five years continuous residence.[7] Because of the lack of adequate water

---

[7]Frost, op. cit., p. 17.

---

on so many of these acres, however, incoming farmers usually attempted to purchase the valuable river valley land, which by the late 1880's brought as much as $100 to $200 an acre in some instances.[8]

---

[8]Frost, op. cit., p. 5.

---

Agriculture after 1880.--The growing of farm crops for mainly local consumption, as was the case in New Mexico before the presence of the railroad, was also characteristic of agriculture in other Western states similarly handicapped by poor transportation service. However, the arrival of the railroad in New Mexico did not provide the degree of immediate impetus to agrarian development that

occurred in California and several other states and territories in the West.[9] Not until the 1890's did agriculture

---

[9]Niklason, op. cit., p. 69.

---

in New Mexico begin to make substantial gains from a total profit point of view. However, there was a steady, if not spectacular, increase from 1880 on, particularly in the added interest in investing capital for irrigation, the rapid change to modern farm methods and tools, and the ability to send some specific products, such as choice fruits, to Eastern markets. All of these things were brought about either directly or indirectly by the entrance of the Santa Fe and other railroads into the territory. Also, the increasing population, and particularly the thriving and rapidly growing mining towns, increased the demand of the local markets for agricultural products. This too was a stimulus to agriculture caused by the railroad.

The period 1880 to 1890 saw a marked increase in workers in agriculture from 11,015 in the former year to 16,260 in the latter. However, there were fewer persons engaged in this occupation in 1890 than in 1870, when some 18,502 persons followed agricultural pursuits. The total number of farm workers reached 19,408 by 1900.[10] The

---

[10]U. S. Bureau of the Census, Ninth Census of the United States: 1870. Population and Social Statistics,

Vol. I (Washington: Government Printing Office, 1872), p. 749.

U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., pp. 1381-1387.

U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III, op. cit., p. 417.

U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Population, Vol. II (Washington: Government Printing Office, 1902), pp. 530-539.

---

reason why the total number of agricultural workers showed a decrease during the 1870's was that many persons switched to more profitable stock raising, and later to mining.

Other census statistics clarify the position of New Mexico agriculture in this period. Figure 4 illustrates that the boom in farming occurred in the decade between 1890 and 1900. This figure also shows that when livestock values are added to other farm values, the impact of prosperity appears to have occurred years earlier. The reason for the rapid increase in livestock values will be discussed later in this chapter. However, the emphasis in this section is upon the part of the agricultural industry aside from livestock; so the pattern of farm values excluding livestock is of special interest here. A similar trend of progression was true in the value of farm products,[11]

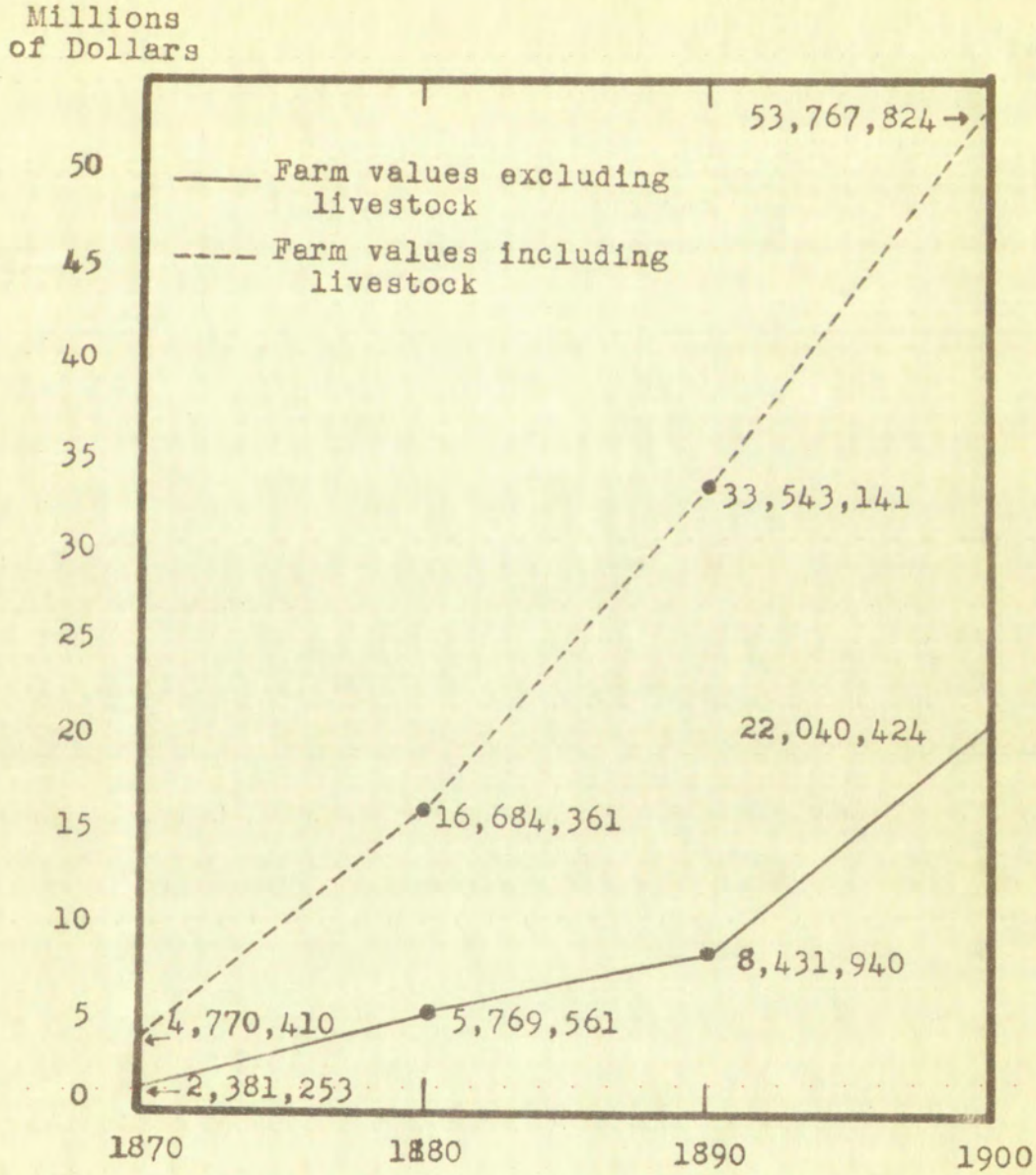
---

[11]Value of products means the value of products as fixed by shop or factory costs, not including expenses of commerce or sales devices. It does not include livestock.

U. S. Bureau of the Census, Abstract of the Twelfth Census of the United States: 1900, op. cit., p. 389.

FIGURE 4

TOTAL VALUE OF FARMS IN NEW MEXICO
BY DECENNIAL CENSUSES, 1870-1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V (Washington: Government Printing Office, 1902), pp. 694-699.

which also rose sharply between 1890 and 1900, increasing from $1,784,820 in the former year to $10,155,215 in the latter, for an amazing gain of 466.7 per cent. Actually, the $1,784,820 product value in 1890 was down 5.9 per cent from the $1,897,974 total in 1880.[12] A comparison of the

---

[12]U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V (Washington: Government Printing Office, 1902), p. 703.

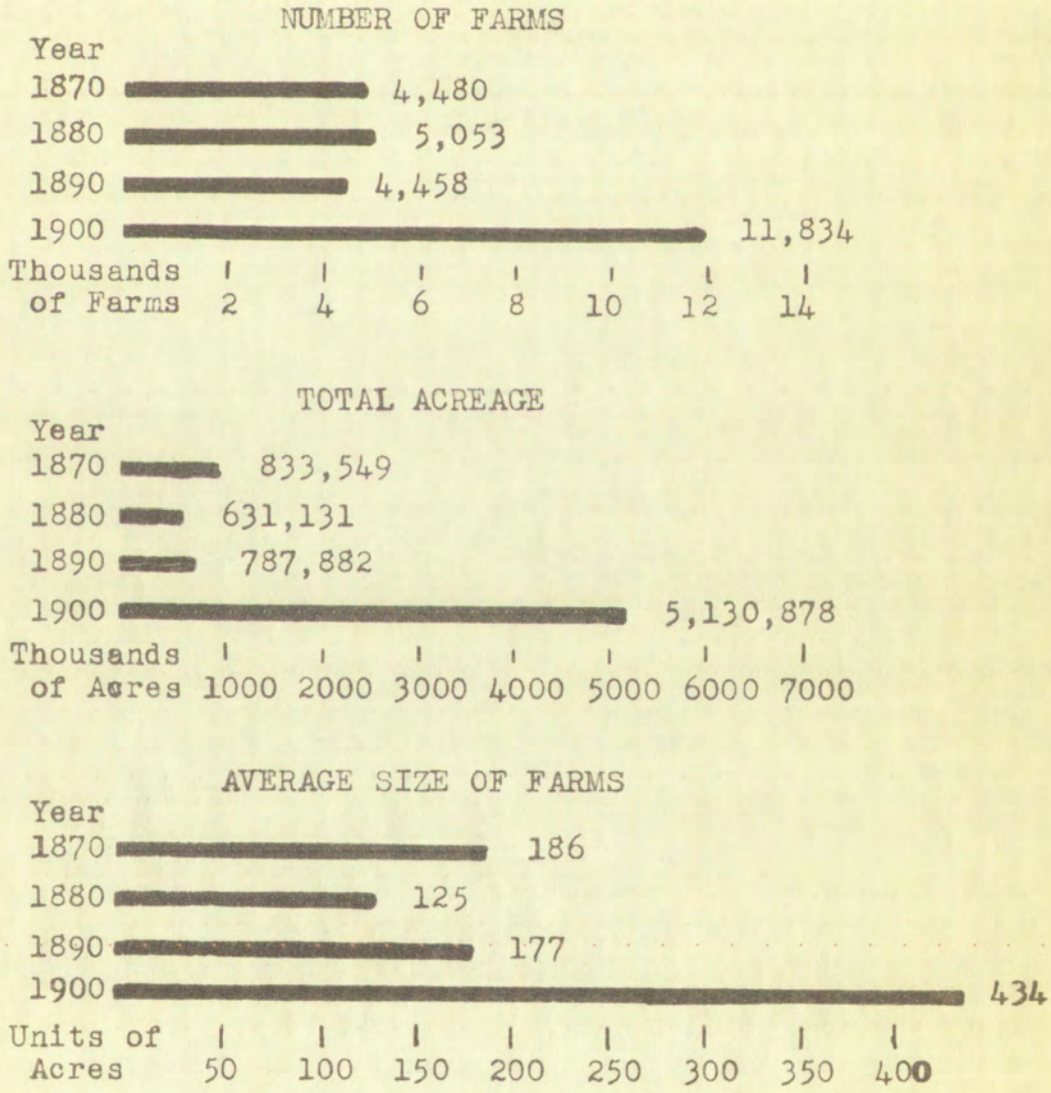
---

two trends in total farm value and total product value, in relation to the railroad's influence upon agriculture, strongly indicates that although values of farm property were perhaps boosted upward at least partially because of the arrival of rail transportation, no greater production in dollar-value resulted between 1880 and 1890. However, after 1890, crop agriculture, as an industry, boomed in both aspects.

This trend is corroborated by the fact that the number of farms operated, the total acres utilized, and the average size of farms also increased greatly between 1890 and the turn of the century; whereas there was actually very little change in any of these fields between 1870 and 1890. Figure 5 illustrates the truth of this statement in graphic form. Note that in each of the three divisions the representative measuring bar for 1900 is extended far to the right of the bars for 1870, 1880, and

FIGURE 5

NUMBER OF FARMS, TOTAL ACREAGE, AND AVERAGE SIZE OF FARMS IN NEW MEXICO BY DECENNIAL CENSUSES 1870-1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V (Washington: Government Printing Office, 1902), pp. 688, 692.

1890; whereas there is but small differences between those three years. These figures add emphasis to the point that not until after 1890 did agriculture in the territory begin to make advances in prosperity similar to what other industries realized a decade before.

To say that the Santa Fe and the other railroads did or did not greatly stimulate agriculture in New Mexico after their arrival is difficult. No immediate boom resulted in this field, such as occurred in mining for instance. Yet, a real era of farm expansion did take place about ten to twelve years later. The arrival of rail transportation did cause a growth in population and in the development of urban centers, resulting in a greater demand for food. It also brought outside capital into the territory, and a portion of this capital was spent on irrigation projects, which were definitely beneficial to the crop farmers. The railroad likewise enabled the New Mexico farmers to ship goods out of the territory. In addition, rail transportation enabled farmers in the region to learn of and acquire superior farm implements which were used in the more advanced agricultural areas of the East and Middle-West.

Irrigation.--In water-starved New Mexico irrigation was of prime importance, and between 1889 and 1899 irrigation in the territory more than doubled. By the 1890's

numerous private investors had become interested in putting their capital into irrigation ventures in the region, thus causing an upsurge in the construction of irrigation facilities.[13] Besides the money from private investors, some

---

[13]L. Bradford Prince, Report of the Governor of New Mexico to the Secretary of the Interior, 1891 (Washington: Government Printing Office, 1891), p. 22.

---

public funds were also allocated for irrigation projects. In 1889, which was the first year that the United States Census made a comprehensive study of irrigation in the Western United States, there were 91,745 acres under irrigation in New Mexico. By 1899 the number of irrigated acres had increased by 122.2 per cent to 203,893.[14]

---

[14]U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. VI (Washington: Government Printing Office, 1902), pp. 852-854.

---

A specific crop -- fruit raising.-- A study of the effect of the Santa Fe upon a specific crop, like fruit, will be of interest here. Fruit has been raised in New Mexico for many scores of years with pleasing results for its raisers. Arthur Boyle of Santa Fe, President of the New Mexico Horticultural Society in the 1880's, described New Mexico as an excellent fruit growing country, easily comparable to fine regions that he had visited in France,

numerous private investors and promoters invested in irrigation projects, their capital into large-scale irrigation projects, in many cases causing an upsurge in the construction of irrigation projects.[13] Besides the money from private investors, there

---

[13] L. Bradford Prince, A History of New Mexico, p. 7. [illegible] New Mexico to the Year 1879 or the Inception, p. 7. [illegible] tion: Government Printing Office, [illegible], p. [illegible].

---

public funds were also allocated for irrigation projects. In 1889, which was the first year that the United States Census made a comprehensive study of irrigation in the Western United States, there were [illegible] irrigation in New Mexico. By 1890 the number of irrigated acres had increased by 12.4 per cent to [illegible].[14]

---

[14] U.S. Bureau of the Census, Twelfth Census of the United States: 1900, Agriculture, Vol. [illegible] Government Printing Office, 1902), pp. [illegible].

---

A specific case -- Isaac Ball -- A study of the effect of the Santa Fe Ring on a specific person, Isaac Ball, will be of interest here. Ball had been [illegible] in New Mexico for many years by years with [illegible] its release. Arthur Lopez of [illegible] New Mexico Horticultural Society in [illegible], regards New Mexico as an excellent fruit growing country, [illegible] comparable to the regions that he had visited in [illegible]

Italy, Spain, and other places. He pointed out that the climate was perfect with its abundance of sunshine, mild winters, and dry atmosphere which keeps fungus down.[15]

---

[15]Frost, op. cit., pp. 35-36.

---

With such optimistic observations as this, it was small wonder that the fruit growers welcomed the Santa Fe with excitement and anticipation of profit, for with railroad transportation it became possible to ship their fine products to Eastern markets. Most of the fruit culture was carried on in the Rio Grande Valley, both in the northern and southern parts of the territory. Before the arrival of the railroad there had been no attempts to expand production to any great extent, because there was simply not enough of a market for the fruits.[16]

---

[16]Weekly New Mexican, November 15, 1879, p. 1.

---

Not only did the Santa Fe's arrival provide an opportunity for easy, quick, and cheap transportation of fruits to markets in the East, but according to local authorities of that time it actually gave New Mexico fruits a selling advantage over similar crops from California. This was true because of the relative geographic position of the two states. Fruits plucked in New Mexico in the mornings and shipped via railroad could be in Denver by

the next morning, in Kansas City within thirty-six hours, in Chicago within forty-eight, and in New York City within fifty-two. This meant that New Mexico fruits, which were shipped east, could be allowed to remain on the trees longer than California fruits and still arrive at the various markets at the same time. This reportedly preserved the flavor and appearance of the fruits from New Mexico and enabled them to command a thirty per cent better selling price than the competing products from the Pacific Coast.[17]

---

[17]Frost, op. cit., p. 14.

---

Unfortunately, New Mexico failed to hold this touted advantage over fruit from California, for by the twentieth century the Pacific Coast state had forged far ahead of New Mexico not only in quantity produced, but also in quality of product. Closer adherence to scientific culture and betterproducing techniques accounted in part for the decided edge in fruit raising gained by California.

## Livestock

The livestock industry in general.--Stock raising in New Mexico in 1870, outside of the traditional sheep breeding, was an unimportant industry. Even the sheep industry, which had been going on ever since the coming of the Spanish to New Mexico, was small in comparison with

what it grew to be within a few years.[18] With an inadequate

---

[18]Charles F. Lummis, "Land of Poco Tiempo," Scribner's Magazine, X (December, 1891), 769.

---

rainfall in the territory constantly making farming difficult, grazing was the logical substitute, whenever it could be made truly profitable. It became possible to realize such a profit after 1870 when the Santa Fe moved into Western Kansas, motivating the famous cattle-drives of frontier history. Before, it had been virtually impossible to drive cattle all the way to the rail heads in the East, but with the railroad in Kansas and rapidly building westward, such drives became feasible.[19] The gradual movement

---

[19]Niklason, op. cit., p. 117.

---

of the railroads to the West also spurred sheep raising, for it meant closer distances and consequently cheaper costs for sending the wool clip to the wool manufacturers in the East.

The peculiar, open, sunny weather of New Mexico was found to be very good for livestock because the food that animals eat is not consumed in producing body heat, but goes to make flesh. It is estimated that under similar conditions of food scarcity, a steer would be able to live twice as long on the same amount of food in New Mexico as

in Wyoming or Montana, because he requires less heat; thus less food will nourish him.[20] Men interested in stock

---

[20] Illustrated History of New Mexico, op. cit., p. 136.

---

raising recognized the possibilities of the territory for this industry, and, as suitable transportation facilities were made available by the movement of the Santa Fe westward, they greatly expanded their efforts. This action occurred in the 1870's, and vast new areas for livestock were opened up throughout New Mexico, particularly outside of the Rio Grande Valley. Lands which for centuries had been controlled by the Mescallero Apaches to the east, the Navajos to the northwest, and the Gila Apaches to the southwest became under the control of the stock raisers.

As the Santa Fe continued to be built west, and particularly after it reached New Mexico, farming lost out to the grazing industry because the railroads made it more profitable to haul in food supplies and concentrate on stock raising, since the area was so much better suited for the latter. Environment was thus the key factor in the regional specialization toward stock raising. Throughout the 1870's most stock raising was carried on by loose herding; that is the raising of herds on the lands of the public domain, letting the animals wander at will. By

the start of the new decade in 1880, however, a transformation in methods was taking place. As more and more stockmen started operations in New Mexico, they began to secure title to their ranges and enclose them with wire to give protection against stock rustlers and other dangers to the herd. The invention and subsequent use of barbed wire about this time also helped revolutionize the pattern of land holding and cattle raising. This system of controlled herding gave the owner a tighter check on his cattle and actually aided in selling, since the animals were kept together better, thus avoiding the time and expense of scouring a large unfenced range for strays at round-up time. Smaller ranges also aided the stockman who wanted to improve the quality of his stock.[22]

---

[22]Chase, op. cit., p. 112.

---

As might be expected there was a general scramble for range land, which was complicated by land laws which basically worked against the livestock industry. This was true because public lands could not be sold in tracts big enough for optimum grazing operations. Also, there was often a monopoly of water in an area by a few stockmen which often incited heated incidents like range wars.[23]

---

[23]H. H. Bancroft, History of Arizona and New Mexico (San Francisco: The History Co., Publishers, 1890), p. 769.

---

Governor Lewis Wallace of New Mexico aptly summarized the position of the territory as a stock raising area in his Report of the Governor of 1879. Governor Wallace reasoned that although New Mexico had excellent grazing lands of fine grass, it had not taken its place among the leading states in meat and wool markets of the nation because of Indian difficulties, the inferior quality of much of the stock, and general transportation difficulties which still necessitated driving the herds to an out-of-state rail terminal.[24] Fortunately, within a few years all of these

[24]Wallace, op. cit., p. 40.

difficulties had been alleviated. The last Indian troubles in the territory ended by the mid-1880's, the quality of stock was rapidly improved within the next few years, and the Santa Fe reached New Mexico, doing away with the long cattle drives.

A helpful way of determining the growth of the entire stock raising industry is to compare the number of people following this occupation in New Mexico according to decennial census statistics between 1870 and 1900. In the former year only 166 persons were listed as primarily engaged in stock raising.[25] By 1880 the number

[25]This figure does not include the large number of settlers, particularly farmers, who raised live stock only on a part-time basis.

of stock breeders had grown to 3,124 for a phenomenal percentage gain of 1,781.9 per cent. Ten years later the number had increased to 6,832, a percentage jump of 118.7. By 1900 the upward swing had leveled off, the total number increasing only 13.9 per cent to 7,777.[26]

---

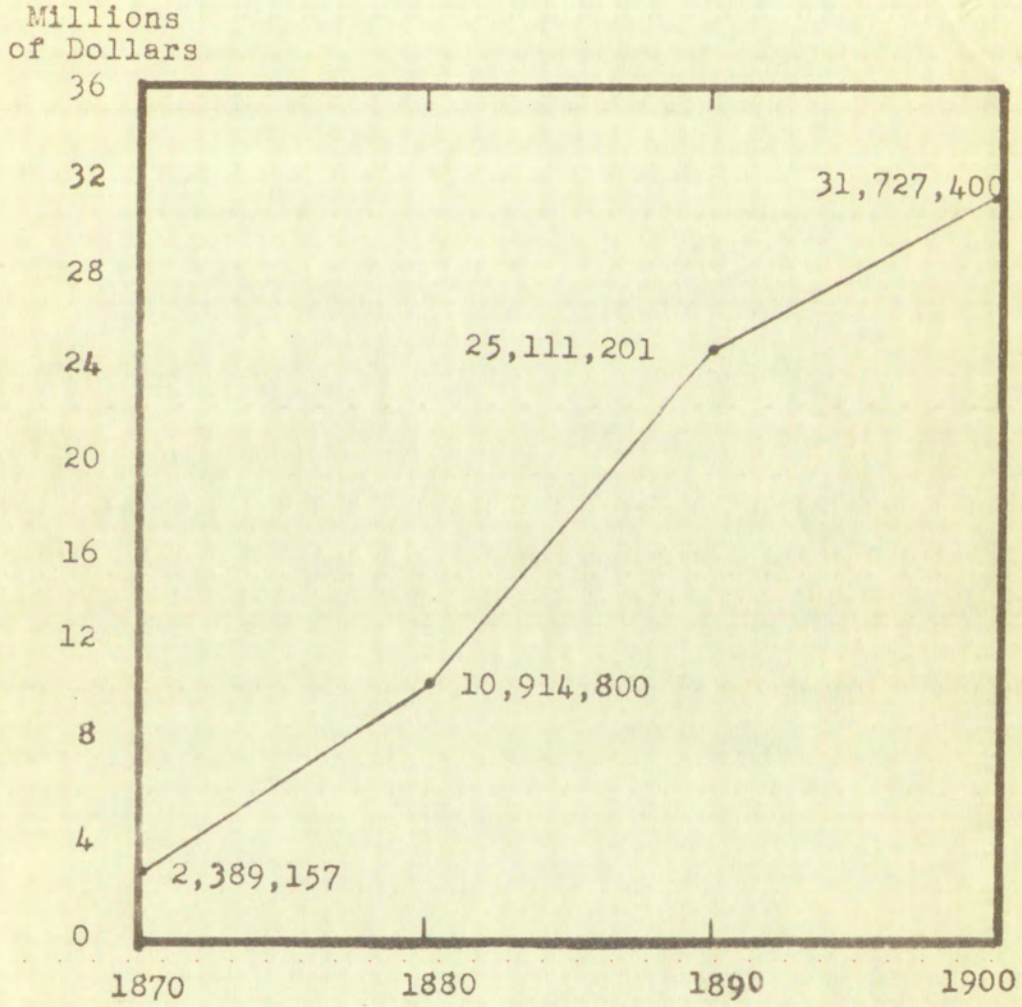
[26] U. S. Bureau of the Census, Ninth Census of the United States: 1870. Population and Social Statistics, Vol. I, op. cit., p. 749.
U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., pp. 1381-1387.
U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III op. cit., pp. 417-419.
U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Population, Vol. II, op. cit. pp. 530-539.

---

A much better measure of the growth of the livestock industry in the territory is the growth of the value of livestock between 1870 and 1900, as indicated in Figure 6. In 1870 livestock value was only a little more than two million dollars. Yet in the next ten years, during the period that the Santa Fe built west into Eastern Colorado, livestock values gained rapidly in New Mexico. The great stimulus provided to the industry by the movement of the Santa Fe westward, even before it reached New Mexico, has already been described in this paper. This chart presents strong statistical proof of the stimulating influence to the industry provided by the Santa Fe Railroad in the

FIGURE 6

VALUE OF ALL LIVESTOCK IN NEW MEXICO
BY DECENNIAL CENSUSES, 1870-1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States; 1900. Agriculture, Vol.V (Washington: Government Printing Office, 1902), pp. 700-701.

the 1870's and after. Between 1870 and 1880 the value of livestock increased 356.9 per cent, the gain tapering off to 130.3 between 1880 and 1890, and to 26.3 between 1890 and 1900.

Cattle raising.--Since the two main types of stock raising in New Mexico in this period were cattle and sheep, the effect of the Santa Fe upon each will be covered separately. There was enough difference in the two fields that each attracted a particular type of person. It was the general observation of the time that a stockman desiring to invest large capital without wanting to give close personal attention to the business would be better off with cattle, while a stockman wishing to invest small or moderate capital, and give his whole time to the enterprise, would be better off with sheep.[27]

---

[27]Ritch, Aztlan, op. cit., p. 60.

---

Prior to 1870 the only markets for New Mexico-grown beef were either with the small population of the territory or with the Federal Government for forts and Indian reservations. Then in the 1870's New Mexico cattlemen, led by John Chisum, a Texas rancher who had extended his business into the territory, began to drive cattle by overland trails to the nearest railway point, then at Dodge City, Kansas, which was located on the Santa Fe line.[28]

[28]Coan, op. cit., p. 391.

Whereas before there was little incentive for expanding cattle raising because of the lack of suitable markets, the extension of the Santa Fe westward opened up a profitable and thriving demand in the urbanized East. A boom in the industry was the obvious result. Vast herds were purchased in Texas and moved to the open ranges of New Mexico. Eastern capital poured in and scores of great cattle companies were formed, with the result that thousands of head of beef covered the unfenced ranges, gradually causing an over crowding of the grazing lands and consequent starvation of many of the cattle.[29] Speculation in

[29]Illustrated History of the United States, op. cit., p. 135.

the business went on unchecked with heifers, which normally sold at sixteen to eighteen dollars a head, being easily sold at thirty-five to forty dollars each to those trying to get started or trying to expand. These speculative practices, aggrevated by incompetent management in many of the companies, brought on a spectacular crash in 1883, which caused all but the more conservative cattlemen to suffer severely because of the deflation in market prices.[30]

[30]Conway, op. cit., p. 5.

When the cattle industry began to recover, several changes were made in the manner of operation. Most ranchers switched from the rugged Longhorn specie of cattle to the better quality Hereford, which brought a better price in Eastern markets.[31] Also the ranges began to be fenced

---

[31]Greever, op. cit., p. 14.

---

into small ranches with grasses and grains being cultivated for food for the well-bred cattle. Although the individual herds were smaller under this new system, the cattle industry actually benefited from it, because the animals were attended to much more carefully, being protected from all sorts of hazardous conditions.[32] Buoyed by the advantage of having

---

[32]Ross, op. cit., p. 10.

---

local rail facilities for easy and convenient shipping, the cattle industry became stabilized as a sound business by the late 1880's. Prices returned to normal[33] and careful

---

[33]Cattle prices of a normal nature were reported in 1890 by Brown and Manzanares, important territorial merchants. The prices were reported as follows:

Yearlings - $6 to $9
2 Year Olds- $8 to $14
3 Year Olds- $12 to $20
Stock Cattle- $8 to $16

Prince, op. cit., p. 26.

---

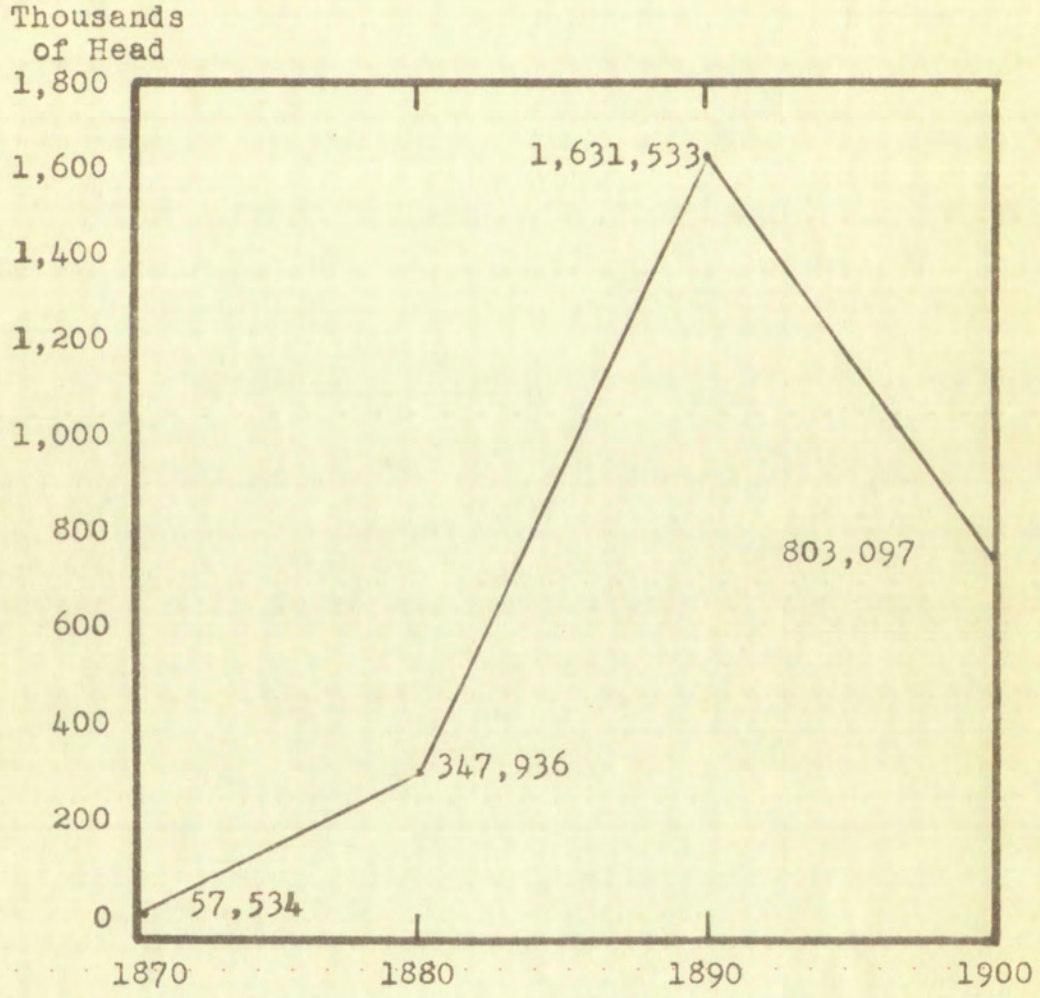
production methods became the rule.

The story of the cattle industry in New Mexico between 1870 and 1900 is strikingly portrayed in statistical form by Figure 7. This graph illustrates the beginning surge of business in the 1870's, the great expansion of the business during the next decade, and the subsequent large decline in the total number of cattle by the end of the century. These figures make it difficult to seriously question the importance of railroad transportation to the cattle raisers, for as the Santa Fe moved west, this industry became a dynamic economic factor.

Sheep raising.--For over two centuries, a number of sheep had been raised in New Mexico, but nothing comparable to the number raised after 1870. For much the same reasons as the cattle industry, the sheep industry began to boom in the 1870's. As the Santa Fe moved nearer to New Mexico, the interest in sheep raising increased. As mentioned before, sheep raising opportunities were open to the small or medium capital owner, whereas cattle raising required a larger amount of money. In a letter on the resources of New Mexico from Chief Justice Prince to the New York Times, which was reprinted November 15, 1879 in the Weekly New Mexican, prospective sheep owners were advised that they needed capital of $5,000 to get started in the business. This would be enough to purchase 2,000 sheep

FIGURE 7

NUMBER OF CATTLE IN NEW MEXICO AT DECENNIAL CENSUSES, 1870-1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol.V (Washington: Government Printing Office, 1902), pp.704-705.

and provide money for subsistence supplies until a steady income was available from the animals.[34] The profitability

[34] Weekly New Mexican, November 15, 1879, p. 1.

of the industry was excellent during this period, for wool was in great demand for cloth with the price per pound in the late 1870's averaging eighteen to twenty-two cents. Large sheep owners became common with many individuals possessing 40,000 to 100,000 sheep.[35]

[35] Weekly New Mexican, January 10, 1880, p. 1.

Just as in the cattle industry, the grade of the sheep raised in New Mexico and the quality of their wool was gradually improved, particularly by the importation and interbreeding of Marino sheep from California.[36] By

[36] Coan, op. cit., p. 389.

the 1880's sheep raising was definitely established as one of the major enterprises of the territory. Prices fluctuated between twelve and twenty cents per pound throughout the decade, and many sheep owners suffered severely during the hard winters of 1887-1888 and 1888-1889; but in 1890 the sheep industry was still thriving.[37]

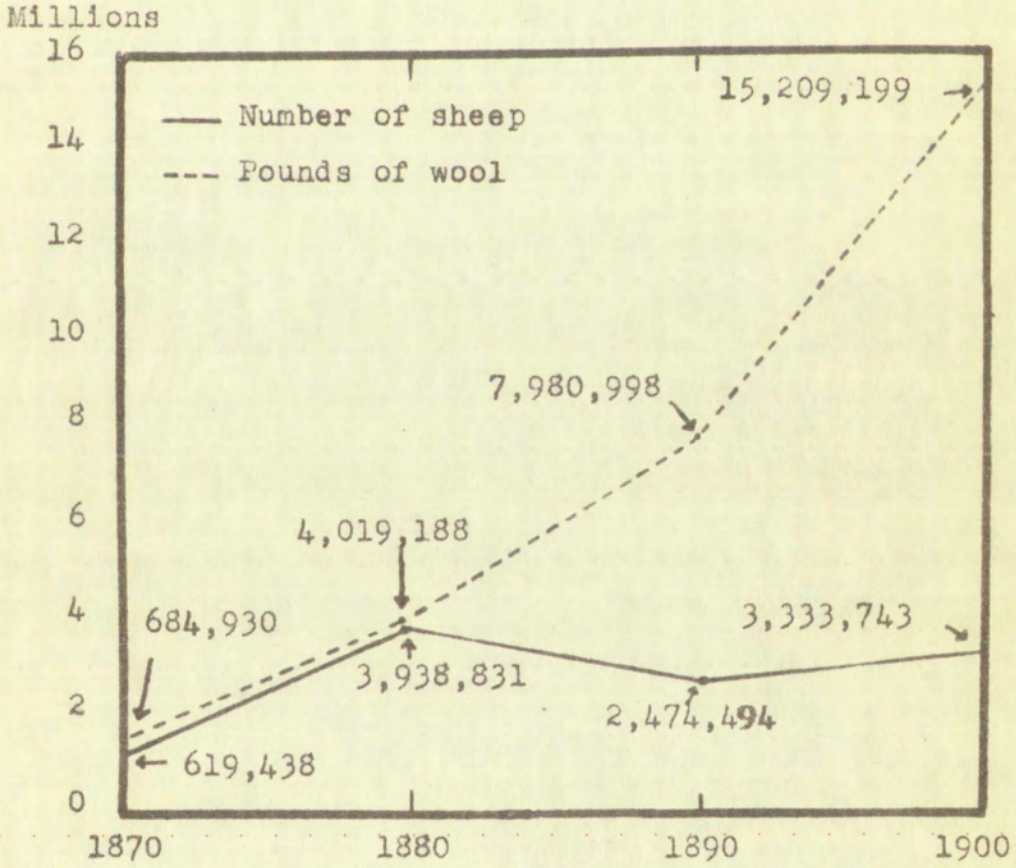
[37] L. Bradford Prince, Report of the Governor of New Mexico to the Secretary of the Interior, 1889 (Washington: Government Printing Office, 1889), pp. 14-15.

Sheep were raised throughout the territory, but Bernalillo, Valencia, San Miguel, Taos, Socorro, Rio Arriba, and Mora counties were the major locations. Good grass and a temperate sunny climate made New Mexico a potentially fine area for this business.

Figure 8 traces the change in the number of sheep in New Mexico and the number of pounds of wool clip between 1870 and 1900, according to decennial census statistics. Two things are particularly striking about these figures. One is the great growth in number of sheep between 1870 and 1880, similar to the corresponding growth in the cattle industry caused by the approach of the railroad, followed by the decline in number in 1890, paralleling the hard times of the sheep raisers mentioned previously. The other is the steady increase in amount of wool netted. The latter factor was made possible not only by the larger number of sheep, but also by an important increase in the ratio of pounds of wool per sheep, which occurred in this period. The ratio in 1880 was only a little over one pound per sheep, but by 1900 the average was up to more than four pounds per head. This indicates that the sheepmen became conscious of improved methods of animal care,

FIGURE 8

NUMBER OF SHEEP AND POUNDS OF WOOL CLIP IN NEW MEXICO FOR DECENNIAL CENSUS YEARS 1870-1900




Source: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol.V (Washington: Government Printing Office, 1902), pp.708-709.

better clipping techniques, and the value of superior grades of sheep that grew more and better wool. By 1900 the only states or territories with larger numbers of sheep than New Mexico were Montana and Wyoming. Despite this, however, the territory ranked only seventh in total pounds of wool clip, suggesting that the ratio of pounds of wool per sheep was still too low.[38]

---

[38] U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V, op. cit., p. 673.

---

Other types of stock raising.--Three other types of domestic animals raised in the territory in this period deserve brief mention. Actually, none of the three ever approached, even slightly, the importance of the cattle and sheep industries.

The raising of angora goats gained some excitement in the 1880's because of the high price of thirty to forty cents per pound brought by their hair. Because the angora is not a grazer, but a browser, it was an easy kind of animal for people of limited incomes and small or poor land holdings to raise. Leaves and weeds provided the main food; although straw and hay were needed in the winter. Before the opening of the territory to the outside world, angora goats were not raised to any

important degree, but the railroad gave the people of the territory the opportunity to take advantage of the demand for angora hair in the East.[39]

---

[39] History of New Mexico, Its Resources and People, op. cit., II, 1014.

---

Dairying kept pace with demands of the local population for milk and cream, but butter and cheese had to be imported from dairying regions in the Middle-West. The railroad made it possible to economically import such commodities, so New Mexicans turned their efforts to industries better suited to the territory.[40]

---

[40] Ibid., II, 1016.

---

The breeding of horses increased sharply after the arrival of the Santa Fe, chiefly to supply the growing population and thriving business ventures with horses for driving and draft purposes. The number of horses in New Mexico in 1870 was 5,033, but by 1880 there were 14,547, by 1890 there were 92,322, and by 1900 there were 114,487.[41] This large growth indicates a use of

---

[41] U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V, op. cit., p. 705.

---

more transportation facilities in the territory; a use

demanded by the development of many new industries throughout New Mexico.

## Mining

Mining before 1879.--From the time that the Spanish conquistadores first explored New Mexico in the sixteenth century, interest in the mineral wealth of the area has been great. However, up until 1880 there had been very little mining. The amount of mining activity was small because of three main reasons: the presence of hostile Indians, the long distance from any market for the products, and the absence of low cost transportation to these markets.[42] General William J. Palmer wrote in his Report on Surveys Across the Continent on the Thirty-Fifth and Thirty-Second Parallels that:

> The mere fact that mining is carried on at all in New Mexico and Arizona under all the discouragement of costly transportation, Indian attacks, and remoteness from the convenience of life is strong evidence that mining would boom when the railroad comes in settling the Indians, bringing in new capital, and cutting transportation costs by one-fifth.[43]

---

[42] W. S. Speer, Encyclopedia of the New West, New Mexico Section (Marshall, Texas: The United States Biographical Publishing Co., 1881), p. 3.

---

[43] General Palmer was surveying the West along these two parallels in an effort to determine a route for extending the Kansas-Pacific Railroad to the West Coast. Palmer, op. cit., p. 170.

A few gold mining towns like Elizabethtown and Red River in northern New Mexico did boom between the end of the Civil War and 1879, but only for a few years. As soon as the strike's profitability began to wane, such towns shrank in size, often withering away to nothing. Production of metals like copper, zinc, and iron was either small or non-existent. During the late 1870's about forty tons of copper from the Santa Rita mining district in Grant County were hauled by wagon to the railroad terminus in Eastern Colorado and shipped to smelters in Baltimore, Maryland. However, the time and expense of hauling such a heavy product 600 miles by wagon was prohibitive to mass operations. It was obvious that railroad transportation along with commercial demand were necessary before mineral products like copper could be worked successfully.[44] As the Santa Fe pushed closer and closer to

---

[44]Coan, op. cit. pp. 393-395.

---

the territory, the citizens grew increasingly interested in mining prospects. New Mexico possessed a variety of minerals scattered among the 400 mile unbroken chain of Rocky Mountains in the territory, and the excitement about the development of a booming mining industry was intense.

The Santa Fe stimulates mining activity.--As the Santa Fe progressed through New Mexico in 1879 and 1880, it left in its wake a rash of new mining efforts. The first trains brought in large numbers of prospectors and capitalists, all hoping to strike it rich in the newly-opened territory. Almost everyone was interested in prospecting, at least on a part-time basis. Many of the soldiers detailed to guard the railroad construction gangs and the stage routes spent their leisure time looking for mining possibilities, some making important discoveries. News of strikes spread fast, attracting a multitude of prospectors eager to stake out adjacent claims. In 1879 an important mineral discovery at Cerrillos on the Santa Fe line caused more than a thousand claim locations to be started in that area in a matter of a few weeks.[45]

---

[45] Stuart A. Northrop, Minerals of New Mexico (Albuquerque: University of New Mexico Press, 1944), pp. 25-26.

---

Claims on mining lands were secured with relative ease. Lode claims were 1500 feet in length by 600 feet in width, or 20.66 acres, with annual labor of $100 value on each claim necessary to hold the right of possession. When $500 had been expended in labor on a claim, a patent for the land could be obtained at a cost of $350 to $500

per claim.[46]

---

[46]William G. Ritch, The Legislative Blue Book (Santa Fe: Charles W. Greene, Public Printer, 1882), p. 127.

---

Prospects in New Mexico in the early 1880's for successful mining were thus very good. Horatio O. Burchard, Director of the United States Mint, wrote in 1882 that only since the entrance of the railroads into the territory had New Mexico really been opened up for prospecting, but that in a short time New Mexico should be a high producer of silver and gold bullion.[47] H. M. Atkinson,

---

[47]Horatio O. Burchard, Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1882 (Washington: Government Printing Office, 1883), p. 339.

---

Surveyor-General of New Mexico in the late 1870's and early 1880's and probably the best informed man on mining in the territory in this period, told a newspaper reporter in 1879 that there was no doubt in his mind but what New Mexico would become a great mining area, but only after the great need for proper transportation facilities and new and larger capital investments had been met.[48]

---

[48]Weekly New Mexican, June 7, 1879, p. 1. Reprinted from an interview with Atkinson which appeared in the New York Mail.

---

So for the first two years after the arrival of the Santa Fe and the other railroads in the territory, mining was a frenzy of activity. Gradually, the industry began to get on a sounder footing and to develop into a solid enterprise.

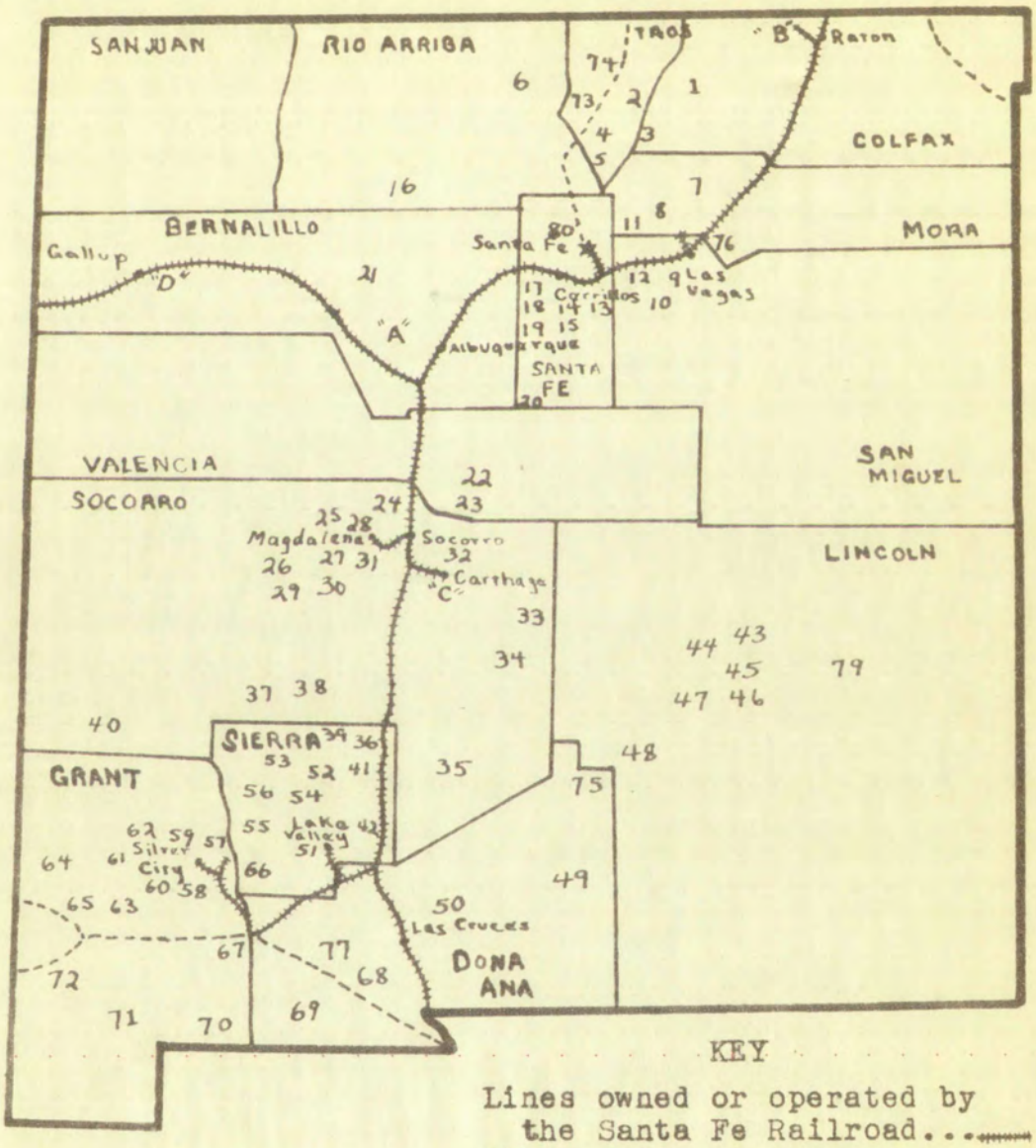
The development of mining.--By the summer of 1881 the Santa Fe had completed its main line building in New Mexico until after 1900. In the intervening period only branch lines were built, chiefly to connect important mining areas with the main line. Just how close the mining districts and the railroads, particularly the Santa Fe, paralleled each other can be observed from Figure 9, a map of the territory showing railroads and mining districts in 1890. Note the absence of a railroad in mineral rich Lincoln County, greatly hampering mining activity there. Previously isolated regions of mineral wealth were given rail service and promptly became important mining districts. On the other hand Governor L. B. Prince stated in his Report of the Governor, 1889 that "the lack of railroad facilities at White Oaks in Lincoln County is holding up work in mining. High costs of the business keep people out."[49] Not until the arrival

---

[49]Prince, Report of the Governor of New Mexico to the Secretary of the Interior, 1889, op. cit. p. 15.

FIGURE 9

MINING DISTRICTS* AND RAILROADS IN NEW MEXICO IN 1889




KEY

Lines owned or operated by the Santa Fe Railroad.....

Other railroad company lines.....

*Names of mining districts corresponding to numbers and letters on next page.

Source: Pocket Map and Shippers' Guide, 1892 (Chicago: Rand, McNally and Co., 1892).

KEY TO MAP ON PRECEEDING PAGE

Metallic Mining Districts

1. Moreno Valley
2. Rio Hondo
3. Copper Mountain
4. Taos
5. Picuris, Arroyo Hondo
6. Petacca
7. Mora
8. Mineral City
9. Gold Hill
10. Rio de la Vaca
11. Pecos
12. Glorietta
13. Cerrillos
14. Galisteo
15. Silver Buttes
16. Nacimiento
17. Las Placitas
18. Bernalillo
19. Tijeras Canyon
20. Hell Canyon
21. Mount Taylor
22. Manzano
23. Joya Mountains
24. Ladrone
25. Spring Hill
26. Council Rock
27. Arny
28. Gallinas
29. Iron Mountain
30. Pueblo
31. Magdalena
32. Socorro
33. Oscura
34. Hanson
35. San Andres
36. San Christobal
37. Apache
38. Black Range
39. Cuchilla Negra
40. Cooney
41. Caballo Mountain
42. Rincon
43. Jicarilla
44. White Oaks
45. Vera Cruz
46. Nogal
47. White Mountains
48. Tula Rosa
49. Jacilla
50. San Augustine
51. Lake Valley
52. Hillsborough
53. Animas
54. Perche
55. Mimbres
56. Georgetown
57. Santa Rita
58. Lone Mountain
59. Hanover
60. Silver Flat
61. Chloride Flat
62. Pinos Altos
63. Burro Mountain
64. Stein's Peak
65. Virginia and Shakespeare
66. Cook's Peak
67. Victorio
68. Florida
69. Tres Hermanes
70. Carrizalillo
71. Eureka
72. San Simon
73. Rio Grande Gold Placers
74. Rio Colorado Placers
75. Tula Rosa Mining
76. Las Vegas
77. Florida Mining
78. Mogollon
79. Capital
80. Santa Fe

Coal Mining Districts

13. Cerrillos
A. Rio Puerco
B. Colfax
C. Carthage
D. Gallup-Defiance

of the Pecos Railroad in the 1890's did mines in this county receive the advantages of adjacent rail transportation attained years before by other important mining districts. The Santa Fe naturally recognized the great value of developing the mineral wealth of the territory and co-operated by constructing branches to leading mining districts such as Blossburg in the Colfax district, Carthage, Magdalena, Lake Valley, and others. These eliminated the long wagon hauls to the railroad, saving time and lowering costs.[50]

---

[50]Frost, op. cit., pp. 45-46.

---

As the mining industry prospered, some enterprising individuals and companies built smelters, stamp mills, and reduction works to process the raw ore. In early 1881 one J. P. Whitney erected the first stamp mill in the territory at Santa Rita. In the following months the Sierra Grande smelter at Lake Valley and the Billing works at Socorro were established.[51] Then, in 1883, New

---

[51]Ritch, Aztlan, op. cit., p. 41.

---

Mexico's first mill with a mechanical concentrator was built at Pinos Altos.[52] These processing facilities

---

[52]Northrop, op. cit., p. 26.

---

of the Ocoa Railroad in the 1890's. Mines in this country receive the advantage of being on railroad transportation established years before by other American mining districts. The Guiva Z's usually recognized the great value of developing the natural resources of the country and co-operated by constructing branches to lumbering mining districts such as Ilosombo, Ca'ete Colorado, Cartago, Magdalena, Lake Valley, and others. These railroads the long wagon haulage to the railroad, saving time and lowering costs.[50]

---

[50]Frost, op. cit., pp. 45-46.

---

As the mining industry prospered, some entrepreneurial individuals and companies built smelters, ore-crushing mills, and reduction works to process the raw ore. In early 1891 one J. T. Whitney erected the first mill in the territory at Santa Rita. In the following months the Sierra Grande smelter at Lake Valley and the mining works at Socorro were established.[51] Frost, in 1907, saw

---

[51]Eaton, Mining, op. cit., p. 42.

---

Mexico's first mill with a modified centrifugal construction was built at Pinos Altos.[52] There prospecting facilities

---

[52]Hurtado, op. cit., p. 26.

added to the profit in mining, since they eliminated the necessity of shipping the heavier raw ore to Eastern cities for processing. Unfortunately, there were never enough of these plants to satisfactorily handle the expanding mineral output of the territory.[53] That the

---

[53]Prince, Report of the Governor of New Mexico to the Secretary of the Interior, 1891, op. cit., p. 28.

---

profit factor of such businesses was good is evident from the statement of the Sierra Grande Mining Company at Lake Valley for operations from the opening of the business on July 30, 1881 to March 16, 1883. This statement is given in Table V. During this period of twenty months, dividends of $500,000 were paid. This was fifty times the $10,000 originally invested in the company, or thirty times greater if considered on an annual basis. Remaining in the business after the payment of the dividends were cash assets of $140,877.53, or fourteen times the initial capital outlay.[54]

---

[54]Ritch, Aztlan, op. cit., pp. 46-47.

---

After the preliminary outburst of frenzied excitement over mining prospects caused by the arrival of the Santa Fe, the industry began to gradually become more stabilized for long range business. People began to

TABLE V

STATEMENT OF THE SIERRA GRANDE MINING COMPANY, LAKE VALLEY, NEW MEXICO FROM OPENING OF BUSINESS ON JULY 30, 1881 TO MARCH 16, 1883.*

| | | | |
|---|---|---|---|
| **Receipts** | | | |
| From Working Capital, subscribed to begin work | | $ 10,000.00 | |
| Sales of Silver bars and ores | | 1,085,703.11 | $1,095,703.11 |
| **Payments** | | | |
| For Real Estate | | 31,000.00 | |
| Construction of mill machinery | 99,248.09 | | |
| Cost of water works plant | 56,921.66 | | |
| Cost of Smelter and Cupel Furnaces | 17,349.17 | | |
| | | 173,518.92 | |
| Working Expenses and Management | | | |
| Silver Mill Costs | 136,662.18 | | |
| Water works supplies and labor | 2,545.67 | | |
| Smelter supplies and labor | 375.60 | | |
| Mine development and labor | 117,644.23 | | |
| Freight on supplies | 7,206.88 | | |
| Expressage & Freight on bullion, ores | 14,013.65 | | |
| Salaries, advertising, Misc. | 36,573.99 | | |
| Experts examination of property | 2,200.00 | | |
| Insurance | 1,500.00 | | |
| Interest | 6,584.46 | | |
| | | 325,306.66 | |

(Continued on next page)

TABLE V (Cont'd)

| | | |
|---|---|---|
| Dividends paid stockholders | $500,000.00 | |
| | | $1,029,825.85 |
| Balance | | 65,877.53 |
| Bullion on hand-unsold | | 75,000.00 |
| Total Cash Assets, March 16, 1883 | | $ 140,877.53 |

*Attested March 16, 1883 by J. A. Kaiser, Treasurer of the Company.

Source: William A. Ritch, Aztlan, The History, Resources, and Attractions of New Mexico (Boston: D. Lothrop and Co., 1885), pp. 46-47.

realize that mining was not going to make everyone rich over-night and that solid, proven business methods and large amounts of outside capital were needed to develop the potential of the resources. Gradually, towns began to be built near the mines, thus reducing the cost of subsistence for miners, which in turn reduced the cost of mining.[55] In 1889 the New Mexico Legislature realized

---

[55]Ross, op. cit., p. 10.

---

the need for putting mining on a more professional basis and established the New Mexico School of Mines at Socorro.[56]

---

[56]Northrop, op. cit., p. 26.

---

Through the years, mining continued to develop, but even in 1891 Professor Charles Longuemare, editor of the Bullion, an El Paso mining publication, wrote:

> Mining in New Mexico is in its elementary stages. This is so much the case that I am responsible for the statement that there is not a single mining district in the territory which does not still offer inducements to the prospector and claim locator.[57]

---

[57]Prince, Report of the Governor of New Mexico to the Secretary of the Interior, 1889, op. cit., pp. 28-29.

---

Evidences of mining development.--Despite several, scattered gold strikes and the known existence of mineral

wealth in the territory, only 503 persons were given as miners by occupation in the 1870 census. By 1880 the number had increased to 1,496, while by 1890 there were 2,996, and in 1900 there were 4,403.[58] The sharp increase

---

[58]U. S. Bureau of the Census, Ninth Census of the United States: 1870. Population and Social Statistics, Vol. I, op. cit., p. 749.

U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., pp. 1381-1387.

U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III, op. cit., pp. 417-419.

U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Population, Vol. II, op. cit., pp. 530-539.

---

in the number of miners by primary occupation is indicative of the expanded interest in mining during this period. These figures do not include many thousands of farmers, stockmen, traders, railroad men, soldiers, clerks, and others who prospected in their spare time, hoping to make a profitable strike. With a wide variety of valuable ores, a magnificent climate for mining, and sufficient water in most of the main mining districts, it was no wonder that the miners began to pour into the territory, once the railroad had fulfilled the need for easy, economical transportation.[59]

---

[59]Bancroft, op. cit., p. 756.

---

Mining activity in 1870 in New Mexico consisted of seventeen mines with only 177 employees. Twelve of the establishments were gold placer mines, while the other five were gold or silver-bearing quartz mines. Together they produced only $343,250 worth, and no successful efforts were made to mine any other type of mineral.[60] Ten years later the census still reported

---

[60]U. S. Bureau of the Census, Ninth Census of the United States: 1870. Wealth and Industry, Vol. III (Washington: Government Printing Office, 1872), p. 763.

---

no production of non-precious metals or coal in the territory, but gold and silver production was up slightly to $441,691, mostly in silver.[61]

---

[61]U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., pp. 1235-1244.

---

It was in the next decade immediately following the arrival of the railroad that mining really boomed. In 1889 the total value of mineral products mined in the territory was $4,611,764, better than ten times the amount produced in 1880. Gold and silver extractions were still important, but so was the production of copper and coal.[62] Mining interest continued to be

---

[62]U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. II,

op. cit., p. 467.

---

strong after the 1890's, but the production of gold and silver fell sharply near the end of the decade causing the total value of mineral production to decline around the turn of the century, being $2,686,473 in 1902. By then many more metals were found to exist in the region, and they were either being mined, or plans were being made to mine them in the near future.[63]

---

[63] U. S. Bureau of the Census, Mines and Quarries, 1902 (Washington: Government Printing Office, 1905), pp. 264-266.

---

Mining of precious minerals.--Most of the pre-railroad mining in New Mexico centered around the extraction of gold, which had a high value per unit of weight. Because of this characteristic, the high costs, slowness, and other difficulties of transportation before the arrival of the Santa Fe did not hamper gold production to the extent that it did the mining of heavier minerals. Districts like Elizabethtown in Taos County and Pinos Altos in Grant County were worked for gold for many years before 1879 with excellent success. After 1879, silver became more important than gold because it was found in much larger quantities, and with economical transportation available, it became more profitable to mine than gold.[64]

[64]Coan, op. cit., pp. 451-452.

During the early years after the arrival of the Santa Fe, production of precious minerals did not increase at a great rate, but a great deal of valuable, preparatory labor was done in the building of mills and other reduction works, the placing of necessary machinery for deep mining, the erecting of saw mills for the production of building materials, and the construction of living quarters and storage buildings. These extensive improvements consumed a considerable amount of time and money, but they were necessary, and they made possible good returns from operations in later years.[65] As

[65]Horatio O. Burchard, Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1881 (Washington: Government Printing Office, 1882), p. 327.

necessary capital for mining began to become available, and as the Indian dangers for miners began to be eliminated, forecasts for gold and silver mining were greatly exaggerated. Mining values were quoted at far above their actual worth for speculative purposes, and there were frequent instances of mismanagement and efforts to work mines without sufficient capital.[66]

[66]Bancroft, op. cit., p. 755.

Table VI gives an idea of the dollar amounts of gold and silver produced in the territory during various years between 1880 and 1900. Silver held the dominant position until the 1890's when it gradually began to lose out in importance. Gold production, too, began to decline; although not to the degree that silver did. During this period the territory never quite reached the position of importance as a producer of precious minerals that was predicted for it. Nevertheless, New Mexico definitely benefited from what was mined. The search for the precious metals drew large numbers of new settlers to the territory, many of who remained and prospered in other occupations.

Mining of other minerals.--Although plentifully endowed with a great variety of minerals besides gold and silver, New Mexico's chief lure for early miners was its precious metals. Other metals, like cinnabar, nickel, copper, lead, manganese, cobalt, iron, and zinc, were known to be present, but they did not attract prospectors because they were not in the high demand that gold and silver were, nor did they offer the quick return provided by the precious metals.[67]

---

[67] Ritch, Aztlan, op. cit., p. 40.

TABLE VI

GOLD AND SILVER PRODUCTION IN NEW MEXICO
IN SELECTED YEARS, 1870-1900

| Year | (In Dollars) | | |
|---|---|---|---|
| | Gold | Silver | Total |
| 1870 | $97,500 | - | $97,500 |
| 1880 | 49,354 | $372,337 | 421,691 |
| 1881 | 185,000 | 275,000 | 460,000 |
| 1882 | 150,000 | 1,800,000 | 1,950,000 |
| 1885 | 800,000 | 3,000,000 | 3,800,000 |
| 1887 | 500,000 | 2,300,000 | 2,800,000 |
| 1890 | 850,000 | 1,680,808 | 2,530,808 |
| 1892 | 950,000 | 1,521,390 | 2,471,390 |
| 1894 | 829,519 | 276,764 | 1,106,283 |
| 1896 | 475,800 | 889,277 | 1,365,077 |
| 1898 | 539,000 | 549,833 | 1,088,333 |

Sources: U. S. Bureau of the Census, Mines and Quarries, 1902 (Washington: Government Printing Office, 1905), p. 265.

Copper production was carried on in the early 1800's by the Spanish on a small scale, the product being packed to Mexico City by mules from Santa Rita and Hanover in Grant County.[68] Another attempt at copper mining

---

[68] U. S. Bureau of the Census, Mines and Quarries, 1902, op. cit., pp. 264-265.

---

in this area was made in the early 1870's, but the long wagon haul to the railroad in Eastern Colorado caused only about forty tons to be mined. Also, before the 1880's, copper was not in such great demand. For one thing the electric industry, which uses large quantities of copper, had not really developed. However, as this and other industries began to need vast amounts of this metal, copper mining became a profitable pursuit. The arrival of the railroad in 1879 made large scale mining of this metal possible in New Mexico with Santa Rita again the center of activity.[69] Capital for the opera-

---

[69] Coan, op. cit., p. 451.

---

tions was furnished largely by Eastern capitalists, including a number of the owners of the Atchison, Topeka, and Santa Fe.[70] Although Grant County was the largest

---

[70] A Complete Business Directory of New Mexico, 1882, op. cit., pp. 67-68.

---

producer of copper, Santa Fe, Sierra, and Colfax Counties also provided considerable amounts, so that in 1889, New Mexico ranked as the fourth largest producer in the United States, having mined 3,686,137 pounds.[71]

---

[71]U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890. Pt. II op. cit., pp. 478-480.

---

Two other minerals which received attention during this period were iron and lead. Iron was located in important quantities in the mountain ranges of Santa Fe, Grant, and Socorro Counties, and it was hoped that its presence, combined with plentiful deposits of coal, would provide an impetus for local manufacturing of some sort. Lead production was important in both Socorro and Grant Counties by 1890, with lesser amounts of the metal being mined in Dona Ana, Sierra, and Santa Fe Counties. Other metals of potential importance, which had been discovered in quantity, were marble in Lincoln County, mica in Taos, phosphate rock in Luna, and amorphous graphite in Colfax.[72] Much of the metal production

---

[72]U. S. Bureau of the Census, Mines and Quarries, 1902, op. cit., p. 266.

---

was shipped to the highly industrialized centers of the East, but enough remained in the territory to help to

stimulate budding manufacturing enterprises. Table VII presents data to support this statement for the year 1900, showing that in that year mining provided for 32.8 per cent of all manufacturing done in the territory.

Mining of coal.--Government census reports as late as 1880 list no coal production in New Mexico, although there probably was some local usage around areas where coal was plentiful. However, coal mining, as an economic enterprise, began only with the coming of the Atchison, Topeka, and Santa Fe. In those days locomotives were powered by coal, and consequently, railroad companies were constantly alert to possibilities of securing coal lands adjacent to their lines. Coal had been known to exist in Colfax County since the 1860's, but no exploitation of the fuel occurred until the Santa Fe founded a subsidiary company, the Raton Coal and Coke Company, and began mining at nearby Blossburg in 1880.[73] Early knowledge of the value of the coals in

---

[73] Conway, op. cit., p. 7.

---

the region is evident from a statement issued on December 16, 1873 by an analytical chemist from Illinois State University, J. H. Sewell, who examined the coal fields around Raton Pass. The statement reported:

TABLE VII

THE VALUE OF THE MINING INDUSTRY
MANUFACTURING IN NEW MEXICO
1900

| Item | Product | |
|---|---|---|
| All Manufacturers | | $5,695,795 |
| Based upon production of mines and quarries | | |
| Clay, glass, and stone products | $ 114,698 | |
| Iron and steel etc. | 65,546 | |
| Metal and metal products besides iron and steel | 1,100,995 | |
| Miscellaneous mining industries | 556,247 | 1,837,486 |
| All other manufacturing | | $3,768,309 |

Source: U. S. Bureau of the Census, Mines and Quarries, 1902 (Washington: Government Printing Office, 1905), p. 264.

> Coke is firm and persistent, resembling the ash of wood. It contains a trace of silver. The coal bears only a slight trace of sulphur. It yields splendid illuminating gas. For locomotive use these coals must rank among the very best. The coke is the most firm and persistent of any I have ever seen.[74]

---

[74] Ritch, Aztlan, op. cit., pp. 88-89.

---

Despite such a glowing description of the character of the coal, any attempt to market it without rail transportation would have been impossible; thus it lay untouched until after 1879. The Raton Coal and Coke Company wasted little time in getting coal production into high gear. Officials of the Santa Fe are reported to have asked for up to 1,000 cars of coal per day from the Colfax County mines, and the coal company manager, Colonel E. G. Savage, promised that it would be possible to meet the demand.[75]

---

[75] A Complete Business Directory of New Mexico, 1882, op. cit., pp. 35-37.

---

Many men were employed in the mines of course, and the development of Raton into a leading city of the territory was greatly stimulated by coal and coke mining.

Cerrillos, located twenty miles south of Santa Fe on the railroad, was found to be the center of a high-grade anthracite coal field, which proved to be the best west of the Mississippi River. Excellent bituminous fields

were also located in the area.[76] This top-calibre coal

---

[76] A Complete Business Directory of New Mexico, 1882, op. cit., p. 134.

---

found a ready market in such cities as Kansas City, Topeka, Great Bend, and numerous other urban points on the Santa Fe line. In addition all of the Pullman service of the Santa Fe and Atlantic and Pacific used anthracite coal from this area.[77]

---

[77] New Mexico, A Bureau of Immigration Publication (Las Vegas: J. A. Caruth, Printer, Binder, and Blank Book Manufacturer, 1889), p. 19.

---

The third important coal producing area was located in Bernalillo, later McKinley, County in the Gallup-Defiance area on the Atlantic and Pacific Railroad. This line followed the example of its controlling company, the Santa Fe, and also purchased coal lands and established a company to mine that product for use by the railroad. Coal development played a major role in the growth of Gallup into an important city.[78] Additional coal deposits of lesser

---

[78] Frost, op. cit., p. 3.

---

significance were located in Socorro, Lincoln, and Rio Arriba Counties, with some coal property found in every

county in the territory.[79]

---

[79]U. S. Bureau of the Census, Mines and Quarries, 1902, op. cit., p. 266.

---

The initial coal production in commercial quantity in New Mexico took place in 1882. The great importance of New Mexico coal to the railroads operating in the territory is evident from the fact that they purchased three-fourths of the total production in the early years.[80]

---

[80]Ritch, Aztlan, op. cit., p. 89.

---

Table VIII gives census records for coal production in the territory for selected years between 1882 and 1900, illustrating the growth of this enterprise. In 1902, coal accounted for $1,500,230 of the total value of mining products of $2,686,473 in New Mexico and provided $1,027,469 of the $1,646,833 in wages paid by the mining industry in the territory.[81]

---

[81]U. S. Bureau of the Census, Mines and Quarries, 1902, op. cit., p. 264.

---

Although much of the coal mined in New Mexico was purchased by the railroads, there was always considerable left over for home use or sale to outside areas. Only Colorado among near-by states or territories had any known important high-grade deposits of coal. Both Arizona and

TABLE VIII

COAL PRODUCTION IN NEW MEXICO
SELECTED YEARS 1882-1902

| Year | Short Tons | Year | Short Tons |
|---|---|---|---|
| 1882 | 157,092 | 1890 | 375,777 |
| 1883 | 211,347 | 1892 | 661,330 |
| 1884 | 220,557 | 1894 | 597,196 |
| 1885 | 306,202 | 1896 | 622,626 |
| 1886 | 271,285 | 1898 | 992,288 |
| 1888 | 626,665 | 1900 | 1,299,299 |

Source: U. S. Bureau of the Census, Mines and Quarries, 1902 (Washington: Government Printing Office, 1905), p. 265.

California were rich in minerals, but lacked coal for fuel. Kansas, too, was deficient in coal, while Texas possessed only a low grade type. With convenient railroad transportation available, sales of coal to these and other states became important to New Mexico coal company operators.[82] An added guarantee of success for coal

---

[82]Ritch, Aztlan, op. cit., p. 36.

---

mining in New Mexico occurred in 1882 and 1883, when a War Department of United States test of comparative values of coal fields proved the high grade of coal in the territory. Table IX presents the complete results of this experiment. At the time that this test was made, Cerrillos was the location of the only known anthracite coal west of the Mississippi and, according to the War Department findings, was also the site of the highest grade bituminous coal in the western half of the United States. Bituminous coal found around Raton was not far behind Cerrillos type coal in value. With high grade deposits in good quantities present, it is small wonder that coal mining remained an important enterprise in regions like Raton, Gallup, and Cerrillos for many years. The railroads and the growing industrial facilities of the West provided an ample market for this fuel.

TABLE IX

COMPARATIVE VALUES OF COALS TESTED BY THE WAR DEPARTMENT OF THE UNITED STATES (SEE GENERAL ORDERS, HEADQUARTERS OF THE ARMY, NO. 10, JANUARY 28TH, 1882, AND NO. 3, NOVEMBER 26TH, 1883.)

One Cord Average Oak Equals n pounds of:

| Anthracite Coal | lbs. |
|---|---|
| Wales, G. B. | 1466 |
| Standard, Pa. | 1521 |
| Other Pa. | 1573 |
| Forest Implement, Pa. | 1598 |
| Wilkesbarre, Pa. | 1598 |
| Scranton, Pa. (Lehigh Valley) | 1614 |
| Lykin Valley, Pa. | 1651 |
| Cerrillos, N. M. | 1657 |
| Scranton, (Deleware, L & W R. R.) Pa. | 1687 |
| Raven Run, Pa. | 1818 |
| Scranton, Pa. (not named) | 1841 |
| Locust Co., Northcumberland, Pa. | 1905 |
| Queen Charlotte, Nova Scotia | 2626 |
| **Bituminous Coal** | |
| Bituminous, Pa. | 1624 |
| Monongahela, Pa. | 1653 |
| Younghiogheny, Pa. | 1663 |
| Fawcett & Sons, Pitt., Pa. | 1706 |
| Laird's Welsh, Hartley, Wales | 1735 |
| Cerrillos, N. M. | 1742 |
| Westminister, Hartley, Wales | 1742 |
| W. Va. Splint, W. Va. | 1796 |
| Seely Mines, Raton, N.M. | 1913 |
| Raton Coal Co., Raton, N.M. | 1951 |
| Scotch Splint, Wales | 1970 |

| Bituminous; Cont'd | lbs. |
|---|---|
| Davisdon's West Hartley, Wales | 1970 |
| West Hartley, Wales | 1993 |
| La Plata, Colorado | 2000 |
| Indiana Channel | 2046 |
| Manahaino, Vancouver Isle, B. C. | 2070 |
| Coupen's Gramboy's, W. Hartley, Wales | 2129 |
| Humbolt Mine, Belleville, Ill. | 2173 |
| Wellington Mine, Vancouver Isle, B. C. | 2223 |
| Leavenworth, Kansas | 2307 |
| Caxon Coal, Fremont County, Colo. | 2323 |
| White River, Res., Colo. | 2323 |
| School Mine, Loredo, Tex. | 2380 |
| Kennedy Coal, Linzburg, Ill. | 2397 |
| Wasatch Mtn. Coal, Colo. | 2406 |
| Chestnut Mine, Wyoming | 2466 |
| Gallup Mine, N. M. | 2489 |
| Rock Spgs., Rocky Mtns. | 2491 |
| Saverey Creek, Snake River, Wash. | 2558 |
| Mt. Diablo, Calif. | 2592 |
| Coos Bay, Oregon | 2626 |
| Bellingham Bay, Oregon | 2641 |
| Eastpost Coos Bay, Ore. | 2851 |
| Pittsburg, Mt. Diablo, Calif. | 2965 |
| Ft. Assinaboine, Manitoba, Canada | 3221 |

(Continued on next page.)

TABLE IX (Continued)

One Cord Average Oak Equals n pounds of:

| Semi-Bituminous Coal | lbs. |
|---|---|
| Pilson Coal and Iron Co., Pa. | 1537 |
| Cumberland, Pa. | 1658 |
| **Lignite Coal** | |
| Seattle Brown Coal, Oregon | 2450 |
| Weaver Summitt, Utah | 3168 |
| Fort Keogh, M.T. | 3508 |
| Fort Stevenson, D.T. | 3712 |
| **Coke** | |
| Nanaimo, Vancouver Isle. | 2164 |

Source: William G. Ritch, Aztlan, The History, Resources, and Attractions of New Mexico (Boston: D. Lothrop and Co., 1885), p. 183.

The importance of the Santa Fe to mining.--In no other territorial industry is there such a clear-cut example of the great and beneficial influence of rail transportation as there was in the mining industry. It must be recognized that the development of advancing industrialization in the East played a very important part in stimulating mining in New Mexico by creating a need for many of the minerals found in the territory, making them desired resources. However, since no active mining, except for gold, was going on in the territory until after the Santa Fe arrived in 1879, the impressive growth in mining in the next twenty years must be credited to the arrival of rail transportation. Industrial activity in the East had been developing rapidly since the end of the Civil War, but it had not caused a boom in mining in New Mexico. For instance, no coal was mined in the territory until 1882. It is significant that the mining boom occurred immediately after the railroads reached the territory.

A look at virtually any issue of community newspapers like the Albuquerque Democrat, the Las Vegas Optic, the Santa Fe Daily or Weekly New Mexican, or the Cimmaron News and Press between 1878 and 1900 discloses that mining was easily one of the chief interests of the people of the territory. People had long speculated over the mineral

riches present in the rugged mountains of New Mexico, dreaming of the day when they would be openly prospected. The Santa Fe and the other railroads made this possible in the ways which have been described. It was quite natural for the people of the territory to welcome the first train with such enthusiasm, for the railroads brought new economic life to their region.

In 1900 railroad transportation still was a principal factor affecting mining development. Although many rail branches had been built, many more were needed to connect extensive mining districts with the main line. Freight rates charged by the railroads were frequently attacked as too high by the miners who felt that their profits were threatened by excessive charges.[83] Despite

---

[83]Niklason, op. cit., p. 360.

---

their complaints against the railroads, the miners, nevertheless, realized the value of rail transportation and the stimulus that it had given their industry.

## Manufacturing

Manufacturing prospects in 1880.--When the Santa Fe arrived in New Mexico and cracked the ancient barriers of trade and communication with the rest of the United States and the world, far-sighted leaders of the territory

predicted that at last New Mexico would be able to utilize its raw materials and become another Pennsylvania in manufacturing. Men reasoned that it was a ridiculous waste to ship raw materials 2,000 miles to the Atlantic seaboard for processing and then to reship them in manufactured form back to the territory, or through the territory to the Pacific Coast or the Orient. It seemed logical that the manufacturing might just as well be done in New Mexico and so save the substantial freight charges for the thousands of miles. Advocates of local manufacturing argued that New Mexico possessed the raw materials, the fuels, the climate, and the available labor to become an important industrial site.[84] It is a gross understatement to say

---

[84] A. E. Koehler, Jr., New Mexico, The Land of Opportunity (Santa Fe: New Mexican Printing Co., 1915),

---

that expectations were merely high in 1881. Local businessmen carefully weighed the various types of manufacturing, seeking to determine which were the best suited for the territory.

The manufacture of woolen textiles looked particularly promising and potentially important in 1880. With heavy wool exports being made from the territory each year, it appeared that a substantial profit could be realized by keeping the wool in New Mexico and using it in local

manufacturing. This would eliminate not only the two-way freight charges, but would also keep the profit made by the middleman in the territory. It appeared that such a venture would be a surefire success, not only because plenty of wool and fuel were available, but also because the adjacent states and territories and Northern Mexico, with their rapidly growing populations, offered excellent markets.[85] Unfortunately, the low humidity of the area

---

[85]Ritch, Aztlan, op. cit., p. 82.

---

proved a severe drawback to such activity.

Another form of manufacturing, which appeared to be a natural for the territory, was tanning. With large herds of cattle being raised in the region, it seemed certain that the utilization of the plentiful hides would be profitable. In addition, caña agria, a sour dock root, which was an excellent tanning agent, grew wild in the territory. Containing one-third per cent tannic acid, ten tons of the plant per acre could be gathered when grown wild, and thirty tons per acre could be realized when under cultivation.[86] Among other manufacturing acti-

---

[86]Frost, op. cit., p. 15.

---

vities, which were quick to develop in New Mexico, were brick-making, extensive wine-making from the high-quality

grapes raised in the river valleys, chemical manufacturing from the numerous minerals and plentiful coal, processing of coal-by-products, railroad equipment building, jewelry making, and food processing.

Growth of manufacturing.--The arrival of the Santa Fe did bring New Mexico in contact with the industrialized world, and it did make easy and economical trade possible, but unfortunately it did not cause the territory to become another Pennsylvania. Then, as today, New Mexico grasped with hope and longing at the opportunity to become a truly industrialized area, but, for one reason or another, the hope never materialized. Not that manufacturing activity wasn't considerably greater after the arrival of rail transportation; it was, because economic life in the territory quickened in general between 1880 and 1900. Although it did not approach the degree of development hoped for, manufacturing did surpass its simple level of the 1870's. Governor Wallace defined "jewelry making and some wine making as about the sum of manufacturing", which was going on in New Mexico before the coming of the Santa Fe.[87] This was not quite correct, for according

---

[87]Wallace, op. cit., p. 39.

---

to the census of 1870, there were manufacturers engaged

in producing building materials and wood products, preparing special foods, milling flour, making wearing apparel, and other activities.[88] However, as Table X shows, the

---

[88] U. S. Bureau of the Census, Ninth Census of the United States: 1870. Wealth and Industry, Vol. III, op. cit., p. 696.

---

total number of manufacturing establishments, the number of employees, wages paid, and other measures of activity were small, accounting for but a small part of the economy.

As the table points out, manufacturing in 1880 was an even less important part of the economy of the territory than it had been in 1870, with lumbering and flour and grist milling comprising the most important enterprises. In that year there were fifty-one flour and grist mills employing 134 workers and twenty-six lumbering mills with 172 employees, so that together they accounted for better than half of all the establishments and total employees.[89] Lumbering continued to grow in importance

---

[89] U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880. Pt. II, op. cit., pp. 1018ff.

---

during the following decade, the railroad creating a tremendous demand for timber for bridge building and for hundreds of thousands of rail ties.[90] Increased mining

TABLE X

IMPORTANT CHARACTERISTICS OF MANUFACTURING IN NEW MEXICO BY DECENNIAL CENSUSES 1870 TO 1900

| Characteristic | 1870 | 1880 | 1890 | 1900 | '70-'80 % Change | '80-'90 % Change | '90-'00 % Change |
|---|---|---|---|---|---|---|---|
| No. of Establishments | 182 | 144 | 127 | 420 | -20.9 | -11.8 | 230.7 |
| No. of Employees | 427 | 557 | 944 | 2,600 | 30.4 | 63.6 | 175.4 |
| Annual Wages | $167,281 | 218,731 | 532,727 | 1,350,586 | 30.8 | 144.0 | 153.8 |
| Capital Value | $1,450,695 | 463,275 | 965,938 | 2,698,786 | -68.1 | 108.5 | 179.4 |
| Materials' Cost | $880,857 | 871,352 | 691,420 | 2,914,138 | -1.1 | -20.6 | 321.5 |
| Products Value | $1,489,869 | 1,284,846 | 1,516,195 | 5,605,795 | -13.8 | 18.0 | 269.7 |

Source: U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Manufacturing, Vol. VIII (Washington: Government Printing Office, 1902), p. 576.

[90] Prichard, op. cit., p. 3.

activity also spurred the demand for lumber, a need met promptly by the mountainous regions of the territory, where saw mills hummed busily.

There were even fewer manufacturing establishments in New Mexico in 1890 than there were in 1880. This was not especially significant, however, because more persons were employed in manufacturing, and there were large increases in annual wages paid and capital value, plus a moderate gain in the value of products. It began to appear that at last manufacturing was gathering momentum in the territory near the end of the decade when two new industries of promise were established. One was a factory at Deming to extract fluid from the cana agria root for use in tanning. The other was the Socorro Fire Clay Company in the San Felicita Mountains east of Socorro, where construction-type bricks and tile were made.[91] It

[91] L. Bradford Prince, A Concise History of New Mexico (Cedar Rapids, Iowa: The Torch Press, 1912), p. 24.

was hoped that enterprises such as these would encourage the founding of other manufacturing establishments. Table XI presents a breakdown of the type of manufacturing establishments in the territory in 1890. It is easy to

TABLE XI

CHARACTERISTICS OF MANUFACTURING ENTERPRISES
IN NEW MEXICO IN 1890

| Type of Enterprise | Number of Estab's | Number of Empl's | Annual Wages (In dollars) | Capital Value (In dollars) | Material Cost (In dollars) | Product Value (In dollars) |
|---|---|---|---|---|---|---|
| Blacksmithing | 17 | 27 | $ 13,733 | $ 18,414 | $ 13,575 | $ 38,370 |
| Boot & Shoe Work | 4 | 4 | 1,976 | 1,064 | 1,422 | 4,580 |
| Carpentering | 3 | 5 | 3,290 | 3,895 | 3,945 | 10,000 |
| Flour & Grist Mills | 18 | 56 | 22,847 | 181,050 | 208,607 | 307,805 |
| Lime & Cement | 4 | 23 | 5,469 | 25,600 | 3,195 | 11,497 |
| Lumber Mills | 26 | 330 | 161,981 | 193,335 | 172,321 | 389,761 |
| Printing & Publishing | 31 | 140 | 88,833 | 120,068 | 34,577 | 206,681 |
| Railroad Shops | 5 | 258 | 176,563 | 137,389 | 177,503 | 354,066 |
| All Other | 19 | 101 | 58,035 | 285,123 | 76,275 | 193,435 |
| TOTAL | 127 | 944 | $532,727 | $965,938 | $691,420 | $1,516,195 |

Source: U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. 3 (Washington: Government Printing Office, 1892), pp. 800-801.

recognize the position of great importance occupied by the railroad shops in this census, whereas in 1880, there was no such activity. Lumbering, spurred by railroad and mining needs and by the lack of lumber in Western Texas and Northern Mexico, continued to be an important part of the manufacturing picture, having increased in both number of establishments and employees since 1880. However, the railroad shops accounted for the major portion of gains registered.

The decade between 1890 and 1900 saw the greatest growth in manufacturing in the history of New Mexico to that time. The number of establishments increased by 230.7 per cent, while the number of employees went up by 175.4 per cent, and wages increased by 153.8 per cent. Value of products, meanwhile, gained by an impressive 269.7 per cent. It appeared that the territory was at last partially living up to the brilliant forecasts for manufacturing made in the early 1880's.

When manufacturing in 1890 is broken down into the more important types, as in Table XII, the predominant position occupied by the railroad shops among all types of enterprises is evident. These shops employed 40.8 per cent of the industrial labor force and provided 19.1 per cent of the entire value of products. The rest of the establishments were mostly types designed to fill local

TABLE XII

IMPORTANT CHARACTERISTICS OF MANUFACTURING
IN NEW MEXICO IN 1900

| Type of Manufacture | Number of Estab's | Number of Empl's | Annual Wages (In dollars) | Capital Value (In dollars) | Material Cost (In dollars) | Product Value (In dollars) |
|---|---|---|---|---|---|---|
| Blacksmithing | 45 | 27 | $ 14,366 | $ 47,096 | $ 24,349 | $ 74,991 |
| Men's Clothing | 15 | 15 | 7,916 | 14,400 | 16,348 | 37,594 |
| Flour & Grist Mill | 35 | 52 | 27,458 | 238,735 | 413,396 | 551,108 |
| Foundries | 4 | 52 | 30,265 | 54,600 | 15,283 | 65,546 |
| Lumber Products | 32 | 340 | 112,957 | 291,599 | 212,571 | 411,627 |
| Lumber Planning | 6 | 29 | 16,185 | 35,674 | 27,087 | 57,100 |
| Masonry | 6 | 59 | 33,451 | 27,330 | 194,930 | 260,440 |
| Printing and Publishing | 35 | 142 | 75,477 | 163,472 | 33,622 | 197,521 |
| Railroad Shops | 7 | 1061 | 585,401 | 386,721 | 463,182 | 1,069,280 |
| Saddle Making | 11 | 8 | 3,205 | 36,675 | 21,011 | 43,803 |
| Tin & Copper Smithing | 15 | 35 | 21,690 | 34,385 | 39,707 | 99,885 |

(Continued on the next page.)

TABLE XII (Continued)

| Type of Manufacture | Number of Estab's | Number of Empl's | Annual Wages (In dollars) | Capital Value (In dollars) | Material Cost (In dollars) | Product Value (In dollars) |
|---|---|---|---|---|---|---|
| Wool Scouring | 4 | 67 | $ 21,890 | $136,700 | $ 22,930 | $ 77,875 |
| All Other | 205 | 713 | 400,325 | 1,446,751 | 1,439,722 | 2,695,025 |
| TOTAL | 420 | 2600 | $1,350,586 | $2,698,786 | $2,914,138 | $5,605,795 |

Source: U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Manufacturing, Vol. VIII (Washington: Government Printing Office, 1902) pp. 578-579.

needs like blacksmithing, lumber milling, flour and grist milling, printing and publishing, and the like. Of the 420 establishments, 169 were hand trades employing only 304 persons and accounting for only 21.8 per cent of the value of products, scarcely more than the amount accounted for by the railroad shops.[92] About the only type of manu-

---

[92]U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Manufacturing, Vol. VIII (Washington: Government Printing Office, 1902), p. 577.

---

facturing providing a product for full-scale export was wool scouring. Four plants of this variety were started during the decade and, as the chart shows, did a promising business in 1900, producing products of $77,875. With the large number of sheep raised in New Mexico, this endeavor filled a real need, greatly benefiting the sheep raisers by reducing the weight of the wool for shipment to the East. This of course, lowered freight costs.[93]

---

[93]Ibid., p. 576.

---

By 1900 most of the manufacturing enterprises were located in the counties which followed the path of the Santa Fe and which, consequently, had developed into the leading centers of business and population. Bernalillo, San Miguel, Santa Fe, Colfax, Socorro, and Grant Counties

were the locations for 309, or 75.9 per cent, of all enterprises and 2,293, or 88.2 per cent, of all employees engaged in manufacturing. Bernalillo with the thriving city of Albuquerque and important railroad shops was the most important with 119 of all establishments and 976 of all of the wage earners.[94]

---

[94] Ibid., p. 577.

---

Manufacturing in 1900.--New Mexico never became the great manufacturing region which many thought it was certain to become, after the coming of the railroad. Some development of a manufacturing nature did take place, particularly in the 1890's. However, New Mexico manufacturing for the most part in 1900 remained the type of ordinary establishments that naturally spring up in a community to supply local needs in part and to furnish a livlihood for those engaged. Manufacturing by the turn of the century consisted of only a few railroad shops, several cement and plaster mills, a handfull of fruit canneries, some pottery making and weaving establishments, and other enterprises normal to a settled area.[95]

---

[95] Koehler, op. cit., p. 25.

---

Excessive distances from the heavily populated regions and the shortage of water stopped the territory from becoming a manufacturing stronghold. The Santa Fe and the other railroads helped considerably in expanding the industry, particularly by locating important shops in the territory and by stimulating lumber production and economic activity in general. However, two factors needed to cause a real manufacturing boom were simply not present.

## Commerce

Early trade in New Mexico.--Before the establishment of the Santa Fe Trail, most of the trade in the territory was of the primitive barter type for any local goods required. Outside articles came from Europe and Mexico via pack trains sent from Chihuahua and were exchanged for native products like wool and Indian handicrafts. Once the overland trail with the United States had been established, it was inevitable that sooner or later American traders would dominate the markets of New Mexico, for the Americans had an advantage over the Chihuahua merchants both in distance and in the superiority in quality and selection of goods.[96]

---

[96] Parish, op. cit., p. 4.

Up until the American occupation of New Mexico in 1846, petty capitalists, functioning as traveling merchants, monopolized commerce in the area. After 1846, mercantile capitalists in the form of sedentary merchants[97]

---

[97]The difference in moving from a petty to a mercantile capitalist, in addition to being a settled merchant instead of traveling, is the willingness and ability to assume large debts while doing business amid other mercantile capitalists in an expanding economy. Ibid., p. 56.

---

became the typical trade agents of the territory. Among the early merchants of this type were Wooten and Williams of Taos and Sol Spiegleburg of Santa Fe, both of who started their businesses in 1848, and Franz Huning of Albuquerque, who began operations in 1857.[98] Although

---

[98]Ibid., pp. 240-242.

---

this type of commercial merchant never developed into significant proportions in the economy of the American Colonies, it did become important in the Southwest. The peculiar environment of this region caused three forces which made the sedentary merchant a success:

1. The opportunity to acquire monetary exchange for foreign goods was present after the United States took over the region, yet there were no trade specialists in the area to compete against. This caused the sedentary merchant to replace the traveling merchant and to develop inter-regional trade.

2. There was a simple society with an unfavorable balance of trade, thus the merchant credit system became the most efficient and workable form of capital use.

3. The necessity for hauling purchases at a slow pace over vast stretches of sparsely settled land hindered the encroachment of the large specialist within the domain of the mercantile capitalist and permitted continued balancing, even to the inclusion of banking, after the banking specialists made their appearance.[99]

---

[99] Ibid., p. 249.

---

As a general rule, in the mercantile capitalist system there was a scarcity of capital, an excess of labor, and numerous delays and misunderstandings in the conduct of business. Inevitably, the merchants operated in an atmosphere of high interest, low wages, and a relatively lax system of control.[100]

---

[100] Ibid., p. 250.

---

This was the type of commerce going on in New Mexico prior to the coming of the Santa Fe. The merchants with their wide assortment of goods were easily able to handle the needs of the small population and to supply army forts and Indian reservations. The latter was a real prize for early merchants, because it meant payment in Eastern capital or credit at a large forwarding house.[101]

[101] *Ibid.*, p. 154.

Before the arrival of rail transportation, the New Mexico merchants had to make backhauls by wagon to the rail terminal. Independent freighters called "boomers" were used to make the trips, being as a rule excellent and trustworthy employees. Because of Indians, weather, and long distances, shipping costs for goods were extremely high, until the Santa Fe and the other railroads moved into the territory. For instance, in 1865 it cost fourteen cents per pound to ship goods from Leavenworth, Kansas to Santa Fe. As the Santa Fe Railroad moved west, the cost decreased, and in 1869, with the rail terminus at Sheridan, Kansas, the shipping cost had diminished to three cents per pound. Two years later, with the railroad at Kit Carson, Colorado, the charge was one and one-half cents per pound. The general rule of thumb for freight hauled by wagon was one cent per pound per 100 miles or twenty cents per ton mile.[102]

[102] *Ibid.*, pp. 157-158.

The effect of the railroad upon trade.--November of 1878 was the beginning of the end for the sedentary mercantile capitalists, for in that month the first train

of the Atchison, Topeka, and Santa Fe rolled into the isolated territory. Railroad transportation brought liquidity to the merchant credit system, and it opened the area to the large specialists. Soon new people and capital began pouring into New Mexico, thus forcing the sedentary merchants to yield to the industrial capitalism of railroads and banks.[103]

---

[103] Ibid., p. 251-252.

---

Arriving in the territory with the Santa Fe were a number of enterprising men who had followed the construction of the railroad westward, shifting their commission houses from one terminal town to another. Their function was to receive consignments of goods and deliver them to places not reached by the railroad. When the Santa Fe reached the rapidly developing town of Las Vegas, two of these companies, Chick, Browne, and Company and Otero, Sellar, and Company decided to locate their businesses permanently at that site, thus providing new competition for the old sedentary mercantilists.[104] These and other

---

[104] Chick, Browne, and Company was later Browne and Manzanares. Otero, Sellar, and Company was later Gross, Blackwell, and Company, and even later Gross, Kelly, and Company.

Otero, My Life on the Frontier, 1864-1882, op. cit., p. 162.

---

new merchants helped to modernize and streamline the economy of the territory. To the residents of New Mexico the arrival of the Santa Fe meant, as one newspaper story put it, "the days of high prices and high freight charges when the freighter either made a fortune or was ruined are over."[105] Buyers had the choice of a much wider select-

---

[105] Weekly New Mexican, February 14, 1880, p. 2.

---

ion of goods than ever before, and they were able to keep in style with the latest Eastern fashions. What is more, they were able to purchase these goods without having the high freight charges, mentioned previously, added to the cost of the article.

The upturned interest in commerce was highlighted by the formation of the Santa Fe Board of Trade on July 13, 1882. This was the first commercial organization of its type in the Southwest, being formed as a voluntary community group of business men with the object of promoting civil, industrial, and general social welfare.[106]

---

[106] Prince, A Concise History of New Mexico, op. cit., p. 204.

---

This step by the merchants of Santa Fe is significant because it indicates the enthusiasm in expanding the commercial life of the territory and further breaking down

the wall of restricted intercourse, which had first been cracked by the railroad. No New Mexico community became a New York City or a Chicago in commercial dealings after 1880 by any means, but several towns did become important local trade areas, as was discussed in the section on commercial centers. Merchandise brought in by rail transportation and distributed from these centers adequately supplied the booming mining towns and the expanding population.

Banking in New Mexico.--Before 1870 there were no ordinary banks in New Mexico, and in their absence the sedentary merchants became the dominant sources of credit, an activity which gave these traders the controlling position over all business capital. There were several obstacles in the path of successful bank operations in the days of the merchant capitalist economy, but three in particular made any prospective full-time banker think twice before starting his money-house. For one thing, in a simple economy with an unfavorable balance of trade[107]

---

[107] An unfavorable balance of trade existed because the money value of merchandise brought into New Mexico exceeded the money value of merchandise sent out of the territory.

---

there was a constant drain of cash resources; thus banks were virtually exchange brokerage houses operating almost

entirely on their own capital. Secondly, a frontier banker could expect little merchant support in the form of permanent deposits, and he was also handicapped in finding a market for loans of a sound variety. He was confronted with the liberal credit offerings of the metropolitan wholesalers who gave merchants long periods of grace in which to pay for goods, so doing away with the need of a bank loan. The shopkeepers and store keepers were too small to need capital; so only the large cattle and sheep ranchers were sources of sound borrowing possibilities, and it must be remembered that they did not begin to really boom and expand until the 1870's. The third major barrier in the way of successful banking at this time was the extended credit terms given by the sedentary merchants. The merchants with money to spare could actually outbid the banks for the business of those seeking funds, both in interest and in service.[108]

---

[108] Parish, op. cit., pp. 105-108.

---

The first successful conventional bank in New Mexico was started late in 1870 in Santa Fe by Lucien B. Maxwell, after selling his famous land grant. Known as the First National Bank of Santa Fe, it was the only installation of its kind in Arizona or New Mexico, also serving as a Federal depository. Sold by Maxwell in 1871

to S. B. Elkins and T. B. Catron, this bank was very successful, remaining in operation until 1892 when it was dissolved. The next bank founded in the territory was a private banking institution established in Las Vegas in 1876 by the Raynolds Brothers, the name being changed to the First National Bank in 1880.[109]

---

[109] History of New Mexico, Its Resources and People, op. cit., I, 412.

---

This is not intended to be a chronological history of banking in New Mexico, but it is significant to note that prior to 1878 only two conventional banks had been formed, but between 1878 and 1900, over fifty banks, some successful and many not, were chartered.[110] A chronological

---

[110] Ibid., I, 435.

---

list of their foundings would show a pattern of banks being formed in various towns shortly after the arrival of the Santa Fe and other railroads in or near each community. In addition many of the sedentary merchants tried their hands in specialized banking, with separate bank departments, and virtually all started charging interest on accounts of thirty days or longer.[111]

---

[111] Parish, op. cit., pp. 237-244.

---

The large number of banks started after the arrival of the Santa Fe strongly indicates the great importance of the railroad in bringing capital to New Mexico and in sparking the commercial life of the territory into a livelier pace. The great expansion of mining generated by the opening up of the region gave the banks a large potential source of business, while the change over in trade tactics, like the charging of interest on accounts and the shortening of time to pay, created new merchant demands for bank funds. In addition, the unfavorable balance of trade was altered by increased exports of minerals and live stock, thus stopping the drain on cash resources and bringing more outside money into the territory. There can be little doubt but that the coming of the railroad exerted a great positive influence upon the banking industry in New Mexico.

Evaluation of the influence of the railroad upon commerce.--Facts and figures on retail and wholesale sales and other measures of trade activity in New Mexico during the period being studied are unfortunately not available for that time, for such data would be extremely useful in determining the influence of the Santa Fe upon commerce. It appears to be a safe conclusion that such information would show a steady increase in trade activity in view of the growing population and the spurt in economic activity

in the various other industries. Census figures for the decennial years 1870 to 1900 for the number of persons engaged in trade as a primary occupation back up this assumption. In 1870 there were only 432 persons making their livlihood primarily from trade. In 1880 this number had increased by 211.1 per cent to 1,344. In 1890 there were 3,088 persons in this industry, for a percentage gain of 129.7 over the past census, and in 1900 there were 3,935 people engaged in trade, accounting for 27.4 per cent increase since 1890.[112]

---

[112] U. S. Bureau of the Census, Ninth Census of the United States: 1870. Population and Social Statistics, Vol. I, op. cit., p. 749.

U. S. Bureau of the Census, Compendium of the Tenth Census of the United States: 1880, Pt. II, op. cit., pp. 1381-1387.

U. S. Bureau of the Census, Compendium of the Eleventh Census of the United States: 1890, Pt. III, op. cit., pp. 417-419.

U. S. Bureau of the Census, Twelfth Census of the United States: 1900. Population, Vol. II, op. cit., pp. 530-539.

---

Aside from any influence measured in statistics, there is one very important effect which the Santa Fe had upon commerce in New Mexico. That is that it caused a definite change in the methods by which trade was carried on. A sedentary merchant capitalist economy was workable and suitable so long as the territory was isolated, thus keeping out the specialist merchants, a relatively large

population, and important quantities of capital. Once the Santa Fe entered the territory, it broke down the barriers keeping these factors out. Thereafter, the commercial economy of New Mexico shifted to one of industrial capitalism in common with the rest of the United States. It was definitely a step in the right direction, for no state or territory could ever hope to develop into a modern, progressive society without such an economy geared to high finance, bigness, and industrial dealings. The old sedentary merchant system would simply never have worked in New Mexico after 1880.

## CHAPTER V

## CONCLUSIONS

It should be noted that the growth of population, property valuation, and industries in New Mexico between 1880 and 1900 caused by the arrival of railroad transportation in the territory is a vivid illustration of the multiplier effect of investments. The multiplier principle refers to the way in which an increase in investments causes an increase in income as a result of the initial increase in investment. New investments in New Mexico during this period were greatly stimulated by the railroad system which opened up the territory to the rest of the United States and generated numerous economic advances. The nature of the multiplier principle is that the general level of economic activity is determined by the amount of investments. Each initial investment creates secondary waves of investment which cumulatively produce an important benefit to the general economy.[1] Emperical evidence has been

---

[1]Alvin H. Hansen, Full Recovery or Stagnation? (New York: W. W. Norton and Company, Inc., 1938), pp. 39-40.

---

presented in this study to show that the multiplier relationship was clearly evident in New Mexico, just as it was in other expanding frontier areas of the West.

Another economic theory which appears to have been borne out in New Mexico in this period is that as a region progresses from an underdeveloped status to a more developed one, the inequality of income diminishes. Since the arrival of the railroad helped to develop New Mexico, this theory appears applicable. Recent studies have provided statistical proof that this principle of diminishing income inequality is true in various countries of the world. Simon Kuznets, President of the American Economic Association, wrote in a recent issue of the American Economic Review about such a study. He reported:

> As might have been expected, such data for underdeveloped countries are scanty. While the coverage is narrow and the margin of error wide, the data show that income distribution in the underdeveloped countries is somewhat more unequal than in developed countries during the period after the Second World War. Thus the shares of the lower three quintiles are 28 per cent in India, 30 per cent in Ceylon, and 24 per cent in Puerto Rico, compared with 34 per cent in the United States and 36 per cent in the United Kingdom. The shares of the top quintile are 55 per cent in India, 50 per cent in Ceylon, and 56 per cent in Puerto Rico, compared with 44 per cent in the United States and 45 per cent in the United Kingdom.[2]

---

[2]Simon Kuznets, "Economic Growth and Income Inequality," American Economic Review, XLV (March, 1955), 20-21.

Assuming that patterns of income distribution in New Mexico between 1880 and 1900 followed even approximately the same course as the countries in the above study, the obvious relationship can be seen. The importance of this to the economy is that an increase in median or modal per capita income would increase mass purchasing power, which would tend to be an important factor in a stable economy.

The final problem of this study is to now tie together all of the major parts of the paper into one, final conclusion to determine just how great the influence of the Santa Fe was upon the economy of New Mexico. However, before this is done, important information brought forth earlier will be briefly reviewed; a comparison of the economic conditions of this period in New Mexico in relation to other Western states and territories will be made; and any possible relationship between the railroad's presence in the territory then, compared to now, will be examined.

## Review of Economic Factors Studied

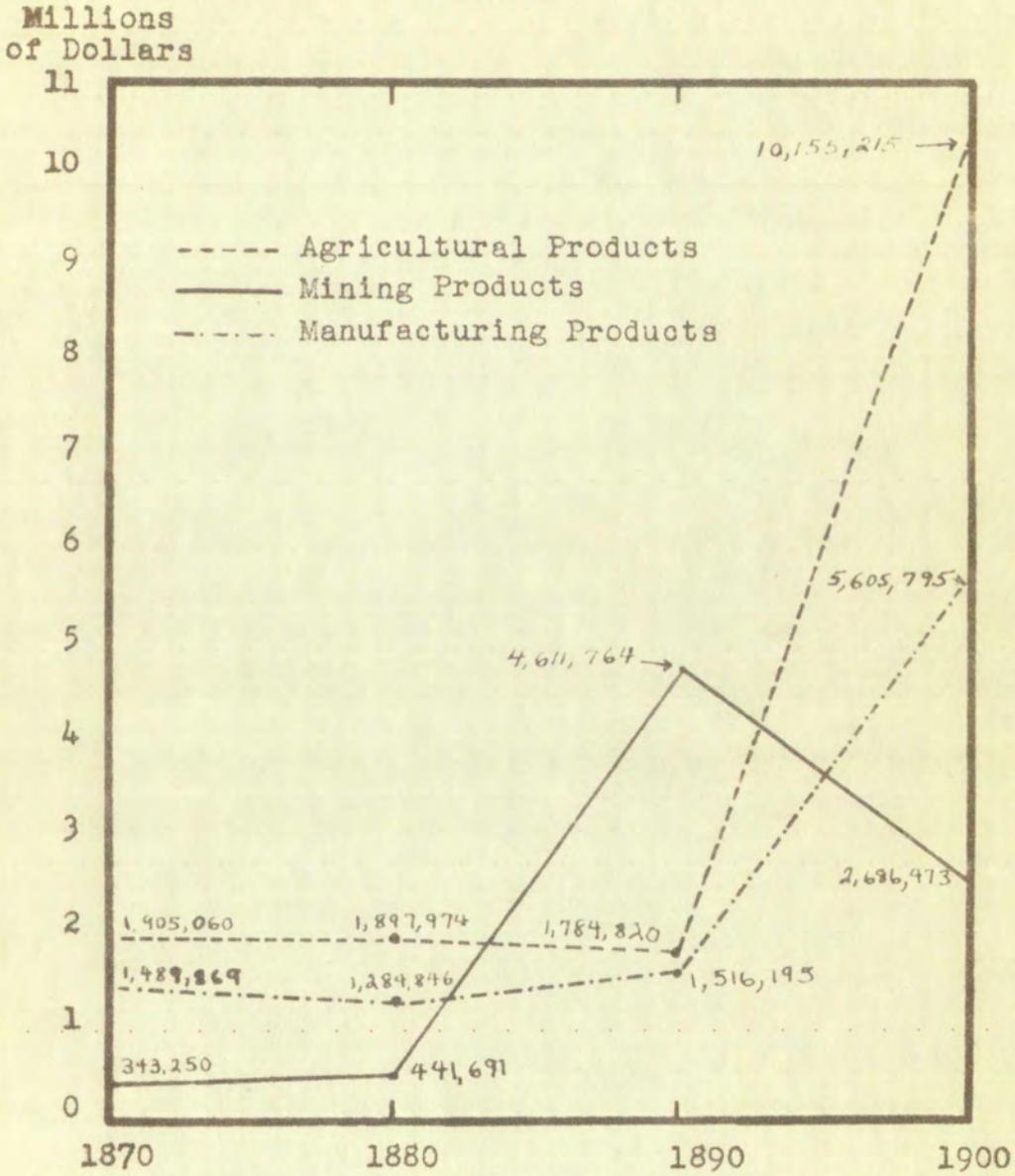
It was found in earlier chapters that population growth was stimulated by the railroad; although not to the extent that occurred in many other adjacent states and territories. Population centers grew up along the

rail lines, and various locally important commercial sites developed, like Albuquerque, Las Vegas, Silver City, Raton, and Socorro. True property valuation census figures, which measured the property in the territory at market price, increased by a phenomenal 372.5 per cent between 1880 and 1900, the first decade after the arrival of the Santa Fe and other railroads. Specific industries in the territory also progressed. The trend of growth between 1870 and 1900 is plotted in Figure 10 for agriculture, mining, and manufacturing according to the value of products in each industry in decennial census years. The value of production for livestock is included in the totals for agriculture, while no comparable statistics are available in the trade industry. Other statistical measures examined for these industries, had similar patterns of growth between 1880 and 1900. Although no statistical evidence is available for corroboration, rail transportation was shown to have greatly affected trade in New Mexico during this period by altering the methods of doing business, lowering costs, and changing the financial structure of the industry.

Although extremely cursory, this review of major areas of the economy should be helpful in refreshing the reader on details covered in previous chapters.

FIGURE 10

VALUE OF AGRICULTURAL, MINING, AND MANUFACTURING PRODUCTS IN NEW MEXICO BY DECENNIAL CENSUS YEARS 1870-1890




Sources: U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol.V (Washington: Government Printing Office, 1902), p. 703.

U.S. Bureau of the Census, Twelfth Census of the United States: 1900. Manufacturing, Vol. VIII (Washington: Government Printing Office, 1902), p. 576.

U.S. Bureau of the Census, Mines and Quarries, 1902, (Washington: Government Printing Office, 1905), p.254.

## Economic Conditions in Other Western States and Territories

Although this study is not designed to examine conditions in other regions, the similarity between the economy of New Mexico and that of other Western states and territories is so great that it is desirable to compare certain areas of economic activity in the different places. The states and territories of Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming will be included in this analysis, since they all were undergoing an era of great railway building at about the same time that such construction was taking place in New Mexico. It is true that Utah, Nevada, Colorado, and California had been blessed by a railroad in the late 1860's in the form of the connecting Union and Central Pacific lines. However, these areas, too, were still undergoing a period of expansive railroad building in the 1870's and 1880's; so this analysis holds true for these four states also.

To facilitate the desired comparison about economic activity in the states and territories, Table XIII is submitted for examination. Although this table is not nearly complete enough to solve all of the questions posed by such a broad comparison, it is, nevertheless, of valuable aid in making the brief study intended. The table shows

TABLE XIII

PER CAPITA AGRICULTURE, MANUFACTURING, AND MINING PRODUCT VALUE AND TRUE VALUATIONS FOR ELEVEN WESTERN STATES AND TERRITORIES, 1870 AND 1900

| State or Territory | Gross Value of Agricultural Product | | Gross Value of Manufacturing | | Gross Value of Mining Product | | True Valuation of all Property | |
|---|---|---|---|---|---|---|---|---|
| | 1870 | 1900 | 1870 | 1900 | 1870 | 1900 | 1870 | 1900 |
| Arizona | $ 29 | $ 57 | $ 19 | $173 | $ 2 | $ 86 | $ 356 | $2,140 |
| California | 89 | 89 | 119 | 204 | 15 | 19 | 1,140 | 2,167 |
| Colorado | 59 | 61 | 77 | 191 | 27 | 73 | 508 | 1,738 |
| Idaho | 43 | 113 | 70 | 25 | 133 | 47 | 437 | 1,708 |
| Montana | 82 | 124 | 121 | 247 | 196 | 106 | 737 | 2,523 |
| Nevada | 40 | 166 | 374 | 40 | 263 | 85 | 733 | 4,503 |
| NEW MEXICO | 21 | 52 | 16 | 29 | 4 | 13 | 341 | 1,374 |
| Oregon | 78 | 93 | 76 | 112 | 5 | 5 | 567 | 1,530 |
| Utah | 23 | 160 | 27 | 77 | * | 43 | 186 | 1,491 |
| Washington | 88 | 68 | 119 | 170 | 5 | 10 | 566 | 1,509 |
| Wyoming | 5 | 131 | 84 | 47 | 93 | 58 | 770 | 3,041 |

*Less than $.50.

Sources: Derived from: U. S. Bureau of the Census, Mines and Quarries, 1902 (Washington: Government Printing Office, 1905), pp. 50-51.

U. S. Bureau of the Census, Ninth Census of the United States: 1870. Wealth and Industry, Vol. III (Washington: Government Printing Office, 1872), pp. 81, 494-584, and 759.

U. S. Bureau of the Census, Wealth, Debt, and Taxation, 1907 (Washington: Government Printing Office, 1907), p. 44.

that when ranked with the eleven Western states and territories in 1900, on a per capita basis, New Mexico was last in value of agricultural products and true valuation of property, next to last in value of manufacturing products, and only ninth in value of mining products. Thirty years earlier, in 1870, the territory, related to the same states and territories, was last in agricultural and manufacturing product values, next to last in true property valuation, and ninth in mining values. Thus in relation to the others, New Mexico changed its place in rank but little.

The significant point is that although New Mexico did not substantially change its position relative to the other ten states and territories, it did make important increases in all four economic areas during this thirty-year period, when measured on a per capita basis. On the other hand, many of the other states and territories did not improve their product values per person in these economic fields. For instance, examine the statistics for California. In this rapidly growing state, agricultural product value per person remained unchanged between 1870 and 1900, while per capita mining product values increased only slightly. Per capita percentage increases in New Mexico, meanwhile, were 147.6, 81.3, 225.0, and 302.9 per cent for agriculture, manufacturing, mining, and true property valuation respectively between 1870 and 1900.

Relation to Present-Day Conditions

In the early years of the twentieth century a new wave of railroad building added nearly a thousand miles of new track to that already existing in New Mexico. In 1908 the Santa Fe completed the long desired line along the thirty-fifth parallel east from Belen to the Texas border.[3] However, from that time on only a few short

[3]Gurley, op. cit., p. 26.

sections of road were built; so that in 1946 New Mexico had only 2,584.04 miles of railroad being operated by six different companies. Table XIV lists the various companies, the number of miles operated in New Mexico by each, and other related data. Despite the fact that New Mexico is the fourth largest state in size in the Union, it then ranked only thirty-fifth in total railroad mileage being operated, having less miles of track than such small states as Iowa, Kentucky, Alabama, South Carolina, and West Virginia.[4] This condition has of course been brought

[4]Association of American Railroads, Railway Mileage by States, December 31, 1946, A Report Prepared by the Bureau of Railway Economics (Washington: Association of American Railroads, 1948), pp. 57-62.

about by the sparse population in the state and the poor

TABLE XIV

MILES OF RAILROAD LINE OPERATED IN NEW MEXICO
DECEMBER 31, 1946

| Road | Miles Operated in Entire Line | Miles Operated in New Mexico | Per Cent of Total Track of Companies in New Mexico |
|---|---|---|---|
| Class I Roads[a]: | | | |
| Atchison, Topeka, and Santa Fe | 13,083.93 | 1,337.03 | 10.22 |
| Chicago, Rock Island and Pacific | 7,649.81 | 153.42 | 2.01 |
| Colorado and Southern | 748.17 | 83.34 | 11.14 |
| Denver and Rio Grande Western | 2,365.39 | 98.99 | 4.18 |
| Southern Pacific | 8,227.88 | 837.78 | 10.18 |
| TOTAL | 32,075.18 | 2;510.56 | 7.83 |
| Class II Roads[b]: | | | |
| Texas-New Mexico | 112.07 | 73.48 | 65.57 |
| TOTAL | 112.07 | 73.48 | 65.57 |
| GRAND TOTAL | 32,187.25 | 2,584.04 | 8.03 |

[a]Roads having annual operating revenues of more than $1,000,000.

[b]Roads having annual operating revenues of more than $500,000.

Source: Association of American Railroads, Railway Mileage by States, December 31, 1946, A report prepared by the Bureau of Railway Economics (Washington: Association of American Railroads, 1948), p. 32.

economic position of New Mexico relative to most other states. Many areas in the state are without adequate rail transportation simply because they are not able to provide the business to support the lines. However, it is fairly safe to say that if some region developes into a real boom area, with a prospect of continued success, a railroad company will build a line to that locality. Today the construction policies of railroad companies are radically different from what they were in the days of the late nineteenth century, when lines like the Santa Fe were given large quanities of public land to build into isolated, sparsely populated areas and develop them. Now, railroads are likely to be built into new areas only when there is a definite profit factor assured for the railroad company.

There seems little possibility that a renewed splurge of railroad construction in New Mexico would cause anything near the stimulus to the economy that it did in the 1880's and 1890's; although it would undoubtedly aid in developing certain backward localities. However, there is no complete isolation for a railroad to break through today, as there was in 1878.

Today, highways and motor transportation have alleviated to an extent the lack of rail transportation in many areas. It is interesting to speculate as to what

effect the construction of four lane super highways, bisecting the state north and south and east and west, would have upon the economy of New Mexico. The influence of such modern transportation arteries would be stimulating in many ways, but it is almost certain that its impact upon the economy would be far less strong than was the arrival of the first railroad in the territory. Unfortunately, it is not possible on the basis of this study to make a valid prediction of just what the effect would be.

## Final Conclusion

In making the final summation and conclusion for this study there is no need for further repetition of facts. The extensive quantity of data presented in previous chapters provides a firm basis for the conclusion that the arrival of railroad transportation in New Mexico played an important part in the economic boom during the next twenty years. Certainly, not all of the results of the railroad were necessarily beneficial, for there were some regressive economic consequences. For instance, the railroad's presence did not guarantee that only desirable persons would come to the territory. The gamblers, bandits, and no-goods who came to New Mexico with the railroad could scarcely be rated as being economically productive. Lifewise, the vast expansion of the cattle industry, caused

by the railroad as it neared the territory, accelerated over-grazing of the land and subsequent soil erosion. It is known now that if this development had been accompanied by public measures to protect the soil, many of the problems present today could have been avoided. The Santa Fe, as a private firm, cannot, however, be held accountable for these side effects of the railroad. The responsibility lies with the state and national governments to take measures to regulate such problems as over-grazing and the like. Despite these and other undesirable by-products of railroad operation, the beneficial results of the coming of rail transportation makes only one conclusion possible. That is that the railroad must be recognized as a very important stimulus to the economic growth of New Mexico between 1878 and 1900.

APPENDIX I

CHRONOLOGICAL DEVELOPMENT OF THE ATCHISON, TOPEKA, AND SANTA FE RAILROAD IN NEW MEXICO, 1878 TO 1900

| From | To | Opened Operation | Control | Miles |
|---|---|---|---|---|
| Trinidad, Colo. | New Mex. State Line | 12- 7-78 | Leased | 15.69 |
| State Line | Las Vegas | 7- 4-79 | Leased | 118.20 |
| Las Vegas | Galisteo (Lamy) | 2- 9-80 | Leased | 65.00 |
| Galisteo (Lamy)[a] | Santa Fe | 2-16-80 | Leased | 18.00 |
| Galisteo (Lamy) | Albuquerque | 4-15-80 | Leased | 67.20 |
| Albuquerque | San Marcial | 10- 1-80 | Leased | 102.50 |
| Isleta | Sandia | 12-22-80 | A & P[b] | 64.17 |
| Sandia | Rio Puerco | 12-22-80 | A & P[b] | 9.05 |
| Rio Puerco | Acoma (Anzac) | 12-22-80 | A & P[b] | 2.08 |
| San Marcia | Rincon | 3- 1-81 | Leased | 74.00 |
| Rincon | Deming | 3- 1-81 | Leased | 53.95 |
| Rincon | Texas State Line | 7- 1-81 | Leased | 56.35 |
| Texas State Line | El Paso, Texas | 7- 1-81 | Leased | 20.15 |
| Acoma (Anzac) | Pinta, Arizona | 7- 1-81 | A & P[b] | 117.00 |
| Dillon[a] | Blossburg | 1- 1-82 | Leased | 3.47 |
| San Antonio[a] | Carthage | 4- 1-82 | Leased | 9.64 |
| Las Vegas[a] | Hot Springs | 4- 9-82 | Leased | 9.02 |
| Nutt[a] | Lake Valley | 4- 1-84 | Leased | 13.31 |
| Deming[a] | Silver City | 7- 1-84 | Leased | 46.55 |
| Socorro[a] | Magdalena | 1- 1-85 | Leased | 27.34 |
| Whitewater[a] | San Jose | 1891 | Leased[c] | 14.60 |
| San Jose[a] | Santa Rita | 12- 1-98 | Leased | 3.98 |
| Hanover[a] | Fierro | 12- 1-99 | Leased | 6.66 |

[a]Branch line only; not on through line.

[b]Atlantic and Pacific Railroad Company track. Controlled by the Atchison, Topeka, and Santa Fe by stock ownership.

[c]Opened for operation in 1891, but not leased by the Atchison, Topeka, and Santa Fe until 1897.

Source: James Marshall, The Railroad That Built an Empire (New York: Random House, 1945), pp. 398-419.

# BIBLIOGRAPHY

## Books


Bancroft, H. H. History of Arizona and New Mexico. San Francisco: The History Co., Publishers, 1890.

Becknell, Captain William. The Journals of Captain William Becknell. Columbia, Missouri: Missouri Historical Review, 1910.

Berger, William M. Berger's Tourist Guide to New Mexico. Kansas City, Missouri: Ramsey, Millett, and Hudson, 1883.

Bradley, Glenn D. The Story of the Santa Fe. Boston: The Gorham Press, 1920.

Brevoort, Elias. New Mexico, Her Natural Resourses and Attractions. Santa Fe: Printed and Published by Elias Brevoort, 1874.

Chase, C. M. The Editor's Run in New Mexico and Colorado. Montpelier, Vermont: Argus and Patriot Steambook and Job Printing House, 1882.

Coan, Charles F. A History of New Mexico. 2 vols. Chicago: The American Historical Society, Inc., 1925.

Coman, Katherine. The Industrial History of the United States. New York: Macmillan Co., 1914.

Complete Business Directory of New Mexico, 1882. Santa Fe: New Mexican Printing and Publishing Co., 1882.

Conway, Jay T. A Brief Community History of Raton, New Mexico. Raton: Gazette Print, 1930.

Crans, E. Grant. The Book of Gallup. Gallup: E. Grant Crans Publisher, 1928.

Frost, Max. New Mexico. A Bureau of Immigration Publication. Santa Fe: New Mexican Book and Job Printing Department, 1895.

Frost, Max and Walter, Paul A. F. The Land of Sunshine. Santa Fe: New Mexican Printing Co., 1904.

Fulton, Maurice G. and Horgan, Paul. New Mexico's Own Chronicle. Dallas: Banks-Upshaw and Co., 1937.

Greever, William S. Arid Domain. Stanford: Stanford University Press, 1954.

Gregg, Joseph. Commerce of the Prairies. 2 vols. Philadelphia: J. W. Moore Printing Co., 1849.

Gregg, Kate L. The Road to Santa Fe, the Journals of George Sibley. Albuquerque: University of New Mexico Press, 1952.

Gurley, Fred G. New Mexico and the Santa Fe Railway. San Francisco: The Newcomen Society in North America, 1950.

Haines, Helen. History of New Mexico. New York: Historical Publishing Co., 1891.

Hansen, Alvin H. Full Recovery or Stagnation. New York: W. W. Norton and Co., Inc., 1938.

Higgins, C. A. To California Over the Santa Fe Trail. Chicago: Passenger Department, Santa Fe Railway Company, 1904.

History of New Mexico, Its Resources and People. 2 vols. Los Angeles: Pacific States Publishing Co., 1907.

Horgan, Paul. Great River. 2 vols. New York: Rinehart and Co., Inc., 1954.

Illustrated History of New Mexico. Chicago: The Lewis Publishing Co., 1895.

Koehler, A. E. Jr. New Mexico, The Land of Opportunity. Santa Fe: New Mexican Printing Co., 1915.

Knoop, Douglas. Outlines of Railway Economics. London: Macmillan Co., Ltd., 1913.

Ladd, Horatio O. The Story of New Mexico. Boston: D. Lothrop Co., 1891.

Marshall, James. The Railroad That Built an Empire. New York: Random House, 1945.

McCarty, H. H. The Geographic Basis of American Economic Life. New York: Harper and Bros., 1940.

Mines of New Mexico. A Bureau of Immigration Publication. Santa Fe: New Mexican Printing Co., 1896.

Mines and Minerals of New Mexico. A Bureau of Immigration Publication. Santa Fe: New Mexican Printing Co., 1901.

Moody, John. The Railroad Builders. New Haven, Connecticut: Yale University Press, 1919.

New Mexico. A Bureau of Immigration Publication. Las Vegas: J. A. Caruth, Printer, Binder, and Blank Book Mfr., 1889.

Northrop, Stuart A. Minerals of New Mexico. Albuquerque: University of New Mexico Press, 1944.

Otero, Miguel A. My Life on the Frontier, 1864-1882. New York: The Press of the Pioneers, 1935.

_____. My Life on the Frontier, 1882-1897. Albuquerque: University of New Mexico Press, 1939.

Palmer, General William J. Report of Surveys Across the Continent in 1867-1868 on the Thirty-Fifth and Thirty-Second Parallels. Philadelphia: W. B. Selheimer, Printer, 1869.

Pike, Zebulon Montgomery. Exploratory Travels Through the Western Territories of North America. London: Paternoster-Row, 1811. Reprinted, Denver: W. H. Lawrence and Co., 1889.

Pocket Map and Shipper's Guide, 1892. Chicago: Rand, McNally, and Co., 1892.

Prince, L. Bradford. A Concise History of New Mexico. Cedar Rapids, Iowa: The Torch Press, 1912.

Resources of New Mexico. A Bureau of Immigration Publication. Santa Fe: New Mexican Book and Job Printing Dept., 1881

Riddle, Kenyon. Records and Maps of the Old Santa Fe Trail. Raton: Raton Daily Range, 1949.

Riegel, Robert E. The Story of the Western Railroads. New York: Macmillan Co., 1926.

Ritch, William G. Aztlan, The History, Resources, and Attractions of New Mexico. Boston: D. Lothrop and Co., 1885.

_____. The Legislative Blue Book. Santa Fe: Charles W. Greene, Publisher, 1882.

_____. Santa Fe: Ancient and Modern. A Bureau of Immigration Publication. Santa Fe: Bureau of Immigration, 1885.

Soule, George. Economic Forces in American History. New York: William Sloane Associates, Inc., 1952.

Speer, W. S. Encyclopedia of the New West. Marshall, Texas: U. S. Biographical Publishing Co., 1881.

Stanley, F. Raton Chronicle. Denver: World Press Publishing Co., 1948.

Twitchell, Ralph E. The Leading Facts of New Mexican History, Vol. I. Cedar Rapids, Iowa: The Torch Press, 1912.

Waters, L. L. Steel Rails to Santa Fe. Lawrence, Kansas: University of Kansas Press, 1950.

## Public Reports and Documents

Acts of the Legislative Assembly of the Territory of New Mexico, 1872. Twentieth Session. Santa Fe: Charles W. Greene, Publisher and Printer, 1872.

Acts of the Legislative Assembly of the Territory of New Mexico, 1878. Twenty-Third Session. Santa Fe: Charles W. Greene, Publisher and Printer, 1878.

Acts of the Legislative Assembly of the Territory of New Mexico, 1882. Twenty-Fifth Session. Santa Fe: Charles W. Greene, Publisher and Printer, 1882.

Burchard, Horatio O. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1881. Washington: Government Printing Office, 1882.

_____. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1882. Washington: Government Printing Office, 1883.

Compiled Laws of New Mexico, 1884. Santa Fe: New Mexican Printing Co., 1885.

Giddings, Marsh. Governor's Message, Territory of New Mexico. Santa Fe: New Mexican Printing Co., 1873.

Kimball, James P. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1885. Washington: Government Printing Office, 1886.

_____. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1886. Washington: Government Printing Office, 1887.

Leech, Edward O. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1890. Washington: Government Printing Office, 1891.

_____. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1892. Washington: Government Printing Office, 1893.

Local and Special Laws of New Mexico, 1884. Santa Fe: New Mexican Printing Co., 1885.

Niklason, C. R. Commercial Survey of the Pacific Southwest. United States Department of Commerce, Domestic Commerce Series No. 37. Washington: Government Printing Office, 1930.

Otero, Miguel A. Report of the Governor of New Mexico to the Secretary of the Interior, 1900. Washington: Government Printing Office, 1900.

_____. Report of the Governor of New Mexico to the Secretary of the Interior, 1903. Washington: Government Printing Office, 1903.

Preston, R. E. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1894. Washington: Government Printing Office, 1895.

_____. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1896. Washington: Government Printing Office, 1897.

Prince, L. Bradford. Report of the Governor of New Mexico to the Secretary of the Interior, 1889. Washington: Government Printing Office, 1889.

_____. Report of the Governor of New Mexico to the Secretary of the Interior, 1891. Washington: Government Printing Office, 1891.

_____. Report of the Governor of New Mexico to the Secretary of the Interior, 1892. Washington: Government Printing Office, 1892.

Roberts, George E. Report of the Director of the Mint Upon the Statistics of the Production of Precious Metals in the United States, 1898. Washington: Government Printing Office, 1899.

Ross, Edmund G. Governor's Message to the Council and House of the Representatives of the Territory of New Mexico, Twenty-Eighth Legislative Assembly, 1889. Santa Fe: New Mexican Printing Co., 1889.

_____. Report of the Governor of New Mexico to the Secretary of the Interior, 1885. Washington: Government Printing Office, 1885.

_____. Report of the Governor of New Mexico to the Secretary of the Interior, 1887. Washington: Government Printing Office, 1887.

Ruffner, Lieutenant E. Lines of Communication Between Southern Colorado and Northern New Mexico. Executive Document 192. 44th Cong., 1st Sess. Washington: Government Printing Office, 1876.

U. S. Bureau of the Census. Compendium of the Ninth Census of the United States: 1870. Washington: Government Printing Office, 1872.

_____. Ninth Census of the United States: 1870. Population and Social Statistics, Vol. I. Washington: Government Printing Office, 1872.

_____. Ninth Census of the United States: 1870. Wealth and Industry, Vol. III. Washington: Government Printing Office, 1872.

_____. Compendium of the Tenth Census of the United States: 1880. 2 Pts. Washington: Government Printing Office, 1888.

_____. Compendium of the Eleventh Census of the United States: 1890. 3 Pts. Washington: Government Printing Office, 1892.

_____. Abstract of the Twelfth Census of the United States: 1900. Washington: Government Printing Office 1902.

_____. Twelfth Census of the United States: 1900. Population. Vols. I and II. Washington: Government Printing Office, 1902.

_____. Twelfth Census of the United States: 1900. Agriculture, Vols. V and VI. Washington: Government Printing Office, 1902.

_____. Twelfth Census of the United States: 1900. Manufacturing, Vol. VIII. Washington: Government Printing Office, 1902.

_____. Mines and Quarries, 1902. Washington: Government Printing Office, 1905.

_____. Wealth, Debt, and Taxation, 1907. Washington: Government Printing Office, 1907.

Wallace, Lewis. "Report of the Governor of New Mexico," Reports of the Governors of Arizona, Dakota, Idaho, Montana, New Mexico, Utah, and Washington Territories to the Secretary of the Interior for the Year 1879. Washington: Government Printing Office, 1879.

## Other Reports

Association of American Railroads. Railway Mileage by States, December 31, 1946. A Report Prepared by the Bureau of Economics. Washington: Association of American Railraods, 1948.

Bureau of Immigration, Territory of New Mexico. Biennial Report of the Bureau of Immigration, Territory of New Mexico for the Years 1889-1890. Santa Fe: New Mexican Printing Co., 1891.

_____. Report of the Bureau of Immigration, Territory of New Mexico, 1882. Santa Fe: New Mexican Printing Co., 1884.

Hazeldine, William C. Bureau of Immigration Report on Bernalillo County. Albuquerque: Journal Book and Job Office, 1881.

Lawrence, W. H. Bureau of Immigration Report as to Grant County. Silver City: W. Cardnell, Printer, 1881.

Prichard, G. W. Bureau of Immigration Report of San Miguel County. Santa Fe: New Mexican Printers, 1882.

## Articles

Fergusson, Erna. "From Redskins to Railroads," Century, CXIII (November, 1926), 23-31.

Kuznets, Simon. "Economic Growth and Income Inequality," American Economic Review, XLV (March, 1955), 1-29.

Lummis, Charles F. "Land of Poco Tiempo," Scribner's Magazine, X (December, 1891), 760-71.

"New Mexico Twenty-Two Years Ago," Nation, LXII (April 30, 1896), 337-38.

Thomas, Rowland. "The Story of the Santa Fe," World's Work, X (September, 1905), 6617-28.

## Unpublished Material

Parish, William J. "Charles Ilfield, Sedentary Merchant in the Arid Southwest, 1865-1884." Unpublished D.C.S. dissertation, Graduate School of Commerce, Harvard University, 1949.

## Newspapers

Daily New Mexican. February 1, 1890.

_____. February 7, 1890.

Weekly New Mexican. February 2, 1878.

_____. February 9, 1878.

_____. March 9, 1878.

_____. June 7, 1879.

_____. June 14, 1879.

_____. October 11, 1879.

_____. November 15, 1879.

_____. January 3, 1880.

_____. January 10, 1880.

_____. February 14, 1880.

_____. May 3, 1880.

_____. June 28, 1880.

Date Due

| | | | |
|---|---|---|---|
| MAY 9 1956 | | | |
| MAY 9 RECD | | | |
| JAN 1 1 1958 | | | |
| | | | |
| | | | |
|