

COLFAX COUNTY

ITS WEALTH OF NATURAL RESOURCES

BY WILLIS G. BROWN

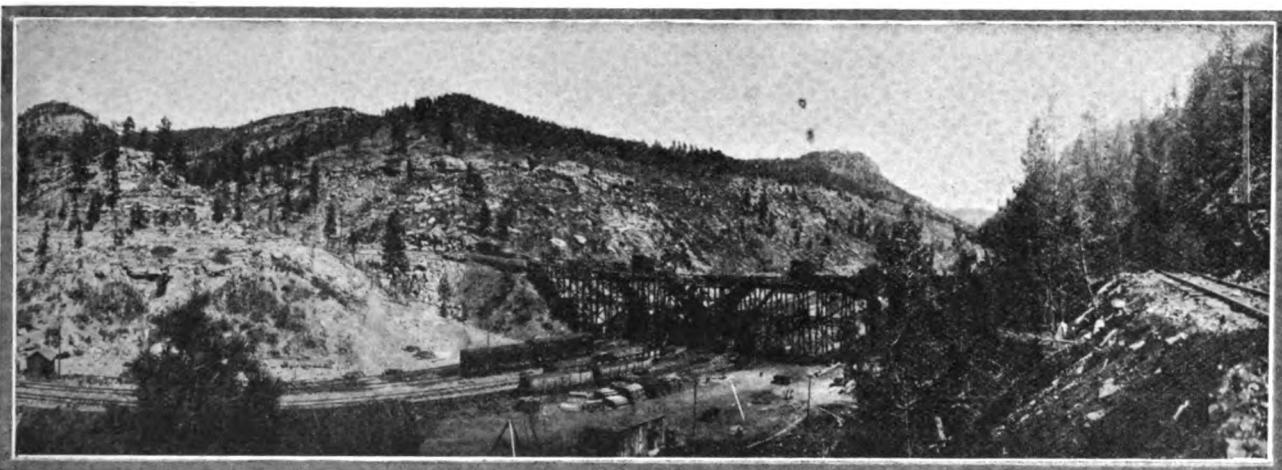
AN empire in itself." We ourselves claim it, others have claimed it for us. But have we the proof? Can we "make good?" Let us see.

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

In domain, Colfax County possesses 2,500,000 acres of mountain, valley and plain. From east to west her boun-

Salvador. Is not our claim of empire in domain well made?

As to an empire in resources—well! Consider, if you please, our coal, of which the United States Geological Survey reports: "No other county in the United States has an equal area. It is perfect coking coal, a high-grade steam coal, and superior for all domestic uses." In figures, the Survey estimates the Colfax County coal deposits to measure 870,000 acres, whose contents total thirty billion, eight hundred and five million tons, with a total value, even at low prices, in excess of forty billion dollars. The cost of mining is at a minimum, since the veins lie horizontally above the earth level and the coal is delivered by gravity to the tipples. The tunnels require no drainage. We could dig a million tons a year from our hidden stores



VIEW OF TIPPLE—SHOWING SHIPPING FACILITIES AT KOEHLER MINE

daries extend approximately 69 miles, from north to south, 54 miles, enclosing 3726 square miles of agricultural, grazing, mineral and timber land—an area full of scenic splendor and blest with incomparable climatic delights. The State of Rhode Island is not one-third so large; Delaware measures just a bit more than half; the two together do not equal Colfax County, which is also greater than Porto Rico and more than half as large as Hawaii or

of coal for centuries, without exhausting them. The operators in this field are: The Stag Canyon Fuel Company, at Dawson, a camp of over 3,000 population, with a payroll of \$100,000 per month. The St. Louis, Rocky Mountain & Pacific Co., operating mines at Brilliant, Van Houten, Sugarite, Gardiner and Koehler, with extensive coke ovens at the two last named camps. The capacity of the Rocky Mountain Company's mines is 10,000 tons per



THE ST. LOUIS, ROCKY MOUNTAIN AND PACIFIC COMPANY



SWASTIKA FUEL COMPANY BY L. C. WHITE



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

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

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

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

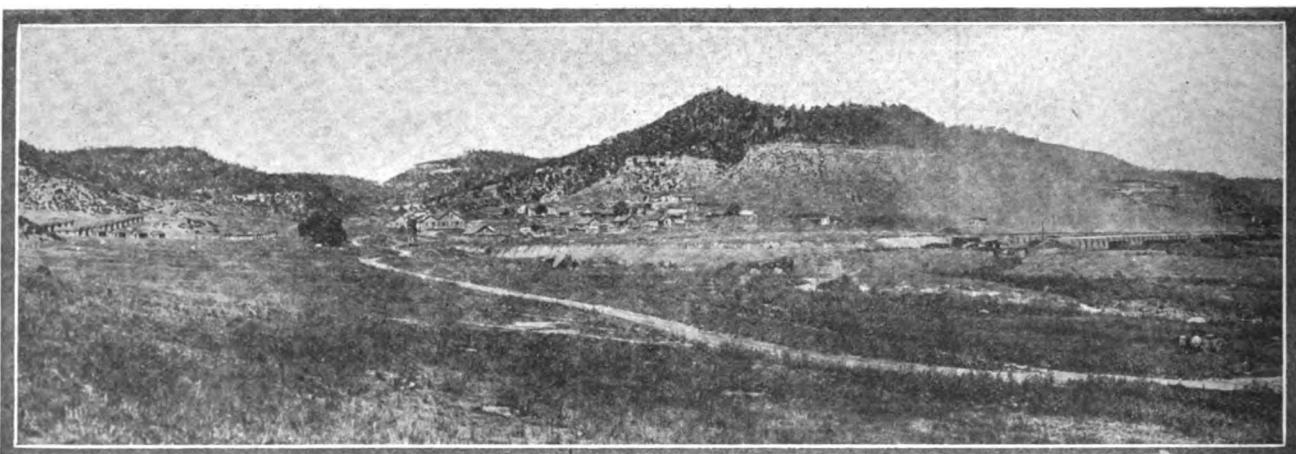
The Atchison, Topeka & Santa Fe Railway runs through the property near its eastern boundary and has branches to the different mines. The El Paso & Southwestern Railway reaches the property near the southwest corner, and by means of the St. Louis, Rocky Mountain & Pacific Railway, now operated by the Atchison, To-

peka & Santa Fe Company, connection is made from the coal mines to the Colorado & Southern Railway at a point 50 miles east of Raton, as well as with the El Paso & Southwestern at Colfax.

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

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

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



BIRDS-EYE VIEW OF GARDINER, NEW MEXICO

RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

NEW MEXICO THE LAND OF OPPORTUNITY

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

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



A SWASTIKA FANCY LUMP
Weight 2755 Pounds

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

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

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

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

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

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

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

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

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

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

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

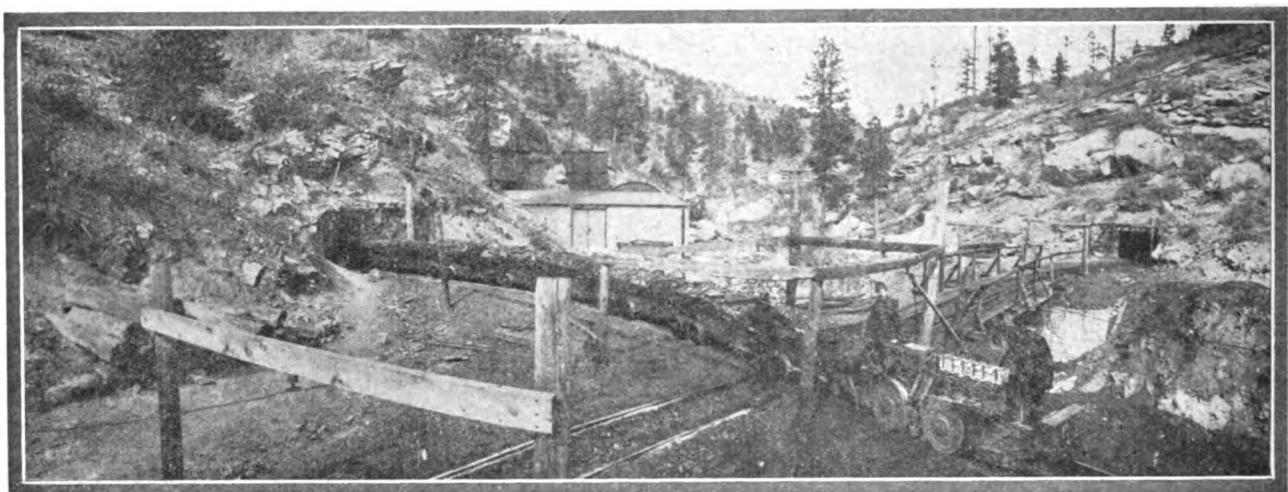
Until the year 1914 the company has constructed a

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

considered hazardous occupation as safe as possible is the problem now being studied more than any other thing in connection with the coal mining business. The danger in coal mining is from explosions which are caused by the presence in a mine of gas, or dust, or both, and imperfect timbering to support the roof, besides general negligence in obeying proper instructions. The mines of this company are unusually free from gas and the excellent ventilation maintained at all the mines practically eliminates this danger.

In regard to dust, the officials of the company believe that the best way to avoid danger from this source is to



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

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

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

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

This description would not be complete without some mention of the study and investment this company has made to insure, as far as possible, the safety of the men engaged in mining operations. To render this generally

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

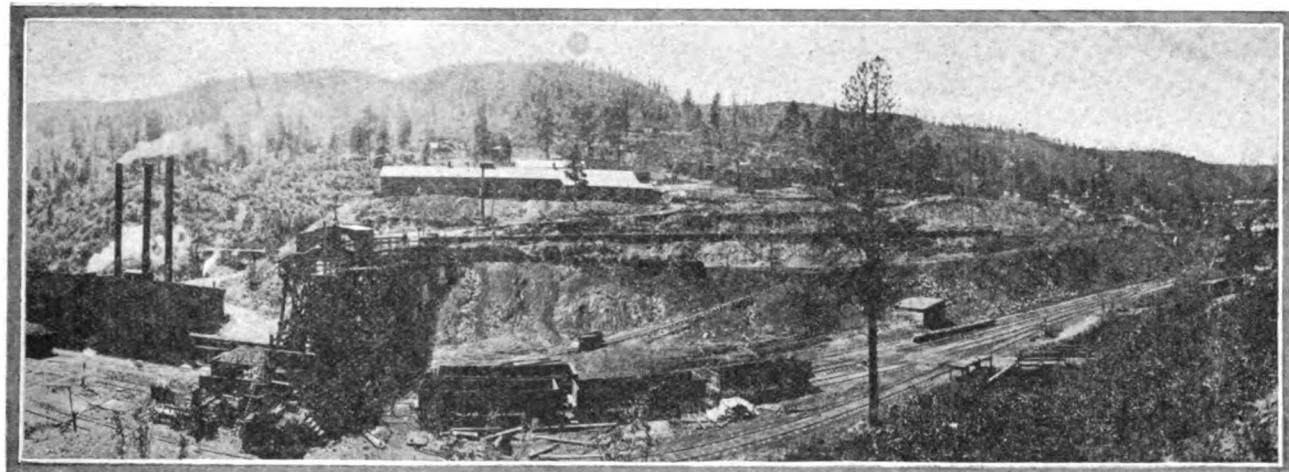
Coal dust as found in any well regulated mine will not explode by contact with ordinary lights, but the intense heat produced by the powder flame from a blown-out shot will sometimes ignite the dust and cause an explosion. To avoid this danger the company uses a safety powder which, according to U. S.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

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

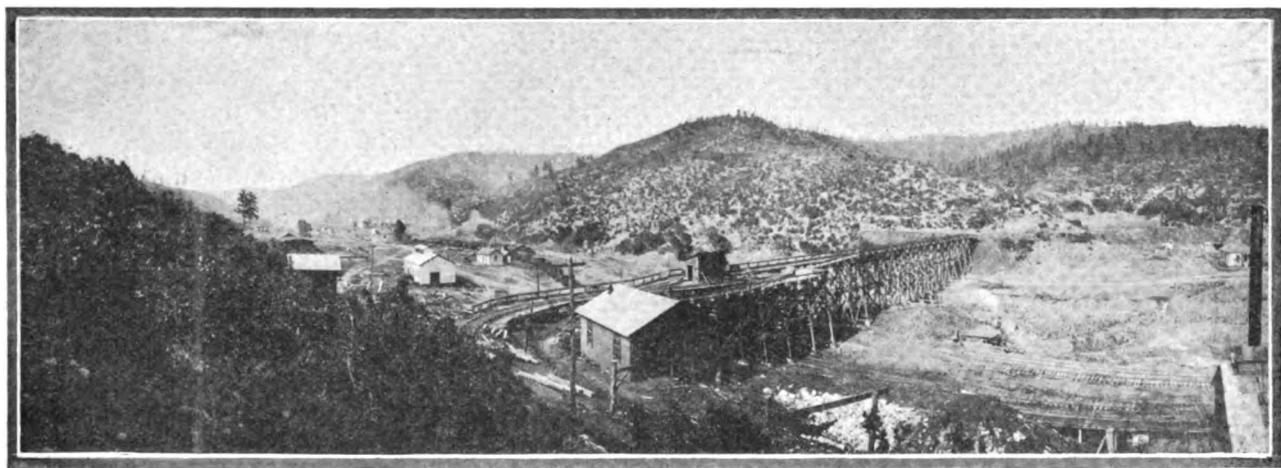
all well ventilated, constructed of good material, lighted with electric lights and are furnished to the men at reasonable rates. Good schools are provided for all grades up to the eighth grade, which entitles children from these mining camps to enter the County High School. Compe-



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

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

Tent doctors and nurses furnish efficient medical and hospital service and strict sanitary regulations are enforced at all the camps. The welfare and safety of its employees is the constant aim of the company.



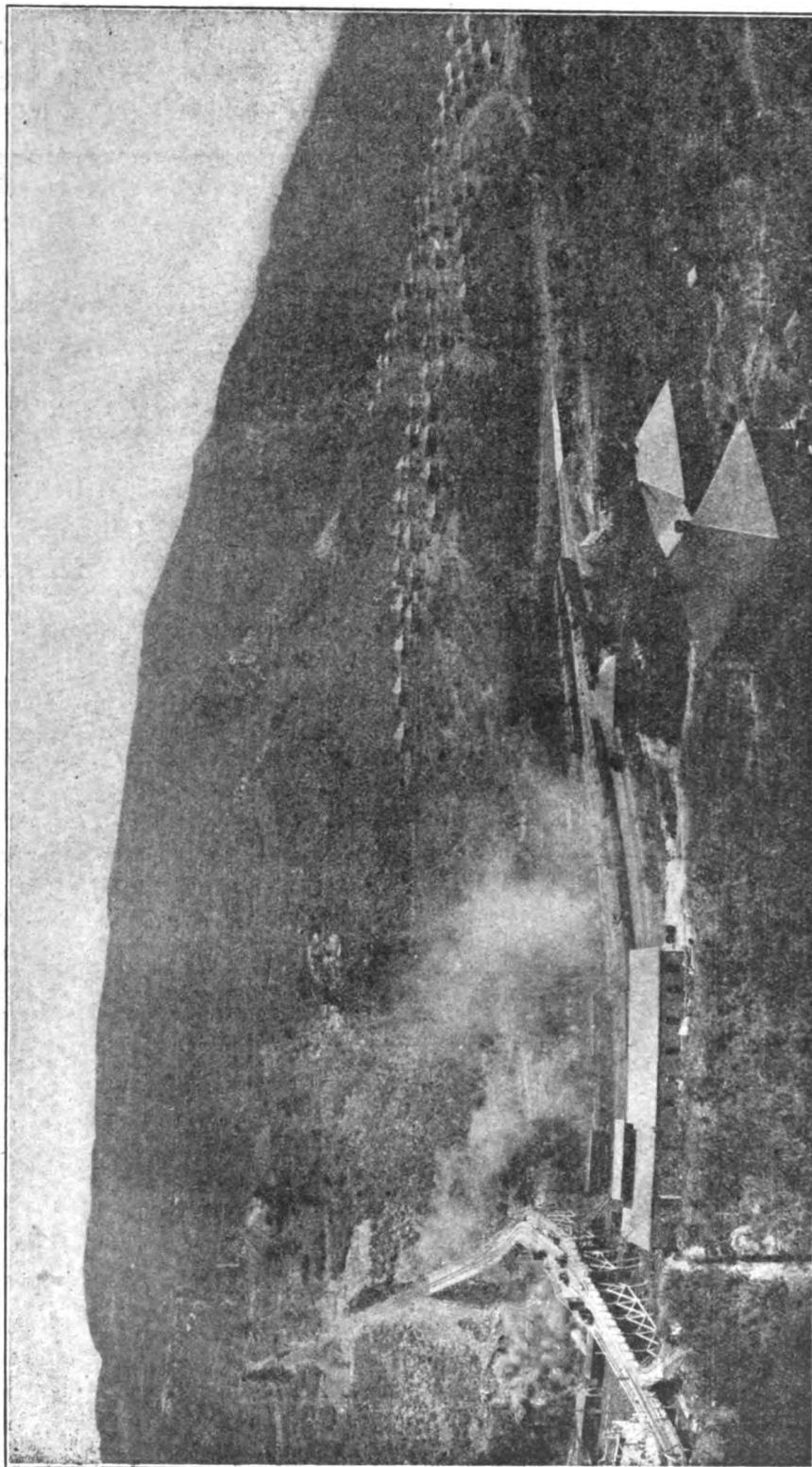
PARTIAL VIEW OF BRILLIANT COAL MINING CAMP

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

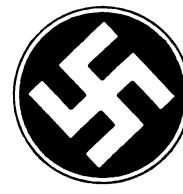
There can be no doubt that, with a square deal all around, this industry will increase in size and usefulness and will have an important part in the future development of New Mexico and the great Southwest.

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**NEW MEXICO
THE LAND OF OPPORTUNITY**



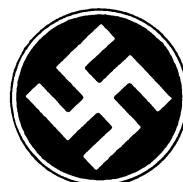
SUGARITE CANYON COAL MINING CAMP—ONE OF THE MOST BEAUTIFUL COAL CAMPS IN THE UNITED STATES



SIGN OF GOOD COAL



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



SIGN OF GOOD COAL

RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

RAYADO RANCH-CIMARRON, NEW MEXICO

BY A. E. SCHROEDER

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

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

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

Every inducement is given to land buyers. The company has a large tractor and gang-plow with which the

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

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

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

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

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

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

MAXWELL, NEW MEXICO
IRRIGATED FARMS—MAXWELL IRRIGATED LAND COMPANY

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

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

Vermejo rivers and stored in reservoirs on the tract. As the streams have a drainage area, combined, of about 1,500 square miles and the company owns practically all the water rights, an abundance of water is assured. As the drainage areas are entirely separate and the canal system permits the filling of the reservoirs or the direct irrigation of the land from either, a failure of water is practically an



**PRIZE-WINNING DISPLAY OF MAXWELL
IRRIGATED PRODUCTS**



ONE OF THE RESERVOIRS ON MAXWELL PROJECT

the United States to the successors of that famous Captain Lucien B. Maxwell, who held it under deed from the Spanish crown, and now the irrigation works are complete. Water is taken from the Red (or Canadian) and

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

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

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

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

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

On the Maxwell Irrigated Land tract all orchard fruits do well, apples especially so. Colfax County is a great apple-raising region and the Maxwell Irrigated land is equal to the best orchard land in the region. William French, an old resident of the section, writes that he has taken as much as three boxes of apples from a single five-year-old Jonathan tree. Last year he planted fifty-five

acres in apples in raw land, making no preparation except to dynamite the holes where the trees were planted.

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

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

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

THE TOWN OF MAXWELL, NEW MEXICO

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

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

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

Maxwell has a new \$10,000 four-room school house,

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

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

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

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

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

RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

MIAMI VALLEY

THE FARMERS DEVELOPMENT COMPANY

BY M. N. MIKESALL

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

The project is not large as enterprises go in this big country—ten thousand acres comprising the entire tract in process of development—and its growth has not been abnormally rapid. The Farmers Development Company purchased the land in 1907 and began irrigation construc-

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

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

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

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

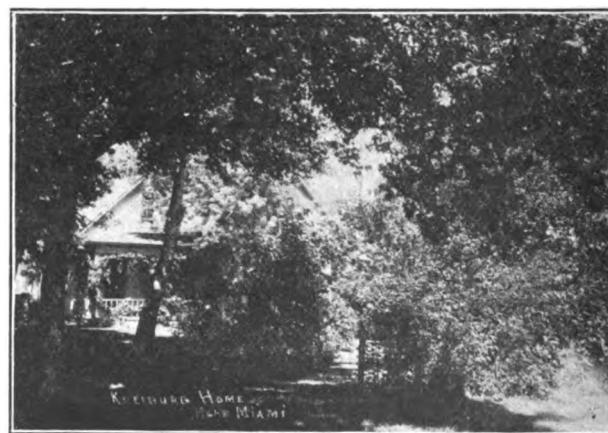


ONE SOURCE OF MIAMI PROJECT WATER SUPPLY

tion immediately. At this date about one-half of the tract is under cultivation, leaving about 5,000 acres yet to be cultivated. The irrigation construction for the entire acreage is almost complete.

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

The result is that the settlers, numbering at present



RANCH HOME IN MIAMI VALLEY

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

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

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

MOUNTAIN VIEW POULTRY FARM
R. W. Bolinger, Proprietor

Miami, New Mexico, Oct. 13, 1914.

To Whom It May Concern:—

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

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

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

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

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

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

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

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

To Whom It May Concern:—

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

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

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

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

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

Farmers Development Company,
Springer, N. M.

Gentlemen:—

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

Yours truly,
(Signed) GEORGE SHAMBURG.

Miami, New Mexico, Oct. 16, 1914.

To Whom It May Concern:—

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

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



CORN AND ALFALFA ON MIAMI VALLEY RANCH

RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

**NEW MEXICO
THE LAND OF OPPORTUNITY**

DAWSON, NEW MEXICO

STAG CANYON FUEL COMPANY
BY D. R. LANE

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

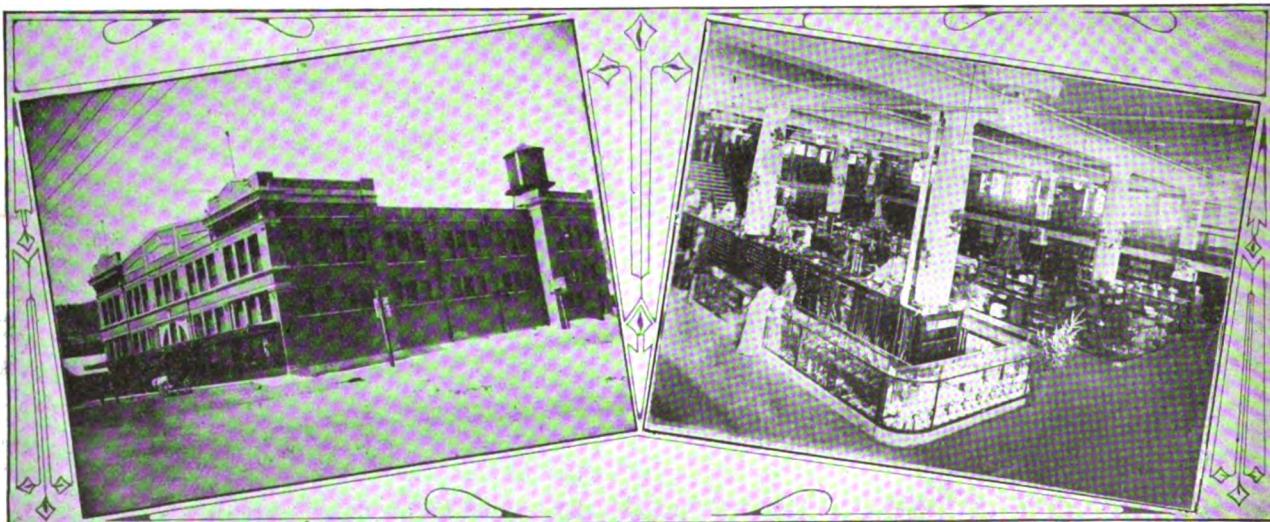
Many years ago, before New Mexicans thought much of any industries beside sheep, cattle, freighting over the Santa Fe trail and a little gold and copper mining, the ground occupied by Dawson and the tributary coal lands was part of a ranch and supported, perhaps, a score of souls. It was on that great tract of land turned over by the Spanish crown to Beaubien and De Miranda, and later by them sold to Lucien B. Maxwell. The "Maxwell Grant" it was called then, but Maxwell had nothing to do with the coal. History of his regime reads like

fiction, so rich is it in romance, and when it is considered that this early-day potentate—for he was all of that—frequently threw away a fortune upon a passing whim, nor needed work for a succeeding one, it is evident that such a plebian task as the mining of coal would not interest him in any way. Indeed, it is hardly likely that Maxwell knew of the coal.

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

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

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



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

NEW MEXICO THE LAND OF OPPORTUNITY

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

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

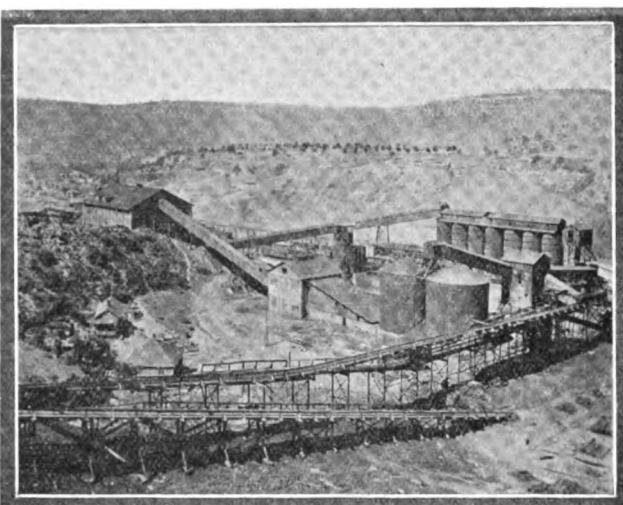
Dawson and all its environs are now owned by the Phelps-Dodge interests so well known in New York, New Mexico and Arizona. This association is the fourth owner since the days of the original Spanish grantees. Maxwell, who received it as part of the "Maxwell grant" from Beaubien and De Miranda, sold it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

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

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

boxes with their bits of bloom neatly painted, do good work in the mines and are happy.

The houses themselves are worthy of comment. As has been stated, there are no shacks. The company provides good homes, substantial housing comfortably arranged. There is no poorer section, in the sense that term is used in cities, though there is a separate quarter for the non-English-speaking families. There are no paupers, no hangers-on fattening on the earnings of the more industrious, and the class that would be content to live in shacks is not wanted and is not hired. So it happens that the miners are of the better class, of the type that appre-



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

ciate the beauty of nature, and perhaps because of the long hours spent underground, enjoy the greenery of flowers and lawns and urge vines to clothe their homes.

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

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

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

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

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

Tucumcari the Southwestern is joined by the great Rock Island system. This situation gives Dawson ample railroad facilities and makes the transportation problem easy of solution.

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

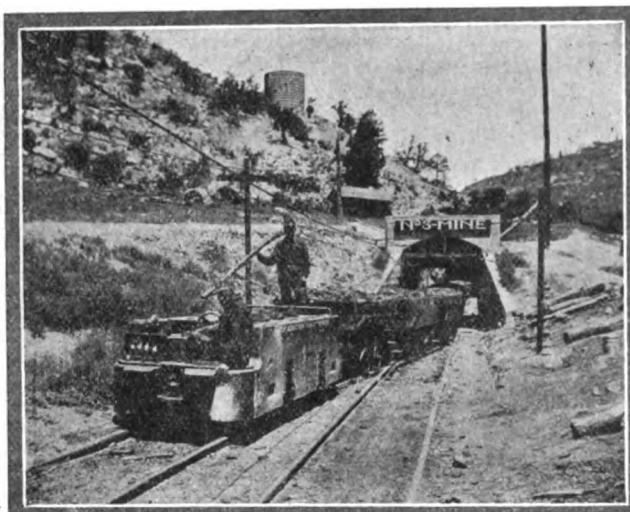
The church, like the schools, is financed by the company. There is only one, the "Church of all Creeds," but services of several denominations are held in it. Rev. Harvey M. Shields, an Episcopal minister, is in charge of the regular services, but a Catholic priest holds services in the camp once each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

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

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

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

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

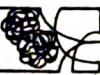


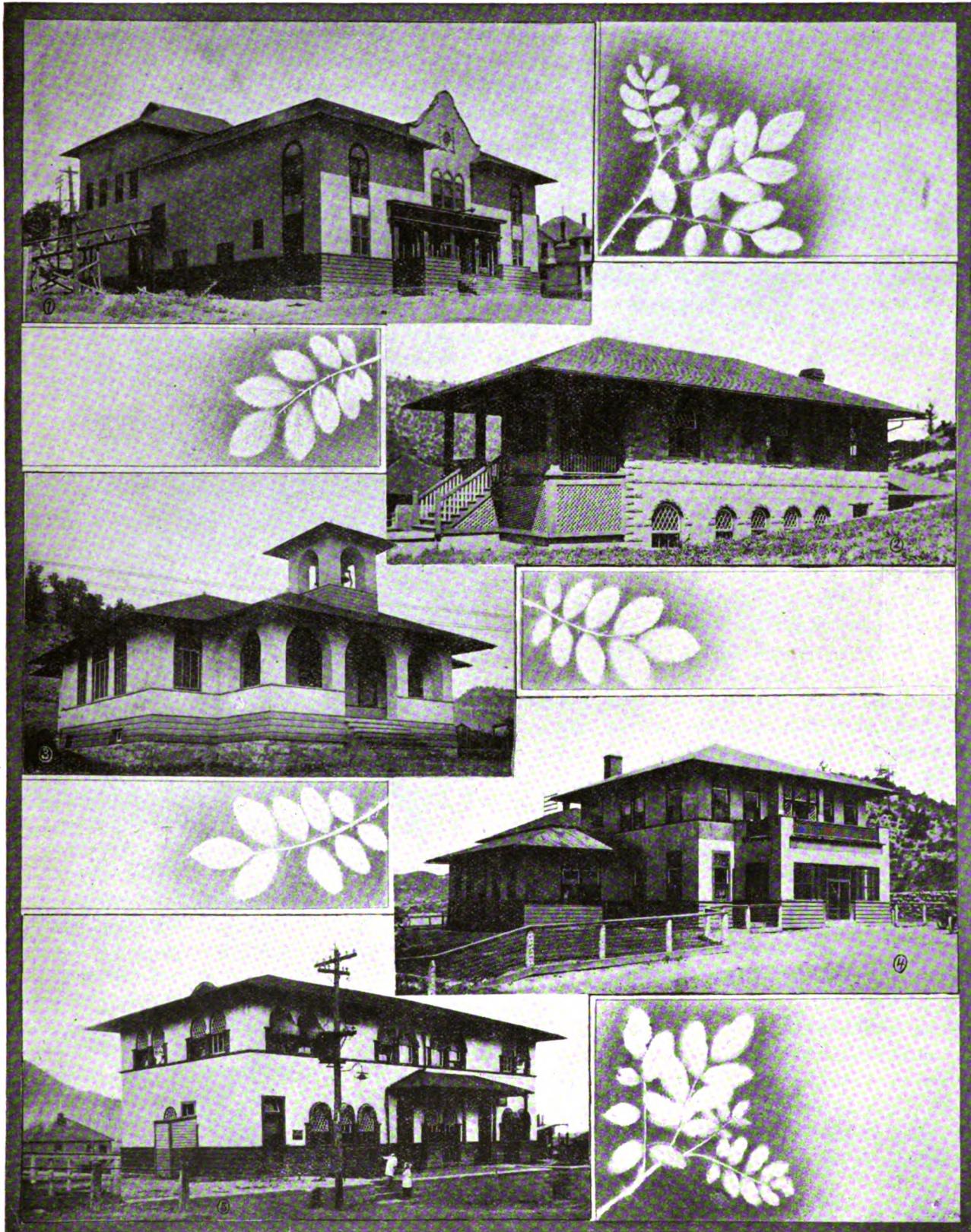
ELECTRIC LOCOMOTIVE COMING OUT OF MINE
WITH TRIP OF LOADED CARS

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

Though Dawson can be reached directly over but one line of railroad, the El Paso and Southwestern, of which it is the terminus, yet it is within six miles of the line of the St. Louis, Rocky Mountain & Pacific and is only nineteen miles from the Santa Fe system lines, while at

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



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

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

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

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

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

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

"Walter Douglas, general manager of the company,

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

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

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

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

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

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

The Dawson mines are all located on the Blossburg coal seam. The coal lies practically horizontal, the dip being about one degree toward the northwest. No. 2 mine and No. 5 mine are opened from opposite sides of a mountain spur or ridge that forms a promontory between the Vermejo River and Rail Canyon at and near the convergence of the two canyons; No. 5 mine on the Vermejo River side and No. 2 mine on the Rail Canyon side, the workings of the two mines running parallel to each other, the main entries of either being driven into the field to the north.

Between No. 2 high line or main entry there are five other entries opened from the outcrop upon the coal seam and connecting No. 2 and No. 5 mines and furnishing that number of openings for leaving or entering the mine.

The fan shaft is located 5,537 feet from the mouth of the main entry and about 30 feet west of the entry, connecting with the entry by



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

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

Immediately over the shaft the roof is arranged with explosion doors.

Mr. Sheridan discusses these doors and their function at some length, showing how, in event of an explosion, they would open outward and permit the force of the

The air shafts are equipped with spiral steel stairways for emergency use. Mr. Sheridan concludes this phase of his article with the statement: "It will be seen from the foregoing that the ventilating equipment is excellent and that many avenues of escape are provided in case of accident."

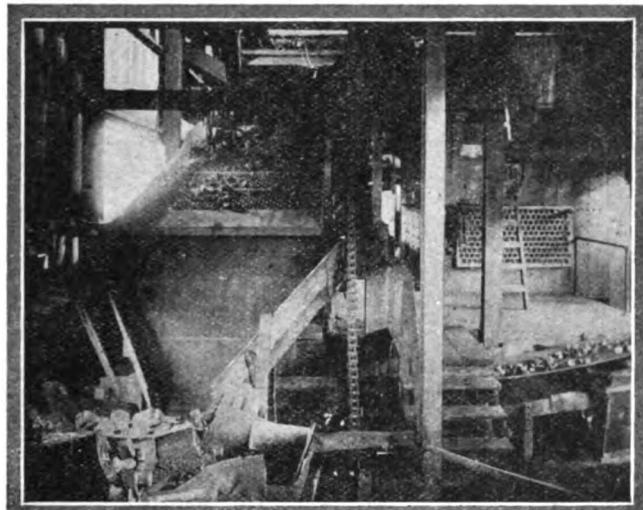
A report to the Secretary of the Interior by Mr. Sheridan, while acting as federal mine inspector, gives the following:

"Although little fire damp has been found in the mines the management gives careful attention to keeping the mines clear of gas and maintaining proper ventilation. Eleven fire bosses are employed in the four mines. The fire bosses examine all workings for indications of fire damp or other noxious gas before the men are allowed to enter the mine. A record book is kept in a check cabin near the mouth of the mine wherein a record is made of gases found and the miners are prevented from going into a locality where gas is considered dangerous.

"A very commendable method put in practice is to have each fire boss report any unsafe conditions in the working places which it is his duty to examine. He notes unsafe conditions in a memorandum book supplied him for this purpose and marks the unsafe spot or locality. This record applies to timbers lacking, timbers broken, unsafe roofs, etc. When the fire boss comes from the mines he copies these notes in a record book, duplicated by means of carbon sheet, stating particularly where there is immediate danger and need of immediate attention. It is the duty of the pit boss, when he comes on shift, to examine this record and if any place needs immediate attention he keeps the workmen out and either goes himself to the place or sends an experienced workman to remedy the dangerous condition at once. The pit boss tears out the duplicate record from the book and carries it into the mine and it is mandatory that he visit each place requiring attention before noon that day and remedy the conditions the fire boss complained of. By this method some person is made responsible for a knowledge of conditions at every point within the mine, and if an accident occurs the responsibility can be fixed definitely. It is true that a workman may quickly change a safe condition into a dangerous one, as by a few blows of the pick, but such changes, made after rooms or entries have been shot, usually the preceding night, are easily discernible.

"Fire bosses dislike the responsibility thus placed upon them; but the responsibility for safe conditions in a mine should be placed upon some official, and who so competent and careful as a fire boss?

"Shot firers examine each working place after the shots are fired and likewise make a record of any unsafe con-



SHAKING SCREEN SHOWING BELT CONVEYOR CARRYING UNDERSIZE COAL TO A RE-SCREENING PLANT

generated gases to expend itself on the outer air, immediately after which the doors could be closed and ventilation be resumed, either through exhausting the bad air, as the fan is primarily intended to do, or reversing it and pumping pure air into the mine up to the point where it was obstructed by the debris of the explosion. The same arrangement could be put into effect in event of a disastrous cave-in blocking part of the usual ventilation system. The whole process, he says, need not take more than one minute, much too short a time for gas, after-damp or respiration to materially deplete the store of oxygen in the mine. This reversible arrangement of the ventilating fan, which is applied to those at other shafts as well, provides a prompt means of scavenging any of the mines of gas.

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ditions found. The shot firers have their own record books, thus there is a double check on safety conditions and the fire bosses and shot firers are a check upon each other as they inspect the places at different times."

The matter of shot firing is most carefully looked after by the company. Fifteen careful and experienced shot firers are employed. These men visit each working place and make inspections of the holes drilled. If any hole is not properly released by a side cutting or undermining they condemn it. The miners do not charge and tamp the holes, this is done by the shot firers who load all the holes, except such holes as are condemned, after the men have left the mine. Thus careless work cannot endanger even the life of the man who did it, not to speak of the lives of others in the mine.

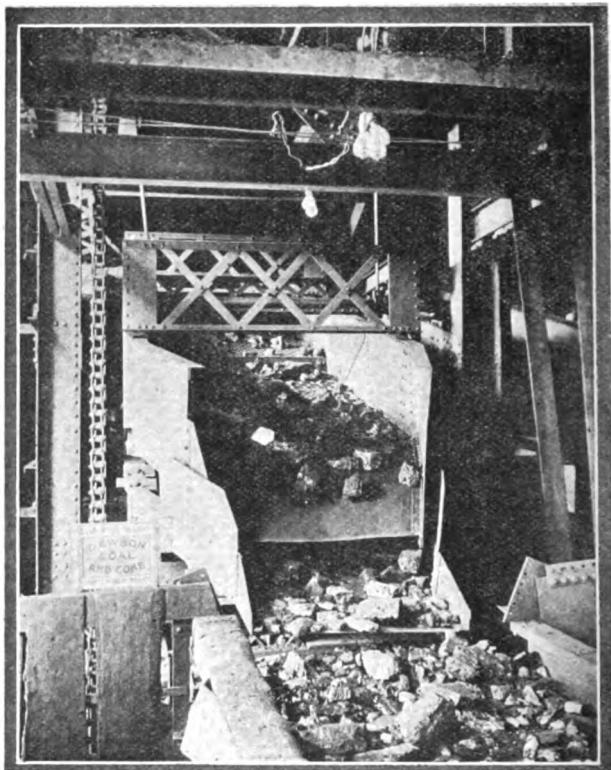
Shots are fired about 11 o'clock at night, but if there is anyone then in the mine the firing is delayed. An elaborate system of checking out the workers is employed at the mines. Each man is provided with a brass check, stamped with his number, and this he must deposit before entering the mine. When he comes out, the check is returned to him upon his call. A responsible man is in charge of the deposit and distribution of checks at each mine. As long as one of these has any checks on hand, therefore, it is presumed that there are men in the mine. Should an employe leave the mine and neglect to call for his check, a man is sent to his working place to find him. If not found there, his home is made the scene of inquiry, and the search goes on until it is satisfactorily proven that the man is not in the mine, no matter how long it may take. The man who causes this trouble is charged with the time of the man who searches for him and this acts as a strong deterrent to such carelessness as is mentioned.

There are two switches in each entry and a main switch at the mouth of the mine which must be closed by the shot firer after loading the holes after all the men are out, or else where the firing switch is closed in the shot-firers' cabin there will be no explosion. Thus there are three distinct steps to be taken, after the holes are loaded and capped, before a shot can be fired. Clay or adobe is provided for tamping all holes, the company distributing it at convenient places underground.

The powder is stored in large magazines, all of which are electrically heated to avoid the dangers of thawing dynamite in cold weather. The heaters are insulated from direct contact with the powder. The magazines are all fireproof.

The mines are humidified by sprays at short intervals throughout the main haulage ways. Pipe lines extend

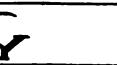
to the face of all entries, with hose connections every one hundred feet, providing ample means for sprinkling rooms and entries. These lines also afford a prompt means of combatting fire, though there are ample fire extinguishers at convenient places. The company also maintains a two-cylinder Babcock chemical engine on a convenient sidetrack, ready to be run at any time wherever it is needed. As the presence of fire in the mine would generate a quantity of gas in which it would be difficult, if not impossible, to breathe, the company provides a number of



SHOWING GRADUAL FEED OF LUMP COAL FROM SHAKING SCREEN TO PICKING TABLE.
(NO. 1, 2, AND 3 TIPPLE)

the most approved style of helmets and other devices for respiration in poisoned atmosphere.

To cap off all these efforts at safety, and to check up the work of all others charged with maintenance of safe conditions, the company employs a mine inspector, who oversees all the others engaged in safety work. This man makes continuous inspections of all the mines, draws samples of air from old workings and cave-ins with a gumbump and tests them in his safety lamp, checks up other conditions pertaining to the safety of the men. Should he deem it best, he can order work suspended in any locality, or can take men from other work to remedy a bad condi-



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tion. He makes a daily report to the general superintendent, who forwards it to the general manager. In this way the entire administration, from miners through fire- and pit-bosses and inspector on up to the general manager, is in daily touch.

Throughout the mine, manways are lighted by electricity and haulage is carried on in separate channels, so there is no danger of a trip running down miners on their way to or from work.

This would seem to thoroughly establish the fact that the men at Dawson are well looked after, but says nothing of the efficiency and business-like administration which are in effect there. Owning over 50,000 acres of lands and distributing the fuel over an area a sixth the size of the United States, producing the largest tonnage of coal of any one coal mining camp in the west, the Stag Canyou Fuel Company cannot be conducted along the lines of a philanthropic institution. And it is not so conducted. The good treatment afforded the miners and other employes bears fruit a score of times in increased production, higher personal efficiency, a steady and reliable organization, and in other ways.

Yet personal efficiency is not the only sort in evidence at Dawson. Though the company is a comparative newcomer in the field, having been at work but about eight years, yet changes and reorganizations have been made that are little short of marvelous. The concern is a big business affair and is doing business in a big, broad, far-seeing way. Detailed studies of the whole operation of mining from this field were made before much was done. Now those studies have been put into effect and the results are startling economies. These economies include savings in labor, in handling of mined fuel, in preparing fuel for the market, in eliminating waste in the coking process and in the tipple and washery. Probably a higher percentage of mined coal reaches either the coke ovens or the consumer from the Dawson mines than from any other colliery in the country. The place has been compared favorably with the great anthracite fields of Pennsylvania, also Dawson is the only place in the west where the heated gases from coke ovens are saved. This saving of energy from coke oven gases has long been a pet project with engineers, but at Dawson it is a settled fact. When the Dawson company had charge of these mines there were but 124 coke ovens, all of the old style. Now there are 446 improved ovens, beside the old ones, and the energy contained in hot gases which were wasted under former processes is now used to generate all the electricity that can possibly be used in the mines for light or power and

in the city for all purposes. The power plant generates 3200 horsepower which is in constant use driving the washery machinery, operating the electric locomotives within the mine, turning the farthest entry of the deepest mine from blackness to bright light, running minor machinery, lighting the city and in other ways. And were there any possible use for more, the gases would supply it.

The company is amply justified in taking such farsighted measures for the coal being worked lies from six to eleven feet in thickness, but averaging six and a half feet. As the coal lies almost horizontal there is little water to be cared for. There are a number of mines into the coal measures but only five are now being worked. The 1914 output was approximately 1,300,000 tons of coal and 300,000 tons of coke. It was shipped to Arizona, Texas, New Mexico, Kansas, Oklahoma, and to some points in old Mexico, though consumption there has fallen off materially since the war began.

Taking up the more technical side of the question, the coal measures on which operations are being carried on are in the Laramie series of the cretaceous measures which are about 800 feet thick; there are a number of seams in the measure but only two are workable seams. The Dawson mines are on the lower seam. The elevated table on which the coal measures stand has been eroded along one edge until it shows the green shale beneath the coal. On this eroded edge a crop line of coal can be traced for forty miles to the northeast of Dawson.

The triple-main-entry system of mining is used, with double cross entries, rooms and pillars. Main entries and air crosses have a width of nine feet, as have cross entries. Air passages are six and a half feet high and roads are six feet. Room necks are cut twenty feet long and rooms have an average width of twenty feet and a length of 350 feet.

Electricity is used for gathering wherever possible, but there are some mules in use underground. There are twenty-eight electric locomotives underground. A system of signal lights is used through the haulage ways. A red light is hung beside each white mine light. When a trip passes one light, the next one is lighted automatically, thus giving warning some distance ahead that a locomotive or cars are coming.

The ventilating system is unusually good. The company has provided for each worker more than three times the amount of air required by federal law, or 306 cubic feet per man per minute. Mine No. 1 is ventilated by a Vulcan twenty-eight by eight foot fan, double inlet and reversible, belt driven by two fifty horsepower motors.



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It runs at sixty revolutions, at a water-gauge pressure of one and one-tenth inches.

Mine No. 2 is ventilated by an eighteen by eight foot double inlet, primarily exhaust, reversible fan, with a capacity of 400,000 cubic feet of air a minute against a water-gauge pressure of five inches. The fan runs at about 150 revolutions a minute and is driven by a 150 horsepower motor.

Mines Nos. 4 and 5 are ventilated by duplicate installation of Coal fifteen by five foot double inlet reversible fans which run at a speed of eighty-two revolutions a minute and have a capacity of 70,000 cubic feet of air a minute each, against a water-gauge pressure of eight-tenths of an inch.

A complete laboratory for testing coals and making necessary analyses is located in a fire-proof building near the washery.

The tipple, which is ample in size, is an all-steel structure. It has duplicate parallel installations of dumps, picking tables and double-deck shaking screens. On it the pit cars, after being weighed, are dumped in hoppers. These hoppers open onto reciprocating feeder plates which deliver the coal to the upper end of the screen in a fine, steady stream. Both top and bottom screens have a screening surface of perforated steel plates seven feet wide and three times that in length, which large size, with the steady feed, assures uniform sizing of product. The oversize of the top screen, and, when desired, that of the lower screen as well, is delivered on pan conveyors which convey to a box-car loader or to open cars. Only the screened and picked coal is sent out in box cars. Oversize from the lower belt can be picked, if desired, and loaded separately.

The screenings from the lower plates go to a bin with

automatic feeders which gradually feed it out on a belt conveyor leading to the washery. This tipple, the result of months of careful designing and embodying the experience of years, handles the product from Mines Nos. 1 and 2 only. From Mine No. 4 opposite these first mines, the coal is delivered over a Phillips steel tipple abutting on the main tipple. From Mine No. 5 the coal is screened as it is loaded on the cars, the slack being hauled to a bin, whence it is taken to the washery on a conveyor.

All undersize coal is conveyed to the crusher house and washed. Any oversize which may have got in is screened out and sold for domestic use and the washed undersize coal is sent to the coke ovens in electric cars.

As underground, the coal is handled at the surface with every possible economy and with as little hand labor as possible.

The method of mining employed is by the use of undercutting machines. There are about twenty-five such machines in constant operation in the mine.

Thus it will be seen that not only is there a coal mining corporation which takes out the coal in the most efficient way and which makes the most efficient use of it after it is mined; and that there is a large employing concern which treats its employes with justice and liberality, but that these two concerns are one, and that one is The Stag Canyon Fuel Company.

All coal and coke from these mines is handled by the Dawson Fuel Sales Company, a sales corporation, of which G. M. Hanson is general manager. The officers of the Stag Canyon Company are as follows:

Dr. James Douglas, president; A. C. James, vice-president; George Notman, secretary and treasurer; T. H. O'Brien, general manager; William Hutchings, general superintendent; F. R. Weitzel, mining engineer.

FRENCH, NEW MEXICO

FRENCH is located at an altitude of about 6,000 feet, and has the equable climate necessarily expected of New Mexico where that altitude is attained.

The development of the irrigated lands adjoining the junction of the Santa Fe and El Paso Southwestern Railroad in Colfax County has brought about the existence of the town of French.

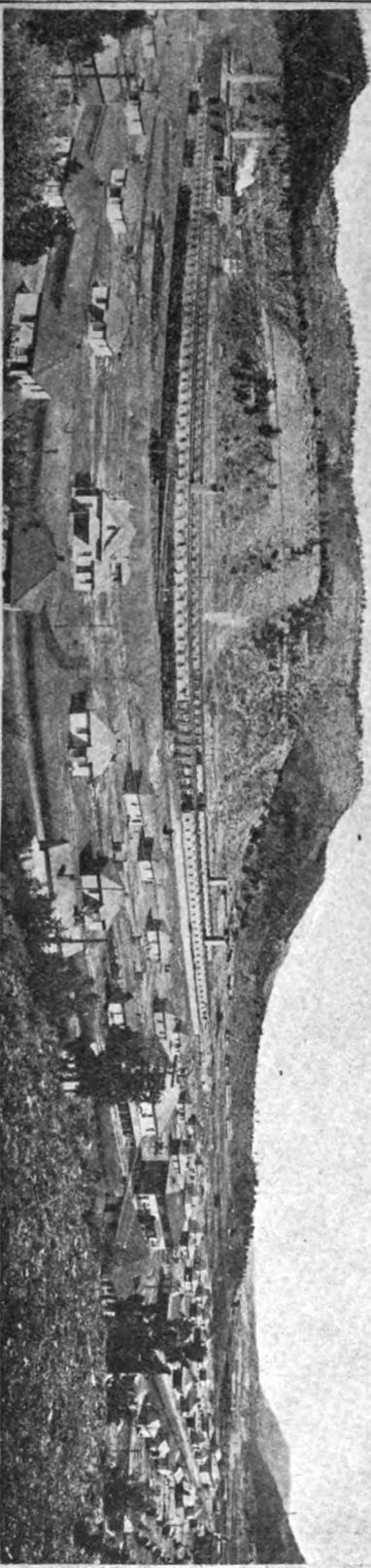
French is right at the heart of a great district of irrigable land, the development of which has already been be-

gun. It is thirty miles south of Raton, and has been growing but two or three years. Already the population totals several hundred, and is rapidly increasing.

The town takes its name from Captain William French, the former owner of practically all the land in the district. The soil is of excellent quality, as good, indeed, as any to be found in northern New Mexico, and is well adapted to the culture of sugar beets, Mexican beans, grains, vegetables and apples. Ample water for irrigation is to be had at all times.

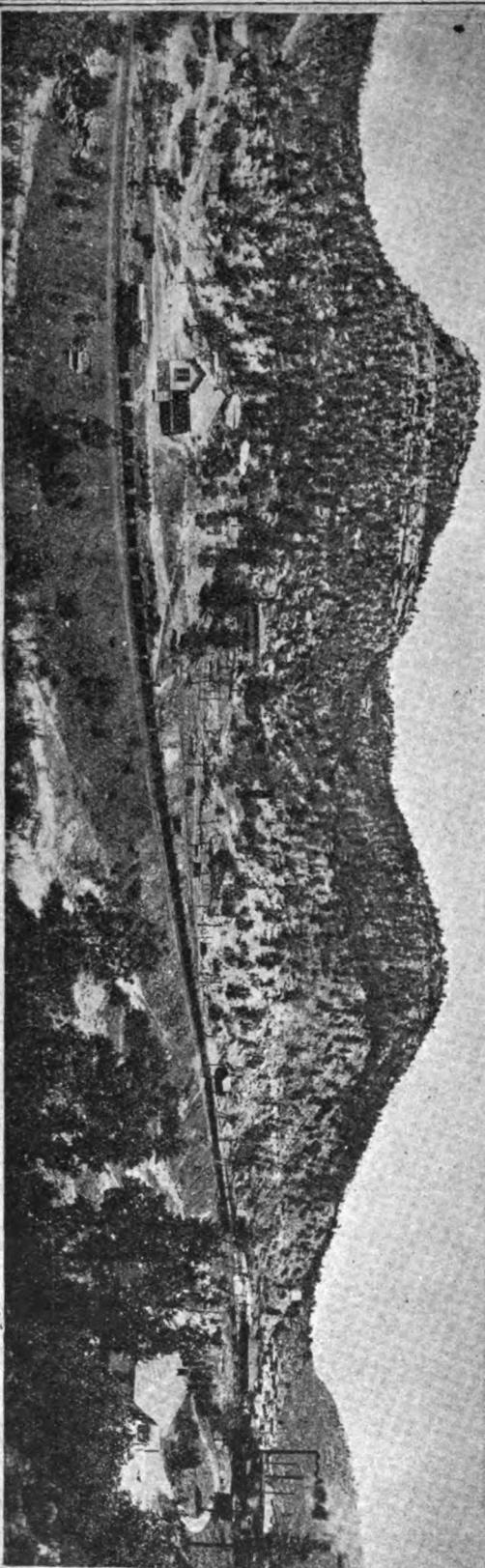
RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

**NEW MEXICO
THE LAND OF OPPORTUNITY**



BOILER HOUSES, POWER PLANT AND UNDERFLUE COKE OVENS

A "TRIP" OF LOADED MINE CARS ENROUTE TO TIPPLE FROM
NOS. 1, 2 AND 3 MINES



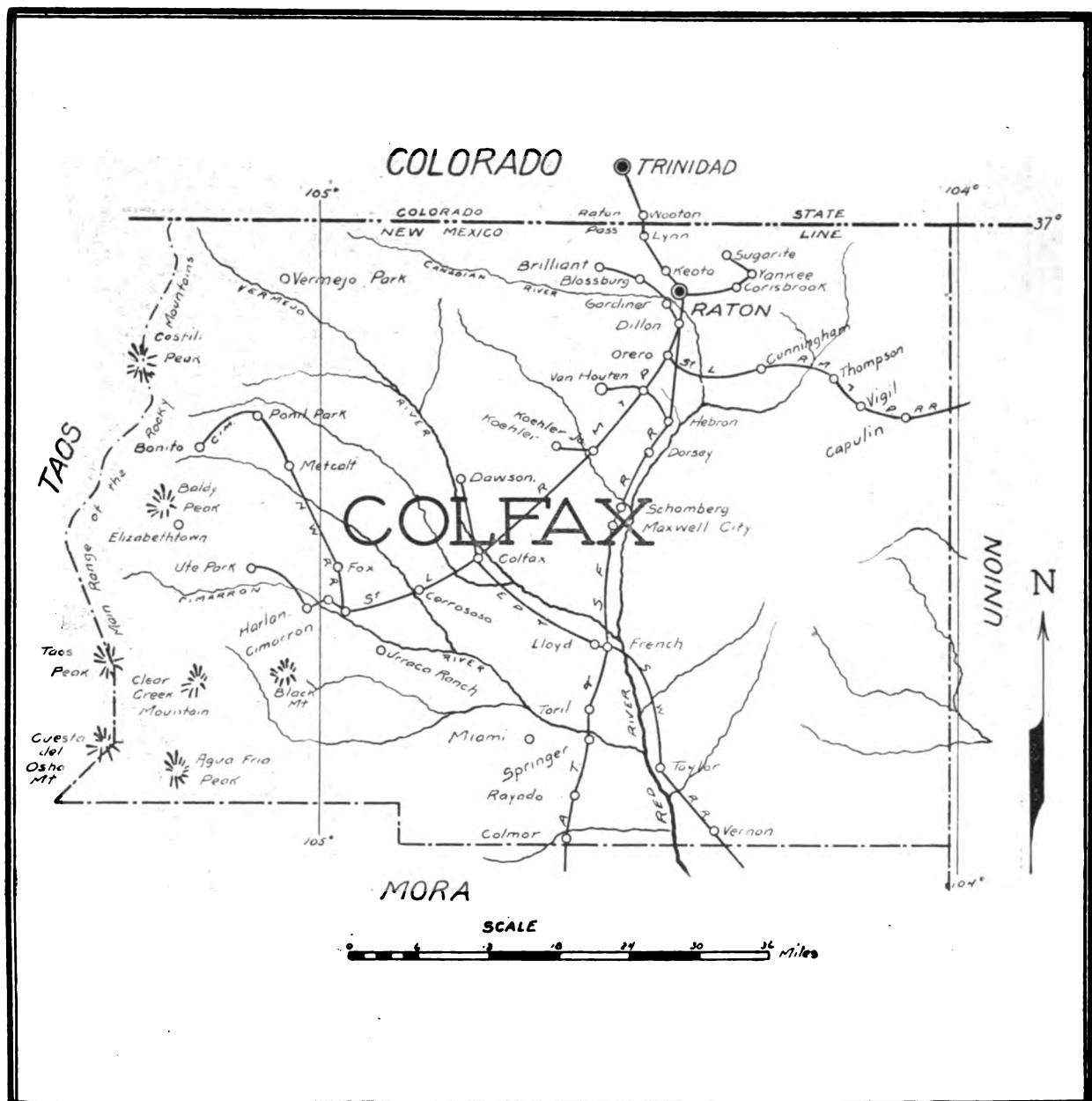
**NEW MEXICO
THE LAND OF OPPORTUNITY**

SPRINGER, NEW MEXICO

SPRINGER is located on the main line of the Santa Fe Railroad forty-one miles from the county seat, Raton. From 1882 to 1897 it was the county seat of county of Colfax. Then, as now, it was the trading center of a wide area of cattle and sheep industry. It moved farther away, back from the railroad, leaving the still is this, but the cattle men and the sheep men have

valleys to the irrigationist and intensive farmer. The prosperous Miami ranch property practically adjoin the town of Springer.

Springer now has a population of over 1,000, and is a modern and up-to-date little city, surrounded on all sides by a fine agricultural country. It has good schools, good churches, and has all the appurtenances of a modern city.



RESOURCES AND INDUSTRIES OF THE SUNSHINE STATE

LINCOLN COUNTY

BY JOHN A. HALEY

LINCOLN County was created by an act of the Territorial Legislature in 1869, and was not, therefore, one of the original nine counties in the organization of the Territory after it had been acquired from Mexico. It was one of the first created, however, after the organization of the Territory, and at the same time the largest. Soon after its organization the county seat was established at Lincoln, then known as the Bonito Plaza. There the seat of government remained until 1909, at which time the county seat was changed to Carrizozo, where all courts have since been held and where a new court house and jail have just been completed.

Originally Lincoln county covered all the southeastern part of the Territory—about one-fifth of its total area. Three entire counties—Chaves, Eddy and Roosevelt—have been carved out of its former territory, and four

other counties—Curry, Guadalupe, Otero and Torrance—contain a portion of its first area.

Lincoln County now occupies a position a little south and east of the south center of New Mexico, and is bounded as follows: On the north by Torrance and Guadalupe counties, on the east by Chaves county, on the south by Chaves and Otero counties and on the west by Socorro county.

It has an area of 4,659 square miles, approximately 3,000,000 acres, of which about 1,250,000 acres are subject to homestead entry. A considerable portion of its area is classed as mineral land and more than half a million acres lie in the Lincoln National Forest, which covers the central part of the county—its mountain ranges. Lands may be homesteaded in the reserve, when shown to be agricultural, and many settlers now reside within its boundaries.



LINCOLN COUNTY COURT HOUSE AT CARRIZOZO

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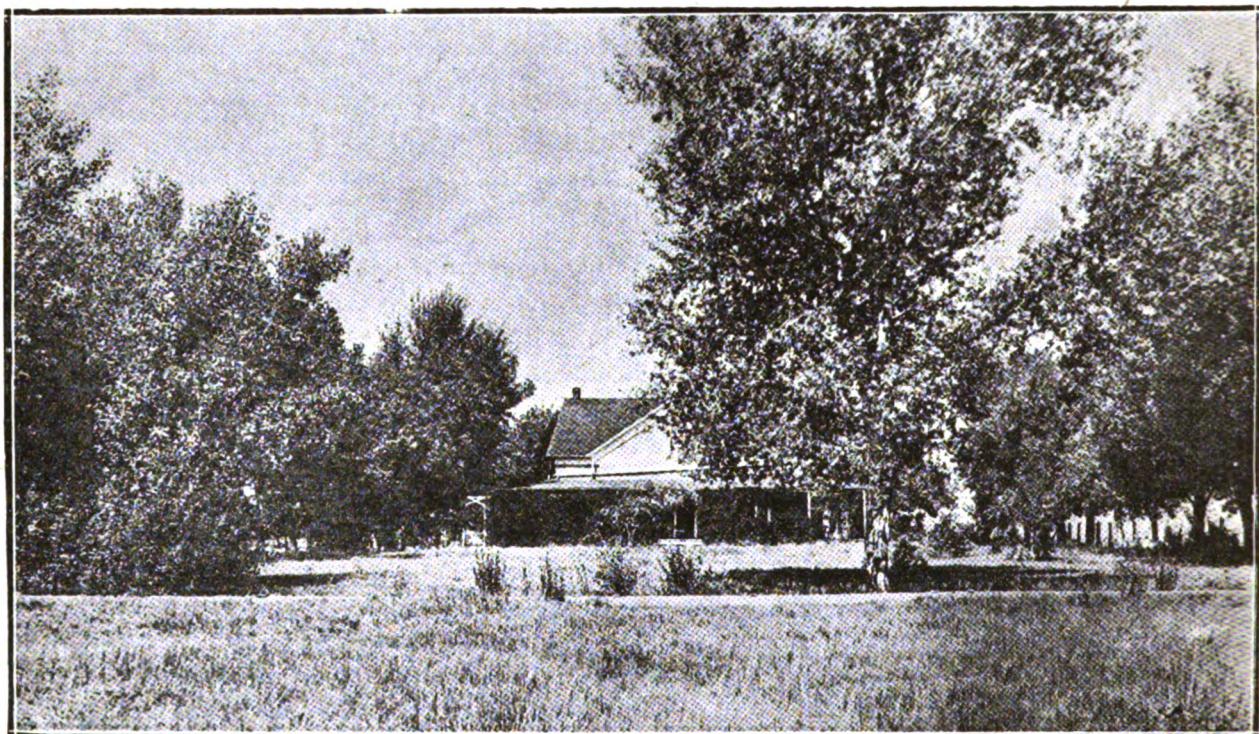
Lincoln County, like all of New Mexico, lies within the so-called arid region that is embraced in the Rocky Mountain plateau, and is divided almost in the center by a range of mountains, the highest peaks exceeding two miles in height. These mountains are but spurs of the main Rockies, but in massiveness and altitude they very nearly approach the Continental Divide. The range is known as the White Mountains, though each spur has a designation. We have the main range, the Capitans, the Tisons, the Jicarillas and the Gallinas.

The east slope of the mountain range is well watered. Besides innumerable springs, there are a number of streams

All the immense area not touched by streams has been used for grazing purposes, springs and wells furnishing the water supply for herds and flocks.

Our mountain ranges, lying wholly within the Lincoln National Forest, contain a great deal of fine timber—thousands of acres—which will produce millions of feet of lumber, suitable for building purposes. Pine, spruce and fir constitute the principal mountain growth, while in the foothills are to be found cedar, juniper and pinon, all serviceable for fuel and fencing purposes.

On the plains and in the mountains, as well, a most succulent grass grows, which furnishes feed for stock the



RANCH HOME OF GOV. WILLIAM C. McDONALD, NEAR CARRIZOZO

that water fertile valleys, maintaining a thriving population. Principal among these streams are the Salado, Bonito, Little and Eagle Creek; Carrizozo, Ruidoso and Hondo—all small streams, but most of them furnishing sufficient water for irrigating purposes. On the west slope a number of springs abound, but there are not so many streams, neither are they so large as on the east slope. Tortolita, Water Canyon and Three Rivers furnish the larger flow of water for the west side. The latter is the principal stream on the west slope, used for irrigating purposes, and along its course are to be found some fine fruit and alfalfa farms. Lincoln County is situated wholly in the Rio Grande water-shed.

year round. It is known as the Grama grass. Its growth is rapid during the summer season, matures with the frost and furnishes sustenance to the flocks and herds of Lincoln County throughout the winter. Season after season large areas of this grass are mowed and baled, some of it fed on farm and ranch, but a great deal of it shipped, and brings a very satisfactory price; for its quality is excelled by no other wild hay.

Altitude, aridity and the preponderance of sunshine, combined with its latitude, give Lincoln County one of the best climates to be found anywhere. From season to season, from year to year, it is one of the most attractive features the county has to offer. Generally, the winters are



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short and mild, the summers cool and delightful, and, except in the higher altitudes, the people follow their usual pursuits throughout the year.

Someone has called New Mexico the "heart of the well country," and it is generally recognized as the nation's sanitarium. But to Lincoln county belongs the distinction of occupying the center of the "heart," for the government of the United States has placed one of its greatest sanatoriums within its confines. It is located at Fort Stanton, on the Bonito, ten miles above Lincoln, and is particularly designated as the United States Public Health Service Sanatorium. It was established for tubercular sailors of the merchant marine, and has an average of 200 patients.

Our public school system is patterned somewhat after that of the older states, and the immense grants of land that have been made the State by Congress bid fair to give New Mexico one of the best school funds in the Union. Like all new countries—a sparse population, comparatively little wealth and vast distances—this country has faced these inconveniences, but it has overcome them, and Lincoln County, especially, is proud of its school system.

It is difficult to put in black and white the great improvement in the schools of Lincoln County; so much that goes to make successful schools is intangible and can not be shown in print:—as the enthusiasm of the pupils and the deep interest of the patrons, yet they are the reasons for the progress. Each year our schools take a step forward, due to the intelligent interest of the citizens at large; terms are longer, attendance better, more and higher qualified teachers are demanded.

The value of buildings and equipment is about \$57,600.00. The buildings of logs erected by the first hardy pioneers being replaced by good modern school houses—\$2,212.94 was spent the past year for new buildings and \$1,149.15 in repairs.

The total amount spent by the schools last year was \$27,482.77, making the cost per child enrolled about \$17.

We have thirty-three buildings with forty-eight rooms in use—twenty-five are one-room buildings, four have two rooms, one uses three rooms and two use six rooms.

We are fortunate in getting teachers with high professional attainments and receive the worth of the \$17,286.85 that was paid to teachers last year, the average salary of \$61 a month.

The County High School at Capitan is being equipped for manual training, domestic science, and business course as well as the studies required by the state high school

course. Every effort is being made to have this school meet the demand of the people for a high school as good as any, giving the children of Lincoln County the advantages they so richly merit.

Carrizozo maintains a four-year high school. Corona is doing two years of high school work. Ancho has a class in second year high school, and White Oaks a class taking first year's studies.

Of the 2,264 enumerated children between the ages of five and twenty-one, 1,723 were enrolled in school. The daily average attendance was about 1,000.

Free gold was discovered at White Oaks in 1879 and a short time later rich discoveries were made at Nogal and in the Bonito country. Mills were installed, the product of the mines reduced to bullion and that in turn was sent to the mint. Just how much gold the mines of Lincoln County have produced would be difficult to say, for the reason that many small shipments were made of which no record is obtainable, but in the aggregate ran into hundreds of thousands of dollars. One mine alone—the Old Abe at White Oaks—has a record of more than a million dollars. A number of other mines in the same camp are almost equally celebrated—the South and North Homestakes—and their joint production quite likely equals that of the Old Abe. Two very valuable mines are located at Nogal—the Helen Rae and the American have been strong producers, and, though idle just now, have experienced only a surface development. The Parsons mine on Bonito, though a low grade proposition, has a large amount of machinery installed and a strong corporation is preparing to work the property on a large scale. Jicarilla, primarily a placer camp, and from the rich beds of the canyons thousands of dollars have been washed by the most primitive methods, has also a promising future for the lode miner, a number of good "strikes" having been made there the past year. The Gallina Mountains, near the town of Corona, have some rich deposits of lead and copper and the Deadwood and Red Cloud mines of that district are producing ore that is now being shipped to the smelter. Other later discoveries in various parts of the county show the existence of valuable ore bodies which will only require capital and scientific development to turn them into paying properties.

Coal mining, until the advent of the El Paso & Northeastern Railroad in 1899, had been carried on only to the extent of developing the properties sufficiently to warrant patenting and the extraction of coal to supply the domestic demand. Up to the date mentioned, White Oaks had the greatest area of coal lands patented and developed, and

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

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

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

On the Maxwell Irrigated Land tract all orchard fruits do well, apples especially so. Colfax County is a great apple-raising region and the Maxwell Irrigated land is equal to the best orchard land in the region. William French, an old resident of the section, writes that he has taken as much as three boxes of apples from a single five-year-old Jonathan tree. Last year he planted fifty-five

acres in apples in raw land, making no preparation except to dynamite the holes where the trees were planted.

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

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

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

THE TOWN OF MAXWELL, NEW MEXICO

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

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

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

Maxwell has a new \$10,000 four-room school house,

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

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

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

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

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

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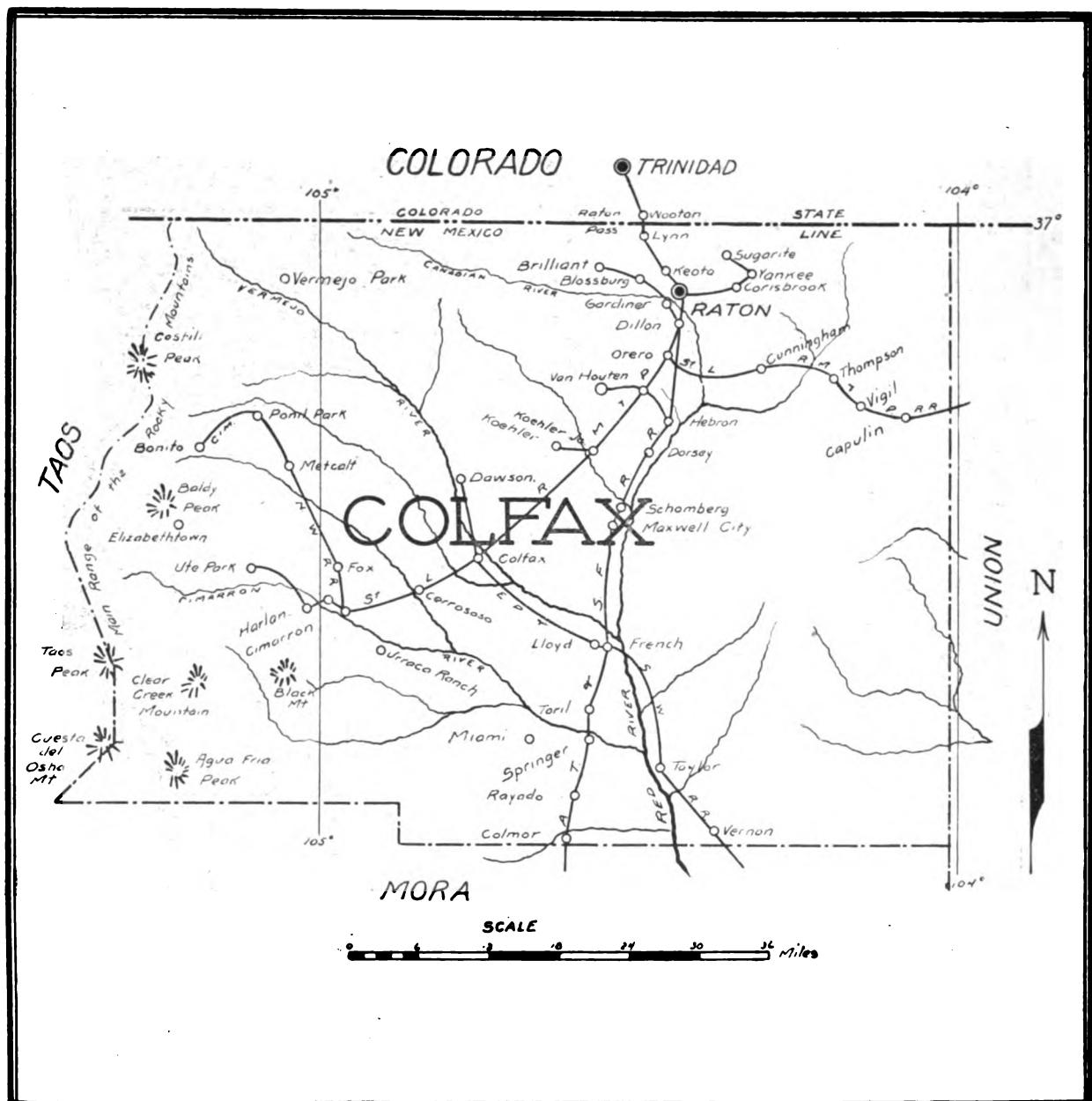
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