



BANCROFT
LIBRARY



THE LIBRARY
OF
THE UNIVERSITY
OF CALIFORNIA



Digitized by the Internet Archive
in 2007 with funding from
Microsoft Corporation

The State of



Wyoming

•1904•

BUFFALO BILL'S DIVORCE.

Telegraphing from Cheyenne (Wyoming) on Sunday a correspondent says:—Buffalo Bill concluded his case for a divorce on Saturday by submitting evidence showing that he was away hunting in the Big Horn mountains at the time when Mrs. Cody alleges he was frequenting disreputable houses elsewhere. Colonel Cody described the attempt during the funeral of his daughter made by Dr. Powell, a mutual friend, to effect a reconciliation, but Mrs. Cody repulsed all his efforts. He admitted being on good terms with his wife down to 1902. Some love-letters to his wife written between 1900 and 1902 were produced, but the attorney said that the writing was almost illegible. Colonel Cody readily volunteered to read the letters, remarking, "It's pretty tough work." Mrs. Cody called several witnesses, who testified to her good character. One witness said that Mrs. Cody had been willing to forgive everything except the charge that she had attempted to poison her husband, which quite broke her heart. Threats of a petition for divorce were made by both sides, but Colonel Cody "thought it an advantage to take the field first." Other evidence will be taken at Sheridan next month, when Colonel Cody will probably avail himself of another opportunity of giving evidence. Rather a sensational feature of Saturday's proceedings was the action of Judge Scott in refusing to accept all the testimony of Mrs. H. Parker, one of the wife's witnesses, relative to the colonel's alleged friendship for certain well-known ladies in England and America, whose names she enumerated. The judge severely rebuked Mrs. Parker, and the attorney stigmatised the offensive statements as "manifestly unjust, preposterous, false, and brutal."

"Buffalo Bill" is suing Mr. Howard Gould, of New York, for £30,000, the amount of the deficit arising from a theatrical venture in which "Buffalo Bill" backed Miss Kathrine Clemmons, who afterwards became Mrs. Howard Gould.

7⁵⁰
D 2235
THE STATE

OF

WYOMING

An Official Publication Containing Reliable Information
Concerning the Resources
of the State.

EDITED AND PUBLISHED BY
FENIMORE CHATTERTON,
SECRETARY OF STATE, 1904.

LARAMIE, WYO. :
CHAPLIN, SPAFFORD & MATHISON, PRINTERS
1904

BUFFALO BILL'S DIVORCE.

PATHETIC INCIDENTS.

The "Telegraph's" New York correspondent cabled on Wednesday:—Buffalo Bill's petition for a divorce was advanced another stage yesterday, when Mrs. Cody, upon examination by her attorneys at North Platte, Nebraska, reviewed her married life. They were married forty years ago at St. Louis, when she was twenty-two years of age, and both were poor. She undertook work as a sempstress, while her husband drove big teams across the Kansas Plains. Later Colonel Cody became a professional hunter in the buffalo department, wherein he excelled. In 1866 he was appointed a Government scout, and for some years was constantly away on Indian expeditions. Prosperity dawned when her husband obtained a theatrical engagement, afterwards developing into a showman on his own account, and buying property.

Counsel: Do you still love your husband?—With all my heart, for he is the father of my children.—Do you desire a reconciliation?—Yes, I do; but I think he ought to retract the poison accusations.—Did you ever give Colonel Cody dragon's blood to make him love you more and other women less?—I don't even know what dragon's blood is.—Did you ever give the colonel any drug to overpower him or that would in any way injure him?—No, I never did. I frequently gave him teas and medicines when he was ailing, and I presume it was on these occasions that people thought I drugged him.

Mrs. Cody specifically denied having mentioned the names of women to whom her husband was alleged to be attentive. "My husband gave me all of the North Platte property (Mrs. Cody testified), and at time of doing so said, I know you will keep it for us in our old age." She told of the trip when her daughter was buried, and denied she threatened to denounce Colonel Cody over the grave as the murderer of the girl. She admitted sending a telegram to Colonel Cody wherein she said that his action in bringing the divorce suit had broken Arta's heart. The letter was introduced, and provided one of the most pathetic incidents of the trial. It was a letter to her mother, written by the daughter three days before she died. In it she said that the bringing of the divorce suit had broken her heart. Mrs. Cody denied that she had used profane or vulgar language, that she was ever intoxicated, that she had ever chastised her children with a car-whip. A severe cross-examination failed to shake her testimony.

BUFFALO BILL'S DIVORCE.

New York, Wednesday.—Buffalo Bill leaves here on Saturday for Paris. He concluded his depositions at Omaha in his petition for a divorce with the declaration that he was opposed to a reconciliation with Mrs. Cody. This declaration was made as the result, Colonel Cody stated, of Mrs. Cody having charged him with being the virtual murderer of their daughter Arta, and announcing publicly that she would denounce him over her grave. Colonel Cody was questioned about the separation between himself and Mrs. Cody in 1877. He said it resulted from an affair at an hotel in Omaha. He had closed his business season, he said, and was paying off the women employes. Mrs. Cody took exception to the manner in which he bid the lady employes good-bye.

50, Herbert Street, Taunton,
Taunton. Somerset.

4th June. 1904.

This Book
"The State of Wyoming,"
was
Presented to me by
Colonel. William. Frederick. Cody-
"Buffalo Bill,"
during an interview which I had
with him at the time his "Wild
West Exhibition" was exhibiting
at the "Door Grounds," Taunton,
on Saturday. 4th June. 1904.

(Signed)

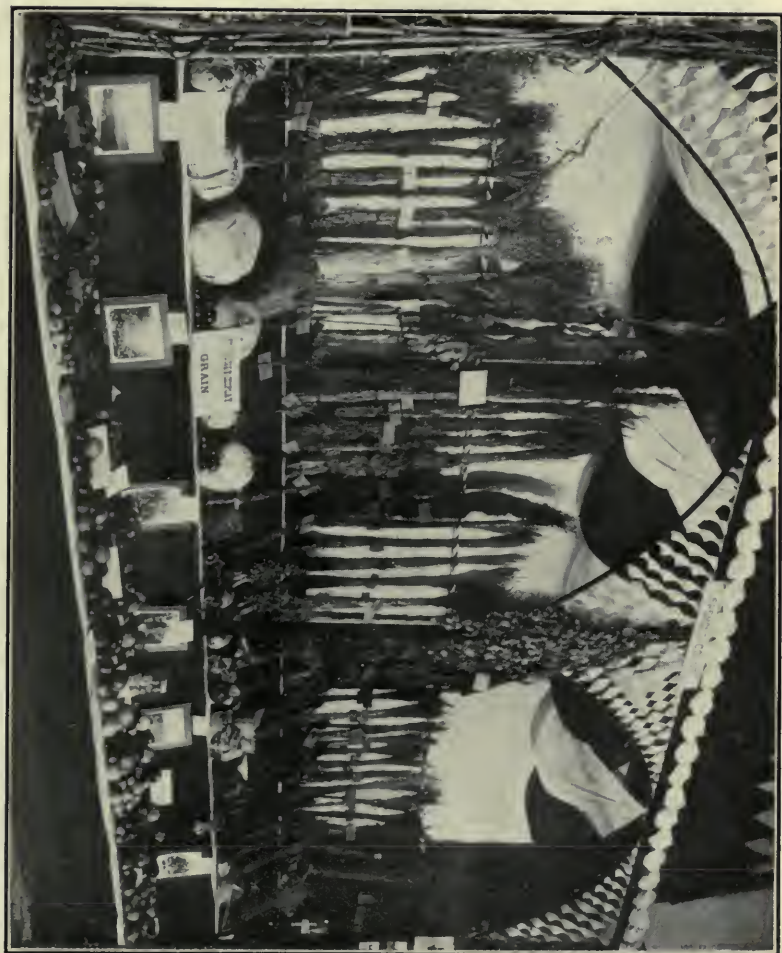
Alb. R. Dunn.

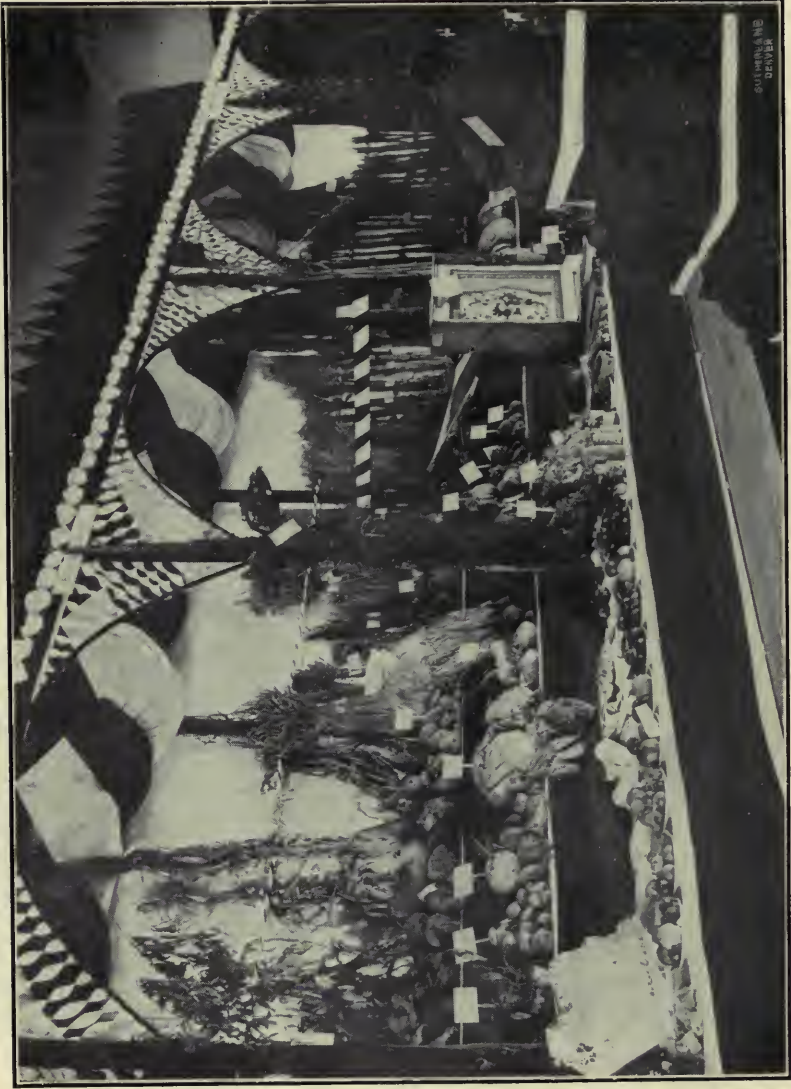
(4-6-1904).

Faint, illegible text, possibly bleed-through from the reverse side of the page.

Faint, illegible text, possibly bleed-through from the reverse side of the page.

INDUSTRIAL CONVENTION—FREMONT COUNTY EXHIBIT.





OUTERMAN'S
REVER

INDUSTRIAL CONVENTION—BIG HORN COUNTY EXHIBIT.

CONTENTS.

	Page.
Agriculture	30
Analysis—	
Coal	44
Iron	54
Mineral Springs	51
Thermopolis	100
Saratoga	103
Oil :	72-78
Soda	51
Banks and Interest	131
Bonded Debts—	
State, \$260,000	133
Counties, \$1,109,220	124
School Districts, \$225,659.50	134
Bank Statements	132
Clay	48
Climate	79
Counties—Special Article on	
Albany County	91
Big Horn County	94
Carbon County	100
Converse County	105
Crook County	107
Fremont County	109
Johnson County	112
Laramie County	114
Natrona County	119
Sheridan County	121
Sweetwater County	123
Uinta County	125
Weston County	129
County and School District Bond- ed Indebtedness	134
Debts—Bonded	133-134
Educational Advantages	86
Elevation of Cities and Moun- tains	144
Elk Mountain District	67
Fishing	137
Fruit Growing	32
Grand Encampment Copper Dis- trict	59
Green River Soda	51
Guernsey Iron District	53
Guides—Licensed	139
Horticulture	30
Hot Springs—	
Saratoga	103
Thermopolis	100
Hunting and Fishing	137
Industrial Association	139
Interest Rates	131

Purchase Record

	Page.
Land—	
Arid Lands—	
Reclamation of	16-20
Reclaimed—List of	20
Coal	24
Desert Lands	23
Government Lands—Acreage	21
Homestead Law	22
How it may be acquired	14
Mineral Lands	24
State—	
How Purchased	15
How Leased—Acreage	16
List of Postoffices	142
Live Stock	37
Cattle	39
Sheep	39
Horses	40
Mineral Resources—	
General Article	40
Coal	43
Coal Analysis	44
Coal Output	45
Coke	43
Copper	42-59
Gold	42-55
Hot Springs	51
Iron	52
Lead	42
Oil	71
Silver	42
Soda	51
Plaster	47
Population by Counties	10
Postoffices	142
Public Buildings	131
Public Libraries	86
Railroads	135
Seminole Iron District	52
Stage Routes	135
State Fair	139
South Pass and Atlantic City Gold District	55
Stone—Building	47
Sunlight Mining District	69
Tax Levies	134
Taxes and Public Indebtedness	133
Vegetables	31
Water—	
How Secured for Ditches	25
How Secured for Pumps	29
Wyoming—A Sketch	7
Wyoming Wants	140
Yellowstone National Park	10

F764

m/f

W86

PREFACE.

The Legislature of 1903 authorized me to publish a pamphlet which should, in the main, give a concise account of the State's resources and interests.

The task of collecting the necessary information has been somewhat difficult, because of the numerous interests centered over a territory embracing nearly ninety-eight thousand square miles, and the results are somewhat disappointing, as I realize that many facts of interest and value must, of necessity, have been overlooked.

It has been impossible, within the space allowed, to give as much detailed information as desired, but an earnest endeavor has been made to give, under the stamp of official authority, from sources of the strictest reliability, an accurate and reliable summary of the State's resourceful advantages.

I take pleasure in giving grateful acknowledgment for very valuable assistance rendered in the collection of data to the following gentlemen, who have kindly interested themselves in furnishing same: H. C. Beeler, State Geologist; Dr. M. C. Barkwell, ex-Senator J. M. Carey, W. E. Chaplin, J. B. Hassett, Henry A. Coffeen, P. L. Smith.

FENIMORE CHATTERTON,
Secretary of State.



WYOMING.

Wyoming was organized as a territory July 25, 1868, from what was then the southwestern portion of Dakota, north-eastern part of Utah, and eastern part of Idaho. On July 10, 1890, the territory was admitted as a State by act of Congress, being the forty-fourth State in order of admission.

Its geographical location classes it among the States of the inter-mountain or arid region, being bounded on the north by Montana, on the east by Dakota and Nebraska, on the south by Colorado and Utah, and on the west by Utah, Idaho and Montana. Its length from east to west is 355 miles; width from north to south, 276 miles, and it has an area of 97,890 square miles, or 62,645,120 acres.

The region now comprised within the limits of the State was traversed by Canadian explorers and other venturesome persons at an early date, but the first white settlement appears to have been established at Fort Laramie, in the eastern part of the State, in the year 1834. Subsequently, trading posts were established in other localities, and still later the building of the Union Pacific railroad and the adaptation of the Western country to the cattle business led to further settlement.

In general appearance the country is mountainous, with valleys, rolling plains and plateaus, the latter covered with grasses of great nutrition and furnishing admirable pasture for live stock, while the mean elevation is 6,000 feet above sea level, with extremes ranging from 3,000 to 14,000 feet. Probably 10,000,000 acres of the total area of the State are covered with timber.

Flowing east or west, according as their source is on the eastern or western slope of the main range of the Rocky Mountains, which cross the State from north to south, are numerous streams, among the number being the North Platte, Snake River, Green River, the Big Horn, the Shoshone, the Laramie and the Yellowstone. None of these streams are navigable in a commercial sense, but they furnish water for the irrigation and development of the surrounding country, and in some instances are used for the transportation of timber.

The soil is a light sandy loam, darker and richer in the valleys. When reclaimed by the application of water, bountiful returns of agricultural products, with the exception of such as thrive only at low altitude and in warm, damp climates, are secured. It is estimated that 10,000,000 acres of the area of the State are suitable for agricultural purposes by irrigation.

There are thirteen counties, four judicial districts, four irrigation divisions, many school districts, but no township organization. The capital is located at Cheyenne, in the southeastern corner of the State.

The climate is similar to that of the mountain region of Italy, and is not, as sometimes erroneously supposed, extraordinarily severe in the winter. The average mean temperature for the year is about 44 degrees, varying somewhat according to elevation, and the atmosphere is rarefied and pure, with but few cloudy days. High winds sometimes prevail during the spring and fall, but cyclones and tornadoes are unknown, while the dryness of the atmosphere tends to ameliorate the effects of extreme cold. Snow storms are usually followed by high winds, which serve to uncover the pastures, so that live stock get the benefit of the grasses cured by the previous summer's sun, and as the cured native grasses retain their nutrition, it enables the stockman to support his stock upon the open range with little, and in the case of sheep raising, no additional food. The severity and frequency of Western blizzards have been largely exaggerated, so that some people consider the Western climate is synonymous with constant storms, dangerous to life. Nothing could be farther from the truth, and but few climates are more bracing, healthful or pleasant than the climate of the mountain region of the Western States. The lowest temperature registered at Cheyenne in December, 1903, was 24 degrees above zero. The almost constant sunlight is not only pleasant, but beneficial from a sanitary standpoint, and it is a well recognized fact in the medical profession that certain diseases, notably pulmonary affections, are much benefited by change from the States of lower altitudes to Wyoming or adjacent States. (See article on Climate.)

Gold, copper and coal mining, petroleum production and raising live stock are the most important business interests of the State. (See articles on these resources.) As will be noticed elsewhere in this publication, the supply of coal underlying the State is apparently inexhaustible, and constant employment is furnished to a great many miners.

The raising of live stock in its departments, however, probably now claims the attention of more people than any other industry, and the facilities for prosecuting that business

are such as to commend it to the attention of prospective settlers. It is a noticeable feature of the present condition of the State that many of the former large herds of cattle have, in recent years, been reduced, without, however, materially reducing the total number of cattle in the State, while the number of small herds owned by ranchmen and farmers has largely increased, and it is doubtful if any other State can show an agricultural population whose financial condition averages better than that of Wyoming's ranchmen. Many are here to testify to the benefits and profits derived by them from the use of the free pasture lands of the open range, with its nutritious native grasses, the opportunities of acquiring government land, cheap fuel and healthy climate, and the large area of the State in proportion to the present population is sufficient evidence that opportunities by which others have heretofore profited still offer to the prospective settler.

The State is destined in the very near future to become the richest, in its diversified natural resources, of any in the Union. The minerals listed in another part of this pamphlet are here in quantity. There are vast coal fields as yet unopened and subject to entry under the United States statutes. There is an enormous area of oil land, most of which is still open for location. There are mountains of iron ore; there is probably more copper than in any other State—veins from four to twenty-five feet wide, running from 15 per cent. to 70 per cent.—and many rich gold bearing lodes.

Hot springs abound, which not only equal but surpass the famous Carlsbad Springs of Europe. The analysis of the waters and the results of their use have demonstrated this to be true.

The only thing necessary to make the State all and more than is claimed for it in this pamphlet is more transportation facilities—railroads operated in the interest of local development and not solely for trans-continental traffic—more capital invested on a business basis, and more men of brains, with push and honest purpose. To such fortune stands upon the Continental Divide, with winning smile and outstretched arms; to such Wyoming extends a hearty greeting and a co-operative hand.

Population by Counties.

	1900.	1890.	Increase Since 1890.
Albany	13,084	8,865	4,219
Big Horn	4,328	.....	4,328
Carbon	9,589	6,857	2,732
Converse	3,337	2,738	599
Crook	3,137	2,338	799
Fremont	5,357	2,463	2,894
Johnson	2,361	2,357	4
Laramie	20,181	16,777	3,404
Natrona	1,785	1,094	691
Sheridan	5,122	1,972	3,150
Sweetwater	8,455	4,941	3,514
Uinta	12,223	7,881	4,342
Weston	3,203	2,422	781
Yellowstone Park	369	.....	369
Totals	92,531	60,705	31,826

From reliable sources of information, it is estimated that the State's population has increased since the last census to 125,000.

Yellowstone National Park,

THE WONDERLAND OF AMERICA.

If all the other resources of Wyoming could fail, the world would still know of her through the Yellowstone National Park.

The park was discovered by John Colter in 1807, but its final disclosure to the world was the work of three exploring parties in the years 1869, 1870 and 1871. It was finally reserved as a national park by act of Congress in 1872. It lies in the northwest corner of Wyoming; is sixty-two miles long by fifty-four miles wide. Its government and control is under the special authority of the federal government.

The scenery of the park is not equalled by anything in the world. It is too grand, its scope too immense, its details too

varied and minute, to admit of even an attempt at its description within these pages, for nearly every form, animate or inanimate, dream or fancy, ever seen or conjectured by the imagination, may here be seen. Its colors and blended tints baffle the artist's brush, and language is inadequate for its portrayal. It is here in this vast solitude that one stands in silent awe and hears the deep diapason of her mightiest and most mysterious anthem as it swells out into thunder tones or sinks into sweetest, softest melodies. Here, too, is found all in nature that is chastely beautiful, hidden away in some dim-lighted alcove or bower, while all about is the grim-visaged and towering strength of the silent mountain sentinel. The eye is never weary, for the scene is ever shifting, ever becoming more and more beautiful, grand, imposing and impressive. Here all is quiet, rest, beauty, sublimity.

Placed as it is upon the very apex of the continent, its seasons are "July, August and Winter." In the summer, July and August, the long-imprisoned vegetation bursts into full life and beauty, and in this short period occur the changes which require months in lower altitudes. The average snow-fall, from November to April, is ten feet.

The tourist season lasts from June until October, and nowhere can be found a more delightful summer climate. Every year shows an increase in the tourist travel to this region, which the government so wisely controls and protects for the enjoyment of the public. The park can be reached by wagon routes, which make very pleasant camping trips through beautiful and diversified scenic country. Probably the most picturesque route is from Cody on the B. & M. railroad, from which point a new road has been constructed by the government. This trip is fifty miles long, and can be made on beautiful tally-ho coaches managed by Colonel Cody (Buffalo Bill). Tourists can stop over midway and rest and fish for the speckled trout, and also make side trips into the famous Jackson Hole country. The scenery on this route equals, if it does not surpass, anything in the Alps. Guides and camping outfits can be obtained at Cody, and this makes a very pleasant method of seeing the park.

The park can also be reached from Rawlins on the Union Pacific railroad through the Shoshone Indian reservation; also from Casper on the F. E. & M. V. railroad through the Indian reservation.

Many visitors choose a northern entrance, coming by way of the Northern Pacific to Livingstone on the main line; thence a branch road fifty miles long drops almost directly south to Cinnabar, Montana, eight miles from Mammoth Hot Springs,

Wyoming, and Fort Yellowstone, where the itinerary of the tourist choosing this route commences.

The trip as planned by the Yellowstone Park Transportation Company occupies five days, and includes the main points of interest, but each hotel may become the center of enjoyable side trips, if the visitor has time and means to tarry.

The Union Pacific and its branch, the Oregon Short Line, bring the traveler to Monida, a station on the boundary of Montana and Idaho. Here he exchanges the Pullman for the modern Concord coach, which the Monida and Yellowstone Stage Company has in readiness for him. Although a day's ride from the boundary of the park, a tourist is seldom found who cares to forget that first day's coaching. The invigorating air, the ever-changing view of mountain and lake, good horses, a good driver and good meals at every station, combine to drive into the background the cares of his workaday life. This route connects with the belt line at the Fountain Hotel in the Lower Geyser Basin.

All stage lines are equipped with the best and most modern coaches. Necessary hand baggage is carried, and trunks are stored free of charge. Parties coming in by one route and desiring to leave by the other may have their baggage transferred without cost.

Hotel rates are four dollars per day. There are four modern hotels, with electric light, baths and telegraphic communication with all parts of the world. These are so situated that coaches reach them before an early dinner hour and leave after breakfast. The midday meal is procured at lunch stations conveniently placed between the hotels.

The Wylie Camping Company furnishes still another way of doing the park. It stands in about the same relation to the two just described that an accommodation train does to the Pullman flyer. One travels the same road and has the same views, but from a two-horse spring wagon instead of a four-horse Concord coach. He sleeps in a tent, dines from a camp table, and pays thirty-five dollars for his week in the park.

Last of all comes the independent camper, who cooks his meals in the geyser wells, finds plenty of suitable camping places, and may have a very good time with small expense, if he is careful to quench his camp fire, and keeps his dog tied under the wagon, or, better still, leaves him at home.

The government is spending large sums of money in the construction of wagon roads leading from the south and east; the former from Fort Washakie to Jackson Lake, directly south of the park. From this point a good road connects with the belt line at Yellowstone Lake. The traveler taking this route

passes within the shadow of the Grand Teton and along the margin of Jackson Lake, a combination of water and mountain scenery unsurpassed for grandeur and beauty.

As the United States has sole and exclusive jurisdiction over the park, its protection and improvement are under the direction of government officers. Fort Yellowstone, located at Mammoth Hot Springs, is a two-troop cavalry post. The commanding officer is the acting superintendent of the park. The United States Commissioner, who has civil jurisdiction of all crimes and offenses committed within the park, is stationed here. There are also ten outposts throughout the park, at each of which are stationed a non-commissioned officer and a small squad of men, who patrol the entire area of the park both summer and winter.

All roads are constructed and kept in repair at the expense of the government. The road leading south from Mammoth Hot Springs at Norris Geyser Basin, twenty miles from Mammoth Hot Springs, intersects the belt line, which describes a circle of one hundred miles, and upon which is situated nearly all the most prominent points of interest. Twenty miles of the one hundred can be covered by steamer across Yellowstone Lake, if the traveler so elects, for an extra fare of three dollars.

The English language is rich in adjectives, and all have been brought into service, but failed to picture the park. In spite of the attempts of the word painter, it has not been described. Each one must see for himself to appreciate the generosity of Mother Nature, who has planned entertainment for every mood of every character. The poet may find his theme, the artist an inexhaustible supply of studies, the scientist a rich field for work. The lover of the grotesque will linger in the hoodoos. The mud geyser will satisfy a craving for the horrible. Spluttering pools and boiling springs will testify that the stokers of the lower regions are never off duty. The geysers bear a family resemblance to one another, but each has an individuality in cone and action. The Grand Canon, with its many hued walls, might alone invite the world to be its guest. Fish are waiting to be caught, but deer and other game seem to realize that they are the wards of the government, and only pose for the admiration or the camera of the visitor. Bears never fail to furnish the after dinner amusement at the hotels.

Lands.

There are two kinds of lands—State and Government.

The non-mineral land laws, which have been of the greatest benefit to the arid West, are the pre-emption, homestead, desert land and Carey act. The pre-emption act has been repealed.

Under the homestead act, settlement on a tract of one hundred and sixty acres, or less, is required for five years, when title passes to the settler without any money consideration, or after fourteen months' actual settlement the title may be obtained by the payment of one dollar and twenty-five cents per acre.

Under the desert land act, three hundred and twenty acres may be acquired within three years by the expenditure of three dollars per acre in improvements, water rights and cultivation, and the payment to the government of one dollar and twenty-five cents per acre.

Other acts grant to the States for aid in the support of public schools, sections sixteen and thirty-six in each township. This grant amounts in Wyoming to 3,001,905 acres. There is also given the State five per cent. of all money received by the general government for the sale of its lands in Wyoming. The interest on this fund is used in aid of the support of the school.

There have also been granted to Wyoming 663,080 acres for aid in support of her several institutions, such as the University, Agricultural College, Hospital, Insane Asylum, Penitentiary, Soldiers' Home, etc.

The rental of these lands, which are mostly pasture lands, bringing an average rental of three cents per acre, and the interest upon the fund realized from their sale, at not less than ten dollars per acre, is used in aid of the maintenance of these institutions.

STATE LANDS—HOW THEY MAY BE ACQUIRED.

There are two classes of State lands:

First—Those donated to the State for various public purposes, and over which the State has absolute control.

Second—Those known as "arid lands," whose donation to the State is conditional upon their reclamation.

Under the provisions of the constitution and statutes, the State Board of Land Commissioners, consisting of the Governor, Secretary of State, State Treasurer and Superintendent of Public Instruction, have the direction, control, disposition and care of all lands granted to the State.

First—Those donated to the State for various public purposes, and over which the State has absolute control.

May Be Sold.—The act of admission provides that all school lands, including the grant for the use of the Agricultural College, shall be sold for not less than ten dollars per acre. The constitution provides further that lands heretofore and hereafter acquired shall be sold for not less than ten dollars per acre, and that such lands shall be disposed of at public auction, providing, also, that actual and bona fide settlers shall have the preference right to purchase in tracts not exceeding one hundred and sixty acres.

May Be Leased.—The State Board of Land Commissioners lease any legal subdivision of the lands of the State at an annual rental not less than five per cent. of the valuation thereof, fixed by the board, conditioned upon the payment of the rent annually and in advance, and for periods of not more than five years. When any lease expires by limitation the lessee may, with the permission of the board, renew the same as follows: At any time within ninety days next preceding the expiration of the lease the lessee or his assigns shall notify the Register of his or their desire to renew the lease. If the lessee and the board be agreed as to the valuation of the land, a new lease shall be issued, bearing even date with the expiration of the old one, and upon like conditions.

The power given to the board to refuse to renew a lease or to sell State lands at the expiration of a lease, or again to lease to other parties than the original lessee, shall not apply, whenever the original lessee of the State lands, or his assigns, shall have, during the period of his lease, or prior thereto, reclaimed the same by irrigation, and shall have provided suitable ditches for its full and complete reclamation, and shall have secured an adequate and perpetual water supply for said land; then, and in that case, the original lessee shall have the right to renew such lease for a term of five years, which renewal may be repeated for the same period five years thereafter, and may again be repeated for the same period ten years thereafter, making a total period not to exceed twenty years; provided, that each of said renewals shall be dependent upon the continuous irrigation and cultivation of at least forty acres in every one

hundred and sixty of said land, and in case the lessee shall have failed to cultivate the said land, then said board shall have the authority to refuse to renew the lease, as hereinbefore provided.

The lessee of State lands is prohibited, in all cases, from cutting or using more of the timber thereon than shall be necessary for the improvement of such lands, or for fuel for use of the family of the lessee, and from the cutting and hauling of timber from leased State lands to saw mills.

Any lease of State lands procured by fraud, deceit or misrepresentation may be cancelled by the board upon proper proof thereof.

The necessary blanks will be supplied any person desiring to lease State lands, upon application to the Register of the State Board of Land Commissioners.

Acreage of State Lands Leased in Each County and Revenue Derived Therefrom in 1902.

	Acreage.	Rental.
Albany	136,800.11	\$ 5,832.57
Big Horn	192,585.01	9,440.12
Carbon	187,968.70	8,144.12
Converse	333,547.65	12,959.59
Crook	161,247.85	5,995.73
Fremont	145,864.78	6,147.14
Johnson	126,771.11	5,541.32
Laramie	370,487.60	13,607.55
Natrona	207,905.97	7,716.36
Sheridan	188,875.31	9,395.45
Sweetwater	42,078.57	2,127.95
Uinta	101,450.63	5,056.48
Weston	103,918.18	3,960.92
Totals	2,302,501.47	\$95,925.30

Second.—Those Known as Arid Lands Whose Donation to the State Is Conditional Upon Their Reclamation.

The act of Congress approved August 18, 1894, donated to the State of Wyoming, conditional upon its reclamation, one million acres of arid land. The State of Wyoming accepted the conditions of the grant, and by Chapter 15, Title 9, of Division I of the Revised Statutes, provided for its reclamation, occupation and disposal. The general provisions of this law are as follows:

Request and Proposal.—Any person, or company of persons, having constructed or desiring to construct ditches, ca-

nals or other irrigation works to reclaim lands under the provisions of this act, shall file with the State Board of Land Commissioners a request for the selection of the land to be reclaimed, and accompany this request with a proposal to construct the ditch, canal or other irrigation works necessary for the complete reclamation of the land asked to be selected, and shall make clear to the board their financial ability to carry out the proposed undertaking.

Guaranty.—A certified check for such sum as may be determined by the board shall accompany each request and proposal as a guarantee that a contract with the State will be entered into according to its terms.

Maps and Field Notes.—An accurate survey must be made and maps and field notes furnished the board, with a certified copy of a permit from the State Engineer to appropriate water for the reclamation of the land described.

Terms of Contract—With State for Construction—With Settler for Land and Water—Bond.—Upon the withdrawal of the land by the Department of the Interior, it shall be the duty of the board to enter into a contract with the parties submitting the proposal, which contract shall contain complete specifications of the location, dimensions, character and estimated cost of the proposed ditch, canal or other irrigation works; the price per acre and terms at which such works and perpetual water rights shall be sold to settlers; provided, that such price and terms for irrigation works and water rights shall in all cases be reasonable and just. This contract shall not be entered into on the part of the State until a satisfactory bond is filed by the proposed contractor for irrigation works, which bond shall be in a penal sum equal to five per cent. of the estimated cost of the works.

Time Allowed for Construction.—No contract shall be made by the board which requires a greater time than five years for the construction of the works, and all contracts shall state that the work shall begin within six months from the date of contract; that at least one-tenth of the construction work shall be completed within two years from the date of said contract, and that construction shall be prosecuted diligently and continuously to completion. Upon failure of contractors to complete ditch or canal under contract, the Land Board may sell any such incomplete works at auction.

Application for Entry—Cost of Lands.—Any citizen of the United States, or any person having declared his intention to

become a citizen of the United States (excepting married women not the heads of families), over the age of twenty-one years, may make application, under oath, to the board to enter any of said land in any amount not to exceed one hundred and sixty acres for any one person. Such application must be accompanied by a certified copy of the contract for a perpetual water right made and entered into by the person making application with the persons, company or association who has been authorized by the board to furnish water for the reclamation of said lands. All applications for entry shall be accompanied by a payment of twenty-five cents per acre, which shall be paid as a partial payment on the land, if the application is allowed. If the application is not allowed, the twenty-five cents per acre accompanying it shall be returned to the applicant; provided, that where the construction company fails to furnish water to any settler under the provisions of its contract with the State, the State shall refund to such settler all payments that he shall have made to the State. The board shall dispose of all lands accepted under the provisions of this act at a uniform price of fifty cents per acre, half to be paid at the time of entry and the remainder at the time of making final proof by the settler.

Reclamation—When to Begin—Final Proof.—Within one year after any person or company of persons authorized to construct irrigation works under the provisions of this act shall have notified the settlers under such works that they are prepared to furnish water under the terms of their contract with the State, the said settler shall cultivate and reclaim not less than one-sixteenth part of the land filed upon, and within two years after the said notice the said settler shall have actually irrigated and cultivated not less than one-eighth of the land filed upon, and within three years from the date of said notice the settler shall make final proof of reclamation, settlement and occupation, which proof shall embrace evidence that he has a perpetual water right for his entire tract of land sufficient in volume for the complete irrigation and reclamation thereof, and that he is an actual settler thereon.

Patents—Water Rights Appurtenant.—The water rights to all lands acquired under the provisions of this act shall attach to and become appurtenant to the land as soon as title passes from the United States to the State.

*** Fees.**—The board shall collect the following fees: For filing each application, one dollar; for filing each final proof, one dollar; for issuing each patent, one dollar; for making cer-

tified copies of papers or records, the same fee as provided for to be charged by the Secretary of State for like services. The money collected for fees shall be paid to the Treasurer of the State, and by him credited to the fund created by virtue of this act.

The method of operating under this act and the State statute is as follows: An individual or corporation obtains a water right from the State Engineer and enters into a contract with the State Land Board to construct a ditch for the irrigation of any number of acres, usually of from 10,000 to 250,000, when this contract is approved by the Secretary of the Interior, the lands are withdrawn from entry under the other national land acts and become subject to entry under the State law, when the ditch is completed. The actual settler files with the State Land Board an application for one hundred and sixty acres, or less, pays the State twenty-five cents per acre at the date of filing, purchases a perpetual water right from the builder of the ditch—these perpetual water rights sell for from ten to fifteen dollars per acre in ten annual payments—he then has three years within which to irrigate and reclaim not less than twenty acres of land; whenever this is done he makes proof thereof to the State Board, pays the State an additional twenty-five cents per acre and receives a patent for his land. The purchasers of the water rights become stockholders in the main ditch, and, when all the water rights are sold, the irrigation works are owned by the settlers themselves and the original builder steps out reimbursed for his time and money expended, if he has handled the project economically and on business principles.

The moneys received by the State for the lands at fifty cents per acre create a fund for the reclamation of other lands by the State itself.

This act is now proving to be the most beneficial to this State of any of the land acts, and probably more so to this than to any other State, for the reasons:

First—This State of all the arid States has the best irrigation laws for all kinds of irrigation projects, and especially for those under the Carey act.

Secondly—Because the State Land Board has taken special and practical interest in furthering the State's interests under this act; and,

Third—Because the State and National governments are behind the act and afford perfect protection for the capital invested and to the settler for the title to his land the perpetuity of his water right. There is no possibility of any fake scheme whereby the individual investors or the settlers can lose. For

these reasons and the fact that the soil, climate and altitude of Wyoming are especially adapted to the most profitable crops as the result of irrigation, this State has accomplished more under this act than has any other of the arid States, and the act is accomplishing more for the settlement and growth in wealth of the State and the furnishing of homes for the poor than any other land act of the general government. Homes worth fifty dollars per acre are obtainable for ten dollars and fifty cents per acre, and capital invested is assured a fair profit.

Under the Carey arid land act, the State of Wyoming has segregated and has contracted for the reclamation of 556,593.39 acres. Different tracts of lands are watered and to be watered as follows:

Big Horn County—Shoshone Irrigation Company, 24,562.55 acres; Big Horn Basin Development Company, 28,729.13 acres; Big Horn Colonization Company, 21,077.28 acres; Hanover Canal Company, 10,800 acres; Newton Canal Company, 784.43 acres; Cody & Salisbury Canal, 80,000 acres; Oregon Basin Reservoir and Canal Company, 200,000 acres; Lovell Irrigation Company, 12,000 acres; Big Horn County Canal, 17,000 acres.

Fremont County—Fisher Canal, 320 acres; Boulder Lake Canal Company, 6,500 acres.

Converse County—Fitzsimmons Ditch, 160 acres; John Scott Ditch, 160 acres.

Uinta County—Uinta County Canal No. 2, 12,500 acres.

Laramie County—North Platte Canal and Colonization Company, 15,000 acres; North Platte Canal and Reservoir Company, 27,000 acres; Wyoming Development Company, 100,000 acres.

Persons desiring information with regard to the acquisition of land with perpetual water rights under these several canals may obtain same by addressing the following persons: George T. Beck, Secretary, Shoshone Irrigation Company, Cody, Wyoming; S. L. Wiley, President, Big Horn Basin Development Company, 413 New York Life Building, Omaha, Nebraska; C. F. Robertson, Secretary, Hanover Canal Company, 601 National Bank Building, Omaha, Nebraska; Colonel W. F. Cody, President, Cody & Salisbury Canal Company, Cody, Wyoming; Charles A. Guernsey, Manager, Oregon Basin Reservoir and Canal Company, Cheyenne, Wyoming; W. S. Adams, President, Boulder Lake Canal Company, Saratoga, Wyoming; D. C. Patterson, President, Uinta Canal No. 2, Patterson Building, Omaha, Nebraska; H. D. Lingle, President, North Platte Canal and Colonization Company, Torrington, Wyoming; Fred E. Coe, President, North Platte Canal

and Reservoir Company, 635 Seventeenth Street, Denver, Colorado; Wyoming Development Company, Cheyenne, Wyoming.

Large deposits of coal, sold at one dollar and twenty-five cents per ton at the mine, are accessible to all the tracts now being reclaimed, or proposed to be reclaimed.

GOVERNMENT LANDS.

The area of Wyoming is 97,883 square miles, or 62,433,280 acres. Of this vast area, 59,454,912 acres are surveyed and 2,978,368 acres are unsurveyed.

The public lands vacant and subject to entry and settlement in the State, according to the last report received from the United States General Land Office, were: Surveyed lands, 40,804,945 acres; unsurveyed lands, 2,978,368 acres; total, 43,783,313 acres.

Unappropriated lands of the United States in the State of Wyoming, as comprised in the several counties, are as follows:

Albany	1,572,065 acres
Big Horn	5,245,709 acres
Carbon	3,346,696 acres
Converse	3,824,016 acres
Crook	2,873,800 acres
Fremont	4,907,494 acres
Johnson	2,296,630 acres
Laramie	2,796,799 acres
Natrona	3,212,252 acres
Sheridan	1,111,982 acres
Sweetwater	5,951,432 acres
Uinta	4,193,519 acres
Weston	2,450,919 acres

The public lands in Wyoming consist chiefly of grazing, timber and agricultural lands, though there are large areas of coal, oil and mineral lands.

The agricultural lands are those lying contiguous to the rivers and streams, and are vast in extent, but crops cannot be successfully raised without irrigation. By the application of water the soil is rendered very productive and is not surpassed by the fertile states of the Mississippi and Missouri valleys.

The laws under which title to government land may be acquired by citizens of the United States are the homestead law, the desert land law, the timber and stone law and the coal and mineral law.

Homestead Law.—The homestead law secures to qualified persons the right to settle upon, enter and acquire title to not exceeding one quarter section (one hundred and sixty acres) of public land, by establishing and maintaining residence thereon and improving and cultivating the land for the period of five years. A homestead entryman must be the head of a family or a person who has arrived at the age of twenty-one years. He must be a citizen of the United States, or one who has declared his intention to become such, as required by the naturalization laws. The act of March 3, 1891, attaches the condition that he must not be the proprietor of more than one hundred and sixty acres of land in any State or Territory.

The class of lands subject to entry under the homestead laws are described by the statute as unappropriated public lands. Parties who are prevented, by reason of distance, bodily infirmity or other good cause, from personal attendance at the District Land Office, may make the preliminary affidavits for homestead entries within the county in which they reside before any Commissioner of the United States Court having jurisdiction over the county in which the land is situated, or before the Judge or Clerk of any Court of Record of such county, transmitting the same, with their application and the proper fees and commissions to the Register and Receiver of the District Land Office, thus permitting entries to be made without personal attendance at the District Land Office. Applicants availing themselves of this privilege are required to transmit with their application an affidavit setting forth specifically why they cannot appear at the land office.

Where a wife has been divorced from her husband, or deserted, so that she is dependent upon her own resources for support, she can make a homestead entry as the head of a family or femme sole.

A single woman who makes a homestead entry and marries before making proof does not forfeit her right, provided she does not abandon her residence on the land to reside elsewhere. Where two parties, however, unite in marriage, each having an unperfected homestead entry, both entries cannot be carried to patent. A residence elsewhere than on the land entered for more than six months is treated as an abandonment of a homestead entry.

Parties desiring to commute their homestead entries to cash are required to make proof of settlement and of residence on and cultivation of the land for a period of fourteen months from the date of entry. There are many other provisions relating to restoration of rights, adjoining homesteads, soldiers' and sailors' homestead rights, additional entries, etc., too numerous to mention in the space of this brief article.

The following is a table of fees and commissions charged in the Mountain states under the homestead act :

Acres	Class of Lands	COMMISSIONS		Fees, Payable when entry is made	Total sum
		Payable when entry is made	Payable when certificate issues		
160	\$2.50*	\$12.00	\$12.00	\$10.00	\$34.00
80	2.50*	6.00	6.00	5.00	17.00
40	2.50*	3.00	3.00	5.00	11.00
160	1.25†	6.00	6.00	10.00	22.00
80	1.25†	3.00	3.00	5.00	11.00
40	1.25†	1.50	1.50	5.00	8.00

*Inside Union Pacific Land Grant.

†Outside Union Pacific Land Grant.

Desert Lands.—All lands, exclusive of timber lands and mineral lands, which will not, without artificial irrigation, produce some agricultural crop, are deemed desert lands, and are subject to entry under the desert land law. The party making entry is required at the time of filing his declaration to file also a map of the land, which will exhibit a plan showing the mode of contemplated irrigation, which plan shall be sufficient to thoroughly irrigate and reclaim said land and prepare it to raise ordinary agricultural crops. Persons may associate together in the construction of canals and ditches for irrigating and reclaiming tracts entered or proposed to be entered by them, and they may file a joint map, or maps, showing their plan of internal improvements. No person is permitted to enter more than 320 acres of land in the aggregate under all the land laws of the United States, mineral lands excepted. Parties initiating desert claims are required to show observance of such inhibition.

The right to make desert land entries is restricted to resident citizens of the State in which the land sought is located. Citizenship and residence must be duly shown. The entryman must expend at least three dollars per acre, one dollar per acre during each year for three years, and must file proof thereof during each year, such proof to consist of his affidavit, corroborated by the affidavits of two or more witnesses, showing that the full sum of one dollar per acre has been expended during such year and the manner in which expended, and at the expiration of three years a map or plan showing the character and extent of the improvements. Failure to file the required proof during any year shall cause the land to revert to the United States, the money paid to be forfeited and the entry to be cancelled. The party may make his final entry and receive his patent at any time prior to the expiration of three years by making required proof of reclamation and of the expenditure of the aggregate amount of three dollars per acre, and of the cultivation of one-eighth of the land. Persons making desert land entries must acquire clear right to the use of sufficient water

for the purpose of irrigating the whole of the land, and of keeping it permanently irrigated. Persons making desert land entries before they have secured a water right do so at their own risk. The price of land sought to be entered under the provisions of the desert land act is \$1.25 per acre, without regard to the situation of the lands in regard to railroad grants. When proof of the character of the land has been made the applicant will pay the Receiver twenty-five cents per acre for the land applied for. At the time of making final proof the payment of one dollar per acre is required.

Timber and Stone Entries.—The act of June 3, 1878, provides that surveyed lands in the public land States, valuable chiefly for timber and stone, unfit for cultivation, and consequently unfit for disposal under the homestead and desert land laws, may be purchased by individuals and by associations at the minimum price of \$2.50 per acre. A party making application to purchase a tract of this character is required to make affidavit that he is a citizen of the United States by birth or naturalization, or that he has declared his intention to become a citizen under the naturalization laws. The quantity of land which may be acquired lawfully under said act by any one person or association is limited to not exceeding 160 acres, which must be in one body.

Coal.—A qualified person has the right to enter by legal subdivision any quantity of coal lands in the United States, not otherwise appropriated or reserved by competent authority, not exceeding 160 acres to such individual person or 320 acres to an association, upon payment to the government of not less than \$10 per acre for such lands, where the same shall be situated more than fifteen miles from any completed railroad, and not less than \$20 per acre for such lands as shall be within fifteen miles of such road. A party or association having opened and improved any coal mine, or mines, upon the public lands, and who shall be in actual possession of the same, is entitled to a preference right of entry, and it is provided that when any association of not less than four persons, duly qualified as provided by law, shall have expended not less than \$5,000 in working and improving any coal mine, or mines, such association may enter not exceeding 640 acres, including such mining improvements.

Mines and Mineral Lands.—Lands valuable for deposits of mineral, such as fire and pottery clay, marble, asphalt, soda, sulphur, diamonds, or of the precious common metals, are subject to sale under the mining laws. A location must be first duly made and recorded, and certain sums must be annually expended. Five hundred dollars' worth of labor and improve-

ments must be laid out on each claim before patent can be applied for. The rules and regulations and methods of procedure are too extensive and complex to be reviewed at length in the compass of this brief article. Mining locations defeat all railroad and State selections, if the mines and minerals were known to exist, or were discovered prior to the time the road and State claims took effect. Homestead, desert and timber and stone entries cannot embrace known mineral lands, unless it be first shown that the lands sought to be entered are more valuable for agricultural purposes than for the mineral they contain.

The United States land offices for the several districts in Wyoming are as follows: Albany, Carbon and Laramie Counties, and a few townships in Southeastern Sweetwater and Southeastern Fremont County, at Cheyenne, Wyo.; Sweetwater and Uinta Counties, at Evanston, Wyo.; Fremont and Big Horn Counties, at Lander; Johnson, Sheridan and a small portion of Eastern Big Horn County, at Buffalo; Crook and Weston, at Sundance; Converse and Natrona, at Douglas.

Water.

How to Secure Water for Irrigation and Other Beneficial Purposes.

As the future agricultural development of the State rests largely upon the prudent and economical use and distribution of its water supply, it has been deemed a wise step to establish a State department under an efficient officer, the State Engineer, who exercises, through a Board of Control, careful supervision of the use and distribution of the waters of the State. From this department have been issued to persons desiring to apply for permits to appropriate water, brief instructions, of which the following is a copy:

Applications.—Applications must be made upon the blank form approved by the State Engineer. Applications to enlarge existing ditches, or to increase the acreage watered therefrom, must be made on an enlargement blank. In giving dimensions, remember the following:

“Width on top” is the width at surface water line. Depth is the depth of water the ditch or canal is to carry.

The area to be irrigated must be given; where not measured, an estimate must be made, and where only part of a sub-

division is to be watered, the estimate must give the acreage in each forty acres of these fractional subdivisions.

The law requires applications to be made and approved by the State Engineer before work begins. No application which states that work has begun or has been completed will be approved.

Maps.—Each application must be accompanied by two maps, one of which must be on tracing linen. These maps must be drawn on a scale of two inches to the mile, and on sheets not less than six by nine inches.

They must show the location of the headgate by courses and distances from some government corner. They must show the actual location of the ditch or canal, and where government survey lines are crossed the distance to the nearest corner must be given. Where corners cannot be found, give the location of line by courses and distances.

The map must show the course and name of the stream from which water is taken; the location and area of land to be irrigated, or place where water is to be used for other purposes. This may be done by marking the boundaries or by coloring the areas.

Wherever the canal line crosses streams or other ditches the location of such crossing must be shown, and such intersecting streams and ditches must be marked by ink of a different color. Maps must contain the name of the ditch, canal or reservoir, and the postoffice of the surveyor, with date of survey.

Reservoirs and Dams.—Plans for dams, cribs or embankments must be drawn on a longitudinal scale of not less than one inch to one hundred feet, and for cross-sections, of not less than one inch to four feet. The plans for outlet and wasteways for reservoirs shall show the total area to be submerged, and enough levels to permit of computing its capacity.

Fees.—For filing and examining applications for permits to appropriate water, \$2.00.

For recording statements of claim, \$1.50.

For recording applications for reservoir permits, \$1.00.

For recording any other water instrument, for the first one hundred words, \$1.00; for each subsequent folio, fifteen cents.

For issuing certificates of appropriation, \$1.00.

For making certified copies of record, fifteen cents per folio.

For attaching certificate, \$1.00.

An Illustration of What May Be Done Under the Carey Act.

The results obtained under the operations of the Sidon Canal in the Big Horn County are a splendid illustration of what can be accomplished under the Carey act by the properly directed and conducted efforts of a community interest. Three years ago two hundred families moved upon a 20,877-acre tract where there was no water and scarcely enough vegetation to support a jack rabbit. These people excavated a ditch eighteen feet wide, thirty-five miles long, in many places thirty feet deep, and tunneled a hill of solid rock nine hundred and forty feet, and for the purpose of obtaining funds with which to purchase necessaries, constructed at the same time twenty-seven miles of railroad grade and twenty-eight miles of government road through the mountains to the National Park. Last year, the second year of settlement, they raised sugar beets containing twenty-four per cent. saccharine matter—the standard of European beets is twelve and one-half per cent. saccharine matter; of Colorado and Nebraska, fourteen per cent. They raised seventy-five bushels of oats to the acre, weighing forty to forty-five pounds per bushel, and worth one dollar and twenty-five cents per hundred weight, equivalent to thirty-seven dollars and fifty cents per acre; three crops of alfalfa, yielding as a total for the three crops five tons per acre, worth five dollars per ton. Cherry trees grew 4.7 feet last season. Sugar cane and peanuts are profitable crops; vegetables of all kinds grow luxuriantly, potatoes weighing two pounds and pumpkins forty to sixty pounds.

So, where three years ago the only moving things were jack rabbits, the coyote and the Wyoming zephyr, there are today twelve hundred prosperous people in happy and comfortable homes; three towns, with churches, school houses, stores, etc., but no saloons. The water rights for this tract and the land cost these people only eight dollars and fifty cents per acre. The land today could not be purchased for twenty-five dollars per acre, and in three years it will be sought for at one hundred dollars per acre.

A statement furnished from the Bench Canal tract shows equally well. Last year, the third year of settlement, farms only partially cultivated—some cases only one-third, others one-half—show net returns of one thousand dollars per farm.

Richness of Arid Soil.

The average yield of land in Wyoming of different kinds of crops is from fifty to one hundred per cent. greater every year than that of the humid portions of the United States—

such as Iowa, Illinois and Missouri. Besides, there is no failure of crops under irrigation. This is a productiveness which not one man in a hundred in Wyoming appreciates, and which those who live elsewhere not only do not appreciate, but scarcely credit.

This wonderful richness of our soil is, through scientific research, clearly explained as follows: Soils are formed by the disintegration, physical and chemical, or weathering of rocks. This breaking up and wearing away of the parent rock result in the formation of compounds which are soluble in water; these compounds being chiefly of sodium, potassium, calcium and magnesium. Where rains occur more or less regularly throughout the year, these water soluble compounds are leached out of the land, passing into the subdrainage and thence through springs and streams into the sea. But where the rainfall is scanty this leaching can take place only partially or not at all, and we frequently see the salts of potassium, sodium and magnesium directly on the surface of the soil, having been brought up by the evaporation of the soil moisture. While an excess of such salts, as sal-soda, common and Glauber's salt, is injurious, where there is not an excess, there is formed in the soils of the arid regions a much greater supply of plant food than in the regions of rain where the plant food is leached out. This great accumulation of plant food defers any need of artificial fertilization. This, without entering into an extended scientific discussion, explains the unusual productiveness of the arid regions and assures us that that great productiveness will be lasting.

In arid regions there is very little true clay formed, the soils throughout being sandy and powdery. Consequently, there is very little or no difference between the soil on the surface and the sub-soil; air, water and the roots of plants penetrating to much greater depths than in those soils where the under soil is dense and clayey. In this irrigated country from three to six times as great an amount of soil mass may be drawn upon by plants as in a humid country. A man who buys one hundred and sixty acres of land in Wyoming is getting as much soil as he who has from three to six times as many acres in the humid portion of the country.

There is a prevailing idea that a sandy soil is unproductive. In the regions of summer rain a sandy soil usually means an unproductive one, for there sand consists of quartz grain only. In this country sand is the entire substance of the parent rock, none of the nutritive chemical ingredients having been leached out.

Raising Water.—There are many places where, by reason of the high banks and slight fall of the stream, it is too expensive or impracticable to get water on the land through a ditch taken from the level of the river bed. In such instances the practicability of raising water ten to fifty feet by means of gasoline and other engines has been proven. In one instance near Guernsey, on the Platte River, thirty acres were so irrigated at a cost of four dollars per irrigation day, the proceeds from said tract being three thousand dollars for only four months' work. In another instance water sufficient to irrigate two hundred and fifty acres was furnished by a sixteen-horse power gasoline engine; the engine and pump cost fifteen hundred dollars. As it was in the nature of an experiment, only thirty acres were cultivated and forty acres of unbroken land irrigated for native hay, all at a total cost, including the whole plant, of \$2,070. The product brought \$2,290, so the plant was paid for from the proceeds of one year's cultivation of seventy acres. Next year it will cost \$2,037.50 to cultivate and irrigate the whole tract of two hundred and fifty acres, and the products will sell for \$8,177.50, or a net profit of \$6,140—and the plant paid for. Certainly a profitable way of overcoming natural obstacles.

With the right to perpetual water, the application of which is absolutely at the command of the irrigator and not in any way subject to the caprice of the weather bureau, and lands for ten dollars and fifty cents per acre, with rich soil, which, with chemical action induced by the proper application of water, always retains its strength; with phenomenally abundant crops: with good markets for everything produced, whether of the vegetable or animal kingdom; a perpetual sunshine with which that of Italy is incomparable; and with the most healthful climate in the world, what greater inducements for happiness and prosperity can any country afford the sons of toil in the way of recompense for their labor and the living of a true and noble life? Wyoming, under the benefits of the Carey act, offers all of these.

It is true that we have lands so strongly alkali as not to permit the growth of ordinary vegetation, permitting only that of saline plants. The useless salts have been left in with the useful ones. There are several methods of neutralizing these useless salts, one of the readiest being the use of gypsum. Common salt may be disposed of by drainage. While the reclamation of this land may seem to involve much expense, its wonderful fertility will amply repay the cost. However, this is a question that need not concern us at present, since we have so

much land immediately available. But in enumerating our resources it is well not to forget this reclaimable land.

With several millions of acres of this rich desert land ready for water; with irrigation laws that furnish absolute protection to investor and settler; with the present rapid development of our mineral resources calling for a like development in the irrigation of our fertile soil, and with the Carey act, whose provisions have been proven the best, most practical and beneficial, the State of Wyoming offers exceptional opportunities to the home-seeker, the merchant, the manufacturer and the capitalist.

Agriculture and Horticulture.

In describing the agricultural development of this State, many interesting facts will have to be left out. Details cannot be given, only general statements. The diversity of conditions is so great that to discuss the peculiar features of each agricultural district would take more pages than are at my disposal. In some ways this limit will make this description incomplete.

No general statement will fit all sections of the State. In the Wheatland colony grain is the principal product. In Jackson's Hole it is not grown; there cattle are the farmer's mainstay. Lander farmers, 150 miles from a railroad, must pursue different methods from those near Douglas, with two railway connections with the outside world. There is a wider distance in climate between the Laramie Plains, with their elevation of seven thousand feet above sea level, and the lands around Sheridan, at half that elevation, than there is between Sheridan and Salt Lake. Many settlements are isolated and have developed local peculiarities, both in methods and ideas. Thus, Star Valley is a region of small farms. There are more tracts of one hundred and sixty acres than of larger areas. On Clear Creek the reverse is true. One ranch extends along the stream for fifteen miles. The districts settled by range cattle owners or sheepmen do not resemble the districts settled by small farmers from Utah, either in appearance or in the views of the land owners. All I can hope to do, and all that will be attempted, is to explain to those interested in the State, and

those looking for homes, how large are the opportunities here presented, and how great a range there is for individual choice.

The past ten years have shown that farming is one of the State's solid and best paying industries. None others have kept pace with it in growth, and no other class of citizens have as much to show for their ten years' labor. The men with mortgaged homes and burdened with the oppressive drain of two per cent. a month have nearly all not only cleared this off, but have a bank account of their own. Land values are beginning to rise; new homes are being built; more land is being reclaimed, and there has been an entire change in sentiment about the possibilities of Wyoming's agriculture.

Anyone who will compare the valleys of Box Elder, La Prele and La Bonte Creeks, in Converse County, as they were ten years ago with what they are today, can form some idea as to whether farming pays.

There are two reasons for the unusual success of Wyoming farmers. The first is the large area of free public land and a limited area of cheap State land on which to pasture herds of cattle or flocks of sheep. The best results have been gained from uniting farming and stock raising. The old idea that the range was the thing was largely true, but this is now giving way to the more humane and safer plan of uniting the grazing and irrigated lands. The second is the high price of farm products. Wyoming still has to import large quantities of grain and nearly all the fruit consumed in the State. There are few sections where the supply of any staple crop equals the demand, hence prices are higher than in many of the large seaboard cities.

Near our larger towns and cities some market gardening is done, and some fruits are produced, but as a rule not enough attention has been given these industries to furnish the home market, and large quantities are shipped in to supply the demand. This is due to the fact that we are now in the transition period between the great stock grazing period and a new regime of diversified agriculture. This newness offers advantages to the prospective settler not found elsewhere.

Vegetables.—As a general indication of what may be done in raising vegetables in our State, I would point out the fact that at altitudes of five thousand feet and less sweet potatoes and peanuts are successfully produced. A good quality of leaf tobacco has been raised at Wheatland. Up to altitudes of 5,500 feet such tender crops as tomatoes, melons, pumpkins and squashes grow to perfection, while in all portions of the State are raised big crops of onions, beets, potatoes, turnips,

cabbage, cauliflower, salsify, rhubarb, celery and like hardy vegetables. In 1894 the Experiment Station at Laramie recorded an average yield of over fifteen tons of onions from sets, giving a net profit of ninety dollars and forty-one cents per acre. The better varieties of seed onions gave yields in different portions of the State of from twenty to over forty-six tons per acre. Maximum yields of turnips were upwards of forty tons; carrots, ten and one-half tons, and potatoes, 522 bushels per acre.

In productiveness, size and quality our garden vegetables can successfully compete with like kinds raised anywhere.

Fruit Growing.—The friction of starting is greater than the friction of movement. While we have no very extensive fruit farms as yet, enough has been done to indicate what is possible, and to demonstrate that there is no irrigated agricultural land in the State which will not produce profitable crops of some kinds of fruits. The planting of fruits, which was begun on a small scale but a few years ago, is rapidly growing in favor. I know of no branch of agriculture which is advancing with more rapid strides than that of fruit growing. At the present rate of increase, our production of fruits for home consumption will soon be of great importance to the State. It must be remembered that Wyoming still belongs to the newer part of the West, and much of our industry is such as is still making use of materials already on hand, rather than forcing the soil to produce artificially. The establishment of irrigated farms and the greater production of diversified agriculture marks the dawn of a true and lasting prosperity.

Our first farming was naturally such as furnished an increased amount of food for live stock, and the more staple farm crops. Fresh, ripe fruits, as distinguished from the dried and tin-can varieties, which have indeed been rare luxuries upon our scattered ranches, are rapidly becoming necessities in progressive homes. The regime of the wandering hunter and trapper, the shifting pioneer population and the nomadic stockman has passed, and our population is made up of a happy, contented, home-building people, surrounding themselves with comforts and luxuries, and providing for the comfort of generations to come. Our agriculture and horticulture are becoming permanent and staple. The soil fertility is being kept up rather than merely taking from it all its great natural wealth of plant food. Fruit plantings are lasting and will yield their returns through future years. With irrigation and the intelligent use of improved farm methods, our crop yields are above the ordinary, the quality of the produce is unexcelled, and years of failure are so rare as not to be taken into account at all.

General Conditions.—Our conditions of soil, climate and exposure are exceedingly various. In a few localities, where the annual rainfall is greater than fifteen inches, or where the lands are underlaid with surface water at no great depth, fair crops are raised without irrigation. We have agricultural lands at altitudes of less than 3,500 feet, and from this to over 7,000 feet above sea level. There are wind-swept plains, rolling uplands, protected mountain valleys, and bottoms along streams, with corresponding lengths of growing seasons free from frost of from eighty days or less to more than one hundred and fifty days, and the mean annual temperature varies from forty degrees F. to about fifty degrees F. On account of these widely varying conditions, the fruits raised, the place where they are to be planted, the methods of treating them, must be determined largely by each person for himself. There is a wide range of kinds and varieties from which to choose that which will succeed in this latitude, and the success with which certain kinds have been grown in the different parts of the State will aid in making the choice.

What Has Been Done.—The most extensive fruit trials of which we have authentic records are those made upon the several experiment farms in different parts of the State. In addition to these trials, however, are the important results obtained by our farmers and ranchmen themselves, who have been producing fruit for a number of years. We now have bearing orchards in Fremont, Sheridan and Laramie Counties, and more scattered trees fruiting in nearly every section of the State. So far as we can learn, the first trees were set out from 1882 to 1885. The first planting upon the experiment farms was made in 1892. Russian apricots and some varieties of pears have produced thrifty trees and seem hardy, though they have not yet fruited.

Apples.—The hardy varieties of apples succeed in all parts of the State. Mr. Jacob Lund has successfully fruited the Wealthy apple at about 7,400 feet altitude on the Laramie Plains. Several varieties of crabs are also being raised about 7,000 feet. Mr. J. S. Meyer and Mr. Edward Young, in Fremont County, have produced large amounts of fruit from their orchards every season for the last seven or eight years. The principal varieties which have succeeded with them are the Wealthy, Duchess of Oldenburg, Yellow Transparent, Briar Sweet Crab, Transcendent Crab, Great Lakes Siberian Crab, Martha Crab, Soulard Crab and Montreal Beauty Crab. The Ben Davis also fruited upon the Lander Experiment Farm. In Sheridan County Mr. C. H. Manning has a large bearing

orchard, consisting principally of the following varieties: Yellow Transparent, Antonovka, Tetofsky, Moscow, Enormous, Hiberna, Wealthy, McMahan, Switzer, Plum Cider, Red Astrachan, Wolf River and Gideon. He states that he has had good crops every year since the trees were old enough to bear, and that all these varieties are hardy except the Plum Cider.

In Laramie County the Ben Davis, Oldenburg, Wealthy, Pippin and Northern Spy, as well as a number of varieties of crabs, are bearing. We have no accurate data of the yields obtained from apples other than that they have borne full crops and that years of failure are very rare.

Plums.—The native wild plum is found over the larger portion of the State. The best cultivated sorts tried are the De Soto, Weaver, Hawkeye, Wolf and Rolling Stone varieties, all of which have borne fruit.

Cherries.—The best varieties are the English Morello, Early Richmond and Dwarf Rocky Mountain. They evidently will succeed in all parts of the State, and the last named is especially prolific. Mr. G. W. Barlow of Sheridan estimates that his Dwarf Rocky Mountain cherries, set eight by ten feet, yielded an average of eight quarts per plant, which would be 4,356 quarts per acre.

Small Fruits.—The strawberry is the most cosmopolitan of all fruits, and it seems to succeed under all our conditions, if properly cared for. Some varieties succeed better than others under local conditions, but a few standard sorts, such as Crescent, Wilson, Jucunda, Captain Jack, etc., seem to adapt themselves to widely different conditions. The best variety for any locality must be determined by experiment. At Sheridan 11,645 quarts of Jucunda Improved berries have been gathered from an acre of plants.

Currants and Gooseberries succeed in all parts of the State, if given half a chance, though gooseberries do not seem to do so well at high altitudes as currants. Mr. James King has raised some fine crops of Red Cherry and White Grape currants upon the Laramie Plains. These varieties and the Crandall, which is the finest black sort, are the best of the varieties which have been tried for all parts of the State. At Wheatland White Grape yielded at the rate of 9,075 pounds per acre; Red Cherry, 14,520 pounds, and Crandall, 32,670 pounds.

At Lander White Grape currants yielded at the rate of 11,507 quarts per acre, and Red Cherry, 7,260 quarts.

The best varieties of gooseberries are the Downing and the Houghton. The Industry has also given excellent results

at Sheridan. At Wheatland the Downing yielded at the rate of 21,780 pounds per acre, and the Houghton at the rate of 16,335 pounds per acre. Downing gooseberries at Lander yielded 13,159 quarts per acre.

Blackberries and Dewberries.—The dewberries seem to succeed better than the ordinary blackberries at high altitudes. The canes of blackberries and dewberries, as well as those of raspberries, must be covered with earth for winter protection. The Early King seems to be the best variety of blackberries tried. It yielded at the rate of 9,525 pounds per acre at Wheatland. This variety was the most prolific at Lander also.

Raspberries have succeeded somewhat better than blackberries. At Wheatland Thompson's Early Prolific, which did better than any other kind, yielded at the rate of 6,808 pounds per acre. At Sheridan the raspberries gave large crops each year, but the varieties were somewhat mixed, so comparative results are not of much value.

Grapes will probably not succeed much above 5,500 feet altitude, unless they can be given more than ordinary protection. Some varieties have been fruited at Sheridan, and the early varieties planted at Lander have made excellent growth and are now producing fine crops. The Wyoming Red and Concord have been the heaviest yielders, and have shown that they will ripen before early frosts. Grapes merit more extended trial than they have had, especially in sheltered localities.

Raising Fruits for Market.—Undoubtedly for some time the home demand will be greater than the supply. This gives the Wyoming fruit grower a decided advantage over growers in old, well established fruit belts. He will not need to place his fruits in competition with those in the general market, and the expense of shipping precludes serious competition from growers in other States in many kinds of fruit which he can successfully raise at home. He can supply his own home much cheaper than he can buy inferior products from elsewhere, and his surplus will find ready sale in home markets.

Cost and Profit With Fruit.—We are still sufficiently utilitarian to look upon the cash side of every proposition, and it is necessary to show the prospective fruit grower what may be expected in expenditures and returns. It is not possible to state the money value of the higher living and increased health which come with greater fresh fruit consumption in the home, and the greater independence of producing it ourselves, but we

have estimated the money value at the local market prices, and the expense under local conditions of producing and marketing strawberries and Dwarf cherries. We give the average yields, the lowest market price and the greatest probable expense of raising the crop in each case, as follows:

Raspberries.

Average yield from all varieties grown at Sheridan for two years, 952 quarts.

Value per acre at local market price, 25 cents per quart..\$238.25
Total cost of raising, picking and marketing per acre... 65.65

Net profit per acre.....\$172.60

Dwarf Cherries.

Mr. Barlow of Sheridan estimates average yield of Dwarf Rocky Mountain cherries at eight quarts per plant, set 8 by 10 feet apart. This would give a yield per acre of 4,356 quarts.

Five cents per quart would be a very low price for the fruit, giving a value to the crop, per acre, of.....\$217.80

Although picking, boxing and crating would cost less, we give the cost of raising and marketing the crop the same as for raspberries..... 65.65

Net profit per acre.....\$152.15

Strawberries.

Average yield per acre of thirty-one varieties at Sheridan, 1896, 6,920 quarts .

Value at 10 cents per quart, local market.....\$692.00

Total cost of plants, setting out new beds each year, cultivation, irrigation, picking, boxing, crating and marketing, per acre 301.60

Net profit per acre.....\$390.40

Fruit Growing With Irrigation vs. Without Irrigation—

While much has been said of the advantages of farming under irrigation over farming in pluvial districts, these advantages are not appreciated as they should be. We hear of the disadvantages of raising crops by irrigation only from those who are unacquainted with it in actual practice. Many who barely exist upon unirrigated farms cannot understand how the additional expense of applying water is to be met, and it could not be if an increased crop production did not more than pay all the added expense. Those who have farmed under good irrigation systems would be loth to return to rainfall condi-

tions and take the years of failure, or the lower yield, with good grace.

Late frosts, which would be destructive to fruit buds and flowers, may be quite effectually prevented by keeping the ground well soaked and water in the furrows on nights when there is danger of frost.

The irrigated orchard bears its full crop every season, instead of resting every other season, or two seasons out of three. The quality of the crop is improved by the application of water just when it is needed, and in our dry climate there is little danger of too much water being forced on the plants during the fruiting season. Naturally, the quality of the fruit is improved as well by the large amount of sunshine, which gives it the highest colors and materially aids in the ripening and sweetening process.

In good irrigation practice the soil fertility is never lessened by leaching. In fact, fertility is conserved to the greatest possible extent, and most irrigation waters add plant foods to the soil. It has been demonstrated that water carrying quantities of sediment adds to the total amount of plant food in the soil, regardless of the crops removed each year. In such places artificial fertilizers will never be needed, while the production may be as constant as in the famous valley of the Nile.

The time of irrigation, when the soil and plants are in need of water, and the amount to be applied, along with the best methods of applying it, are matters whose correct solution requires careful and intelligent thought and study of every fruit grower. They must be determined largely by each individual for the conditions of soil and climate in his locality.

Live Stock.

The live stock industry of Wyoming, which for a long time was its only industry, has a history as varied and romantic as a Sixteenth century tale. When the country now comprised in this State was first discovered a luxuriant grass covered the prairies, upon which nothing but buffalo and wild

game grazed. Her first herds were gathered and reared by men who preceded the first attempts at actual settlement of the Territory. Lying in the pathway of that great migration to the Pacific coast, which began in the middle of the past century, her territory was necessarily traversed by countless long trains of ox teams, many of which, through accident or disease, were destined never to reach their journey's end. Sick, injured, footsore and poor, these animals were abandoned to live as best they might, or become a prey for the wild animals of mountain and plain. That many of them lived through the winter following and were fat enough for beef in the early springtime proved a revelation to the man accustomed to long and expensive winter feeding, and forced his attention to the fact that our mountain grasses must possess nutritious qualities of marvelous worth. To raise cattle, horses and sheep was, for our earliest settlers, an easy matter, but to keep them was quite a different proposition, for the Indian had little respect for the rights of ownership, and no horse was safe beyond the reach of a bullet from his owner's trusty rifle. When the white man came to stay he brought vast herds of cattle that thrived upon the open ranges without care or attention on the strong and nutritious grasses. Fast following on these early days of settlement, of danger and accumulation, came the "boom" in the cattle business during the '80s, marked by the investment of millions of dollars by men who knew nothing of the business in which they so recklessly embarked. About 1886-87 settlers, having fenced in the rivers and creeks, thus cutting off the winter shelter, and the range having been overstocked, this, together with an exceptionally hard winter and short feed, caused disaster to overtake us, and reduced a profitable business to bankruptcy. The period of unwarranted speculation, fancy prices and extravagant waste was of short duration, and, naturally enough, was followed by rapid depression of prices and the consequent failures of the inexperienced. And yet, deplorable as were the results, this bitter experience teaches no new lesson in domestic economy; neither does it in any way detract from the material advantages which this State offers to anyone who would embark in stock raising as a legitimate enterprise.

Following this appeared the ranchmen of moderate means, having smaller herds of cattle, who had learned from bitter experience that feed must be provided for severe winters. Thus ranches were settled and irrigated—alfalfa, hay and other feed provided—rendering the business that was formerly so precarious a safe and steady avocation, and one that is rapidly giving our people wealth and independence.

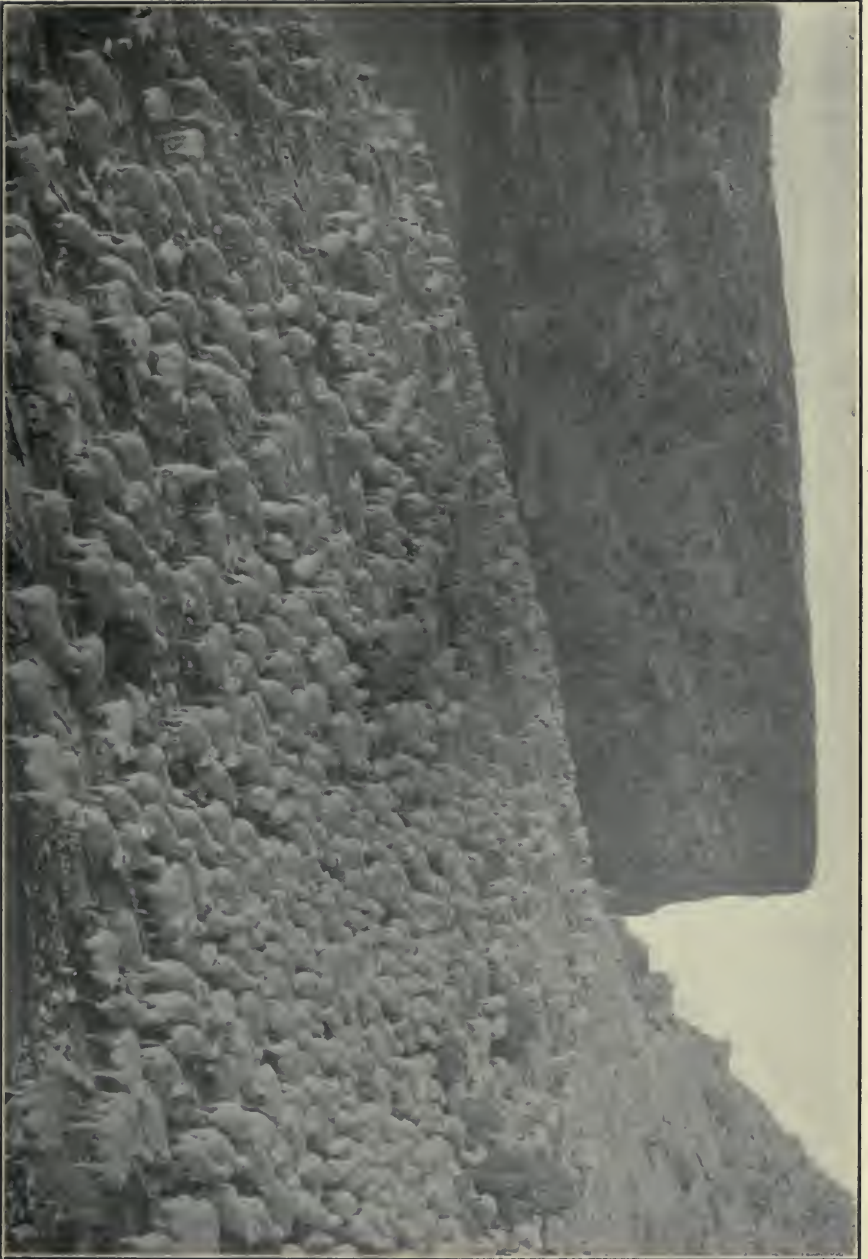


Photo by Stimson.

WEALTH PRODUCERS.

SHORTHORN CATTLE.



The live stock industry has been the most remunerative business of this section of the West; mining and agriculture are fast becoming close competitors. As to which branch of the business—cattle, sheep or horses—one should adopt, no advice can be given. One should follow that for which he is best adapted. Large fortunes and many comfortable competencies have been and are being made in each branch.

CATTLE.

The question has often been asked, what is the best animal to purchase for cattle? That can be answered by the advocates of each breed, and has been settled to the satisfaction of each advocate that his particular animal is the best suited for the range and pasture. But it can be said that all "beef" breeds do well—beef is the main object of cattle growing in this State. Many claim that the Hereford is a hardier animal and a better "rustler" after feed during the winter than any other breed, and they are much in favor with those who have used them. Others claim for the Shorthorns that they are as good, will stand as much hardship and go through the winter just as well and will give more beef per animal. Some Galloway and a few Polled Angus have been brought into the State. Each has done well—neither has come into general use.

The stockmen have been breeding higher grades of late years, and there are now many registered animals in the State.

SHEEP.

Since 1883 the sheep industry has grown enormously, and many heretofore poor men have become rich, some owning as many as 65,000 head. Sheep are grazed in the mountains in the summer, and in the winter upon the plains, where they find the cured grass, as Nature provides it, together with the browse furnished by the sage brush. A sheep man needs no ranch and makes no preparations in the way of harvested feed for the winter, but, like Abraham of old, moves about with his flocks, in the summer living in tents in the cool shades of the mountains, and in winter in a "sheep wagon," which is fully equipped with spring bed, stove and kitchen outfit. Sheep are subject to no disease except scab, which is easily cured with proper attention. The wool, at ten cents per pound, a little more than pays all the cost of running the sheep a year, so that the increase and mutton are the accumulated net profit.

Wyoming leads all the Western States and Territories in the price per head of its sheep, and leads every State in the Union in total value of its sheep, the number and value of its

lambs, and the amount and value of its wool clip, and the average weight of fleece produced.

Wyoming is also a close third in the number of its sheep, New Mexico and Montana leading by only a few thousand.

HORSES.

It has been proven beyond question that horses raised on the foothills and mountains, in the pure light air of an elevation of from 5,000 to 10,000 feet, have better lungs, stronger and better developed bone and muscle, and tougher hoofs, than horses from any other country. This is borne out by the fact that not only the United States government, during the Spanish war and since, but the English government, for service in South Africa, have purchased as many thousand head of horses in Wyoming as could be obtained.

No horse in the world can compete with the Wyoming horse in endurance of all kinds of hardship to which horse flesh is subjected by man. This is a broad statement, but we make it without fear of refutation; every horseman and horse in the State stands ready to back it up.

Embracing about 98,000 square miles of territory, nearly every acre of which is clothed in a mantle of the most nutritious grasses and sage brush browse, Wyoming presents a territory for grazing purposes 40 per cent. larger than is found in all the Eastern States combined. Add to this vast food supply the most delightful climate in the world, with cool summers and dry, mild winters, and it is but little wonder that Wyoming has been called the "Stockman's Paradise," and that it has become an important factor in supplying beef, mutton and wool to the Eastern and Western markets.

The requisites for success in the business are a few cattle, sheep or horses, and attention to their wants under the conditions of the country and climate. The man who can do this for a few years will, with common prudence, find himself independent of the world, and his old age may be spent in peace and with plenty.

The cut on opposite page is a picture of "Wyoming," the horse presented by the City of Douglas to President Roosevelt when he made his famous sixty-mile ride during his visit to the State last May.

This horse, taken from the range, is a marvel of equine intelligence, is possessed of five different gaits, and is a swift and easy traveler. The horse is now in the White House stables in Washington.

Wyoming horses are unexcelled.



"Wyoming," the Horse Presented to President Roosevelt.

Mineral Resources.

There are few States in the Union that possess mineral resources as vast and varied as those of Wyoming. The late Prof. Knight of the State University identified 156 of the varieties of mineral noted in Dana's System of Mineralogy as occurring in Wyoming, and this list is constantly being added to as the different formations are opened up and understood.

Gold, silver, copper and lead all have been known for years in almost every mountain range in the State, and the work of the past two years has demonstrated beyond a doubt that these ores exist in commercial quantities.

The crying need of these resources is railroad transportation, as both the quantity and quality are assured facts, and it

only remains to get them to market. With the railroads will come the up-to-date mining investor, with means and brains to make a producing mine out of the long neglected prospects.

There is not another Rocky Mountain State with greater possibilities than Wyoming, or that offers better opportunities for mineral investments; certainly none with so much public domain subject to location as mineral land, and, besides the precious metals, the wealth of coal, oil and natural gas will some day make Wyoming as great a producing and manufacturing State as Pennsylvania is today.

Gold Mining.—Gold mines were first worked at South Pass, Fremont County, in 1867, since which date the industry has amounted to something each year. The annual production has fluctuated from \$25,000 to \$125,000, the total being estimated at \$4,000,000 produced.

The placer mines that were rich enough to be worked with limited means were worked out long ago. Large tracts of placer gold ground, that can only be worked with great expenditure of money and the most modern and economical devices, remain. These are now owned by large companies, who are arranging to work some of them. The quartz veins, from which most of the gold produced has been taken, are found in all the mountain districts, the most promising of which are as follows: South Pass and Atlantic, in Fremont County; Seminoe, Medicine Bow and Sierra Madre Mountains, in Carbon County; Black Hills, Crook County; Shoshone Mountains, Big Horn County, and the Laramie Hills.

Silver and Lead.—These metals are found in small quantities in all the prominent ranges. Galena is the usual ore carrying silver, but at the Esterbrook mine, in northern Albany County, a vein of cerusite or silicious lead carbonate has been found. The silver values vary from ten to six hundred ounces per ton, and the lead from twenty to sixty per cent. in commercial ores. Shipments have been made from camps in Crook, Big Horn, Albany and Laramie Counties.

Copper.—During the past four years copper in commercial quantities has been found in nearly all of the thirteen counties of the State and development work is being actively pushed. The principal ore is usually a chalcopryite or yellow sulphide of copper, associated with the rarer forms. These forms are usually covered by a capping of oxidized iron, in which the oxidized forms of copper, usually the blue and green carbonates, are found. The Grand Encampment Copper District, in Southern Wyoming, is the leading producer, and act-

ive camps are established in the Laramie Hills, Shoshone Mountains, Owl Mountains, the Wind River Range and the Big Horn Mountains.

Coal.—Coal mining has been the leading mineral industry in the State, and will, in all probability, continue in the front rank for a time, though copper is fast gaining upon it. It had its origin with the advent of the transcontinental railroad, and has increased with the development of the State, until today it employs an army of workmen and has a product of 4,602,929 tons of coal per annum.

The kinds of coal vary from a pure lignite to a high grade long-flamed bituminous variety. The best grades of coal are low in sulphur and ash, and are excellent fuels for locomotives, general steam making, domestic purposes and gas production.

A semi-anthracite was discovered in Johnson County in 1887. Coking coal has been discovered in two or three localities, and seventy-four Beehive coke ovens are operated at Cambria, Weston County, having an output of over 20,000 tons per annum.

All coke so far manufactured in this State has been made at Cambria, and Wyoming stands eleventh in the coke producing States.

The coal fields are so universal that commercial coal is known to exist in every county, and, in all but one, coal mines are worked. The area of workable coal land is over 20,000 square miles. The coal veins are numerous. It is not an uncommon thing to find six or eight workable veins in a single field. In thickness the seams vary from a few to seventy-five feet. The coal mines operated at present have working veins varying from four to forty feet. The coal lands are owned, to a large extent, by the government, but are subject to location. Already three great railroads have penetrated these fields, but the industry has only started, and by the close of another quarter of a century Wyoming will be producing not less than 10,000,000 tons of coal per annum.

Wyoming stands twelfth in the list of coal producing States, and while the amount produced in other States has remained stationary in the past two years, the amount produced in Wyoming has increased twenty per cent.

A Table of General Information Relating to the Wyoming Coal.

GENERAL INFORMATION			ASSAYS				KIND OF COAL	
Field	County	City	Water	Vol. Matter	Fixed Carbon	Ash		Fuel
Rock Springs.....	Sweetwater	Rock Springs.....	5.38	36.42	55.60	2.60	92.02	Bituminous
"	"	Hopkins.....	5.55	36.95	55.70	1.80	92.65	"
"	"	Black Butte.....	14.23	31.00	49.85	4.92	80.85	Lignite
"	"	Mine No. 1.....	4.11	40.10	53.41	2.38	93.51	Bituminous
Spring Valley.....	Uinta.....	Spring Valley.....	5.46	39.42	52.32	2.80	91.74	"
Cumberland.....	"	Cumberland.....	4.38	39.25	52.60	3.77	91.85	"
Evanston.....	"	Almy.....	7.37	34.88	48.75	9.00	83.66	Semi-Bituminous
"	"	Red Canon.....	7.42	36.08	48.50	8.00	84.58	"
Rawlins.....	Carbon.	Rawlins.....	6.55	32.85	54.00	6.60	86.85	Bituminous
Kindt.....	"	"	4.87	35.68	55.15	4.30	90.83	"
Hanna.....	"	Hanna.....	8.09	44.52	43.84	3.55	88.36	"
Carbon.....	"	Carbon.....	7.42	35.43	48.30	8.85	83.73	"
Glenrock.....	Converse.	Glenrock.....	13.82	33.03	47.75	5.40	80.78	Lignite
Cambria.....	Weston.	Cambria.....	5.72	40.13	43.65	10.50	83.78	Bituminous Coking
Buffalo.....	Johnson.	Buffalo.....	13.55	35.05	45.30	6.10	80.35	Lignite
Sheridan.....	"	Higby.....	13.05	37.55	44.70	4.70	82.25	"
"	"	Monarch.....	15.40	36.38	42.32	5.51	82.70	"
Brier Hill.....	Crook.	"	5.25	41.70	44.98	8.07	86.68	Bituminous
Dutton.....	Albany.	"	11.85	34.65	47.30	6.20	81.85	Semi Bituminous
Twin Creek.....	Uinta.....	Kenneret.....	3.53	43.58	51.30	1.53	94.94	Bituminous
Gros Ventre.....	"	"	8.50	41.15	46.95	3.40	88.10	"
Seminole.....	Carbon.	"	11.01	33.27	48.48	6.24	81.75	Semi-Bituminous
"	Big Horn.	Thermopolis.....	9.75	33.25	50.30	7.00	83.55	Lignite
Lander.....	Fremont.	Lander.....	11.40	36.60	47.60	4.40	84.20	"
Owl Creek.....	"	Lander.....	5.68	32.88	46.58	14.86	79.46	"
Casper.....	Natrona.	"	11.30	32.10	53.55	3.20	85.65	"
Glenrock.....	"	Big Muddy P. O.....	19.15	36.53	39.77	4.55	76.30	"

Statement of Coal Output for Year Ending September 30, 1903.

Name of Mine or Company.	Output of Mines, Tons.	Number of Employees.
Rock Springs, No. 1.....	328,463	534
Rock Springs, No. 2.....	121,335	233
Rock Springs, No. 7.....	189,737	216
Rock Springs, No. 8.....	218,443	243
Rock Springs, No. 9.....	208,240	263
Rock Springs, No. 10.....	248,474	212
Diamond Coal and Coke Co., No. 1...	284,280	297
Diamond Coal and Coke Co., No. 2...	176,376	120
Diamond Coal and Coke Co., No. 4...	82,016	24
Cumberland, No. 1.....	264,860	340
Cumberland, No. 2.....	522,577	376
Kemmerer, No. 1.....	167,405	197
Kemmerer No. 3.....	72,234	129
Hanna, No. 1.....	325,656	400
Spring Valley, No. 1.....	119,511	190
Sweetwater, No. 1.....	143,677	189
Number Five.....	7,555	20
Sheridan Coal Mining Co.....	457,493	600
Cambria Mining Co.....	419,586	800
Glenrock Coal Co.....	90,543	150
Muddy Coal Co.....	14,000	50
Aladdin Mine.....	10,468	40
Mined at Thermopolis, Meeteetse, Cody, Sheridan, Douglas, Casper, Lander and other places not re- ported (estimated).....	30,000	100
Totals.....	4,602,929	5,723

Natural Gas.—Accompanying the oil fields are numerous natural gas horizons. The gas pressure in the oil wells near Lander is very great and gas escapes are found at or near most of the oil springs. At Brenning Basin, near Douglas, in Converse County, a flow of gas has been struck in two wells, at a depth of 500 feet, and the gas has been piped and used for fuel and light in the vicinity, a pressure of 300 pounds per square inch having been noted. In the eastern part of Fremont County there are two natural gas escapes that are wonders. Some prospectors have dug shallow shafts and curbed them up with logs; the shafts are partially filled with water and the gas escapes with such violence as to cause the water in them to boil as though in a cauldron. There are numerous anti-

clinals in the State that are not associated with the oil districts, where large flows of gas may be looked for.

Bituminous Shale.—In the Green River Valley and at Rock Springs there are great bands of rich bituminous shale, that equal the shales of Scotland, where an army of men are employed and the production is sold for millions of dollars per annum. The shales are burnt in a retort, and the products saved are gas, oil, tar and ammonium sulphate. The richest of these shales assay 45 per cent. of volatile matter. This industry will, at no very distant date, prove to be a very valuable one to the State.

Volcanic Ash.—In several localities in Wyoming volcanic ash has been found. In Albany County, near Laramie, there is a bed four feet in depth. It is almost white and is so fine that the greater portion of it will pass through a 100-mesh sieve. Samples of equal purity have been examined from Carbon and Sweetwater Counties. This material is used for scouring purposes. It is the base of sapolio, and is also used in the geyserte soap.

Graphite.—Veins of graphite are known at French Creek, Plumbago Cañon and Halleck Canon, in Albany County, and in the Indian Grove Mountains, in Carbon County. The veins are large and easily accessible. Analyses of samples from the various localities show the carbon contents to vary from 40 to 60 per cent. So far as known, the ore is of the amorphous variety and would make good fire-proof paint, stove polish or graphite crucibles.

Asphaltum.—Along the north side of the Rattlesnake Mountains there are several deposits of asphaltum that occur below the oil springs. There are also places where the asphaltum has penetrated loose rock and earth. The beds are not very extensive, but are sufficiently large to pay for opening. There is also another bed on the Shoshone Reservation, east of Fort Washakie. This has been formed about an oil spring and contains several thousand tons. No attempt has been made to work the deposits. The quality is excellent, quite free from foreign matter, and it would make a splendid paving material. There are several small deposits in Uinta County.

Manganese Ores.—Ores that fall under this class have been found in Albany, Crook, Sweetwater and Uinta Counties. The development is only slight, since the discoveries are too far from railroads to warrant shipments. The ores

are good grade, and are found in good sized veins. Samples from different localities vary from 40 to 55 per cent. manganese.

Epsom Salts.—Epsom salts can be found in small quantities throughout the arid region, but in Wyoming it is found in large beds. Near Rock Creek there is a depression containing about ninety acres that is covered with this salt. The exact depth is not known. In this immediate vicinity there are several other beds, the total area of the Epsom Salt Lakes being given at 160 acres. The salt is as pure as the commercial product that sells in our drug stores for ten cents per ounce. These deposits are near the railroad, and, if properly handled, should enable a company to control the epsom salt trade of America.

Building Stone.—Building stones of innumerable varieties are common throughout the State. The sandstone quarries at Rawlins, Carbon County, have a large output, which is shipped to Colorado, Utah and Nebraska. The Capitol and Federal buildings at Cheyenne and the State Penitentiary are built of this stone. In Laramie County the Iron Mountain quarries furnish a beautiful white stone, which is much in favor. Granite, sandstone, limestone, quartzites, serpentine marble and marble onyx are included in the varieties. The majority of these are found in inexhaustible beds, and are unsurpassed for beauty and durability. There is no reason why the stone industry of Wyoming should not compare favorably with that of any State.

Gypsum.—This mineral is very common and is found in all varieties. Beds varying from 20 to 100 feet in thickness are exposed along the mountain ranges. The mineral is very pure, and can be utilized for purposes where gypsum is required.

Plaster of Paris.—The Rocky Mountain Plaster Company is operating a plaster mill at Red Buttes, which is the only one in the State. There is room and material in sight to supply a thousand mills; in fact, Wyoming could furnish the world with plaster of paris for a thousand years, and then not consider the beds exhausted.

Natural Plaster.—In a few localities deposits of what has been called a natural plaster have been found. The mineral occurs in superficial deposits, varying from two to six feet in depth. It is pulverulent and has a light gray color. When a portion of the water has been driven off, it sets and forms a

very hard cement. The Standard Plaster Company of Laramie is manufacturing a plaster from beds recently opened near Laramie, and no doubt in numerous other localities beds of this natural plaster will be found when prospected for. This industry has more than doubled in the last eighteen months.

Clays.—Pressed and common brick are manufactured in the State, but at present there are no other clay industries. The clay beds are in abundance and are found in every county in the State. Common brick clay, fire clay, tile and terra cotta clay and potters' clay are found in thick beds in the sedimentary rocks, and not in superficial deposits, as they are usually seen in the Northern and Eastern States. Bentonite, or "soap clay," is found in many parts of the State, and shipments have been made from the beds at Rock Creek, Albany County, and Newcastle, Weston County, a number of cars being shipped every year from each place. This clay is used as an adulterant, as a filler in paper making and for medical purposes, being worked up and sold under the name of "Antiphlogistine." The Rawlins Pressed Brick Company makes a very fine quality of pressed brick. A similar brick is made at Laramie, Cheyenne, Douglas and other points where the clays have been investigated and their worth proven. Nearly every small town has brick yards in the immediate vicinity, as the clays are universal, and some remarkably fine commercial brick are made. The clay also makes very fine tiling for floors, fire-places and all kinds of pottery and piping.

Tin.—Black oxide of tin has been known in veins and as stream tin in the Wyoming portion of the Black Hills for many years. Tons of stream tin have been mined and sold. The veins are slightly developed. Prior to the failure of the Dakota tin mining companies, the prospects on the west side of the hills were considered quite valuable. There are good veins of tin of average richness, and before many years the tin mines of Dakota and Wyoming will be worked. Wyoming gained a medal at the World's Fair for her exhibit of stream tin.

Salt.—Near Cambria, Weston County, a plant has been built to manufacture salt from Salt Springs, the water of which contains twenty-two per cent. salt, and other springs equally fine are noted in Johnson and Uinta Counties. In the latter place salt is produced for local consumption.

Quartz.—The Laramie Mountains abound in large veins of pure quartz. When ground, it is valuable for glass making.

Glass Sand.—There are numerous places in the State where glass sand is found. The beds near Laramie have been worked and proven.

Mica.—Muscovite mica, the mica of commerce, is very plentiful in Wyoming, but there are only a few localities where it has been found in "book" of sufficient size to warrant mining. In Whalen Canon, some eight or ten miles from Hartville, and at Grand Encampment, there are numerous large veins of feldspar containing first-class mica. The former has been worked to some extent and a small shipment made. Sheets squaring six inches have been taken out near the surface. It is first quality in every respect.

Feldspar.—Orthoclase feldspar occurs in large veins in Whalen Canon. It is free from detrimental minerals and could be used for all purposes where orthoclase could be used.

Sulphur.—Extensive deposits of native sulphur are known in Uinta County. While claims are held by prospectors, no attempt has been made to refine the crude brimstone, which assays from 40 to 70 per cent. of sulphur. There are also very extensive deposits above Cody on the Shoshone River, and on Sunlight Creek, north of Cody.

Bismuth.—Bismuth ore of rare purity has been mined at Jelm Mountain, and shipped to the East for reduction. The ore is a mixture of carbonates and metallic bismuth, and assays from 50 to 65 per cent.

Sulphate of Aluminum.—This mineral, which is usually called native alum, occurs in extensive deposits in Sweetwater and Big Horn Counties. It is the principal salt used in manufacturing commercial alums, and for this purpose it should be used in connection with the natural soda.

Fibrous Talc.—A very large vein of fibrous talc exists in the range of mountains west of Wheatland. The quality is excellent. This mineral is used extensively in the East, and as soon as the proper transportation can be furnished the Wyoming deposits will be worked.

Decomposed Granite.—Some seven years ago the Union Pacific Railroad Company commenced loading decomposed granite from a point near Sherman and hauling it out as ballast. It was found to be far superior to any other stone for this purpose. In 1900 the company loaded 500,000 tons, the most of which was used for railroad purposes; but it was also, to some extent, sold for road building in cities, a use to which it is well adapted and for which it will, in the near future, be extensively used.

Natural Pigments.—Soft iron ores have been used for red paint for years. For many years paint mills were operated at Rawlins. The Brooklyn bridge was originally painted with this paint. More recently the ore has been shipped to other States to be ground. The soft hematite ores are in large bodies and make a first-class paint. Ochres of various shades are known, but the beds have not been worked. Graphite and the low grade asbestos that would make an excellent fire-proof paint are found in large bodies.

Semi-Precious Stones.—The semi-precious stones are in abundance. Quartz crystals, agates, jaspers, moss-agates, petrified wood, garnets and beryls are the important ones. The moss-agates are the best found in the world. A beautiful collection of these stones, which took medals at the World's Fair in 1893, may be seen at the State Capitol at Cheyenne. Thus far no precious stones have been reported.

Asbestos.—There are two minerals called asbestos, one a serpentine and the other amphibole. The latter is the true asbestos, but the former is sold under the same name and used in the same way. The asbestos that is found in Wyoming, with the exception of small specimens, belongs to the serpentine variety and is known as crysolite. Valuable deposits of this mineral have been found in Natrona, Albany and Carbon Counties. Natrona County has marketed some of the mineral, and with a railroad into the central portion of the State, a trade in this mineral can readily be built up, as workable deposits are known to exist north of Laramie Peak in the Seminoe Mountains.

Natural Soda.—Extensive deposits of natural soda are known in Carbon, Natrona and Albany Counties. Numerous springs contain considerable soda, and at Green River a well yields a saturated solution of sodium carbonate, which is shipped by the car load. The deposits vary in size from a few to one hundred acres, and the soda ranges from a few inches to sixteen feet, and possibly more. These deposits are chiefly sodium sulphate, but there are carbonates and bi-carbonates in some localities. Along the Sweetwater River there are deposits that contain sixty per cent. carbonate of soda. Attempts have been made to work these great deposits of soda, but so far, owing to lack of railroad facilities, they have not been successful. The sulphate, when dried and calcined, has been sold in the East for glass making, and was used at the Laramie Glass Factory. With proper machinery, these great beds of soda can be utilized and would bring in a large revenue.

The most valuable natural soda discovered in Wyoming is what is known as sodium carbonate, or the sal soda of commerce, and can be derived in inexhaustible quantities from wells, averaging a depth of two hundred feet, at Green River, the county seat of Sweetwater County, and on the line of the Union Pacific railroad. Samples of water taken from numerous wells at Green River yield an analysis of twenty per cent. of sal soda crystals. Prof. Gilbert C. Wheeler of Chicago, a chemist of acknowledged reputation, furnishes the Green River Fuel and Oil Company with the following analysis of the crude soda of Green River:

Silica	0.51
Iron and aluminum	0.42
Calcium	0.64
Magnesium	0.27
Insoluble residue	0.23
Water	22.57
Anhydrous carbonate of soda	75.36

100.00

This is practically more pure than the sal soda of commerce and the cheapness with which it can be produced by simple evaporation offers great inducement for the investment of capital.

Mineral Springs.—Wyoming is prominent for her mineral springs. If we take into our estimate the Yellowstone Park, this alone surpasses the rest of the world in the number and magnificence of its waters. The mineral springs include hot, cold, sulphur, iron and the alkaline earths, and genuine mud springs. Notable ones, but by no means the most important, are at Death Lake, where they number more than four hundred.

A group of some fifty famous hot springs in the Platte Valley at Saratoga, in Carbon County, have a temperature of 130 degrees F., have been extensively improved and have been used for twenty years to the great benefit of the invalid visitor. The waters contain sulphur, alkalies, salts and salts of iron. (See article on Carbon County.)

At Thermopolis, in the Big Horn Basin, the hot springs have an analysis nearly identical with the waters at the Hot Springs, Arkansas. These are protected by State law, and are under the control of the Board of Charities and Reform.

A famous hot spring is located two miles west of Fort Washakie, on the Shoshone Reservation. This spring is 320 feet long by 250 feet broad, with an average temperature of

149 degrees F. The minerals held in solution are medicinal. It is held in great repute by both whites and Indians as curative of rheumatism and neuralgia.

In Beaver Canon, north of Sheep Mountain, a sulphur spring, with a temperature of 90 degrees F., is found, and near by are cold springs, which contain soda in solution, sulphur, iron compounds, sulphuretted hydrogen, gases and carbonic acid. Another equally large, of sulphur, having a temperature of 97 degrees F., exists in Fremont County, and is much sought by people outside of the State suffering with stomach, kidney, liver and bowel disorders.

A spring with a temperature of 108 degrees F. is located ten miles below old Fort Laramie; another at the head of West Horse Creek, whose temperature is 104 degrees F.; still another in the Platte Canon, at the east end of the Seminoe Mountains, having a temperature of 98 degrees F. There are many other springs scattered throughout the State, whose analysis suggests that they possess valuable medicinal qualities, but owing to the limited number of people, lack of transportation and consequent small demand for mineral water, it has been impossible to develop many of them. Mention should also be made of the cold springs containing sulphur, carbonic acid and iron, which are found near Rawlins and at Evanston. At the headwaters of the South Powder and along Salt Creek are found a large number of salt springs, which also contain sulphate of soda in solution.

Limestone.—The unprecedented demand for a pure limestone, to be used in the sugar beet factories in Colorado, has developed a trade at Laramie, Albany County, and Hartville, Laramie County, and some thousands of tons are shipped annually from these quarries. The limestone is very pure, containing 98 per cent. calcium carbonate, with very little silica, or injurious materials. This same stone exists in many other parts of the State, and factories may be assured of a constant supply in almost any locality where the beets can be grown.

Iron.—Second to those of no State in the Union are the deposits of iron ore. Prospecting along this line has not been carried on to any extent, and only iron districts reasonably near the railroad have received any attention. The greatest deposits are the red hematite, quite free from sulphur and phosphorus, and quite low in silica. The only districts where development or mining has been carried on are Hartville, Rawlins and Seminoe. In these camps are large deposits of

soft ore, which makes an excellent pigment. The hard ores are found beneath the surface in bodies varying from ten to one hundred feet in thickness. Rawlins and Hartville or Guernsey have furnished thousands of tons of ore to be used by the Salt Lake and Denver smelters as a flux for lead and copper smelting, and two railroads have been built to the Hartville mines. Besides the hematite, there are great deposits of magnetite in the Laramie Mountains, and beds of clay ironstone in the cretaceous rocks in several localities. Hematite ore has been found in Crook, Uinta, Johnson, Fremont, Big Horn, Albany and Sheridan Counties. The ores examined are of exceptional purity, but because of lack of transportation facilities, the deposits have not been opened up or worked on a commercial scale.

Iron Mines at Guernsey.—The Hartville iron range in Laramie County, now known throughout the country as containing the finest and most extensive deposits of Bessemer steel ores in the world, has become a scene of vast operations. Two railroads, the Burlington and the Colorado and Wyoming, have been built into these great iron fields. The mines now being worked are owned by the Wyoming Railway and Iron Company and held under lease by the Colorado Fuel and Iron Company. This company has a capital of \$25,000,000, and is rapidly enlarging its plant at Pueblo, Colorado, making it one of the largest in the country. The mines are located at Sunrise, in the center of the iron belt, where a town has been built, and the work is progressing on an extensive scale.

The ore is mined in great open cuts, where the ore is blasted down from the sides and loaded into cars by steam shovels, three of which are in active use daily; the cars being run into the cuts on side tracks from the main railroad and the ore shipped direct from the cuts with as little handling as possible. In this manner over 400,000 gross tons of ore have been mined, which, at a mine value of \$1.50 per ton, gives \$600,000 worth of crude iron ore. During the past year a three compartment shaft, 350 feet deep, has been sunk, and three levels started to develop the underlying beds of iron ore hitherto neglected. This department will greatly increase the output of the mines and be a permanent part of the work.

The known area of the iron belt, which begins at Guernsey, on the south, and runs to the head of Whalen Canon, in a northeasterly direction, ten miles, with an average width of three miles, covers thirty square miles. The greatness of the deposit is shown by the fact that, although the Colorado Fuel and Iron Company has a lease of seventy-two patented mines, the present enormous output is obtained by working only two mines.

The ores are exceptionally pure and of the highest grade known, showing from 65 to 68 per cent. metallic iron, from two and one-half to five per cent. silica, and are practically free from sulphur and phosphorus.

Rawlins Hematite.—Two miles north of Rawlins, Carbon County, there is a large deposit of red hematite ore, occurring in a metamorphosed sandstone capped with limestone. The ore is remarkably pure. In this vicinity there are several other locations which contain similar deposits.

Analysis of Rawlins Hematite.

Peroxide of iron.....	94.22
Silica	1.71
Sulphur	1.24
Phosphorus	Trace
Titanic acid	None
Water	37
Ca, Mg and Mn.....	No estimate

Seminole Iron Deposits.—One of the largest deposits of iron in Wyoming occurs in the Seminole Mountains, at the foot of Bradley's Peak, Carbon County. Bradley's Peak had been called a mountain or iron ore, containing not less than 1,500,000 tons, and when development is begun here this locality will furnish an important part of the iron ore to be smelted in Wyoming, as this ore can be mined and loaded in the cars for fifteen cents per ton.

The following composition analysis shows the superiority of Wyoming iron over other irons of repute:

	Seminole.	Pilot Knob.	Lake Superior.
Iron	67.66	59.15	60.69
Oxygen	28.99	25.23	26.01
Silica . . . . .	.72	13.27	9.82
Lime	1.23	.21	.57
Magnesia . . . . .	.68	.14	.24
Alumina . . . . .	.21	2.19	1.64
Titanic acid . . . . .	.04	....	....
Phosphoric oxide . . . . .	....	.04	.14
Sulphur . . . . .	....	....	.02

Four-ninths of the phosphoric oxide is the amount of phosphorus.

GOLD DISTRICTS.

The South Pass Gold District, Fremont County.

This district is situated in the south central part of Fremont County, Wyoming, near the southern end of the Wind River range of mountains and about sixty miles in a direct line north of Point of Rocks station on the Union Pacific railroad, the nearest railroad point.

Gold was discovered in this region in 1842, and from that time until 1869 efforts were made to work the rich placers known to exist there, when the great rush to South Pass occurred in the latter year, and the placers rich enough to pay when worked on a limited crude scale were promptly worked out and the miners sought other opportunities in the then new fields of Colorado and Montana.

Geology.—The district may be said to consist of an island of metamorphic schists of the Algonkian period lying upon the granites of the Archean and with several intrusions of granite and dyke rocks in the schists at different localities. The granites of this section of the Wind River range are usually the common red feldspathic granite, and here show an occasional gray granite island or band, usually of limited extent. Dykes of diorite and allied rocks are also noted in the granite, but to the present time nothing of value has been reported from this region.

The schists show for a distance of about thirty miles long, from ten to twelve miles wide, the longer axis bearing northeasterly and southwesterly, in the same general direction as the strike of the schists, and with a general dip to the north, varying from 45 degrees to the perpendicular. Around these schists are the granites on the northwest and the succeeding sedimentary formations on the northeast and the tertiary formations on the southerly sides. The schists vary in composition in different parts of the district, but are usually horn-blende schists, with some mica schists and chlorite schist associated therewith, and, as a rule, these varieties are very fine grained. Some tourmaline, pyrite and magnetite are also noted.

Nearly all the rocks of this region, but especially the above mentioned schists, show strong evidence of alteration and change, in many instances giving an appearance entirely foreign to the character of rock, but an examination with an ordinary field lens is often sufficient to determine the true character at once. This altering material is usually silica, and where the rocks are weathered as on an exposed outcrop, a hard quartzose

character is noted, and these are frequently called "dykes," but are simply altered schists and frequently carry gold values. Dykes occur in these schists, especially at the old Miner's Delight mine at Peabody Hill, where diorite and diabase dykes are noted; at the Mary Ellen Hill, near Atlantic; at the Carissa at South Pass, and along the northwesterly edge of the schist in the vicinity of the Little Joe, and at Gold Creek.

At the Miner's Delight dykes of porphyritic material are noted, and these extend to the "Rustler belt," north of Atlantic City, where the Mormon Crevice and Poitre estate properties have produced very rich ore.

The Carissa Mine at South Pass.—This property, located in 1867, has been a phenomenal producer for many years, and development work is being carried on at the present time. The development consists of some 2,300 feet of drifting, etc., with a shaft 384 feet deep; following the dip to the vein, equipped with hoist and necessary appliances for handling the ore. The Carissa ore occurs in quartz lenses, lying in the schist, having the same dip and strike as the schist, and these lenses occur at irregular intervals. This applies principally to the high grade ores, as the greatest development has been done on these high grade chutes, leaving the low grades to remain intact until the proper facilities could be at hand to treat them economically.

Associated with the quartz lenses are bodies of mineralized schist carrying pay values in gold, and lying between or near the lenses have been found schist ores of very high grade, but with the usual intervals of lower grade material in the same ore.

In the upper portion of the Carissa workings the usual oxidized ores were found, and these were very rich, as shown by the early history of the mine. The ore is run through a ten-stamp mill, over amalgamating plates and concentrating tables, the concentrates being saved and the tailings settled with a view of cyaniding, this process having been experimented with and has given most successful results with these ores. The full extent of the ores in this mine has not yet been determined, but it is without doubt that a great mine is here, and with proper development and treatment of the ore, may be yet made a great property.

At South Pass the Franklin, the Curry and the Carry Shields and others are lying idle for want of capital to push their further development, and are entitled to a close investigation. A recent discovery is the Copper Surprise, one mile north of the town, where a strong lead has been cut into and shows considerable copper pyrites, carrying fair values in gold, that promises well for the future.

Atlantic.—Atlantic City is situated in the central part of

the working district, four miles east of South Pass, and here is the working headquarters of the Dexter Mining and Development Company, of Rochester, N. Y., the principal operator here at the present time, who have recently added to their original large holdings and are now operating the Tabor Grand and Dexter Tunnel, besides a number of smaller works for assessment, etc. This company holds the placer ground on Rock Creek of the old Christina Lake Placer Company, taking the necessary water for hydraulic working from Christina Lake and Rock Creek, using about twenty-five miles of ditches, flumes, etc., for the purpose, and a good supply of water is secured.

The Tabor Grand is doing development work and stoping ore from a small slope above the main tunnel, the ore being treated in a Huntington mill and the tailings held for future treatment.

The Dexter Tunnel is being driven to cross-cut several well defined and well known leads for development purposes, and will cut these different leads at depths varying from 217 feet to 395 feet in a total length of 2,800 feet, some six leads crossing the line of the tunnel.

The Rose Vein is on the line of this tunnel, and when this vein is cut good ore may confidently be expected, as the Rose has produced some of the richest ore of the district, but what has hitherto been one of the most difficult ores to save.

The Mormon Crevice is another rich lead that crosses the tunnel line, and the tunnel will develop a number of properties at a depth sufficient to determine beyond a doubt their values and extent.

The Garfield mine is being operated on a more extensive scale than ever before, and with new mill and equipment will be a producer in a short time.

The Ground Hog Group on Rock Creek, above Atlantic, is one of the best prospects in the district, and shows characteristics similar to the Carissa, having the lenses of quartz ore and the heavily mineralized schist carrying profitable values. Development work only has been done on this property, and it has shown up a fine proposition for further development on a larger scale.

Development work has been done on the Mary Ellen, near the Tabor Grand, and the ore milled by a Huntington mill with success. This vein is a fissure, and shows very rich ore and is unique among the bedded veins of this locality, but is evidently a valuable property.

The Pay Rock Group at Peabody Hill shows a number of veins, or quartz stringers, in what is evidently a huge body of

ore, but so far developed only to a shallow depth and only on the rich streaks. Some 500 feet of development work has been done, mostly drifts, and considerable ore taken out, most of which milled profitably. A tunnel has been run in some 600 feet, at a point near the foot of the hill, but has not yet reached the vein.

On the east side of Peabody Hill the old Miner's Delight mine is located and is said to have produced \$1,000,000 in gold, but has been abandoned for years.

The vein is a fissure from four to six feet wide, associated with the coarse crystalline porphyry noted above and contained very rich gold values, but was not developed over 200 feet in depth, as far as can now be ascertained. This ore was free milling and milled on the ground, but no effort was made to do economical work and the percentage saved was of small importance at that time.

Lewiston.—At this camp, which was opened up in 1879, when the famous Burr mine was discovered, development has been slow for the past few years, but this season the several prominent properties have been taken up by new capitalists and renewed activity is apparent. The Burr shows the same lens condition hitherto noted and has been very rich, but aside from the workings on the original lens, little development has taken place. The ore was free milling and easily handled.

Productions.—The amount of gold produced from twenty-eight properties in this district since its discovery is \$3,728,000. The gold taken from the great placers in the early days of the district, before anyone thought of statistics, can only be estimated and is placed at from \$2,000,000 to \$3,000,000. In this locality at the present time there are twelve properties working, employing fifty men.

Other Gold Camps.

The other gold producing districts in the State are scattered, and at present are limited in area. Placers are still worked on a small scale on the head waters of Snake River, in the southern end of Carbon County, and at Welcome Gulch, in the eastern edge of Crook County, but the returns are not available. In the latter locality lode mining has been active in the past year, where the Golden Empire Mining Company has had forty men constantly employed doing development work. Tunnels aggregating 7,000 feet long have been constructed and a shaft 200 feet deep sunk to supply ore for a twenty-stamp mill. The formations noted are the fine grained schists, granites, etc.,

with some intrusions of trachite and allied rocks, overlain with limestone and the succeeding sedimentary formations.

Returns of gold working properties are received from the Sunlight mines, in Big Horn County; from Kirwin, on the head of Wood Rver, and the South Fork of the Shoshone River, in the same county.

A number of placer works are scattered along the waters of the streams in the Wind River and Owl Mountains in Fremont and Big Horn Counties, and in the Big Horn Mountains west of Sheridan some properties have been worked for gold in the cement deposits on Bald Mountains.

At Centennial, Gold Hill and Jelm Mountain, in Albany County, there are a number of properties working for gold alone.

Placers are well known in Carbon, Albany, Big Horn and Fremont Counties, and thousands of dollars have been taken out in the past, but at present, aside from small bars worked by hand or on a limited scale, no work of this sort is now going on, as the great areas of placer ground now available require large plants, water power and machinery for handling the tailings or waste, and this is only possible to large corporations with money and brains at their command.

COPPER DISTRICTS.

Grand Encampment District.

The district popularly known as the "Grand Encampment" country lies in the southern part of Carbon County and the southwestern corner of Albany County, south of the main line of the Union Pacific railroad.

Mining has been carried on in this region from the earliest known period of the State's settlement, but the first permanent work was in 1872 in the Kurtz-Chatterton property on Copper Creek, west of where Encampment now stands. It was not until 1897-8 that the district became prominent by reason of some rich gold ores found in Purgatory Gulch, a small tributary of the South Fork of the Grand Encampment River, and the town of Grand Encampment was started.

The discovery of the Ferris-Haggarty copper mine on the North Fork of Battle Creek followed in the winter of 1898, and attention was then turned to copper, with the result that the region is being thoroughly exploited and bids fair to become a permanent copper producer.

The district is somewhat irregular in shape. The tract embraced in the known mineralized country extends along the Wyoming-Colorado State line, easterly and westerly, for a dis-

tance of about eighty miles, and northerly and southerly for a distance of from fifteen miles at Encampment to forty miles at Elk Mountain, near Saratoga, comprising about 2,000 square miles of mountain and valley.

The North Platte River, which rises in Colorado, in this locality flows northwesterly and divides the district into two distinct halves, with a valley some fifteen miles wide lying between and watered by numerous tributary streams on each side. Parallel with the river are mountain ranges on either side, that on the east being known as the Medicine Bow range, and with this range a series of approximately parallel or connected smaller ranges, such as Elk, Coad and Wood Mountains.

On the west is the Sierra Madre range, composed of a number of similar ranges, known by various local names, and these form part of the great Continental Divide. Both these ranges enclose numerous parks and valleys, and in the main Platte Valley in the Encampment vicinity are a number of smaller hills or ranges, forming local divides between the smaller streams.

Geology.—The Sierra Madre Mountains consist of an irregular core of granite, with smaller islands and spurs of the same material showing both in and through the associated metamorphic formations. The granite is usually of a reddish feldspathic variety, in many instances much altered, and showing little quartz or mica, but in others showing a predominance of quartz, inclining to the gray granites of Colorado, and frequently showing strong evidences of metamorphism, especially in the outcrops, and which is usually limited in extent.

In the vicinity of Encampment huge veins of white quartz, or "bull quartz," are seen, but to the present time nothing of importance has been found in this quartz.

The metamorphic formations consist principally of Algonkian schists, usually lying on the granites and having a varying dip and trend or direction in different parts of the district. These schists are of a number of varieties, some of which are local or limited in extent, the usual schist being a fine grained black mica schist, and fine hornblende and tourmaline schist in bands varying from a few feet to several hundred feet in width. Associated with these varieties have been noted muscovite or white mica schists and gneiss, cerisite schist, garnet schist on Upper Cow Creek, chlorite schist and amphibolite schist in various localities.

The dyke rocks noted are mainly diorites, some diabase and allied dark colored dyke rocks. These dykes vary in size from a thin band a few inches thick to a huge sheet of several hundred

feet in thickness, and generally lie conformably with the adjacent schist, having the same trend or direction and the same dip, but instances are noted, as on Upper Cow Creek and near the Syndicate on Savery Creek, where the dykes cut across the formation at a varying angle. These dykes are also noted at many places in the granite near the New Rambler on Douglas Creek and near Encampment and Battle.

Associated with the schists and diorites are ledges or bands of quartzite, which lie conformably with the including schists, as far as now known, as at the Ferris-Haggarty mine and at Bridger Peak, and are usually of considerable extent.

In many instances the foregoing rocks (schists, dyke rocks and quartzites) often show an extensive and sometimes a complete metamorphism and change from their original condition and composition, leaving only the structure as a means of identification, the composing minerals being replaced by silica and lime, as the schists near the Ferris-Haggarty are largely replaced by silica, and by lime near the Leighton-Gentry property, on Jack Creek, and the Mohawk, on the North Fork of the Grand Encampment River.

The dyke rocks usually show a weathered and softened condition in the vicinity of this schist alteration, but this is often local and does not affect the main body of the rock.

The Snowy Range in the Medicine Bow Mountains is distinct in formation from the adjacent country, and consists of trachite and quartzites, with an occasional dyke of porphyry.

On either side of the Medicine Bow range the Carboniferous limestones are noted, with the succeeding sedimentary formation dipping away from the main range, until covered by the wash of the valley.

South and west of the Sierra Madre Mountains the sedimentary sandstones of the Cretaceous are noted, and here is found the coal used in the district, noted later.

Mineralization.—The mineralization may be said to be general throughout the formation just described, but varies in quantity and composition in each locality. In the granites, schists, dyke rocks and quartzites are found bunches, streaks and veins of the different forms of iron and copper, both oxidized and base, varying from a tiny crystal or speck to a huge mass a number of tons in weight enclosed in the adjacent rocks, which may or may not be part of or related to the body of ore.

Ore Deposits and Ores.—In a district as little developed as the Grand Encampment country it is evident that the precise ore conditions may not be fully understood until greater depths have been reached and some of each class of ores and ore de-

posits fully exploited. At present these are understood to consist of two classes, viz., ores found in the hard, unchanged formation, the diorites and unaltered schists, associated with a vein quartz, as at the Blakeslee and Verde property, south of Battle, as distinguished from the ores found as a contact deposit between two different formations, as the Ferris-Haggarty, Doane-Rambler mines, and a fissure deposit, as the New Rambler, on Douglas Creek, in a gray granite. The former may be termed original ores and the latter secondary ores, or ores of replacement.

In the first case sulphide of copper is found in the outcrops, and with but little change beyond the surface oxidizing of the specimen and staining the adjacent rock with iron oxides and copper carbonates, often leaving the unchanged sulphides only covered by a thin film of oxides.

In the latter case the sulphides are encountered at "water level," viz., the level of permanent underground water, varying in depth in different localities and covered by a capping of iron oxides, known as the iron cap and the "gossan" of the Cornish miner. This cap is usually a light, soft and porous brown oxide of iron, or limonite, sometimes silicious and associated with the limonite are noted forms of hematite or red oxide in varying quantity.

In many instances the iron cap contains thin scales of native copper and shows stains of the green carbonate of copper or Malachite and some blue carbonate of copper or Azurite. Small amounts of Chrysacolla or silicate of copper are often found, as well as some of the rarer forms of the oxidized copper minerals, noted later.

The principal ores are the yellow pyrites of copper or chalcopyrite and "peacock copper" or Bornite, as at the Ferris-Haggarty, and the Covelite ores of the New Rambler. Some phenomenally rich copper glance or chalcocite has been struck, mostly near the surface, as in the Keener-Price at Battle, the Doane-Rambler and the New Rambler and many other places, but in each case the deposit has been limited.

The works so far have shown that the ores immediately succeeding the oxidized ores underlying the iron cap are very rich, often running from 35 to 49 per cent. copper in car load lots, as shipping returns have shown, but this is evidently a secondary enrichment, due to the leaching of the iron cap above, and gradually gives place to the lower and more permanent grade of ore that is reached as depth is gained.

It is evident that the permanent ores of this district, when opened up by deep workings, will prove to be a low grade Chalcopyrite ore, suitable for treatment by a concentrating, roasting and smelting process.

Gold and silver values throughout the district have uniformly been low, although some phenomenally rich gold values have been noted in the oxidized ores at Purgatory Gulch, the Charter Oak and some others, but with more attention being paid to this by-product, a higher grade may be anticipated in the future.

Grand Encampment.—This town is the practical center of the mining activity of this region, is pleasantly located, substantially built and has about 1,000 population at the present time. Here are located the principal supply houses, bank and headquarters of the principal companies operating in this district, and is the eastern terminus of the aerial gravity tramway from the Ferris-Haggarty mine to the Encampment reduction works, the location of the Encampment Power and Light Company's works and the other enterprises owned by the North American Copper Company.

Aerial Tramway.—The tramway is sixteen miles in length, divided into four sections with three auxiliary power stations, one at Upper Cow Creek at the foot of Bridger Peak, one at Lower Cow Creek and one four miles west of Encampment. These stations are equipped with power plants, storage bins, etc., to facilitate the operations of the line. Three hundred and four towers, with tension stations at intervals, are used to support the cables, which, moving at an average speed of four miles an hour, with buckets holding 700 pounds of ore each, are capable of delivering 984 tons of ore per day. The towers were placed at an average distance of 200 feet apart on regular ground, but owing to the rough and varied nature of some of the intervening ground, it has been necessary to use some long spans, as at Cow Creek crossings, where the spans are 2,000 and 2,200 feet long, and on adjacent summits it was necessary to place a number of towers close together for obvious reasons. The terminal stations at the mine and smelter are equipped with automatic landing, filling and dumping arrangements, and sufficient storage capacity is provided to insure a supply of ore in case of a break-down in the mine or on the line.

The Encampment Reduction Works.—These works are located at the tramway terminal, on the west bank of the Grand Encampment River, and are favorably situated as regards convenience in operating, handling ores, tailings and slag dumps, etc.

The ore from the receiving bins is delivered to the crushers and rolls, passes over rotary sizing screens, the coarse material passing over being elevated back to fine rolls, the finer passing

through the screens, going on through the mill, and being sized and classified by sizers and jigs. The sized product passes over Wilfley concentrating tables for final treatment, and the concentrates are sent to the briqueting plant, the tailings or waste being run into a tailing dam and settled. A mechanical straight line roaster has been installed to roast the high grade sulphides, with a capacity of forty tons per day.

The smelter consists of two matte furnaces smelting to a 50 per cent. copper matte, which passes to the converter and is blown to blister copper. The entire plant is constructed on a 500-ton capacity basis, and all power used in the smelter, for cranes, etc., is electric, except the blowers and air compressor, which are driven direct from water power. Twelve hundred horse power can be developed in this plant. This water power is furnished from a built wooden pipe, forty-eight inches in diameter, which extends from the smelter to a point four miles away on the South Fork of the Grand Encampment River, where a twenty-nine-foot dam has been erected. The water drives five water wheels, some of which connect direct with the concentrating mill by shafting and a rope drive to the crushers, tables and other machinery. Others are connected direct to the electric plant, which is very complete, and supplies power as stated above, lights the works and towns of Grand Encampment and Riverside.

The Kurtz-Chatterton mine, west of Encampment, is the oldest in the district and has a tunnel 1,700 feet long, with numerous drifts, shafts, etc. The ore is a low grade copper sulphide in granite, suitable for concentration on an extensive scale.

In this vicinity are the Great Lakes, Norvell-Pickerell, Moon-Anchor, Chicago-Venture, Black Tiger, Winona-Rex, Sweet and others, which have been working steadily.

Battle.—Towards Battle the Co-operative Company has been sinking on a vein of red iron oxides in schists and quartzite. This same condition is noted on the Hidden Treasure and Gertrude properties, and at intervals shows copper stains, both in the capping and quartz.

A number of other well known properties near Battle are the Hercules, Portland, Continental, Copper-Blossom, Big-Chief, Blackfoot, Lena Shields, Quo Vadis, Iron King and Buelah properties, and these have steam plants.

South of Battle the Verde property is the most prominent, having put in a steam plant and now sinking on the ore, which outcrops in a heavy ledge in which sulphide ores of copper are found on the surface.



THE NOTED FERRIS-HAGGARTY AND O SCEOLA MINES, CARBON COUNTY.



DOANE MINE, RAMBLER, WYO.

The Lone Fisherman Group on the North Fork of the Snake River and the Itmay are active properties.

The Doane-Rambler has been shipping for several years, the past two from development work only, and some very rich ore has been taken out. The conditions under which these ores are noted are similar to the Ferris-Haggarty ores, the outcrop being a light porous limonite, usually stained with copper carbonates and occurring between schist and quartzite. Recently some high grade black oxide of copper has been found in a quartz vein in the schist.

The principal ores of the Doane-Rambler are chalcopyrite and some bornite, but a number of forms of the sulphides have been noted, especially some very high grade copper glance or chalcocite, very hard and black, being more like a copper matte than ore in appearance. Some of this glance showed streaks and specks of unaltered chalcopyrite through it. A quantity of covelite was also noted, as well as red and black oxides of copper and a great quantity of the carbonates of copper in the upper workings.

Some of the richest copper ore in the district has been shipped from this mine, and the cars shipped averaged from 40.7 per cent. to 51 per cent. copper, nearly 400,000 pounds of copper being shipped from this mine. New surface works, power plant and other works have been put in, and the Doane-Rambler is now in shape to go ahead on a sound basis.

Near the Doane-Rambler several promising prospects are located. The Minnie-Mabel and Doane-Verde are among these, and below the Rambler several interesting outcrops of oxidized iron are noted, some showing copper stains, but beyond a few small prospect holes, little has been done.

The Ferris-Haggarty mine, which is owned by the North American Copper Company, was located in 1898, has produced \$750,000 in copper and has 280,000 tons of 6 per cent. to 8 per cent. copper ore, worth \$4,740,000, blocked out in the mine in a vein twenty feet wide. This ore is found on the contact between quartzite and mica-schist, and the character of the ore is chalcopyrite or yellow copper pyrites and bornite or peacock copper. This mine furnishes the ore to the Encampment smelter and is the western terminal of the aerial tramway to Encampment, and complete surface works, power plant and other buildings have been built. Here the coal from the mines at Carbondale, twelve miles south, is brought and sent to Encampment and vicinity over the tramway. This coal is a lignite, but a good steam and domestic coal. In this vicinity a number of promising prospects are located. The Bachelder prospect has opened up some high

grade ore, and preparations are being made to develop the Osceola, Copper Belt and Mutual Company's holdings.

Many good showings are made from the "Sandstone" country west of Dillon, and it should receive the attention of prospectors, as there is every probability of opening up some profitable works there.

On Spring Creek the Copper Bar Company have erected a steam plant, and the Chippewa Mining Company have been doing work on a schist lead showing the usual oxidized surface condition, but with chalcopyrite carrying galena or lead sulphide at a very shallow depth and in considerable quantity. The Badger State Company has been sinking on a strong vein of quartz carrying copper and lead sulphides in mica schist.

The Syndicate property on Savery Creek is working on a contact between an altered schist and diorite dykes. Considerable copper ore of good grade has been taken out.

In Purgatory Gulch, situated six miles south of Encampment, in 1897, some remarkably rich gold specimens were found, and formed the basis of the excitement which has developed into the Grand Encampment copper district.

The Fremont Copper Company is operating on Dunkard Creek and has installed a plant of machinery for sinking an inclined shaft on a promising showing.

The King-of-the-Camp, on the South Fork of the Grand Encampment River, is running a cross-cut tunnel to cut a quartz lead in schist that carries promising values in gold, and is one of the few properties in this locality being worked for gold alone.

Beaver Creek is situated some twelve miles south of Encampment, and contains some promising prospects.

The Aetna, the Evening Star, Bay-Horse, Ruby, News-boy and Kearns-Consolidated are prominent properties, have steam plants erected and have done considerable work.

In the Gibraltar prospect, near Big Creek, eighteen miles from Encampment, a vein of iron oxides, stained with copper carbonates, was opened up and considerable good ore taken out.

The Cox mine, on Big Creek, has produced some remarkable high grade copper ore, and several shipments have been made from it. The ore is found in a huge quartzose ledge lying conformably with a wide band of schist in the granite foothills that are shown in the Platte Valley, distinct from a general uplift of the mountains. The usual iron capping was found, and the rich copper glance ore, noted above, found, with copper carbonates near the surface. With depth, these gave place to bornite ore, filling the spaces in the crushed

and broken quartz, often filling places formerly occupied by quartz and feldspar crystals, evidenced by the shape of the copper sulphide masses.

The Charter Oak is one of the oldest properties in the district, and is located seven miles north of Encampment, in the northern edge of the foothills. Ores consist of sulphides in lower and oxidized in upper levels. A shaft 488 feet deep has been sunk and about 300 feet of drifts run, with a good showing of ore.

Elk Mountain District.

This is the most northerly of the ranges comprising the Medicine Bow range in Wyoming, and is a later uplift than the Sierra Madre, on the west side of the Platte. Here the sedimentary limestones of the Carboniferous period lie on the schists and granites of the earlier formations, and at the Elk Mountain M. & M. Company's property, on the north side of Pass Creek, the ore is found near the contact of these formations. This ore, in the upper workings, is copper glance, occurring in the bunches common to this ore, and in the lower workings is giving place to the chalcopyrite, which is becoming more common as depth is reached. At the outcrops the usual iron oxides were found staining the limestone, with some glance and a great deal of green copper carbonates as a stain.

The Cumberland Group on the south end of Coad Mountain shows a huge ledge of quartzose material, some twenty feet wide, lying conformably with the dip and trend of the schist and showing a good trace of ore. A tunnel run to cross-cut the ore has not yet reached it, but it is believed will show a large body of concentrating copper ore at the depth of the tunnel, about 1,000 feet on the dip of the vein.

The Campderdown Group, north of the Cumberland, has a remarkable showing of copper ore, similar to the Cumberland, both of which are regarded as good development propositions.

The Great Rambler mine is owned by the Rambler Mining and Smelting Company, is located on the crest of the Medicine Bow range, in Albany County, and was first opened up as a gold prospect. In 1900 the first copper was struck at a depth of sixty-five feet, and the mine began immediately to ship high grade copper ore. The formation containing the copper is a dioritic granite, with some micaceous schist in the vicinity, but the ore is found in a series of fissures in the granite. In common with the other prominent properties in Southern Wyoming, the surface and outcrops of the property

show the usual oxidized forms of iron, with an occasional copper stain. The "iron hat," as this capping is called, extends to a varying depth and gives place to the various forms of copper minerals met with in this mine. The Rambler is a veritable museum of copper minerals, and nearly all the known forms have been found here either in quantity or as specimens. Native copper is noted in sheets often of a dendritic form and as small nuggets. Copper carbonates, green and blue, are abundant, as well as the silicates of copper. The red oxide of copper, Cuprite, and the black oxides, Tenorite and Malacconite, are noted in quantity. Covellite, or "indigo copper," is the ore that made this mine famous, as this variety has always been a rare form, and seldom, if ever, found in the quantity in which it occurs in this mine; the only small specimens of this variety are usually found in the different museums of minerals. Quantities of a very fine grained copper glance are found, carrying minute specks of unaltered chalcopyrite, similar to those noted in the Doane-Rambler mine on Battle Creek, in the Sierra Madre range. Many of the other forms of copper are noted in small quantities. Platinum has been found in the Rambler ores, occurring in the Covellite and showing 1.4 oz. of platinum per ton of ore. Palladium has also been noted in these ores in the Covellite ores with the platinum. The mine has been developed by shafts and drifts, and has some 2,800 feet of developed workings. The grade of ore at this property has been high, and a number of cars of very high grade ore have been shipped, especially that containing the glance and Covellite. These shipments show 1,928 dry tons of ore shipped, averaging 19 per cent. copper and representing a gross value of \$77,622. The general grade of the oxidized ores is low, and to treat these ores a matte smelter of forty tons per day capacity has been installed. The matte made and shipped is given as follows: Six hundred and thirteen thousand pounds matte, 249,196 pounds copper, \$36,135.41 values. The grade of matte shipped varied from 30 to 60 per cent. copper and the total amount of copper produced to date is 828,970 pounds.

Other companies working in this vicinity are the Jupiter, Cuprite, Blanche, Duchess, American and a number of others are prospecting and doing surface work.

On Iron Creek a huge ledge of iron oxides is noted outcropping in general as a hard, silicious hematite, but often associated with deposits of brown limonite and frequently carrying a small copper value. The shaft sunk by the Ak-Sar-Ben Company on this material to a depth of eighty feet is the deepest working and shows a soft condition beneath the capping.

None of the workings have yet been penetrated through this oxidized material, but it is believed this material is underlaid by iron sulphides carrying copper, and this in turn by copper sulphide ores.

Silver Crown, in the Laramie Hills, west of Cheyenne, has several promising properties, the Globe mine and the Hecla being the most prominent and equipped with steam plants. The Hecla Company is working steadily and producing some fine ore, and arrangements being made to start their reduction works.

At many places in these hills are working properties. At Granite Canon, at the Strong, Michigan, Iconclast, Cooney Hill and Slate Creek work is going on with good results.

North of Laramie Peak a new mining camp is being started, and several new plants are working at the corner of Laramie, Albany and Converse Counties.

The Esterbrook is the oldest of these and is sinking a shaft in a vein of silicious lead carbonate ore that is giving place to copper sulphides as the workings go deeper. Near by are the Tenderfoot, Three Cripples, Trail Creek and Pyramid mines, each active and with every prospect of success. The formation here is schists and granite, and in each locality some new phase is presented.

West of the Laramie Peak region is the old Warbonnet district, where the Oriole mine is developing a fine showing of copper ore.

East of these works in Whalen Canon, in Laramie County, the Sunrise Copper Mining Company is opening up some very rich copper ores, and the camps are all prosperous.

Sunlight Mining District.

Sunlight Basin, in Big Horn County, is attracting the attention of miners and prospectors, and considerable work is being done around Stinking Water Peak, one of the prominent peaks of the Absaroka range. This region is located about sixty-five miles west and north of Cody, on the B. & M. R. R., in the Yellowstone Park Timber Reserve, and about ten or fifteen miles east of the east line of the National Park.

The formations here are mostly andesites, rhyolites and porphyry. Diorite is also noted in some localities; basalt and conglomerates, both in massive sheets and dykes, are found, but the minerals have usually been found in the andesites and allied rocks.

Almost all the prospecting up to the present time has been in the vicinity of Stinking Water Peak, in an area of about six

or seven miles square, covering the heads of Sulphur, Copper and Galena Creeks and the North Fork of the Shoshone River.

The works of the Sunlight Mining Company in Silver Tip Basin are the principal works of the region, and consist of three tunnels, 100 feet, 250 feet and 900 feet long, respectively, the latter being the main working tunnel, being run to cut an ore body that shows a surface width of about thirty feet of good grade ore. The ore from these works is a quartzose vein matter, carrying copper and iron sulphides, mostly chalcopyrite or yellow pyrites of copper, with a fair value in gold and silver. Some galena or lead sulphide is also found, which is often rich in silver. Shipments have been made from this property and showed a profitable return even in the face of a wagon haul of one hundred miles to the nearest railroad point at Red Lodge, Montana, after being packed for four miles down to the road from the mines. This region is favorably adapted for tunnel methods of mining, and thus prospecting may be carried on at all times and seasons, the winters being no more severe than in many of the mining regions of Colorado.

At Kirwin, on the head of Wood River, a number of promising copper products are being quietly developed, and under conditions somewhat similar to the Sunlight mines. This formation extends along the eastern line of the National Park to the Wind River Mountains, west of Lander, in Fremont County, and in this almost unknown land a great many promising prospects are situated, from which many samples of very fine grade copper ores are sent out.

In the Owl Mountains, south of Thermopolis, in Copper Mountain, a very promising product is being opened up, and in the same vicinity a number of others are showing good returns for the work done.

The list of promising prospects might be indefinitely continued in every mountain range in the State, did space permit, but only the most prominent and best known localities are mentioned, and to name all would require a separate publication.

Production.

The present laws of Wyoming do not provide that all metal productions shall be reported to the State, and it is, therefore, impossible to give accurate figures regarding the gold, silver and iron productions at the present time. The gold and silver of Wyoming has been going to the Denver mint and is credited up in the totals to Colorado. This will be corrected by our next Legislature.

OIL

THE LIGHT OF AGES.

The Boston Journal for Investors says:

"When it comes to oil, Wyoming certainly bids fair to illuminate and lubricate the works of man for generations. The eighteen oil fields known in that State present a greater variety of product than any similar known area, as it varies from the highest grade of lubricating oils without a trace of illuminating constituents to an equally high grade of illuminating oil totally free from lubricants and with a range of intermediate oils and products that is a revelation to oil men."

In each of the eighteen oil fields oil is flowing from springs, or there are thick bands of oil sand exposed. The greater number of these fields are situated in the central part of the State, but there are fields in the northeastern part, in the southwestern portion, and in the northern central region. The oils that have been analyzed vary in nature from high grade lubricating to oils that will produce from 40 to 50 per cent. of kerosene.

With proper facilities for transportation, the oil industry in Wyoming will equal, if not surpass, that of any State.

The greatest development is found in Natrona County, where a lubricating oil is found which has been pronounced by experts to be the best in the world; and in Fremont County, where there are thirteen flowing wells, now capped for the want of a railroad. At Casper there is a refinery having a capacity of 200 barrels of crude oil per day. The product is hauled from the wells in wagons that have a carrying capacity of 18,000 pounds, each train of wagons requiring twelve to sixteen mules. This greatly adds to the expense of production. At present the following oils are manufactured at Casper: Railroad engine, railroad car, railroad valve and railroad signal. These oils are the most perfect lubricants, of high endurance, highest fire tests, and greatest body and wearing power. Besides railroad oils, the refinery manufactures other special high grade oils, viz.: Stationary engine, valve, spindle oils, dynamo oils, watch oils, neutral oils for blending animal and vegetable oils, paint oil, visco axle grease, and heavy machine oil for mowing machines. The product of eight producing wells varies in value from twenty cents to one dollar and fifty cents per gallon.

The Bonanza field, in Big Horn County, is attracting a great deal of attention, five wells recently drilled struck oil at 280 feet.

Geology.—Lack of space will not permit a thorough description of the geological formation of the several fields. Full information on this subject may be obtained by addressing a request to Miss Grace Raymond Hebard, Secretary of the Board of Trustees of the University of Wyoming, at Laramie, Wyoming, for Oil Bulletins. The University issues bulletins on the Mining Resources of Wyoming, prepared by the Professor of Geology from personal field investigation.

The Popo Agie Oil Field.—This field is situated ten miles southeast of Lander, Fremont County, with an elevation of 5,350 feet; it covers several townships and extends north to Lander. The history of this field is far more interesting than any other oil field. The same was discovered by Bonneville in 1833, and is the place where the first producing oil well was drilled. From the date of Bonneville's visit up to 1867 the oil spring was unknown, except to the hunter or trapper, who frequented the locality to secure the oil for medicinal, lubricating, illuminating and other purposes. There are now thirteen flowing wells, with a capacity each of 200 barrels per twenty-four hours; owned by the Belgo-American Drilling Trust, as are also the lubricating oil wells situated on Salt Creek, with the refinery at Casper. The oil appears black, is reddish brown by transmitted light and has a strong, disagreeable odor.

Flashing point	90° F.
Burning point	136° F.
Specific gravity . . . . .	.900
Heating power	11,437 calories per gramme

In refining the products are gasoline and kerosene, about 35-45 per cent., and the balance lubricating oils and asphaltum. The oil is of heavy asphaltum base and suitable for high grade fuel, tests giving 14,571,000 foot pounds of energy per pound of oil. One pound of this oil will convert 19.40 pounds of water at 212 F. degrees into steam.

Analysis shows the following products:

Naphtha (gasoline)	2-5 per cent.
Kerosene, .810-.830	30-40 per cent.
Lubricating oil, .910-.940	35-50 per cent.
Paraffin	3-5 per cent.
Coke	7-10 per cent.
Gas	10-12 per cent.



Photo by Stinson.

ONE OF THE LAKES OF OIL NEAR LANDER CAUSED BY OVERFLOW OF WELLS NOW CAPPED.



VIEW IN SALT CREEK OIL FIELD, NEAR CASPER.

Lander and Shoshone Oil Fields.—The Lander field joins the Popo Agie on the north, and the Shoshone joins the Lander on the north, extending into the Wind River Indian Reservation.

Distillation of Lander Petroleum.

500 cubic centimeters of oil taken. Each fraction is 5 per cent.

No. of fraction	Boiling Point, Centigrade	Specific Gravity	Degree Baume	Flashing Point		Burning Point		Cold Test	
				°C.	°F.	°C.	°F.	°C.	°F.
1	155-215	.8100	42.8	51	124	62	144		
2	215-255	.8218	40.4	64	148	77	171		
3	235-250	.8313	38.4	82	180	93	200		
4	252-265	.8400	36.7	94	202	109	229		
5	265-280	.8452	35.6	107	225	122	252		
6	280-285	.8500	34.6	117	243	135	275		
7	285-290	.8510	34.4	120	248	137	279		
8	290-295	.8565	33.4	124	256	142	288		
9	295-310	.8640	31.0	137	279	157	315		
10	310-325	.8680	31.3	147	297	169	337		
11	325-340	.8740	30.2	152	306	178	353		
12	340-345	.8725	30.5	147	297	167	333		
13	345-355	.8745	30.1	151	304	167	333	-9	16
14	355-365	.8820	28.7	137	279	184	364	-2	28
15	365-375	.8835	28.5	142	288	177	351	1	34
16	375	.8705	30.8	109	226	132	270	5	41
17	380	.8505	34.5	57	135	84	184	0	32
18	385	.8800	29.1	57	135	84	184	9	48

Distillation of Shoshone Petroleum.

500 cubic centimeters of oil distilled. Each fraction is 5 per cent.

No. of fraction	Boiling Point, Centigrade	Specific Gravity	Degree Baume	Flashing Point		Burning Point		Cold Test	
				°C.	°F.	°C.	°F.	°C.	°F.
1	165-265	.8500	32.0	27	81	67	153		
2	265-295	.8840	28.4	72	162	137	279		
3	295-305	.8888	27.5	72	162	122	252		
4	305-325	.9065	24.4	82	180	139	283		
5	325-335	.9125	23.4	92	198	147	297		
6	335	.9235	21.6	107	225	167	333	-10	14
7	335	.9175	22.6	97	207	155	311	-7	19
8	325	.8800	29.1	42	108	64	148	-10	14
9	315	.8955	25.6	37	99	62	144	-11	30
10	305	.8955	26.3	40	104	67	153	4	39
11	255	.8790	29.3	37	99	57	135	-10	14

The Salt Creek Oil Basin is situated fifty miles north of Casper, Natrona County. This oil is the finest lubricating oil in the world. It is hauled in wagons a distance of fifty miles, to Casper, to be refined.

Analysis of Oil from Salt Creek Basin, Natrona County.

Crude oil—red by transmitted and olive green by reflected light; specific gravity, .9050 (25.2°B.)

No. of Distillate	Boiling Point		Specific Gravity	Degree Baume	Remarks
	°C.	°F.			
1	120-210	248-410	.8600	32.6	Flashes at 50°C. (121°F.)
2	210-265	410-510	.8710	32.4	Flashes at 98°C. (210°F.)
3	265-275	510-528	.8770	30.3	
4	275-280	528-536	.8730	30.4	
5	280-285	536-544	.8622	33.3	
6	285-290	544-554	.8393	38.0	
7	290-320	554-608	.8518	35.4	
8	320-340	608-612	.8610	33.4	
9 . . . . .			.8883	28.4	
10					Coke

Color of above: Nos. 1 to 9, from dull straw color by regular gradations to the color of the crude oil; No. 10, black.

Uinta County Oil Fields.—This district includes several fields—Bear River Basin, Round Mountain, Fossil, Spring Valley, Twin Creek, Carter and Hilliard—and has many natural advantages over the other districts on account of its proximity to transportation, the Union Pacific railroad, and the points of distribution, Salt Lake and Ogden.

The following analysis is a fair representation of the oil from several fields in this district:

Distillation of Uinta County Petroleum.

	By Heating and Changing Temperature		The Percentage Distilled off		Specific Gravity of Product	Hydrometer Gravity	Nature of Product
	From	To	By Vol.	By Wt.			
A . . .	66°F.	302°F.	per cent. 15	per cent. 17.1	0.740	60	Gasoline and benzine
B . . .	302	491	33.1	33.4	0.802	46	Illuminating
C . . .	491	662	26.5	27.1	0.830	35	Heavy illuminating, as Signal or Headlight
D . . .	662	Boiled dry	19.5	20.4	0.840	31	Lubricating Oil and Paraffin
Residue	Bituminous, soluble		?	1			
"	Carbon & ash, insoluble		?	1			

Per cent.

Naphtha, 60° F. (gasoline and benzine) 27.0
 Water white kerosene, 45° Baumé, 145° flash, 172° fire test . 25.5
 Signal and headlight, 40° Baumé, 300° fire test 7.0
 Lubricating reduced stock, 23.5° Baumé 40.5

100.0

The cold test of the crude oil is 58° F., and the amount of crystallized paraffin that was present in the lubricating stock is 18.5 per cent.

The **Bonanza Oil Field** and the **Cottonwood Oil Field** are in close proximity to each other in Big Horn County, near the No Wood River, a tributary of the Big Horn. Active development work is now being carried on in this district, a very fine grade of oil having been found.

Analysis of Bonanza Oil.—Specific gravity, .8446 (36° Baumé). Color: Red; strong green fluorescence. Odor: Like kerosene. Flashing point: 13° C. (55° F.). Burning point: 35° C. (95° F.).

Distillation into 10 per cent. fractions:

Fraction.	Boiling Point.	Color.
No. 1.....	80° C.—142° C.....	Water white.
No. 2.....	142° C.—177° C.....	Water white.
No. 3.....	177° C.—209° C.....	Water white.
No. 4.....	209° C.—240° C.....	Straw.
No. 5.....	240° C.—265° C.....	Darker yellow.
No. 6.....	265° C.—303° C.....	Darker yellow, slight fluorescence.
No. 7.....	303° C.—350° C.....	Reddish yellow, stronger fluorescence.
No. 8.....	350° C.—380° C.....	Reddish yellow, stronger fluorescence.
No. 9.....	380° C.—400° C.....	Red, bluish fluorescence.
No. 10.....	400° C.....	Seven per cent. collected.

This petroleum will work up into the following products:

Gasoline	20 to 25 per cent.
Kerosene	55 to 60 per cent.
Light lubricating oil	5 to 10 per cent.
Paraffin	2 to 4 per cent.
Coke and loss	4 to 6 per cent.

The **Newcastle Oil Field** is located in the vicinity of Newcastle, county seat of Weston County, on the Burlington railroad.

This petroleum is similar in composition to the Salt Creek oils and belongs to the class of heavy oils, and is not suitable for the production of gasoline or kerosene, although they can be obtained from it. Its chief value will be for lubricating and for fuel purposes. It is, in its natural state, an excellent lubricant, has a high gravity and low cold test, a high viscosity and shows no paraffin or asphalt. This oil is also well fitted for the manufacture of gas.

The Newcastle petroleum as represented by the samples taken from the pit of Eagle Spring has a specific gravity of

.9168 (22.8° Baumé). It flashes at 122° C. (251.6° F.) and takes fire at 153° C. (307.4° F.). The odor is not disagreeable, and for many purposes it could be sold as a lubricating oil in a crude state. No paraffin crystallizes out on cooling and little or no asphalt is left on distilling. The viscosity at 60° F. is 29.43, using Engler's viscosimeter and compared with the viscosity of water.

Distillation of Newcastle Petroleum from the Pit.

1500 cc in copper flask. Collected in 5 per cent. fractions.

Fraction No.	Specific Gravity	Degree Baume	Flashing Point		Burning Point		Remarks
			°C.	°F.	°C.	°F.	
1.	.868	31.2	80	176	97	207	Light yellow
2.	.874	30.2	89	192	117	242	" " , slight green fluorescence
3.	.881	29.2	97	206	127	260	" " " " " "
4.	.888	27.8	108	226	137	278	" " " " " "
5.	.892	26.9	100	212	144	291	" " " " " "
6.	.897	26.0	91	196	145	203	" " green fluorescence
7.	.897	26.0	70	158	142	288	" " " " " "
8.	.897	26.0	47	117	135	275	" " " " " "
9.	.900	25.2	60	140	146	295	Reddish yellow, green fluorescence
10.	.903	25.0	65	149	153	307	" " " " " "
11.	.903	25.0	73	163	159	318	Red, strong fluorescence
12.	.903	25.0	77	170	154	309	Dark red, strong fluorescence
13.	.900	25.2	83	181	168	334	" " " " " "
14.	.874	30.1	35	95	89	192	" " " " " "
15.	.869	31.0	37	99	64	147	" " " " " "
16.	.897	26.0	39	102	101	214	" " " " " "
17.	.900	25.2	51	124	104	219	" " " " " "
18.	.890	27.5	50	122	99	210	" " " " " "
19.	.908	24.8	35	95	57	188	" " " " " "

The Douglas Oil Field is situated a short distance south of Douglas, county seat of Converse County, elevation 5,000 feet. The quality of the crude oil in this section is exceptional and will work up into remarkable lubricating oils.

Distillation of Douglas Petroleum.

Amount used, 500 cc., in grammes, 480.5 gr.; Specific Gravity, .9610; Degrees Baume, 16; Flashing Point, 164°C. (327°F.); Burning Point, 195°C. (383°F.)

	Boiling Point		Specific Gravity	Degree Baume	Flashing Point		Burning Point		Amount Grammes
	°C.	°F.			°C.	°F.	°C.	°F.	
A.	170-279	338-534	.8805	29.	50	122	95	203	25.00
B.	279-308	534-586	.8880	27.6	"	"	"	"	22.01
C.	308-310	586-590	.8810	28.9	30	86	86	186	22.20
D.	310-312	590-593	.8852	28.1	"	"	"	"	22.03
E.	312-317	593-602	.8634	32.1	Below 15	59	28	82	22.13
F.	317-324	602-615	.8757	29.9	"	"	"	"	21.58
G.	324-345	615-653	.9100	23.8	27	80	96	204	21.89
H.	345-350	653-662	.9128	23.4	"	"	"	"	22.75
I.	350-341	662-645	.9075	24.3	Below 15	59	54	129	22.73
J.	341-338	645-640	.9022	25.2	"	"	"	"	22.55
K.	338-348	640-658	.9090	24.	Below 15	59	58	136	22.73
L.	348-340	658-644	.9110	23.7	"	"	"	"	22.78
M.	340-334	644-633	.9063	24.5	Below 15	59	47	116	22.66
N.	334-321	633-609	.9000	25.5	"	"	"	"	22.50
O.	321-309	609-588	.9122	23.5	Below 15	59	20	68	22.80
P.	309-	588-	.9200	22.1	"	"	"	"	7.36

The Belle Fourche Oil Field is situated about fifteen miles north of Moorcroft, on the Burlington railroad, in Crook County. In the early history of the discovery of gold in the Black Hills, needing lubricating oil for the machinery, men were employed in this field in collecting oil from the springs, which was transported by wagon to Deadwood and there sold for \$28 per barrel.

Belle Fourche Petroleum.

No.	Per Cent.	Boiling Point		Specific Gravity	Degree Baume	Flashing Point		Burning Point	
		° C.	° F.			° C.	° F.	° C.	° F.
1	2.74	Below 200	Below 392	.775	50.0				
2	2.30	200-230	392-446	.828	39.1	37	99	50	122
3	2.01	230-240	446-464	.846	35.4	55	131	69	156
4	2.74	240-250	464-482	.852	34.3	67	153	77	171
5	2.13	250-260	482-500	.857	33.3	74	165	85	185
6	3.07	260-270	500-518	.863	32.2	84	183	104	219
7	3.28	270-280	518-536	.869	31.1	92	198	110	230
8	4.11	280-290	536-554	.874	30.2	100	212	119	246
9	4.27	290-300	554-572	.879	29.3	110	230	124	255
10	4.66	300-310	572-590	.883	28.6	115	239	130	266
11	4.27	310-320	590-608	.889	27.5	118	244	138	280
12	5.09	320-330	608-626	.892	27.0	126	259	145	293
13	4.32	330-340	626-644	.894	26.6	120	248	145	293
14	4.77	340-350	644-662	.898	25.9	117	243	155	311
15	6.29	350-360	662-680	.899	25.7	110	230	167	333
16	9.53	360-370	680-698	.899	25.7	96	205	167	333
17	6.74	370-380	689-716	.901	25.4	75	167	155	311
18	10.79	380-390	716-734	.907	24.4	55	131	135	274
19	14.98	390-400	734-752	.910	23.8	42	108	125	257
20	1.91	Residue							

The Oil Mountain Field is situated twenty-five miles west of Casper, Natrona County. This petroleum is principally valuable for lubricating purposes, although the most of it could be worked up into kerosene for open lamps, such as miners use.

Distillation in a Vacuum of Petroleum from Oil Mountain.

10 per cent fractions, 35 millimeters pressure

NO.	Boiling Point		Specific Gravity	Degree Baume	Flashing Point		Burning Point	
	° C.	° F.			° C.	° F.	° C.	° F.
1	180-211	356-412	.873	30.4	112	234	196	385
2	211-242	412-468	.881	29.0	137	279	201	394
3	242-269	468-516	.893	26.8	155	311	223	433
4	269-276	516-527	.899	26.0	160	320	237	459
5	276-310	527-590	.906	25.5	193	379	250	482
6	310-320	590-608	.909	24.0	200	392	247	549
7	320-335	608-635	.910	23.0	167	333	255	491
8	335-340	635-644	.898	26.0	98	208	203	397
9	340-340	644-644	.894	26.8	80	176	179	354
10			.897	26.0				

The Dutton Oil Field is situated partly in Fremont County and partly in Natrona County. Many oil springs are found here and natural gas is quite abundant. There is practically

no development in this district. The oil has a gravity of .927 (21° B.).

The Rattlesnake and Arago Oil Fields are on the north-east slope of the Rattlesnake Mountains in Natrona County. Here is found asphaltum in sufficient quantities for commercial importance, if it were not for the lack of transportation. The petroleum of this district will be very valuable for fine lubricating oil, and the residuum will make the best kind of asphalt.

The Powder River Oil Field is located on the South Fork of Powder River, sixty miles northwest of Casper, county seat of Natrona County; fifty miles south of Buffalo, county seat of Johnson County. There are many oil springs in this field. In working this field the natural outlet of the oil is on the South Fork of the Powder River to the Burlington railroad, where a gravity pipe line could easily be constructed.

This is one of the best fields in Wyoming; the structural features are ideal. This petroleum is heavy and black; the odor is slight, resembling common kerosene, and in general character is similar to Salt Creek oil and the Popo Agie oil. The petroleum, under proper treatment, will be profitable for lubricating oils and asphalt.

Distillation in a Vacuum of Petroleum from Oil Canon, Powder River Field
10 per cent fractions, 35 millimeters pressure.

NO.	Boiling Point		Specific Gravity	Degree Baumé	Flashing Point		Burning Point	
	°C	°F			°C	°F	°C	°F
1.	130-180	266-356	.842	36.1	57	135	71	160
2.	180-200	356-392	.860	32.4	72	162	95	203
3.	200-240	392-428	.870	30.8	77	171	92	198
4.	220-246	428-475	.888	27.5	74	165	110	230
5.	246-248	475-478	.902	25.2	176	349	205	401
6.	248-308	478-586	.902	25.2	190	373	228	442
7.	308-334	586-633	.957	16.9	184	363	249	480
8.	334-320	633-608	.957	16.9	67	153	118	244
9.	320-364	608-687	.882	28.6	55	131	83	181
10.			.900	25.4	47	117	93	199

Development.—The successful and profitable development of many of the oil fields depends largely upon the construction of new railway lines—an investment fully warranted by this resource—but there are a great many opportunities presented in many of the fields which are adjacent to present railway lines for profitable and highly remunerative development.

The Climate and Its Benefits.

Mountain Ranges.—Nine-tenths of Wyoming lies within the Rocky Mountain region. Strictly speaking, the whole State is a region of vast plains, relieved by broken and detached ranges and mountain spurs. In the eastern part of the State we encounter the Laramie Range, which extends northwesterly for 200 miles.

Proceeding westward, after traversing the southern portion of the Laramie Plains, we come to the Medicine Bow Mountains. Crossing the Platte River, which, with its tributaries, occupies a breadth of fifteen to twenty-five miles, we come to the main chain of the Rocky Mountains, in a broken series of ranges extending through the State. From the western base of the Laramie Range, after crossing the Laramie Plains, nearly 100 miles in width, an east and west range of mountains is found, which constitute the southern front of the Sweetwater Valley. This wall bears several names, to-wit: Sweetwater, Seminoe and Ferris Mountains, ranges about five to twelve miles in width, and in length almost eighty miles. West of these lies the Green River Valley, sixty to seventy miles across.

Returning to the eastern boundary, we find the Black Hills extending to the northern boundary of the State, where they come in contact with the Little Missouri and Wolf Mountains, whose high and picturesque heads occupy much of the northeastern corner of the State.

Passing over the beautiful valley of the Powder River and its tributaries, towards the west, we come to the magnificent Big Horn Range, fifty miles in breadth, extending 150 miles in Wyoming. Beyond flows the Big Horn River, watering a basin fifty to one hundred miles in width. Still beyond, in a southwesterly direction, are found the Owl Creek, Rattlesnake and Wind River Mountains, the last named being the most extensive, with a direction corresponding to that of the Rocky Mountains. In fact they form a part of this great chain, and, extending for a distance of 200 miles from the point of departure from the Sweetwater Range, finally end in the Yellowstone National Park.

Still west of this range lie the upper basins of the Green and Snake Rivers, the two being separated by short spurs, known as the Gros Ventre and Wyoming Mountains, con-

necting the Wind River with the Wasatch referred to as contributing, for about 100 miles, to the western wall of the State.

From this general description of the position, extent and course of mountain ranges, widely distributed over the State, it will be seen that large areas of valley and plain must exist. Recalling the physical peculiarities of the State, the north-westerly trend of its broken and scattered mountains, with grand gateways for the admission of Pacific air currents, and the low altitude of the mountain ranges beyond the northern boundary of Wyoming, we should be prepared to deduce a climate theoretically quite different from one based on altitude and latitude alone. That latitude itself is not a sufficient criterion, anyone may satisfy himself by comparing the climate of Western Europe with those of the Atlantic side of North America, on the same parallels. Cold New England, for example, with Spain and Italy, rigorous Newfoundland with sunny France, or frozen Labrador with warm Old England. The explanation is easy when we take into account the configuration of the two continents, with the contrary influence of the warm, northeasterly currents of wind and water that temper the climate of the European continent, and the chilling waters from Spitzbergen that wash the eastern shores of America. On the western shore of this continent the existing conditions are exactly reversed. It is warmed by the northeasterly Pacific currents, which diffuse a warmth along the slope on that side that is felt throughout the high regions of the Rocky Mountains, and which, coming around the head of those mountains and down along the eastern side of the Big Horn Mountains, exert a special influence throughout Northeastern and Eastern Wyoming.

General.—There is no region of equal area that is possessed of more abounding and diversified richness of resources and possibility. It is almost as limitless in undeveloped opportunities as it was when Bonneville first broke his way into Jackson Hole—now the wonderland of the United States. Much more in praise of the richness of this young commonwealth could be given without vain repetition or exaggeration. The climate of this region of mountains, plains, parks and valleys, of this land of sunshine, azure sky, and bracing and tonic air, calls for a more widespread appreciation than now prevails. From what has been said of the physical features of Wyoming, variety of climate would be expected. On the mountain peaks, 13,000 feet above sea level, perpetual snow abounds. In the lower valleys apples, grapes and smaller fruits are grown. Three things are common to all of Wyoming—dry air, sunshine and blue sky.

Medical Authorities.

"In selecting a climate, the question of degree of temperature is a minor one. A dry, equable temperature is always preferable. Dry cold is not dangerous, and is, indeed, preferable to enervating warmth." (Wood and Fitz, *Practice of Medicine*.)

George Burney, M. D., says: "In selecting a climate for a consumptive, the first question which occurs to us is the inquiry as to the proportion of sunny days in which outdoor exercise can be safely enjoyed. In the great majority of cases a dry climate, with abundant sunshine and pure air, constitutes the desideratum."

Dr. Weber says: "Setting aside individual peculiarities, the majority of tubercular patients do best at a height of three to six thousand feet."

Dr. Knight of Boston says: "In suitable cases (those in which large cavities are not formed in the lungs) the improvement in nutritive activity is much more marked in mountainous regions than on the plains," and that "four to eight thousand feet is the proper altitude." In this statement I fully concur, after an experience in treatment of many cases of pulmonary consumption covering a period of thirty-five years.

"I am as sure as I can be that recoveries from phthisis, judiciously treated at high altitudes, are much more numerous and much more lasting than those treated by any other method at any other place." (Sir Andrew Clark.)

The cases that are most favorably impressed here are:

1. Where the apices are early affected.
2. Those without cavities, although advanced and with consolidation.
3. Recent cases whose salient symptom is hemorrhage.
4. A non-progressive cavity is benefited.
5. Remaining consolidation after pleurisy and pneumonia.
6. Chronic laryngeal also no worse here than elsewhere.

The clothing worn in Wyoming is such as is commonly worn in the Middle States, of our latitude, except that the storm coat is but little used. In summer underwear of medium weight is usually worn.

Cure for Special Maladies.—If one were called upon to select a climate calculated to benefit a patient suffering from a particular malady it would seem the most rational to select one where that particular disease or class of diseases did not prevail, and as endemic phthisis has never been known to

generate in Wyoming, no stronger argument could be advanced in favor of this being a curative climate.

Resorts of any desirable elevation are within reach. Wyoming presents climatic influences equally favorable for the restoring of those invalidated by bronchial maladies and catarrhal states of the throat and naso-pulmonary air-passages as it presents for the alleviation and cure of tuberculosis.

This is the region, par excellence, for asthmatic people. Many hundreds of people of all ages thus afflicted have come here from the low altitudes of the East and West, have been restored to health and vigor, and today are among the most active and prosperous of our citizens.

Our altitude does not militate even against those who have valvular disease of the heart, unless where compensation is destroyed, and accompanied by dilation and weakness.

My observation has been that patients do equally well at advanced age, and are as uniformly benefited in this altitude (6,041) as those who are younger. What is true of the heart applies as well in regard to pneumonia, bronchitis and pleurisy, which diseases are extremely rare here, and the percentage of deaths much smaller than in any other State in the Union.

Chronic laryngitis and bronchitis are speedily cured by residence, unless they exist as complications of advanced stages of consumption. Persons whose habits of life do not allow or compel them to fully expand their lungs in a pure atmosphere; pale, anaemic clerks, those of sedentary habits, with hacking coughs; nervous and dyspeptic people; children with narrow, stooping shoulders and flat breasts, with impaired digestion, should come to these mountains, if possible, as the air of this region necessitates full breathing; every cell in the lungs is forced into activity, straightening the form, increasing the breathing area, and hurrying the blood, thus purified, freely through the lungs.

The choice of climate for the patient is the most important part of the treatment. Usually the first decision made is whether the patient shall or shall not go away from home. The proper rule is, the milder and apparently insignificant the local disease, the more important the seeking out of a suitable climate, because the more is to be hoped from climatic treatment. If, with the involument of each lung, there be present softening and formation of cavities, change of climate only can be expected to give relief. Such cases—except where softening is of limited extent—should not be brought to these high altitudes, as the fatal termination is only hastened by so doing. Chronic diseases peculiar to women do

well. Those suffering from general debility and nervousness are almost certain to be cured by a residence here for a sufficient length of time.

Climatology—Record for Five Years.

Temperature.—The mean temperature averaged 41.7 degrees. August was the warmest month, with a mean of 67.4 degrees, and December was the coldest, with a mean of 17.4 degrees. The highest monthly mean was 73.4 degrees for July, and the lowest was 5.8 degrees for December. The highest temperature was 105 degrees, during July and August, and the lowest was 30 degrees below zero, during December, an extreme range for the State of 135 degrees. In December, 1903, the lowest recorded temperature in Cheyenne was 24 degrees above zero.

Precipitation.—The yearly precipitation was 12.58 inches, slightly below the normal. May was the month of greatest precipitation, when nearly twice the normal occurred. September was the driest month of the year, the average being that of 0.25 of an inch, or about one-fourth of the normal. The average was above the normal the remainder of the year.

Weather.—The percentages of clear, partly cloudy and cloudy days were 50, 32 and 18, respectively. There was an average of sixty-seven days on which 0.01 of an inch or more precipitation fell. Foggy weather in the State was not usual, as at Lander dense fog did not prevail for an hour at any time during the year, and at Cheyenne but twice. The percentage of sunshine at Cheyenne was 69, being least in May, 43, and greatest in September, 77.

Favored Localities.

The mean percentages for the State are well represented in the strip of country lying along the eastern base of the mountains, from Cheyenne on the south to Sheridan on the north. This, supplemented by the valleys of the Big Horn, Wind River and Grand Encampment, where the plains meet the foothills, and sheltered by the towering ranges to the west and south is the region best suited to the invalid. Within this district are Cheyenne, Douglas, Sheridan, Casper, Buffalo, Cody, Thermopolis, Laramie, Rawlins, Saratoga and Lander. In the mountains are pleasant parks at higher elevations, offering attractive outings in the summer.

The elevation in this belt runs from 3,400 to 7,500 feet. Rainfall, as seen by the report of Observer Palmer, is about

fourteen inches; snowfall light and disappearing rapidly under the bright, warm sun, with no chilling slush to prevent the patient from enjoying outdoor life. The spring and summer have the not infrequent showers confined to the afternoon. The never ending rainy spells and continued drizzle of the lower altitudes do not occur on these mountain plateaus. The dryness of the air of this great tableland and the consequent rapidity of evaporation must be kept in mind in considering temperature in these altitudes. The average summer temperature is about 70 degrees.

Climatic Conditions.—The heat is never intense. In the hottest summer weather it is but a step from the heat of the sunshine into the shade, which is always cool. Sunstroke is unknown. The air in winter is clear and sharp, but easily borne and even pleasant. All over the State—except at high altitudes—one may, even in midwinter, sit in comfort in the sunshine in any sheltered corner. In the shade there is the tingle of northern cold, and heavy clothing is none too warm. The tonic effect of this climate upon nutrition is from this coolness the more marked. It is the brilliant and continuous sunshine which is much praised by mountain residents, and which is misunderstood to refer to air. The invalid who comes to Wyoming for a winter is not coming to a climate of balmy warmth, but, rather, and better, to one where the bracing cold is flooded for more than three-fourths of the day with bright sunshine. The sun in this region is almost a constant equation, reaching about 82 per cent. of the total days of the year. The chief advantage in the eastern belt of Wyoming is the early morning sun. There are no high walls for the sun to climb, therefore the sun is up and spreading his genial rays before the invalid is awake, warming the atmosphere for his outdoor exercise, without the long wait until midday, which is required in other high altitudes. Here we have the good, exhilarating effects of nine hours of sunshine.

It is this glory of perpetual sunshine which has perhaps more to do with the beneficial influence of Wyoming climate on both sick and well than anything else. It is the sparkling dry air which makes life happier and more satisfactory than it could be under the clouded skies of the East and South. Diminished barometric pressure, small rainfall, low atmospheric humidity, intense sunshine on account of the dry and thin air, and absence of cloudiness, make this the ideal abode for those suffering from pulmonary troubles.

Vacation Resort for Tourists and Hunters.—There is no better district in the Rocky Mountains for a holiday or camp-

ing tour than in Wyoming. The stillness of the mountain soothes and quiets those who have become metnally exhausted from prolonged strain and anxious cares or absorbing occupations. Its summer is cool, and in the higher parks the nights are cold. Autumn is an unbroken stretch of cool and sunshiny days. Game and fish are abundant. The railroads carry one to within a short ride, by horse or wagon, through yet unbroken wilderness. From June to October is the season for roughing it. With restoration to health, Wyoming does not say, "Now return to your home," but rather welcomes the restored invalid and holds out to him many inducements to remain. The varied resources of the State are only beginning to be appreciated. Agriculture, stock raising and mining offer a wide field for investment and development. Besides all these things, he does not expatriate himself, but is at home in his own land, surrounded by his own countrymen, observing the same laws, and practicing the manners and customs of the community in which he was reared.

The question of the return home of the apparently cured patient is always a serious one; in the majority of cases a permanent residence in a proper climate is essential. In climatic treatment of pulmonary diseases it is not weeks or months, but often years of residence, that is required.

Wyoming presents, in the cultivation of her soil, in the prospects of her mines and timber, in the pastures of her plains and mountains, greater opportunities for work in the open air, with better remuneration to the laborer, than prevail in the older States: while to those of means, exploration, hunting and tent life furnish enjoyable recreation.

Such, briefly sketched, is this mountain empire—vast in extent, presenting the most picturesque scenery, the greatest charm of climate, the riches of forest, stream and mine, a treasure house of untold wealth, whose unlimited possibilities and incalculable resources, together with the bluest and gentlest of heavens bending above, invite the sick and well alike to come and partake of the free offering, and remain, a valued addition to our population. The climate is one of the richest endowments of Wyoming. It is exhilarating; cheers and braces each individual, lending character to our civil and industrial life, and imparting to our citizens a robustness of physique unequaled in any country in the entire world.

Educational Advantages.

The State of Wyoming is notable for the educational advantages it gives the children of its citizens. In educational matters it leads many of the older States, in that it employs a larger number of teachers in proportion to its population; that its school year is longer; that the salaries paid its teachers, especially those paid women teachers, are higher, and that its school methods are at all times kept in unison and harmony with the latest and best in modern education.

The amount of funds raised in Wyoming for school purposes by voluntary taxation is liberal, and expenditures in educational matters are not stinted. The district school board provides free text-books for all pupils. The latest and most approved text-books have been purchased and supplied to every school district in the State. The result of this liberality and of the careful attention given the schools of the State by its citizens and school officers has been to keep the percentage of illiteracy in Wyoming below that of any State or Territory. A practical illustration of this was shown at the muster of troops in the State for service in the Spanish war. Of 1,000 young men who enlisted in Wyoming, not one was unable to sign his name to the muster rolls, and every man had received a fair education.

There are over 18,000 pupils enrolled in the public schools of the State. These are in attendance at 615 schools. Sparsely settled communities in Wyoming enjoy equal school facilities with more thickly settled regions. It is the universal custom in the State to establish a school if five pupils can attend. A compulsory school law is on the statute books, but it has never been found necessary to enforce it, as school attendance is voluntary.

The number of teachers employed in the State is 684. The salaries paid teachers in Wyoming average \$70.78 per month for male teachers and \$46.39 for female, which, when it is considered that the country schools of the State form the great majority of the entire number, compare most favorably with salaries paid in other States.

The 400 school buildings of the State are well built and comfortable. The cost of construction has been \$503,390.43, while repairs and improvements amounting to ten thousand

dollars are made annually. As the sparsely settled communities of the State grow, the primitive log building which at first constitutes the school house gives place to the neat frame or brick structure with all the modern apparatus for successful educational work.

The State Superintendent has prepared a uniform course of instruction for the graded and ungraded schools of the entire State. This has served to systematize the work of teachers and County Superintendents, and has added materially to the effectiveness of the service.

One of the most valuable aids to the support and maintenance of the public school system in Wyoming is the fund received annually from the rental of school lands. During the year ending March 31st, 1901, the sum of \$58,048 was received from this source and distributed to the school officers of each county in proportion to the number of pupils in each. In 1903 the amount distributed was \$71,615.66. School libraries in the different counties contain 20,000 volumes. The total acreage of school land in the State which may be utilized for this purpose is 3,600,000 acres. It may reasonably be expected that sufficient income will be received from the rental of school lands within the near future to increase the efficiency of the schools of the State to the highest degree, and this without imposing additional burdens upon the taxpayer.

The University of Wyoming.

The University of Wyoming is a State institution. The first direct step taken toward founding the University was a bill passed by the Ninth Legislature of the Territory of Wyoming, which convened in 1886, securing the establishment of a University in the City of Laramie.

The University was opened in the fall of 1887, and has been growing in faculty, attendance and equipment ever since. The original faculty was composed of seven, the present of twenty-one, members. Student attendance has increased to such an extent that the rolls for the present year, 1903-4, will show 250 students in the several departments.

In addition to the above improvements, new buildings have been added until the plant is estimated at present to be worth a half million dollars. The first building to be erected on the campus, the University Hall, is a beautiful structure that would honor any city or institution in the United States. It faces the west, and is about 150 feet in length and 50 feet in breadth, having three stories and a commodious garret and store-room above the basement. The material used in its construction is native sandstone. The rooms, twenty-eight in

number, as well as all the corridors, are heated by steam and lighted by electricity. The auditorium in the second story is a fine assembly hall, seating with comfort four hundred people.

A second large building, to which commodious wings have since been added, was occupied in the spring of 1893 by the College of Mechanical Engineering. About \$12,000 has already been spent in equipping the building with tools and machinery.

The third building, known as the Science Hall, was made possible by an appropriation of \$35,000 by the Legislature of 1901. This beautiful building is of the collegiate gothic style of architecture, and is built of gray sandstone similar to that used in other buildings. The lower or basement floor is occupied by the University Museum and its work-rooms. This story is double height, in order that it may accommodate the great fossils that are being restored and placed on exhibition.

On the second or main floor are the offices, recitation room and laboratories of the departments of Biology and Geology. Here is found also a large, well equipped general lecture room. The third floor is given up to the department of Chemistry, and contains, besides the office, class room and laboratories of the department, the laboratory of the State Chemist.

The Legislature of 1903 appropriated \$15,000 for an Armory and Gymnasium. This building has been completed and is now occupied by the Military department and the Athletic Association. The basement of the gymnasium contains the offices of the head of the Military department, an officer of the regular army, and gymnasium instructor, lockers, shower baths, armory, etc. The building is of brick, with stone trimmings. The whole floor, a clear space of 45 by 90 feet, is available for company drill, athletic practice, etc. A running track is suspended from the ceiling in the form of a gallery, used also by spectators at games and entertainments.

A general heating plant for all the buildings has been installed near the center of the campus during the past year at a cost of \$16,000.

The University Library now contains about 17,000 bound volumes, and in addition several thousand unbound bulletins and reports.

Since the founding of the institution \$100,000 in all has been expended for apparatus in the different scientific departments. As a result, the laboratories are as well equipped as in any of the institutions of the West.

The Museum of Geology and Paleontology is constantly growing in importance. The collection of plants at the University has been officially designated "The Rocky Mountain

Herbarium." It contains more than 45,000 sheets of mounted specimens, and is much the largest collection in the Rocky Mountain States, all of the important collections made in the West during recent years having been secured.

The Courses Offered by the University.—What the University of Wyoming is doing for the higher education of the young people of the State is shown by the following courses of study:

The College of Liberal Arts.—There is first the College of Liberal Arts, giving in four years what is commonly known as a "college education." In the first two years of this department all the studies are prescribed, although the student has the choice of a classical, literary or scientific course. In the last two years almost all the studies are elective. By this arrangement it is believed that a sufficiently broad and thorough course is insured, and at the same time the tastes and needs of the individual student are allowed free scope.

The Preparatory School.—Since there are many parts of the State not yet provided with high schools fitting for the University courses, a preparatory school, with a course of three years' work, is maintained.

The Graduate School.—This department affords an opportunity for those who wish to carry their studies beyond the limits of the college course.

For the benefit of those who cannot devote so much time to general education, but who wish to be trained for some special profession, there are six technical schools provided, viz: **The Normal School, The School of Mines, the College of Agriculture and the Agricultural Experiment Station, the College of Mechanical Engineering, the College of Commerce and the School of Music.** These courses all require less time by two years than the College of Liberal Arts, and are designed to give a thorough and practical preparation for those professions which are more particularly demanded now in this new State.

The University of Wyoming is founded and maintained for the purpose of being as useful as possible to the people of Wyoming. The University is, therefore, devoting its attention not only to the study of problems of general interest and theoretical importance, but especially to the solution of those problems which confront the people in this new and undeveloped State. With this thought in mind, all plants or minerals sent to the Univeristy are determined gratis. Only a nominal fee

is charged for assaying. Mineral waters are analyzed and oils are examined, fossils are identified, and special scientific information upon any topic is sent to anyone in the State upon request.

Wyoming Experiment Station.—This is the department of research of the College of Agriculture of the University of Wyoming. Its work is to publish useful and practical information on subjects connected with agriculture. The results of its experiments are published in the station bulletins, which are sent free on request to residents of this State. Some of the sixty bulletins thus far published by the Agricultural Experiment Station are as follows: Potatoes, Fruit Growing in Wyoming, Cultivated Shade and Forest Trees, Some Native Forage Plants for Alkali Soils, Alfalfa as a Hay Crop, Wyoming Sugar Beets, Lamb-Feeding Experiments, Alkali, Wheat Culture, Food Adulteration.

The endeavor has been to make these bulletins popular and educational in their nature, and such as will meet the demands of our own farmers, by giving them practical information. Altogether there have been published by the University over 5,000 pages on the agricultural and mineral resources of the State, all original matter, based on experiments and explorations by the scientific members of the faculty. The settler new to the country will find in these publications information as to crops and methods which will save him thousands of dollars and years of work in the fruitless experiments which he might otherwise undertake.

Charles Willard Lewis, LL. D., is President of the University.

Public Libraries.

Wyoming early made provision for the purchase and exchange of valuable law books and reports. The library is in charge of the State Librarian, under the direction of the Justices of the Supreme Court, and is open during the business hours observed by the public officers at the Capitol. The law library contains nearly 8,000 volumes, exclusive of the public laws and documents of the State.

Of the 260,000 acres of land granted by the General Government for State charitable, educational, penal and reformatory institutions, in addition to special land grants for such purposes, 15,000 acres were set aside in 1897 for the maintenance of the law library. At the present time these lands yield an annual income from rents of about \$600, which is used in the purchase of new books.

An act to increase the State Library by adding a miscellaneous collection of standard books was also passed by the Legislature in 1897, and 15,000 acres of land set aside, the income from which is used in the maintenance of a miscellaneous library. The nucleus of such a library, consisting of three thousand volumes, has been purchased and is now available to the citizens of the State. Provision has also been made by the State for the establishment of county libraries, and in many counties such libraries are maintained for the benefit of the residents. Under the auspices of the Wyoming Historical Society have been collected many early books, papers and documents bearing upon the early history of Wyoming, which are open to inspection at the State Library. The collection of Wyoming minerals shown at the World's Fair, with the medals and diplomas awarded, are also upon exhibition at the Capitol.

Albany County.

Albany County was named by a representative from the then unnamed county to the Dakota Legislature, who, being a former resident of Albany, New York, named the new county Albany. It has an area of 3,248,640 acres; of this, 1,077,754 acres are listed for taxation. Total valuation of county, \$4,248,938; total tax levy, including State levy, 20 mills; bonded indebtedness, \$127,000; mean elevation, 6,500 feet.

Agriculture.—Twenty-five years ago those who suggested that agricultural products might be raised with profit in Albany County were ridiculed. Today hundreds of citizens are not only making a living, but are reaping large profits. In the year 1903 Mr. E. J. Bell raised from thirty acres of land more than three thousand sacks of potatoes of one hundred pounds each. He is selling this product at the rate of \$1.00 per sack. His net return is about sixty per cent. His fields of

oats produced an enormous yield, more than fifty bushels per acre, but this is by no means the largest yield ever produced on the Laramie plains. Crops of oats exceeding seventy-five bushels per acre have been raised in the vicinity of Lake Ione. The soil of the Laramie plains is suitable and the season at an elevation of 7,000 feet is sufficiently long for all kinds of small grain, alfalfa (two crops), nearly all the vegetables, sugar beets, etc. A ready market is found for all kinds of farm produce at prices far in advance of those prevailing in Kansas and Nebraska.

Stock Raising is still the principal industry, more than \$2,000,000 being invested in domestic animals. The days of the large outfits have passed, but the business has not declined in consequence and is far more profitable. Under existing conditions, the ranchmen of Albany County keep just the number of animals that can be well cared for in the winter time, making it a universal rule to provide sufficient hay to carry them through in good condition. A constant evolution from the large to the small ranch is in progress, and in the near future all the large holdings will doubtless be divided into small, well equipped farms and ranches. Land owners are rapidly learning that it is more profitable to bring their lands under cultivation than to hold them solely for range purposes.

The City of Laramie is the county seat and principal town of Albany County. Its population, census of 1900, is 8,207. Here is located the University of Wyoming; the public school system is of the very best. Among the manufacturing cities of the State, Laramie takes first place. The iron rolling mills here employ about two hundred men and turn out a large quantity of finished articles, such as bolts, nuts, angle iron, fish plates, etc. Just to the south of the city, and within its limits, is located the factory of the Acme Cement Company. It owns about 1,000 acres of plaster land, which has a deposit of natural plaster from six to eight feet in thickness. It is put through a calcining process and becomes the finest of building material. It is used throughout the West, the output of the plant being from six to ten car loads per day. Another plaster mill, belonging to the Rocky Mountain Plaster Company, is located nine miles south, at Red Buttes station. Its product is made from gypsum, and it is what is known as a hard-rock mill. Very fine plaster of paris and four other grades of plaster are manufactured here. The two plaster concerns employ about fifty men.

At Laramie the Union Pacific operates large shops and a tie-preserving plant. The ties are brought here from the moun-



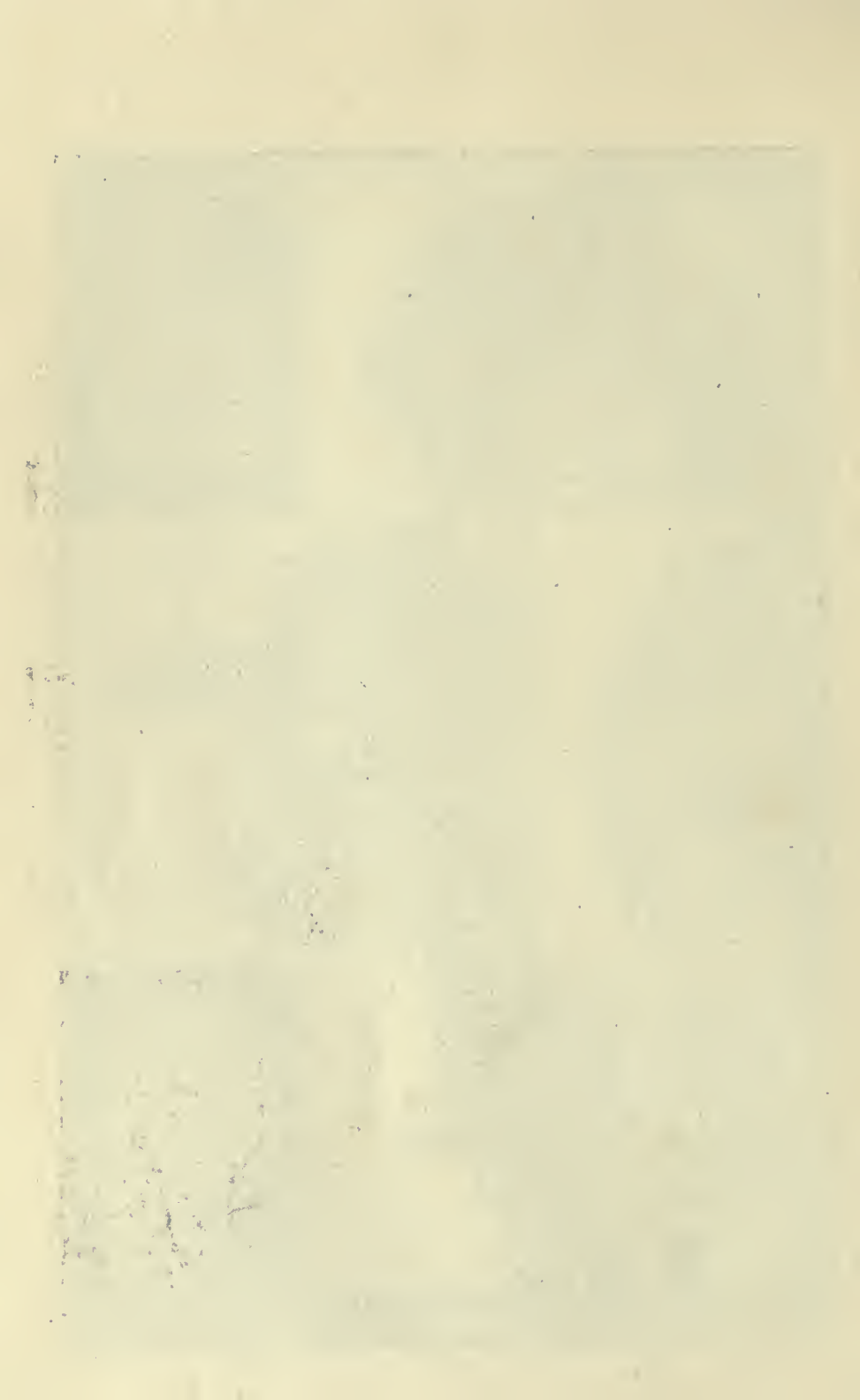
Science Hall



Main Building
Gymnasium



Mechanical Hall



tains and undergo a pickling process which prolongs their life perhaps two and one-half times. In the shops and at the tie plant 150 men are employed. It is a freight division on the Union Pacific, and many railroad men have their homes established at this point.

Lumber is manufactured in the adjacent mountains, and an excellent quality of brick is made in the city. A pressed brick plant is in operation. Building material and labor are more reasonable than in most Western cities, hence buildings for homes and business purposes can be constructed at fair rates.

During the year 1903 a large quantity of limestone was shipped to the beet sugar plants and smelters of Colorado from quarries just to the east of Laramie. The Union Pacific has constructed a spur to these quarries and ten car loads per day are being shipped. This limestone is the purest discovered in the United States and is practically inexhaustible. It was used some years ago in the manufacture of glass. All the other ingredients for the manufacture of glass of a superior quality are found at Laramie, and it is within the realm of reason to predict that this industry will soon be in a flourishing condition at this point. Enough has been done to demonstrate its feasibility.

The State Fish Hatchery is located five miles southeast of Laramie. At this institution more than a million small fry are hatched annually and distributed among the streams of the State. With two exceptions, the streams of Albany County were naturally without trout, hence the State Hatchery has been of untold value to the local angler, as well as to those who enjoy the delicacy of trout upon their tables. No better trout fishing is enjoyed by the people of any section than is had by the people of Albany County. The Big and Little Laramie Rivers and all their tributaries teem with the speckled beauties. It is not an uncommon thing for a fisherman to catch twenty pounds of trout in a half day's fishing. Laramie's reputation as a fishing resort is becoming world wide, and people come from other States to enjoy the delightful pleasure and recreation. Along the Big Laramie several excellent summer resorts have been established for the accommodation of visitors.

Fruit Growing.—Many of the residents of Albany County are successfully raising small fruit, such as raspberries, currants, gooseberries, strawberries, etc., and some attempts have been made at raising apples and other large fruits. One ranchman, Mr. Jacob Lund, has for several years raised a quantity

of Wealthy apples at his ranch near Jelm, elevation 7,400 feet. There is no reason to believe that fruit in almost endless variety cannot be raised in portions of Albany County; in fact, results already attained prove that it may be done.

Mining.—See Mineral Resources, this pamphlet.

In conclusion, it may be said that Albany County holds out to the man of small fortune much that is alluring. Here is an opportunity to make a comfortable home in a country that is prosperous and in a climate that is unsurpassed in all that pertains to the health of mankind.

Albany County is in the Cheyenne United States land office district.

Big Horn County.

Big Horn County was named from the Big Horn or Rocky Mountain sheep, which abound in the Big Horn Mountains, on the east side of the Big Horn Basin. The county was organized in 1896. Bonded indebtedness is \$34,000; tax levy, 19 1-3 mills; total assessed valuation, \$3,005,256; average elevation of agricultural portion, 4,000 feet.

It was the last organized county of the State, and consists of that portion of the northwestern corner known as the Big Horn Basin. This is, in many respects, one of the most remarkable basins situated on either side of the great Continental Divide. This is true, whether we consider its great area, the lofty mountains enclosing it on all sides except the north, its equable climate or the fertility of its soils. On the east looms up the Big Horn Range, some of its peaks rising 12,000 feet above sea level; on the west tower the equally high peaks of the Shoshone Range, spurs of the great Continental Divide; on the south is the Owl Range, a spur of the Continental Divide connecting it with the southern end of the Big Horn Range. The usual elevation of the divides connecting these peaks is from 9,000 to 10,000 feet above the sea level. Among these mountains are found some of the finest examples of mountain and canon scenery to be found on this continent.

Passing centrally through this basin in a northerly direction, its meanderings covering more than one hundred miles, is the Big Horn River. Its entrance into the basin has been

made in some past convulsion of nature, through the Owl Range, by an impassable canon of about four miles in length. Its exit from the basin to the north has been made by cutting through the northerly end of the Big Horn Range by a very remarkable canon of about twenty miles in length, its walls rising almost vertically 1,200 to 1,500 feet above the water. Intermediate between these canons this river passes through Sheep Mountain, a secondary and detached range, by a canon of about three miles length, but equally as interesting as the other two. The Big Horn Range, west of its lower canon, is designated Pryor Mountain, which gradually recedes in height until it drops to the level of the plain bordering Clark's Fork of the Yellowstone. Around the base of this mountain is the natural outlet from the Big Horn Basin.

Agriculture and Stock Raising.—It is within bounds to assert that every square mile of the area of this county, except a small percentage forming the slopes of the high mountain peaks, can be utilized in summer or winter for agriculture or the grazing of stock, as proven by the experience of ten years with cattle, horses and sheep. The high mountain plateaus, with their intervening valleys, up to an elevation of 10,500 feet, in summer and until covered with snow in the fall, produce grass of sufficient fattening properties for summer feed. At elevations of from 7,500 to 10,500 feet all stock keep fat for four months of the year.

This is a large cattle raising county. From Cody last year there were shipped 153 cars of baled wool, 372 cars of sheep and 320 cars of cattle.

Agriculture.—The greater part of the irrigable lands have an altitude varying from 3,400 feet to 4,400 feet. Oats yield from forty to eighty bushels per acre, wheat thirty to sixty, rye twenty-five to fifty-five, barley forty to sixty, corn thirty to fifty, and is as sure a crop as in Iowa; alfalfa three to seven tons, other grasses two to four tons per acre.

In this county the State, under the Carey Arid Land Act, has segregated 400,000 acres of land, which will shortly be placed under irrigating ditches, and which will provide homes for thousands of people. See articles, this pamphlet, entitled "Lands" and the "Operation of the Carey Act."

There is no better location in the West than this section for a beet sugar factory.

Within the belt lying between 5,500 and 6,500 feet elevation timothy and redtop do exceptionally well; alfalfa produces two cuttings. Below this belt, with ordinary good management, alfalfa will yield three good cuttings. Its seed comes

to full maturity and is of good quality. It is believed that in no locality of the world are small grains of superior quality or in larger yields per acre. All the roots, such as potatoes, carrots, rutabagas and beets of all kinds, thrive excellently well up to 6,500 feet. It is not uncommon for beets and rutabagas, where well cultivated, to attain weights of ten to fifteen pounds and be solid to the core. Of melons, the cantaloupe matures of excellent quality; so does the watermelon, though to less extent. The potato is a large yielder, and of quality unsurpassed anywhere. Such garden vegetables as radishes, lettuce, cauliflower, beans and peas do well at all altitudes. Radishes, lettuce, cauliflower, beans and peas are perfection above 5,500 feet altitude, and are of unsurpassed quality and flavor.

As an instance of what has been done, the following extracts from the third annual statement of the Bench Canal Company, Burlington, Wyoming, showing earnings as grown in crops and stock pasturage, may be of interest:

Herman Werbelow, on 50 acres—

675 Bu. oats @ 50c.....	\$ 337.50
465 Bu. wheat	232.50
80 Bu. potatoes @ 60c.....	48.00
100 Bu. corn	50.00
Garden	100.00
40 Acres fall pasture.....	40.00
230 Bu. rye @ 50c.....	115.00—\$ 923.00

Fritz Moeller, on 150 acres—

1900 Bu. oats @ 50c.....	\$ 950.00
350 Bu. wheat @ 50c.....	175.00
70 Lbs. alfalfa seed @ 12c.....	8.40
30 Tons hay @ \$4.00.....	120.00
Garden	50.00
50 Bu. potatoes @ 60c.....	30.00
100 Acres fall pasture.....	100.00—\$1,433.40

G. K. Baker, on 160 acres—

150 Tons hay @ \$4.00.....	\$ 600.00
600 Bu. oats @ 50c.....	300.00
100 Bu. wheat @ 50c.....	50.00
150 Bu. barley @ 60c.....	90.00
2 Tons sugar beets.....	40.00
150 Bu. potatoes @ 60c.....	90.00
2000 Lbs. alfalfa seed @ 12c.....	240.00
Garden	100.00
160 Acres fall pasture.....	160.00—\$1,670.00

Friedrich Mayland, on 160 acres—

2200 Bu. oats @ 50c.....	\$1,100.00
200 Bu. wheat @ 50c.....	100.00
65 Bu. barley @ 60c.....	39.00
100 Bu. potatoes @ 60c.....	600.00
75 Tons hay @ \$4.00.....	300.00
Garden.....	50.00
100 Acres fall pasture.....	100.00—\$2,289.00

W. H. Packard, on 240 acres—

75 Tons of hay @ \$4.00.....	\$ 300.00
1000 Bu. oats @ 50c.....	500.00
250 Bu. wheat @ 50c.....	125.00
Garden.....	700.00
240 Acres fall pasture.....	240.00
5000 Lbs. honey @ 10c.....	500.00—\$2,365.00

J. Adam Preis, on 160 acres—

3324 Bu. oats and wheat @ 50c.....	\$1,662.00
110 Bu. barley @ 60c.....	66.60
100 Tons hay @ \$4.00.....	400.00
200 Bu. potatoes @ 60c.....	120.00
Garden.....	100.00
160 Acres fall pasture.....	160.00—\$2,508.60

William Peper, on 80 acres—

1160 Bu. oats @ 50c.....	\$ 580.00
70 Bu. wheat @ 50c.....	35.00
70 Bu. barley @ 60c.....	42.00
75 Bu. corn @ 50c.....	37.50
50 Bu. potatoes @ 60c.....	30.00
Garden.....	50.00
80 Acres pasture.....	80.00—\$ 854.50

W. A. Shoemaker, on 160 acres—

150 Tons hay @ \$4.00.....	\$ 600.00
1100 Bu. oats @ 50c.....	550.00
500 Bu. wheat @ 50c.....	250.00
100 Bu. potatoes @ 60c.....	60.00
2000 Lbs. alfalfa seed @ 12c.....	240.00
Garden.....	50.00
160 Acres pasture.....	160.00—\$1,910.00

V. G. Lantry, on 160 acres—

800 Bu. oats @ 50c.....	\$ 400.00
200 Tons hay @ \$4.00.....	800.00
160 Acres fall pasture.....	160.00—\$1,360.00

Joseph Hany, on 50 acres—

250 Bu. oats @ 50c.....	\$ 125.00
430 Bu. wheat @ 50c.....	215.00
20 Tons hay @ \$4.00.....	80.00
150 Bu. potatoes @ 60c.....	90.00
Garden	25.00
50 Acres fall pasture	50.00
2 Tons beets	40.00—\$ 625.00

J. S. Nicholson, on 80 acres—

1350 Bu. oats @ 50c.....	\$ 675.00
100 Bu. wheat @ 50c.....	50.00
40 Bu. barley @ 60c.....	24.00
18 Tons hay @ \$4.00.....	72.00
40 Acres fall pasture.....	40.00—\$ 861.00

Orin Perry, on 20 acres—

150 Bu. oats @ 50c.....	\$ 75.00
150 Bu. potatoes @ 60c.....	90.00
Garden	200.00
20 Acres pasture	20.00
8000 Lbs. honey @ 10c.....	800.00—\$1,185.00

J. W. Bell, on 160 acres—

3204 Bu. oats @ 50c.....	\$1,602.00
365 Bu. wheat @ 50c.....	182.50
100 Bu. barley @ 60c.....	60.00
300 Bu. potatoes @ 60c.....	180.00
Garden	50.00
30 Acres fall pasture.....	30.00—\$2,104.50

Horticulture.—All the small fruits, such as raspberries, currants, strawberries and gooseberries, grow wild, and tame varieties do well. Apple and peach trees of two years' growth promise success.

Irrigation.—In addition to the large volume of water delivered by the Big Horn River, running centrally through the county, its large and numerous tributaries furnish a superabundance of water for irrigating large bodies of land that can be gotten under ditch. From the east flow Kirby, No Wood and Shell Creeks; from the west comes Owl Creek and its much larger tributaries of Grey Bull and Wood River; then the two forks of the Shoshone River, and still farther to the north the Clark's Fork of the Yellowstone.

Minerals.—In minerals the prospect is no less flattering. Beds of coal of good quality outcrop in many parts of the

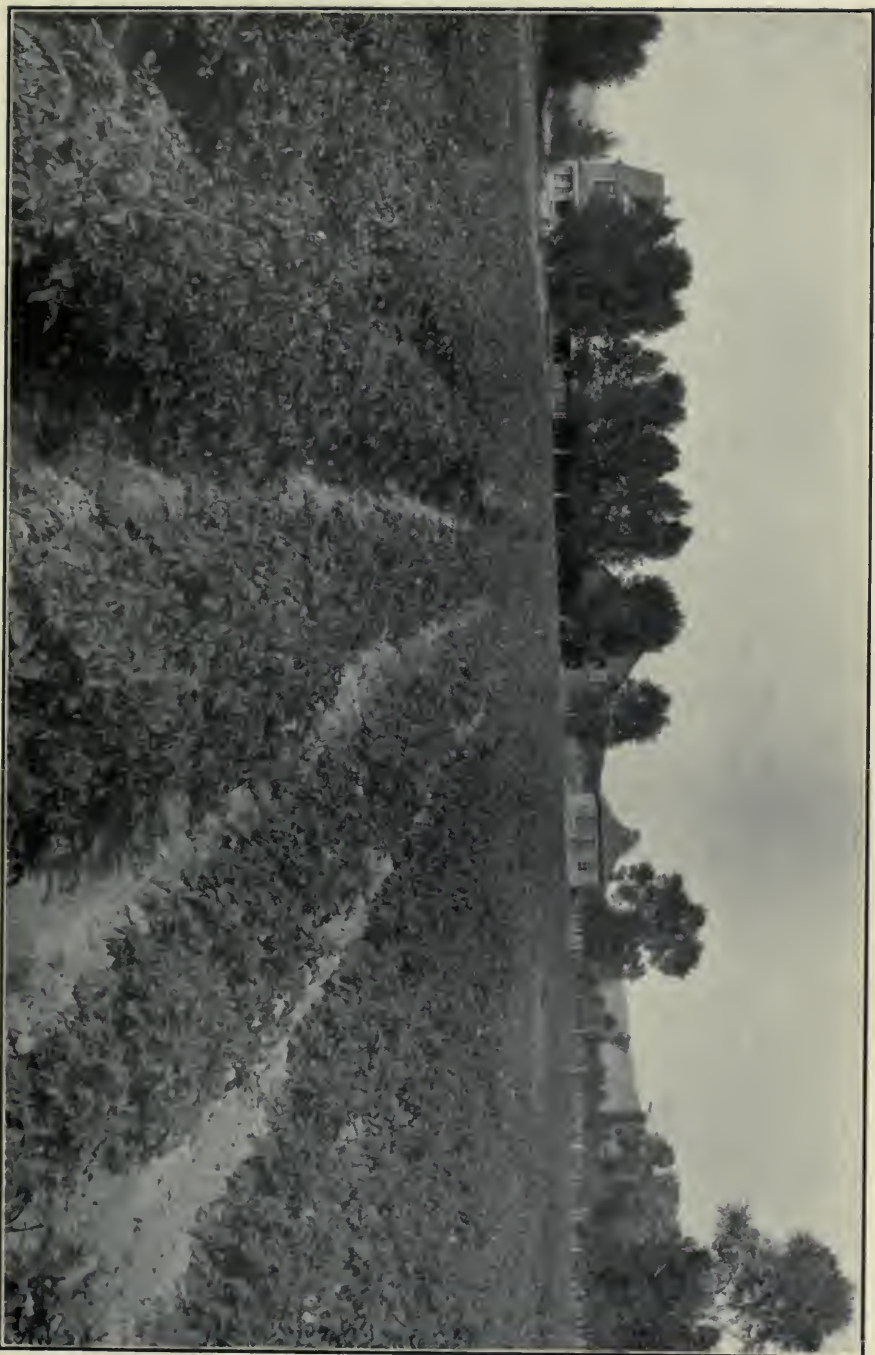


Photo by Stimson.

IRRIGATED POTATO FIELD—GRAYBULL RIVER, BIG HORN COUNTY.



Photo by C. T. Johnston.

IRRIGATION CANAL, BIG HORN COUNTY.

UP-STEAM

county. On the east side are immense masses of gypsum, which also outcrops on the west side, near Cody. It is believed that large masses of iron ore exist in a locality accessible to a railroad when the railway system projected through the county is completed. In the rim of mountains enclosing this basin prospects indicate many valuable mines of gold and silver. On the head of Grey Bull River the Gold Reef Mining Company is boring a tunnel (now about 600 feet in length) towards a wide lead of gold bearing rock. On the head of Wood River are many leads of low grade silver ore, and some gold bearing rock. A well known Bald Mountain mine, on the west side, lies partly in this county. Farther to the north the Sunlight mines are located, on Clark's Fork. All these mines would become valuable properties, where there are adequate railroad facilities.

In this county are situated the cities of Cody, Meeteetse, Garland, Basin, Byron, Cowley, Lovell, Burlington, Germania, Otto and Bonanza. At Bonanza there has recently been discovered lubricating and illuminating oil, and it promises to develop into a very rich oil district. There are business opportunities in all of these towns. At Cody there is a splendid opening for either a State or National bank; at Burlington, an opening for a harness or hardware store and a bank; at Garland, an opening for a drug store; there is an opening at either Lovell, Cowley or Byron for a good flouring mill and beet sugar factory.

From Cody tally-ho stages will run to Mammoth Hot Springs, in the Yellowstone National Park, a distance of fifty miles, through scenery which is not equalled in the Alps. See article, this pamphlet, entitled "Yellowstone National Park."

Big Horn Hot Springs.—These springs were ceded to the State in 1897, together with ten miles square of land from the Shoshone Indian Reservation, and are located on the Big Horn River, just opposite Thermopolis, about fifty-four miles in a northerly direction from the center of the State. The main spring is on the east side of the river, about 500 feet back from the bank of the stream, and comes to the surface at the foot of Monument Hill, which rises about 250 feet above the spring. The surface of the spring is about forty-five feet above the river. The stream running from the spring to the river is about seven feet wide and two and seven-tenths feet deep, and carries about 18,600,000 gallons of water every twenty-four hours. The temperature of the spring is 135° F. The spring is situated on the east side of a slightly sloping plateau, which contains about ten acres of land, which is covered by a heavy

coating of alkaline salts and sodium, which have been deposited by the hot mineral waters spreading over the surface. This coating is from ten to forty feet thick, and is naturally of a pure white color. There are many terraces on the edge of the formation, making a very picturesque appearance. There are many traces of volcanic action to be seen surrounding the springs and formation on the east, north and west sides. These springs equal, in every respect, the famous European springs of Carlsbad and Aix-la-Chapelle, or the Arkansas springs, and are equal in curative properties to the Saratoga Hot Springs. (See Frontispiece.)

Analysis of Water.

	Grams per Liter.	Grains per Gallon.
Silica . . . . .	.0855	4.987
Iron and alumina . . . .	.0039	.227
Lithia	Trace	Trace
Potash . . . . .	.1109	6.467
Soda . . . . .	.3515	20.468
Lime . . . . .	.4813	28.067
Magnesia . . . . .	.1111	6.478
Hydrochloric acid . . .	.3550	20.749
Sulphuric acid . . . . .	.5008	29.205
Carbonic acid . . . . .	.5052	17.798
(Less oxygen equivalent of chlorine)	(.0806)	(4.665)
Total solids	2.2260	129.811

Calculated as Salts.

	Grams per Liter.	Grams per Gallon.
Silica . . . . .	.0855	4.986
Iron and alumina . . . .	.0039	.227
Potassium chloride . . .	.1756	10.240
Sodium sulphate . . . .	.2591	15.110
Sodium chloride . . . .	.4492	26.195
Magnesium sulphate . . .	.3334	19.443
Calcium sulphate . . . .	.2256	13.156
Calcium carbonate . . . .	.6937	40.454
Total solids	2.2260	129.811

The United States land office for this county is at Lander, except for a few townships in the eastern part of the county, which are in the Buffalo land office district.



Photo by Stimson.

THERMOPOLIS HOT SPRINGS.

Carbon County.

Carbon County was organized in 1870 and was named from the immense coal deposits which underlie the county. It has an area of 11,061 square miles, is noted for its vast herds of sheep, its fine cattle and, above all, its rich coal and mineral deposits. It is the richest county in mineral resources and stands second to none in its stock raising. The total number of acres listed for taxation is 1,218,353, and the valuation of all real estate in the county, including town lots, is \$2,238,240; bonded indebtedness, \$129,200; tax levy, 17 1-3 mills; the total value of assessable property in the county, \$5,534,731.

Rawlins is on the Union Pacific railroad, and is the county seat of Carbon County. Altitude, about 7,000 feet. It has a population of about 2,500; has roundhouses and extensive machine shops. It is a distributing point for an outlying country, both north and south of the railroad. Daily and tri-weekly stages leave here for points north and south. The new State penitentiary, costing \$100,000, is located here, and also a substantial stone court house and a fine public school building, which cost, respectively, \$50,000 and \$35,000. Here are located and operated fine building stone quarries, the Rawlins sandstone being shipped out of the State both east and west. The beautiful new Government building at Cheyenne was built of this stone last year, as was the State Capitol about fifteen years ago. Here also are located the great mineral red paint mines (known as Rawlins Red), from which the paint for the Brooklyn bridge was originally procured. This ore is shipped to Denver and much used by the smelters as a flux. The city is also the supply point for and the headquarters of a vast sheep and wool industry.

Saratoga, a beautiful town of 1,000 inhabitants, is situated twenty-three miles south of the Union Pacific railroad, in the heart of the great Platte Valley, and is the gateway to the renowned Grand Encampment mining district, and is noted for its medicinal hot springs. The temperature of the water is 135 degrees Fahrenheit. From their chemical analysis, we would say that these springs were alkaline-sulphur, in combination with salines and calcereous salts. They closely resemble in their different properties the famous European springs of Carlsbad, Marienbad, Ems, Teplitz and Aix-la-Chapelle.

Their properties may be summed up as stimulating, absorptive, alterative and reconstructive, and clinical results have proven

all the claims made for them by their chemical analysis. It is difficult to state what diseases are most benefited by a course of baths at these thermal waters. Among the list of those maladies which have been relieved at the springs may be mentioned all as acute, sub-acute and chronic diseases of all mucus membranes, such as catarrh of the nasal passages, the mouth and pharynx, the throat, bronchial tubes, the stomach and the whole alimentary canal; dyspepsia, due to hyperacidity of the stomach and gastric ulcers; congestion of the liver, due to catarrh of the bile ducts and a sluggish portal circulation, and beginning cirrhosis, acute and chronic catarrh of the whole genito-urinary tract. The water acts not only by its chemical ingredients in these instances, but also mechanically as a sluice upon the system. It is well, therefore, for patients to drink it liberally. The water has undoubted beneficial influence upon gravel, lithiasis and the uric acid diathesis.

By its thermal properties this water has an antiphlogistic effect upon all the pelvic organs. It allays congestion and modifies inflammation. It decidedly increases tissue metamorphosis, and in this way helps to eliminate poisons and impurities from the system. This explains its rapid action as an absorptive and alterative. It certainly acts soothingly upon the brain and the great nerve centers, and upon the general nervous system, allaying nervous irritability and neuralgias, and relieves those forms of paralysis due to peripheral changes, and in a great many instances probably by absorbing exudations upon the nerve sheaths.

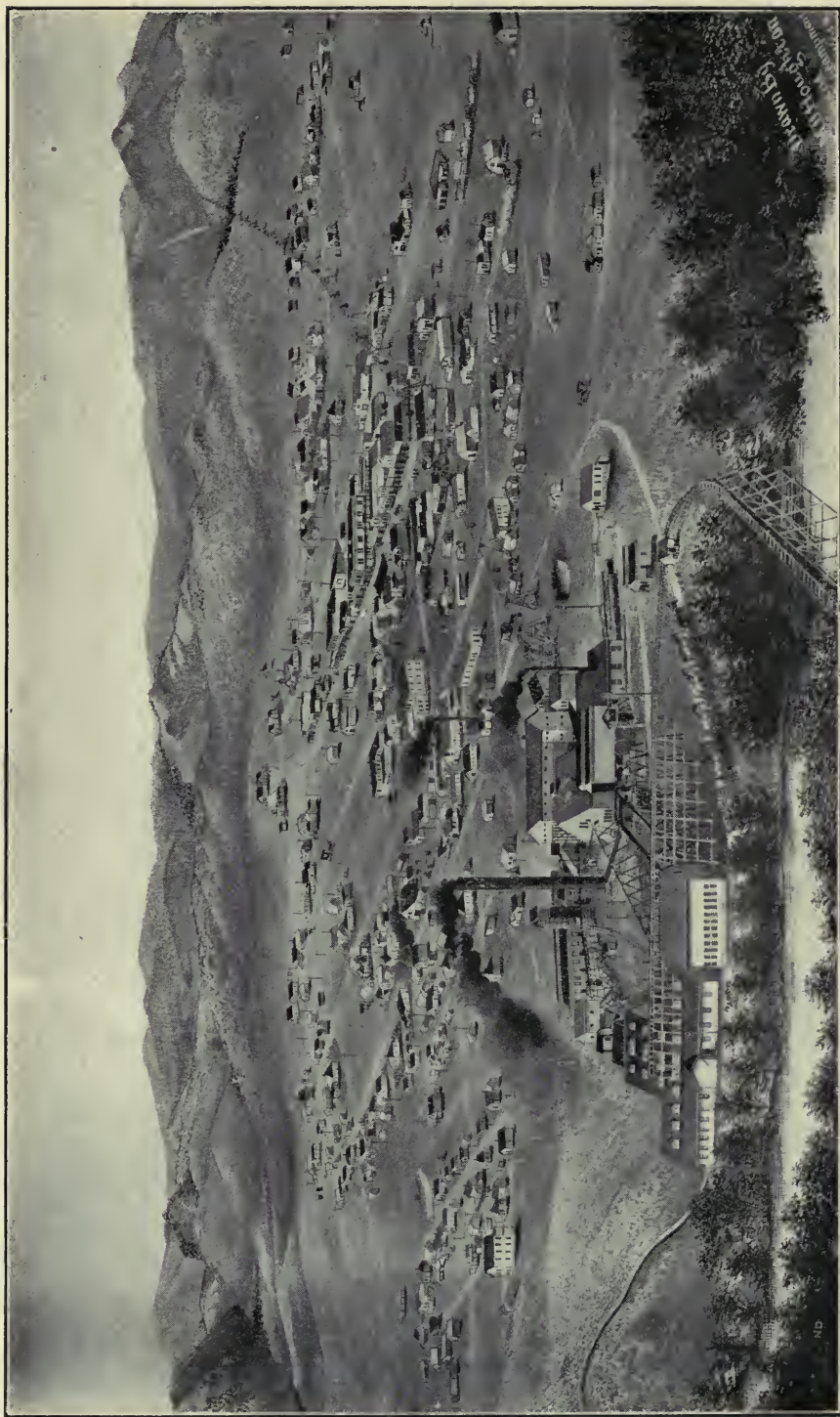
Its alterative properties are most notably shown in cases of rheumatism, some forms of gout and specific venereal diseases. Rheumatism, more especially the acute and chronic articular variety, is speedily relieved. The muscular form yields readily, and rapid absorption of cartilaginous and bony substances follows a course at the springs in that most dreaded form of all rheumatoid afflictions, the arthritis deformans.

In the treatment of all the disorders which have rendered the Hot Springs of Arkansas and the springs of Aix-la-Chapelle, France, famous, the Saratoga springs are fully equal, if not superior. The great amount of carbonate of lime and other earthy salts make the Saratoga waters the remedy par excellence for rachitic and osteomalicious patients by acting as a reconstructive agent and an upbuilder of tissues and bone formation.



Copyrighted by M. D. Houghton, 1903. Published by permission..

SARATOGA.



Copyrighted by M. D. Houghton, 1903. Published by permission.

GRAND ENCAMPMENT—SMELTER AND TRAMWAY.

Analysis of the Water.

	Grains per U. S. Gal.	Pts. per 100,000.
Sodium chloride	58.0807	89.3322
Sodium sulphate	10.2510	17.5832
Potassium sulphate	10.4603	17.9422
Calcium sulphate	21.0410	36.0909
Calcium carbonate . . . . .	.4433	.7604
Magnesium carbonate	1.2782	2.1924
Silica	3.7195	6.3799
Iron and aluminum (oxides) . . . . .	.1108	.1900
	<hr/>	<hr/>
	99.3848	170.4712

Sanitary analysis showing that this water is entirely free from every kind of contamination:

	Grains per U. S. Gal.	Pts. per 100,000.
Chlorine in chlorides	31.5600	54.1338
Equivalent to sodium chloride	52.0807	89.3322
Phosphates as P ₂ O ₅	None	None
Nitrogen in nitrites	None	None
Nitrogen in nitrates	None	None
Free ammonia . . . . .	.0023	.0040
Albumoid ammonia . . . . .	.0022	.0038
Total nitrogen . . . . .	.0037	.0064
Hardness equiv. to carb. lime, before boiling	15.8503	27.1875
Hardness equiv. to carb. of lime, after boiling	15.8503	27.1875
Organic and volatile (loss on ignition)	3.4688	5.9500
Mineral matter (non volatile) CO ₂ restored with ammonium carbonate	99.1975	170.1500
Total solids (by evaporation) dried at 110° C.	102.6663	176.1000

These waters when bottled are unsurpassed by any in the United States for drinking purposes, for they are not only pure and as pleasant as the Manitou or Idaho waters, but have the advantage also of the medicinal qualities so beneficial to the stomach and kidneys.

The North Platte River, in which are three wooded islands, runs through the city. It is an ideal place for a summer resort and sanitarium. The Sierra Madre Mountains on the west and south, and the Medicine Bow Range on the east, are each within two or three hours' drive, and present a beautiful view

at all times. The trout fishing in the river and the mountain streams is unsurpassed. The summers are delightfully cool, there being no night when a blanket is not needed. With the completion of the Union Pacific's proposed connection, thousands who are in search of pleasure, health and business will yearly be attracted to this section. There is an old saying, "See Rome and die," but the legend of the West is, "See Saratoga and live."

By reason of the destruction of the Hot Springs Hotel and bath house by fire, a new large, modern hotel and bath facilities are needed. This presents one of the best opportunities for investment in the West.

Encampment is a town of recent origin, brought forth by the prospects of the new gold and copper mines opened in the Grand Encampment district, and has a population of about 1,000. It has a smelter, concentrating works and tramway to the top of the Rockies for conducting the ore. It is situated on the Grand Encampment River, twenty miles south of Saratoga. See article on Mineral Resources.

Schools.—The county has a good public school system. The number of schools is thirty-nine and the number of children of school age is 1,500.

Live Stock.—One of the chief industries of the county is its live stock interests. Of sheep there were, for the year 1903, 437,754, valued at \$828,432; of cattle, 28,345, valued at \$393,432; of horses and mules, 6,405, valued at \$160,428.

Agriculture.—This industry has for many years been an important one, continually on the increase, and has assumed large proportions in the Upper Platte Valley country and on the tributaries of the North Platte River. Wheat, oats and barley are raised in large quantities and command a ready price for home consumption. The wheat is a very fine, plump grain, making it the very best of flour. The oats are of a superior quality, and run from forty-five to fifty pounds to the bushel. All of these crops yield abundantly. Hay is an important crop, and the yield per acre is always satisfactory. Timothy and redtop grow luxuriantly, but the native hay, of which there is a large quantity raised, is much in favor. Alfalfa or lucerne is a prime favorite, and there is a large acreage devoted to the production of that crop. It yields from three to four tons per acre, each year, of a very superior quality, much esteemed by the stockmen for its fat-producing qualities. All kinds of vegetables and small fruits grow abundantly, and the entire home market is supplied by home production. All farming is by irrigation.

There are still many thousand acres of upland, on either side of the Platte River, that are open to settlement, and this stream furnishes water for an almost unlimited acreage. The feeding of cattle and sheep for spring market is largely engaged in by the inhabitants of this county, who annually ship large numbers of sheep and fat beeves to Eastern markets, commanding the highest market prices.

Mining.—See article on Mining Resources.

Climate.—The climate of Carbon County is beautiful, bracing and invigorating, mild and pleasant during the summer months and not severely cold or uncomfortable in the winter. It is peculiarly suited to the building up of weak lungs, and is conducive to health and longevity.

Water and Timber.—Carbon County is well watered by mountain streams, the North Platte River flowing the entire length of the county from south to north. Nearly every portion is abundantly supplied with water for irrigation purposes. The numerous mountain ranges in the county are covered with an excellent quality of pine timber suitable for building purposes and for the manufacture of lumber, as well as for fuel.

Game and Fish.—Carbon County streams, while originally barren of trout, have been well stocked with every variety of that kind of fish, and are today the finest trout streams to be found anywhere. Trout weighing from ten to twelve pounds are frequently taken from the North Platte River, and every stream swarms with the finny tribe. Game of all kinds, including bear, elk and deer, are to be found in the mountain ranges and timber; sage hens and grouse inhabit the plains and mountains, and the streams and lakes are well supplied with ducks and geese.

This county is in the Cheyenne United States land office district.

Converse County.

This county was organized in 1888 and named after A. R. Converse, a pioneer cattleman, who had large interests in that section. It has a population of 3,337 and an area of 7,000 square miles. The North Platte River, with its many tributaries, flows through the central portion of the county, affording a bountiful

water supply for thousands of acres of land which have been brought under cultivation, and its wide plains are among the best pasture lands of the State. The Chicago and Northwestern branch railroad traverses its entire length from east to west, and the Colorado and Southern railroad gives an outlet to the south. The total assessed valuation of the county in 1903 was given as \$2,642,427; the county bonded indebtedness, \$36,900; rate of taxation, 18 mills.

Until a very late date, the tract of country known as Converse County was given up to stock growing. Today there are thousands of acres of land under cultivation. Most of the cultivated acreage can be classed as bottom or low land, bordering upon streams, although in the southeastern portion lands are producing good crops of corn, wheat and oats without irrigation. The principal crop in small grain is oats. With irrigation, oats have reached the enormous yield of eighty bushels to the acre, with a stool of six feet. Wheat will yield fifteen bushels on sod and twenty bushels on old ground. Rye and barley produce twenty bushels to the acre. Tame grasses—timothy, clover and millet—reach a luxuriant growth. Alfalfa does well without irrigation, but when placed under ditch, affords two and three full crops per year. Corn makes a good crop in the eastern end of the county. Vegetables, under irrigation and in the bottom lands adjacent to streams, attain a growth equal to California's famous products. Potatoes yield several hundred bushels to the acre. Pumpkins and squashes reach a weight of 100 and even 160 pounds; cabbage, twenty-three pounds; turnips, twelve to fifteen pounds, and other vegetables in like proportion.

Converse County's chief mineral resources are coal, iron and copper. The finest coal found west of the Missouri River is in the Shawnee Basin, fifty miles west of the Nebraska State line. Near Douglas is found a superior article of lignite, unsurpassed as a stove coal and a good steam fuel, but the vein is only two and one-half feet thick. At Inez, sixteen miles west of Douglas, the vein is seven feet thick, with a sandstone roof. At Glenrock, twenty miles further west, the vein is about six feet thick, with a sandstone roof. A new mine has just been opened at Big Muddy, near Glenrock. Coal "crops out" in greater or less veins in a hundred localities throughout the western portion of the county, and particularly in the northwestern portion. Assays of \$68 in silver and gold, \$240 in "horn" silver, and forty to fifty per cent. in copper have been obtained from prospect holes all along the Laramie Range in this county, and particularly from Spring Canon, some fifteen miles south of Douglas. Limestone is found in abundance, and quarries of a superior quality of sandstone have been located. Marble equal in grain and vari-



SUTHERLAND
CATTLE



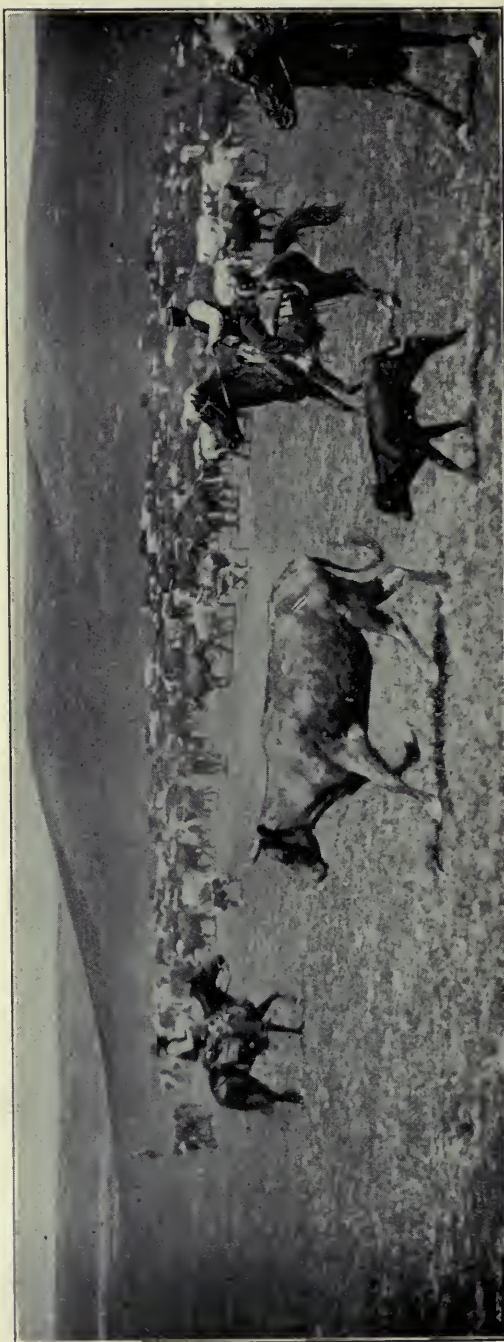
SUTHERLAND
CATTLE

Photo by Stimson.

HEREFORD CATTLE—CAREY RANCH, CONVERSE COUNTY.



APR 1908



ety and beautiful color to the best has been discovered in several localities, while gypsum, from which is made the plaster of paris of commerce, exists in inexhaustible quantities. Large deposits of mica, glass sand and potters' clay have also been located.

Plenty of timber grows in the mountains and foothills, principally pine and spruce, and native lumber is supplied at reasonable prices. There is plenty of good land in the county subject to location, but it is being rapidly taken up. Lubricating oil is found in different portions of the county. Capital is at present engaged in developing this industry.

Douglas, the county seat, is located on the North Platte River and on the line of the Fremont, Elkhorn and Missouri Valley railroad, and has a population of about 1,000. The town is quite prosperous, being the center of a large and growing trade. The high prices received for cattle, sheep, wool and all farm products add greatly to its present prosperity. Its numerous business places, substantial dwellings, well graded streets, sidewalks, waterworks and other improvements attest the prosperity of the place. Its bonded indebtedness is \$17,000.

There are large oil fields within a short distance of Douglas, and gas was recently struck in commercial quantities within eight miles of the town. See article, this pamphlet, on Oil.

There are gold and copper mines south of Douglas.

Other towns of importance are Glenrock, Lusk and Manville, the former a coal mining town of about 600 population, and the two latter towns to which agricultural and stock raising districts are tributary.

The United States land office for this county is at Douglas.

Crook County.

Crook County was organized in 1875, and was named after General George Crook, the noted Indian fighter.

This county is situated on the northeastern corner of the State. It is 102 miles long by sixty wide, and has an area of 6,120 square miles. Lands assessed, 194,697 acres; total assessed value of all property, \$2,171,510; tax levy, 22 1-3 mills; bonded indebtedness, \$51,500; number of schools, 45; number of school children, 902; population, 3,137. The county is traversed by the Burlington railroad.

County Seat.—The county seat and principal town is Sundance, with a population of about 500, situated at the foot of Sundance Mountain, on the banks of Sundance Creek, a beautiful mountain stream, and in the center of a fertile district. The city owns its system of waterworks, substantial city hall, fire apparatus, etc. Merchandising in all its branches, banking and commercial interests are well represented. The municipal bonded indebtedness is \$14,725, at six per cent. interest.

Altitude and Climate.—The altitude of Crook County averages about 4,000 feet above sea level; the air is dry, bracing and healthful, with a mean annual temperature of 41.1 degrees. The yearly precipitation averages twenty-four inches. Agricultural products are grown throughout the county without irrigation.

Agriculture.—Agricultural pursuits claim the attention of many of the citizens of the county, and wheat, oats, rye, corn and every variety of garden vegetables are raised with profit, in many instances both the yield and the quality of the product being worthy of particular mention. Wild fruits of the smaller varieties are especially abundant, and considerable progress has already been made in the cultivation of the tame varieties. The soil throughout the county is a dark rich loam of great fertility, and the fact that crops can be raised without irrigation facilitates agricultural pursuits. Wheat yields twenty bushels, oats thirty bushels, rye thirty bushels, corn twenty-five bushels, potatoes 100 bushels per acre; alfalfa, two cuttings, three tons per acre each cutting; millet four tons, timothy two tons. Apples do well, as do all kinds of small fruits.

This is the only county in the State where agricultural crops are generally raised without irrigation, and this is very fortunately so, as there are but few streams of sufficient size and fall to furnish sufficient water for irrigation purposes.

This county is very much in need of railroad connections. A branch line from the Burlington would add greatly to the development of the county.

Live Stock.—In connection with agricultural pursuits, all kinds of live stock are raised extensively. The present return for assessment shows 1,700 neat cattle, 7,935 horses and 81,546 sheep, with a total live stock valuation of \$1,029,306.

Mining.—Gold, silver, tin, copper, lead and manganese have been found in considerable quantities, and extensive fields of a good quality of semi-bituminous coal are being developed. Much of the future wealth of Crook County will undoubtedly come from the development of the coal fields of that locality.

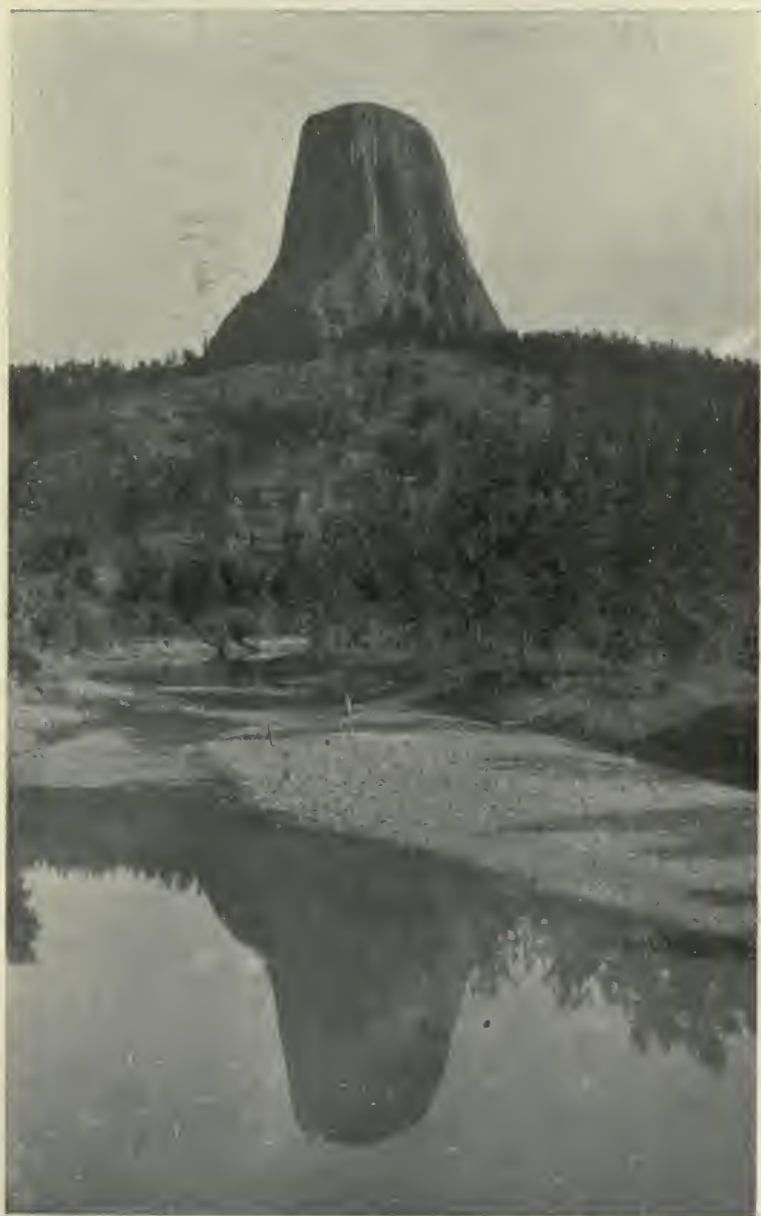


Photo by Stimson.

THE DEVIL'S TOWER, CROOK COUNTY.



Photo by Stimson

SUNDANCE.

Quite extensive gold placer mining operations have been conducted on Sand Creek and vicinity, with profit to the operators. Granite, porphyry, limestone and other building stones and fine marbles are found in great variety in abundance. A railroad has been built from Belle Fourche, South Dakota, to the Aladdin coal mines, near Barrett, Wyoming, a distance of eighteen miles. There are also extensive oil fields.

Streams and Topography.—The county is traversed by the Belle Fourche, the Little Missouri and the Little Powder Rivers. The water of the streams generally is pure and suitable to domestic uses. Along these streams are fertile valleys of fine farming lands, and between the streams are found extensive plateaus, suitable for grazing. Low ranges of mountains, well timbered, traverse the county, adding to the attractiveness of the landscape.

Timber.—The timber found on these mountain ranges is a heavy growth of spruce and pine. Oak, ash and cottonwood trees also abound.

Fishing.—A branch of the State Fish Hatchery is located in Crook County, not far from Sundance, and many of the streams of the county furnish excellent sport to those who enjoy the pursuit of game fish.

Natural Curiosities.—A remarkable formation known as the Devil's Tower, a solid basaltic column rising abruptly to a height of 1,300 feet, and making a landmark that can be seen for miles in every direction, is a notable feature of the topography of this county.

This county is in the Sundance United States land office district.

Fremont County.

Fremont is the west central county of the State, and has an average width, north and south, of 100 miles, and a length, east and west, of 125 miles. It was organized in 1884 and was named after General John C. Fremont, the noted pathfinder and first presidential candidate of the Republican party after its organization.

The rate of taxation for 1903 was 22 1-3 mills; the number of acres of land in the same year was 68,444, while the valuation

of all assessable property in the county was \$1,946,348. The bonded debt of the county is \$32,200.

There are no railroads in the county, but it is reached by daily stage from Casper, on the Fremont, Elkhorn and Missouri Valley railroad, and Rawlins, on the Union Pacific railroad. The mean annual temperature is 42°. The approximate elevation, outside of the mountain ranges, is 5,000 feet. It is destined to become a great agricultural district, though at present farming is engaged in only for the purpose of supplying a local demand. Nearly a million acres are susceptible of irrigation, including the land which will be left in the Shoshone Indian Reservation after lands have been allotted to all of the Indians. This land, when irrigated, produces most excellent crops of wheat, oats, alfalfa and other kinds of hay, every variety of vegetables and small fruit, and, in the more sheltered parts, fine orchards of the Wealthy and other varieties of early apples are yielding a crop which is superior in flavor to any apple seen in the irrigated counties. The average crops per acre are: Wheat, thirty to forty bushels; oats, forty to sixty bushels; potatoes, 200 bushels; alfalfa, two to three tons each cutting, and other grasses, about three tons of hay. The yield of other vegetables is in proportion to that reported for potatoes.

The county is famous for its rich agricultural lands and its abundance of water for irrigation. It is also noted for its fine apple orchards and abundance of small fruits. The wool clip of the county for 1903 was 1,200,000 pounds. There are many small cattle ranches in the county, which have been operated successfully for many years. Wheat is grown in the Lander Valley, and it has been a profitable crop annually for the last fifteen years. There are three improved flouring mills in the county, one located at Lander, another in Milford, the third at the Shoshone Agency. All these mills turn out high patent process flour, and the product is equal to the best anywhere. Oats and all kinds of garden vegetables grow to perfection. Alfalfa and timothy yield abundantly, and native hay grasses abound everywhere.

There is an abundance of timber for building purposes and saw mills to cut up the lumber. A fine quality of coal is found in inexhaustible quantities all along the valley, which provides a cheap fuel for domestic and steam purposes. There are a number of oil springs in the county, and ten miles south of Lander are thirteen flowing wells, with a capacity of 200 barrels per day each. These wells are plugged at present, awaiting the advent of a railroad. See article on Oil. White and red sandstone, for building purposes, is found in every part of the county. Eight miles west of Lander there is a deposit of gray marble, and near



100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200

Photo by J. Stinson

YOUNG'S APPLE ORCHARD, FREMONT COUNTY—25 VARIETIES.



Photo by Stimson.

SOUTH PASS CITY, FREMONT COUNTY—SCENE OF FIRST GOLD DISCOVERY IN ROCKY MOUNTAINS.

it an abundant supply of granite. Both of these are susceptible of a high polish.

The streams of Fremont County are numerous and of a lasting character. The Big Horn, Wind River, Little Wind and the numerous branches of the Popo Agie are the fountain heads of the Missouri River. They take their rise in the Wind River Range, whose mountains are among the loftiest of the Continental Divide.

Fish abound in all the streams of this section, and trout fishing is the pastime of many. There is an abundance of elk, deer and antelope, and a number of varieties of bear in the Wind River Range and Owl Creek Mountains, which extend nearly the whole length of the county.

Southern Fremont County has numerous gold deposits, both in placer and quartz. See "Mineral Resources," this pamphlet.

Lander, the county seat, is centrally located, and is surrounded by hundreds of improved farms. The court house is a fine, large brick structure. The public school building is of brick and contains nine large rooms. The school is graded, and the graduates of the high school are admitted to the State University. Three religious societies have church edifices, namely, Methodist, Episcopal and Catholic. The population is 737. The site for the Agricultural College is located here.

The town of Thermopolis is situated on the west side of the Big Horn Hot Springs Reservation, and contains about 300 inhabitants. This town was started in September, 1897, and is growing rapidly. The Big Horn Hot Springs are just across the river, in Big Horn County, and are a source of considerable revenue to the town. See "Big Horn County."

Opening Indian Lands to Homesteaders.—There is half a million acres of unused land on the Shoshone Reservation, which can be irrigated at a cost not to exceed two dollars per acre, and unlimited water with which to irrigate it.

The Shoshone or Wind River Indian Reservation of Wyoming will soon be a matter of history, and in the constantly advancing movement of civilization a large portion of its rich area of irrigable land will shortly be open to settlement by the home-seeker and the home-maker of the dominating race.

The reservation contains 2,800,000 acres in a body nearly seventy miles square, along the valleys of the Wind, Big Horn and Popo Agie Rivers and their tributaries in Fremont county. The reservation was established in 1868 by a treaty made at Fort Bridger with the Shoshone and Bannock Indians.

The greater portion of the lands which will be opened for settlement is suitable only for grazing purposes. These lands

comprise the northern portion of the reservation, including the Owl Creek Range and an extensive area of "bad lands," used for grazing, extending from the South Fork of Owl Creek, which forms the northern boundary of the reservation, to the valley of the Big Wind River. The valleys of the Big Wind River, the Little Wind River, the Popo Agie River and many of their tributaries contain some of the finest farming land in the State. The water supply is ample to irrigate nearly all of the land susceptible of cultivation, and eventually the reservation will become the garden spot of Wyoming.

The United States land office for this county is at Lander, except for a few townships in the southeastern portion of the county, which are in the Cheyenne land office district.

Johnson County.

Johnson County was organized in 1879, and was named after E. P. Johnson, a prominent attorney of Cheyenne. It has an area of 4,046 square miles. The total assessed valuation of the county in 1903 was \$1,930,851; county bonded indebtedness, \$50,800; tax levy, 23¾ mills; the population of the county, 2,361. With its rolling plains, extensive forests and fertile valleys, it is justly regarded as one of the best sections of the State. The Big Horn Mountains have an elevation of 14,000 feet, while many of the valleys are less than 4,000 feet above the sea level.

The resources of the county are varied. Stock raising is the chief industry. The vast open range and abundant streams of pure water make it a paradise for cattle. There are thousands of acres of grazing lands, and sufficient land can be irrigated to produce enough hay, grain and alfalfa to make winter feed for all the live stock that the range will support in summer. The county is one of the best watered counties in Wyoming, being well supplied with small streams heading in the Big Horn Mountains, and flowing generally to the northeast and northwest.

The northern part of the county is a good farming country and easily accessible by means of the Burlington railway. All kinds of vegetables are successfully raised; cabbage, turnips, rutabagas, lettuce, parsnips, cauliflower, beets, carrots, celery, broomcorn and sorghum cane are all grown with success, while melons and small fruits of unequalled flavor and excel-

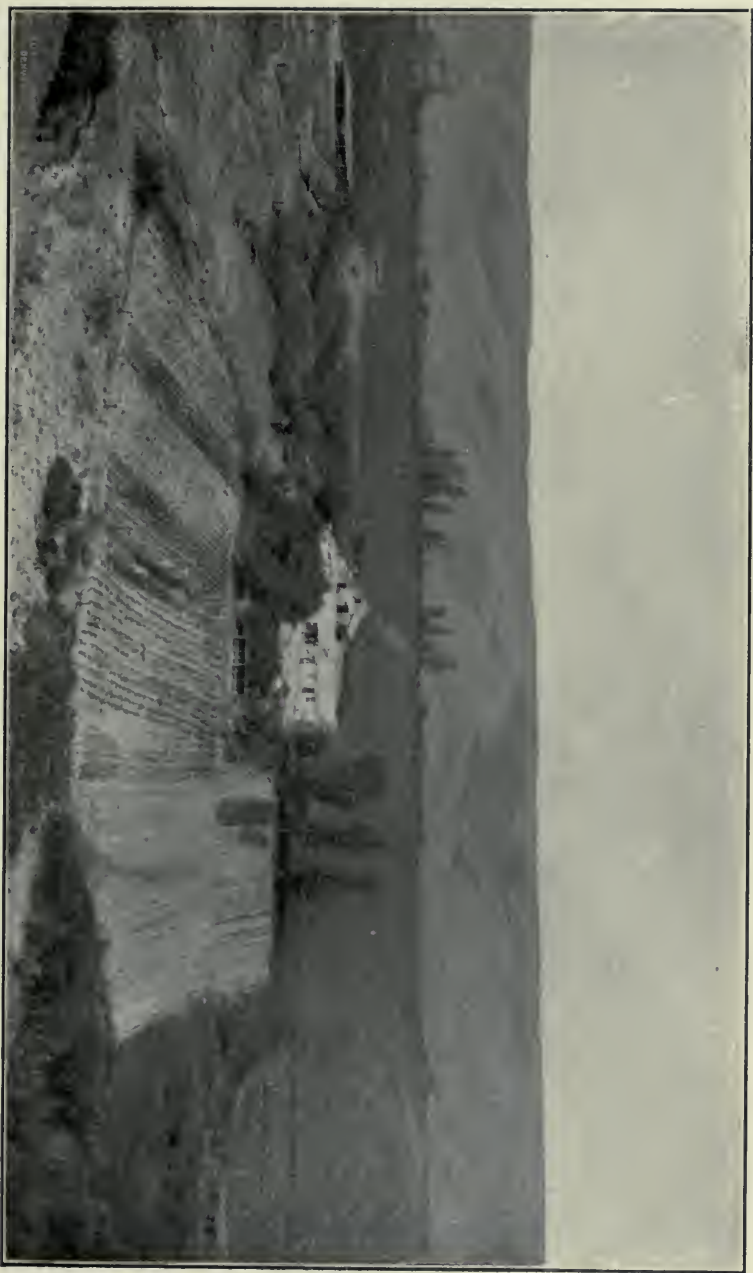


Photo by Silmson

IRRIGATED RANCH, JOHNSON COUNTY.



lence are cultivated. Yield of oats per acre is forty-five bushels and upwards; potatoes average 400 bushels; alfalfa produces two crops per year, of from four to seven tons per acre; and other crops in proportion.

There are 30,000 acres under irrigation, and 200,000 acres are susceptible of irrigation and only await the advent of the industrious settler, who can here obtain a good home cheap, and there are 2,000,000 acres of available grazing land. Pasture lands sell for \$2, irrigated from \$15 to \$25. Prices of products obtained by ranchmen are as follows: Alfalfa, \$3.50; timothy, \$6; bluestem, native, \$8 per ton; oats, \$1.25 per cwt.; wheat and potatoes, \$1 per cwt. There is a large supply of pine timber taken from the mountains, which is well suited for building purposes. Along the streams are thrifty groves of cottonwood, and experiments have shown that timber of various kinds can be as successfully grown here as in the prairie States of Kansas and Nebraska.

Minerals are yet undeveloped, but valuable prospects in gold, silver and copper are found in the Big Horn Mountains. Oil is found in large quantities, but because of a lack of transportation facilities is not worked.

This county is, without doubt, one of the best range counties in the State. It has one of the finest winter ranges in the West, where stock can roam at will, secure from winter storms in the shelter afforded by the high hills and deep gulches, while on account of the protection given by the location of the Big Horn Mountains and its spurs, lying to the west and north, blizzards are unknown, and the fall of snow is the least, especially on the head of Powder River and its tributaries, of any place in the same latitude in the United States, with the probable exception of a small strip on the Pacific coast. The hills are covered with a thick sod of buffalo and the other native grasses, and the cattle on the range in the central and southern parts of the county keep in as good condition as many of those in pastures where they have been fed nearly all the winter.

Buffalo, the county seat, has always been a prosperous town, and at the present time has a population of 1,000. It is the business center of a fine grazing and agricultural district and has superior natural advantages.

Clear Creek could furnish water power for a hundred factories, besides irrigating several thousand acres of land. At the present time Buffalo is thirty-two miles from the Burlington railroad, but at no distant day expects to have a railroad connection. Its citizens have been very enterprising in building up the town, having erected a \$40,000 court house, a \$15,000 school

house and numerous brick buildings. The city also maintains an electric light plant, flouring mill, waterworks and two newspapers. Two stage lines are operated, one leaving daily for Sheridan and the other for Clearmont, the nearest railroad point. Last year more than four million pounds of freight was hauled by wagon over the latter route. The town of Buffalo needs an electric railway connection with the Burlington Route, a distance of forty miles down Clear Creek, where water power can be obtained therefor.

The Government, under the National Irrigation act, contemplates using the waters from Lake De Smet for the irrigation of a vast tract of land, which, if done, will open same to settlement, with water on the land, within a year or two.

Here is located the State Soldiers' Home, upon 1,270 acres of fertile land. The buildings cost over \$100,000.

The United States land office for this county is at Buffalo.

Laramie County.

Laramie County was organized in 1879, and was named after Jacques Laramie, a French fur trader, who was killed near the mouth of the Laramie River about 1820. The Laramie River, Laramie Peak, Fort Laramie and Laramie County were named after this pioneer.

The county indebtedness is \$400,000, and the rate of taxation is 21¼ mills. The total number of acres of land listed for taxation is 1,050,359, and the value of all real estate in the county, including town lots, is \$3,028,431; total value of all assessable property in the county is \$6,569,077.

This county is located in the southeastern portion of Wyoming, and comprises an area of 7,000 square miles. It ranks first in population and wealth, and was one of the original four counties of the Territory of Wyoming. The rolling plains along the eastern slope of the Black Hills Range, varying in altitude from 4,000 to 8,000 feet, are its natural features. These plains are peculiarly adapted to grazing. In all parts of the county are found numerous streams. The total acreage of the county is 4,520,000, of which 3,000,000 acres are fine grazing land and 1,000,000 are susceptible of being made rich agricultural lands.

It is full of undeveloped resources; has iron, coal, copper, gold and silver, sandstone, marble, granite, mineral paint and mica. The

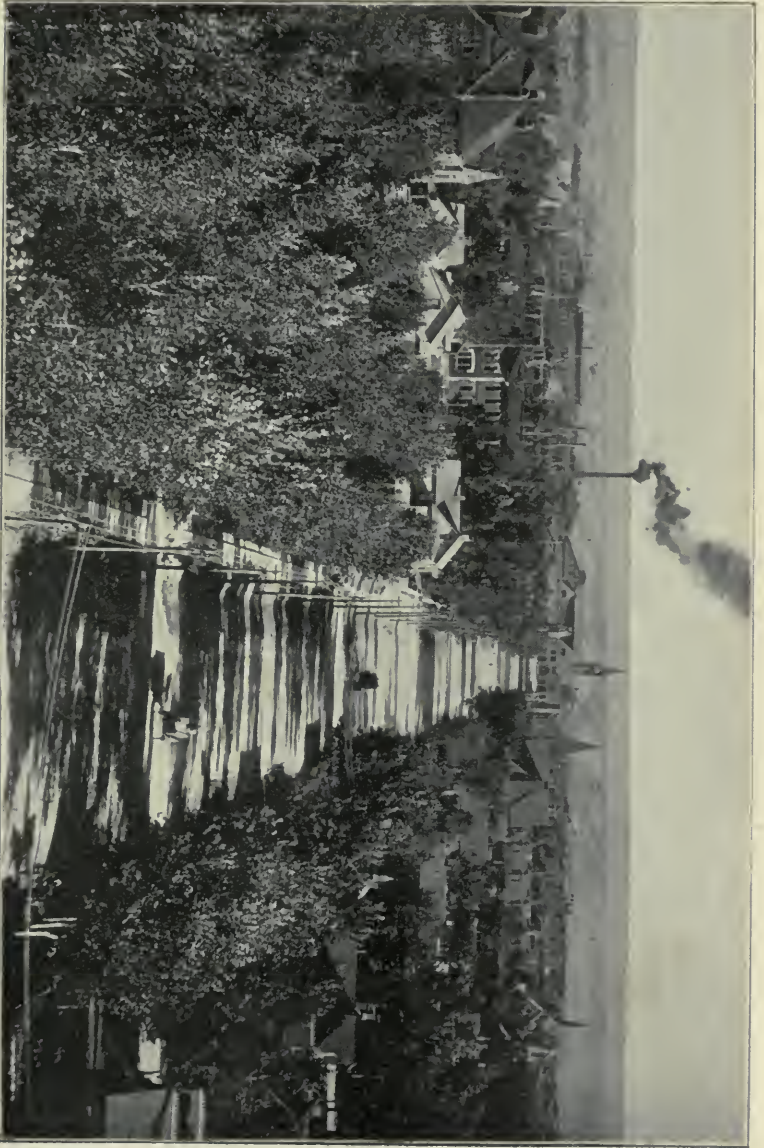


Photo by C. T. Johnston,
A VIEW IN CHEYENNE, THE CAPITAL OF WYOMING.

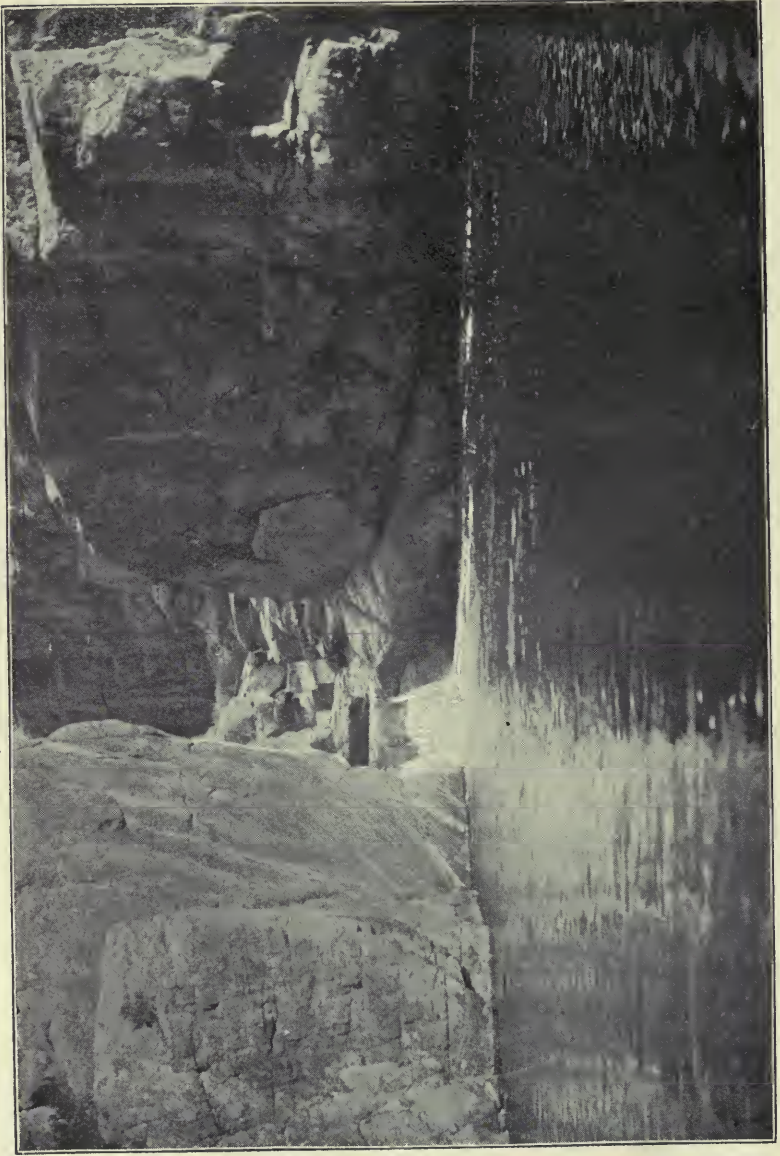


Photo by C. T. Johnston.

A TROUT POOL ON COTTONWOOD CREEK, LARAMIE COUNTY.

land is generally free from stones and other obstructions, and is easily broken and cultivated, and is very fertile.

Laramie County has passed from a purely pastoral condition to one of mixed husbandry. Stock raising, farming, dairying and gardening are practiced in varying degrees. The average temperature is about 60° F.; the rainfall fourteen inches. All field crops common to the West succeed well.

The development through irrigation has not been confined to any particular locality. The soil is exceedingly fertile, the water reliable and the altitude sufficiently low to warrant the planting of any of the ordinary field crops. The creeks are lined, therefore, with the farms of ranchmen, who, combining farming and stock raising, are prosperous.

County Seat.—The City of Cheyenne is the county seat of Laramie County and the State Capital, and has a population of 14,000. Owing to the rapid advancement of Cheyenne after the settlement in 1867, it gained the title of "The Magic City," and has always been noted for the wealth and enterprise of its citizens. The city was designated as the capital when Wyoming Territory was organized in 1869. It is 516 miles west of Omaha, on the line of the Union Pacific. It is also the junction point of the Colorado and Southern and the terminus of the Burlington Route.

Cheyenne has an extensive system of waterworks, the latest and most approved sewerage system, fire department and fire alarm system, telephone exchange, arc and incandescent electric lighted streets, besides gas for general use; has a new opera house building in process of construction, to cost \$35,000; a \$30,000 club house, fine business blocks, elegant private residences, two banks, eleven churches, two daily newspapers and State Capitol costing \$300,000. Among the other institutions are the Federal building and postoffice, costing \$350,000; Elks' home, costing \$30,000; Masonic Temple, \$50,000; five public school buildings, built at an average cost of \$30,000; convent school, erected at a cost of over \$50,000; a county hospital, a county court house and jail, and extensive railroad shops, employing 700 men. Andrew Carnegie gave \$50,000 for the construction of a public library, which has been built. The city is the supply point for an immense stock raising and agricultural country, and its citizens are among the largest live stock owners in the State.

Fort Russell, three miles from the city, is the largest and most important military post in the Department of the Missouri.

There are several manufacturing establishments in the city, and the volume of business transacted annually amounts to many

thousands of dollars. A creamery recently established has a large business and is now building a fine cold storage plant.

Strangers view with delight the miles of smooth stone flagging and cement sidewalks that line almost every street in Cheyenne. The beauty of many of the streets and avenues is greatly enhanced by the bright green turf on either side of the walks, which, together with long lines of trees, forms an agreeable feature of the city's landscape. Nowhere can be found more delightful drives. Nature has provided roads equal to the smooth gravel roads of Central Park, New York. The people of Cheyenne have made it one of the most attractive places in which to live in America.

One of the greatest attractions of the city is its pure and healthful climate. Its air is an invigorating tonic, cool in the summer, mild in winter. No better summer climate can be found in our land.

The Wheatland Colony.—No more important enterprise has been undertaken and carried out to successful results in the reclamation of arid lands than that of the Wheatland Colony by the Wyoming Development Company of Cheyenne. Each year since the initiation of the enterprise the company has done much for the betterment of the system. Its great irrigation plant now means the successful and ultimate reclamation of fully one hundred thousand acres. The lands reclaimed and being reclaimed are in the northern half of Laramie County, by railroad ninety miles from Cheyenne, on either side of the Colorado and Southern railroad.

In the selection of a locality for an irrigation plant, many things should be considered, among which are, a market for the agricultural products, the soil, water supply and accessibility to timber. The Wheatland Colony has all these advantages. The altitude, 4,500 to 4,800 feet, is the happy medium for the cultivation of lands with the aid of irrigation.

The water is taken from the Laramie River, the Sybille and Blue Grass Creeks, through three canals. Number one is thirty-four miles long, has a width of twenty feet on the bottom and a depth of four feet. Canal number two is twenty-two miles long, has a depth of three and one-half feet and a width on the bottom of twenty-two feet. Canal number three is twelve miles long, has a width of fifteen feet on the bottom and a depth of three feet. The water is turned from the Laramie River to the head of Blue Grass Creek by means of a tunnel. The Blue Grass carries the water to Sybille Creek, and from that stream the water is conducted by the above mentioned canals across the lands to be irrigated by laterals, distributed wherever necessary.

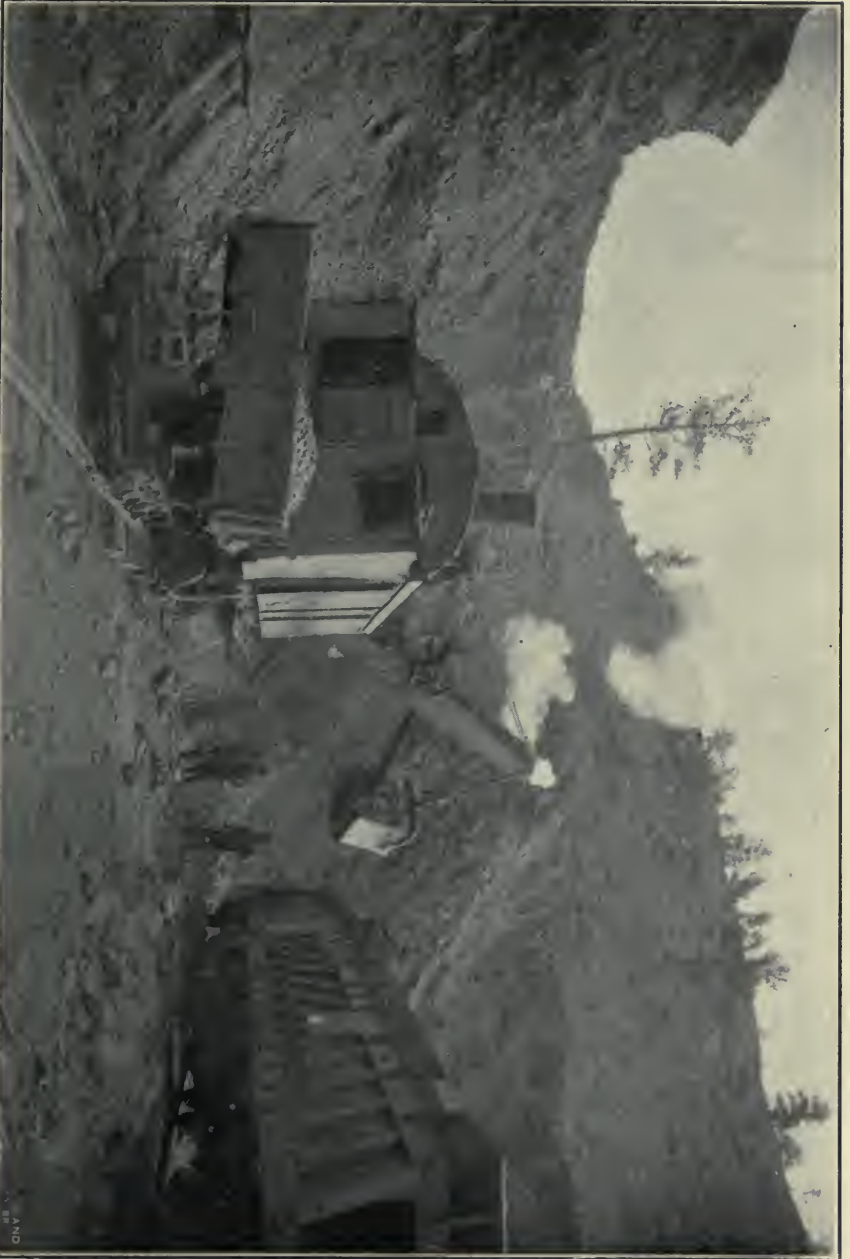
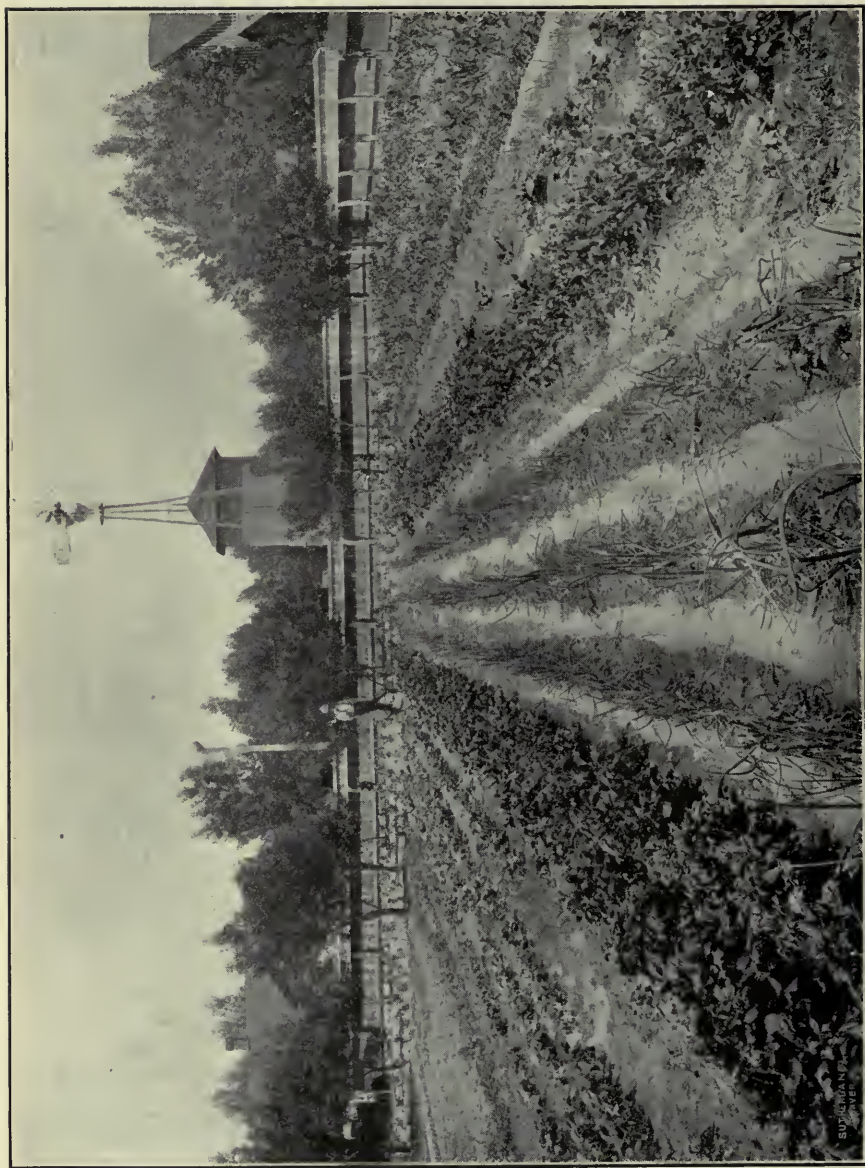


Photo by Stimson.

MINING AND LOADING IRON ORE AT COST OF FIVE CENTS PER TON,
NEAR GUERNSEY LARAMIE COUNTY.



WHEATLAND,
WYOMING

Photo by Stimson.

IRRIGATED GARDEN—WHEATLAND.

To reinforce the water supply in case of drouth in any season, water has been turned into natural reservoirs. Number one has a shore line of eight miles. No more extensive reservoir has yet been found in the United States than number two; it is seven miles long, averaging two and one-half miles in width. Its greatest depth is thirty-five feet, and its average depth is eighteen feet. It covers 6,600 acres, and has a shore line of thirty-five miles. It carries 118,800 acre feet of storage.

A timber supply of sufficient abundance for all domestic purpose is near at hand.

The soil is a black loam, well adapted for all small grains grown in the temperate zone, alfalfa, clover, potatoes, sugar beets, vegetables and some varieties of Indian corn. The experiments with growing apples, cherries, plums and all small fruits have been satisfactory. That the soil is well adapted for the production of wheat, oats, barley, rye, potatoes, turnips, flax, beets, cabbage and certain varieties of corn, has been shown by repeated tests and experiments. Timothy does exceedingly well, and crops of alfalfa produced mark the country as one of the best for growing this profitable forage plant. Experiments in growing sugar beets have been so successful that doubtless before long a sugar beet factory will be established in the colony. Experts of two of the sugar beet companies of the United States have made very favorable reports to their companies on the Wheatland Colony as a place for the establishment of a sugar beet plant.

The school system is of the very best. There are nine good schools in the colony. The colony is supplied with rural mail delivery and collection.

The City of Cheyenne, the towns of Guernsey, Hartville and Sundance, and the mining and stock raising sections afford good markets for everything raised in the colony.

Sheep and cattle feeding are no longer experimental in the colony. It has become a very profitable business. Alfalfa is the foundation of successful sheep and lamb feeding. The hog business is proving very profitable around Wheatland. Hog cholera is unknown in Wyoming. The climatic conditions are very favorable for stock growing and feeding.

The thrifty town of Wheatland is in the center of the colony. It is on the Colorado and Southern railroad, which connects at Cheyenne with the Union Pacific and Burlington systems, at Orin Junction with the Fremont, Elkhorn and Missouri Valley railroad (a part of the Northwestern system), and at Hartville Junction with the Burlington.

The town has a population of six hundred, made up of a fine class of people, intelligent, hospitable and public spirited.

It has fine school buildings, three churches—Methodist, Congregational and Roman Catholic—a library and a good library building. The town is supplied with a telephone exchange, and has long distance connections with all the large towns of Wyoming, Colorado, Utah and Idaho. There are five general stores, a drug store, two livery stables, two hotels, one bank, a harness and saddle manufacturing establishment, two blacksmith and carriage shops, two newspapers, five secret orders, a good hall and a modern roller mill with a capacity of 125 barrels a day.

Coal is cheap. Wood is abundant and may be had for simply the cutting and hauling. Good native lumber is worth \$15 per thousand, or from \$7 to \$10 at the mills. Building stone is plenty and bricks are made in proximity to the town.

Wheatland has a good outlook, and is one of the many sections of the State that promise good and speedy returns for capital invested. The agriculturalist who is looking for an ideal farming country; cattle and sheep producers who are desirous for the most advantageous conditions for stock raising; the business man who is seeking the new town full of promise, with a growing surrounding country, and those broken in health who seek a favorable climate, will find good openings at Wheatland. The lands are selling rapidly for from \$22.50 to \$35 per acre. Ten years' time is given, with equal annual payments, at six per cent. interest. No payment except the interest has to be made the second year, which gives the settler an opportunity to pay for his farm even though his means be limited. A perpetual water right goes with each piece of land, and a purchaser of a Wheatland farm cannot be deprived of an equal water right with every landholder any more than he can be deprived of the land itself. The land and water go together. When the lands and water have all been sold, the irrigation works will be absolutely under the control of those holding lands in the colony.

Guernsey.—The new town of Guernsey, which is the natural railroad and business center of the iron region known as the Hartville Iron Range, and described elsewhere in this book under Mineral Resources, is located at the base of the Iron Range in the Valley of the Platte River. It is beautifully situated below the mouth of the Grand Canon in a broad sweep of intervals in a bend of the river. With the development of the mining and stock industries and railroad building, with which its interests are identified, and from which it sprang into existence, its future growth is assured.

Its location marks it as one of the coming industrial cities

of Wyoming. It already has two railroads, and with the western extensions of the Burlington, will become a division headquarters on its continental system, and will have connection with the mining camps, not only of the Hartville Range, but those of Halleck Canon, Plumbago Canon, Squaw Mountain, Horse Shoe Park, North Laramie and the Peak Range. North of Guernsey are the mining camps of Whalen Canon, Wildcat, Muskrat and Rawhide Buttes, which will be reached by a spur on the eastern slope of the mountains.

The establishment of industrial enterprises at Guernsey is to be promoted by the building of a big dam at the mouth of the canon, where the immense volume of Platte River water will be utilized for electric light, power and water systems second to none in the West. The electric power generated here will not only furnish light, but will in time operate all the mines of the range, while the water supply will irrigate thousands of acres of land along the valley, as well as provide an admirable water system for the City of Guernsey, with its mills, smelters and workshops, at a small expense.

Hartville is the headquarters of the Colorado Fuel and Iron Company's mines. Development work on some of the mining claims near Hartville show indications of good gold values, and a gold mining district may be developed this year.

The United States land office for this county is located at Cheyenne.

Natrona County.

Natrona County was organized in 1888. It derives its name from the natural deposits of natron, or carbonate of soda, found in the numerous basins or lakes that abound in that section of Wyoming. Located in almost the geographical center of the State, it covers an area of about seventy miles square. The Platte River, with its numerous tributaries traversing its entire length, a distance of seventy-five miles from east to west, furnishes an abundant supply of water for irrigation, and as the mean elevation is 5,500 feet, the farmers of the county can raise all the hardy grains, vegetables and fruit common to the Northwestern States.

At the present time the live stock interest leads all other industries in this county. The Fremont, Elkhorn and Mis-

souri railroad, a branch of the great Northwestern system, affords an outlet to Eastern markets. The assessed wealth of Natrona County in 1903 was \$2,192,582, and was divided as follows: Sheep, \$882,002; cattle, \$216,219; horses, \$106,917, and improvements, \$282,972. The county indebtedness is \$15,900, and the rate of taxation for the year 1903 was 20 1-3 mills.

It will be observed that the raising of sheep overshadows all other industries. The fleece of a Natrona County sheep will average seven pounds, and the total wool clip for 1903 approximates 3,000,000 pounds.

But it is the undeveloped resources of Natrona County that offer the greatest inducement for the investment of capital. Already the oil industry has reached an important stage of development. The oil district, which covers an area of 2,000 square miles, has been largely prospected, and numerous wells have been drilled, which yield an unlimited supply of natural oils. About 700,000 acres of oil lands have been located in Natrona County. The oil is lubricant in character, and is said by experts to be the best in the world. The principal basin is on Salt Creek. Wells have also been drilled on the South Fork of Powder River, in the Rattlesnake district, and on Casper Creek. In every district the finest of lubricating oil has been found. See article on Oil.

Steam coal exists in Natrona County. Lignite coal, varying from a few inches to several feet in thickness, is found in various parts of the county. The inexhaustible deposits of sulphate and carbonate of soda, which are formed from natural springs, will some day be the basis of a great and profitable industry, and only await the magic touch of capital and skill to develop their greatest possibilities.

Among the natural wonders of Natrona County are the Alcova Hot Springs, which possess medicinal virtues for the treatment of rheumatism and kindred diseases. These springs are located on the North Platte River, in the mountains, and are surrounded with beautiful scenery. Considerable development has been made in the mining of precious metals. Deposits of gold and silver ore are found in the mountains. Low grade ores, which assay from five to ten dollars a ton, are abundant, and in time can be profitably mined. Coal, copper, iron and valuable building stone are found in various localities. The best developed copper claims in Casper Mountain assay from 37 to 40 per cent. copper. Asbestos is also found in paying quantities.

Casper, the county seat of Natrona County, is a thriving town of 1,200 inhabitants. It is the western terminus of the



Photo by Stimson.

GRAND CANON OF NORTH PLATTE RIVER, NATRONA COUNTY.

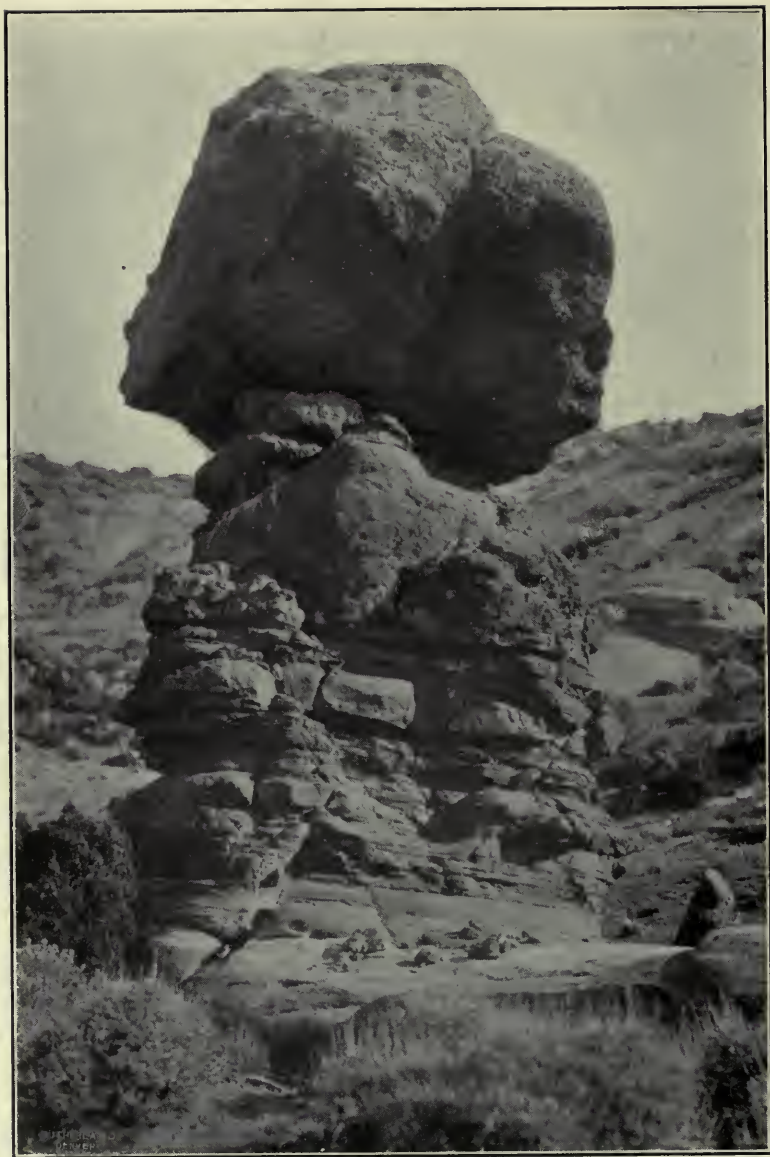


Photo by Stimson.

NATURE'S DOUBLE-HEADED SPHYNX.

Fremont, Elkhorn and Missouri Valley railroad, which gives it a large and important freighting business and trade with the country west of Casper, including the prosperous counties of Fremont and Big Horn. Its fine business blocks, churches and school houses attest the liberality of the people. Among the recent improvements are fine waterworks and a steam plant for shearing sheep. There are about 7,000 acres of land irrigated, while there are 50,000 acres susceptible of irrigation and 3,700,000 acres of pasture lands.

There is in this county seat a great opening for a ditch which will irrigate from 50,000 to 75,000 acres of land. These lands can be secured under the arid land act (see article on "Lands") at fifty cents per acre.

The United States Government has announced its intention of constructing an immense dam above Alcova, turning the Grand Canon of the Platte into a storage reservoir and affording water for reclamation of arid lands.

The United States land office for this county is located at Douglas.

Sheridan County.

Sheridan County was organized in 1888, and was named for General Phil Sheridan. It is situated in the central part of Northern Wyoming. It is ninety miles east and west, and thirty miles north and south, containing 2,700 square miles. This area is divided as follows: Three hundred and seventy-eight thousand acres mountainous, 350,000 acres irrigated or capable of irrigation, 1,000,000 acres grazing lands. There are now, approximately, 200,000 acres under cultivation.

The assessed wealth of Sheridan County in 1903 was \$3,232,615; rate of taxation, 18 mills; bonded indebtedness, \$21,700.

The principal products of the county are cattle, hay, oats, wheat, potatoes and coal. Farming, in connection with stock raising, is the chief occupation of the people, being by far the best paying business. This county combines in an exceedingly favorable manner crop raising and stock raising. The range grasses here are considered by stockmen to be unexcelled. An evidence of this is in the fact that range beef from this county usually receives the highest price for that class of

beef in the Chicago market. Referring to the crops, they also receive the highest awards, both for quality and quantity.

The climate here is good. The chinook or warm winds from the Pacific Ocean keep the range open during the winter.

The annual output of coal is 500,000 tons, the greater part of which is shipped to the Black Hills and points in Nebraska. Of wheat, 200,000 bushels are raised each year, the acreage being on the increase, but by far the largest acreage in crops is given to the raising of hay, principally alfalfa. This is the case where the business is that of stock raising. It is notable, however, that as farmers come into this country from Eastern States the farm is made to produce greater profit in the raising of grain, potatoes and small fruit. This county secured at the World's Fair in Chicago a medal for the best spring wheat raised in 1893.

The mountainous part of Sheridan County shows prospects rich in copper, and good samples of gold, silver, nickel and other minerals are found. This part of the county contains a large number of natural basins for the storage of water, which insures a vast development at no distant time in the production of crops requiring late irrigation. With abundance of water, the prospects in the mountains being developed into mines, the whole country being underlaid with coal, Sheridan County combines the resources essential as a foundation upon which to make a rapid and permanent development on a sound basis.

One of the pleasing features is the excellent trout fishing to be found in all of the twenty-two streams flowing from the Big Horn Mountains. These streams were found in early days to be the natural home of the Rocky Mountain trout. Of late years most of the streams have been stocked with the Eastern brook trout. The Big Horn Mountains afford the finest places for summer camping. Summer resorts have been erected at some of the lakes in the mountains where the fishing is the best, and here one can walk over great drifts of snow which never entirely disappear.

The Burlington and Missouri railroad has a line traversing the entire length of the county, and has projected lines in other directions. There are ten churches, numerous excellent schools, flouring mills, brick yards, a brewery and a number of small manufacturing concerns.

The Town of Sheridan is the county seat of this county, charmingly located at the foot of the Big Horn Mountains. It has a population of four thousand, and has every improve-



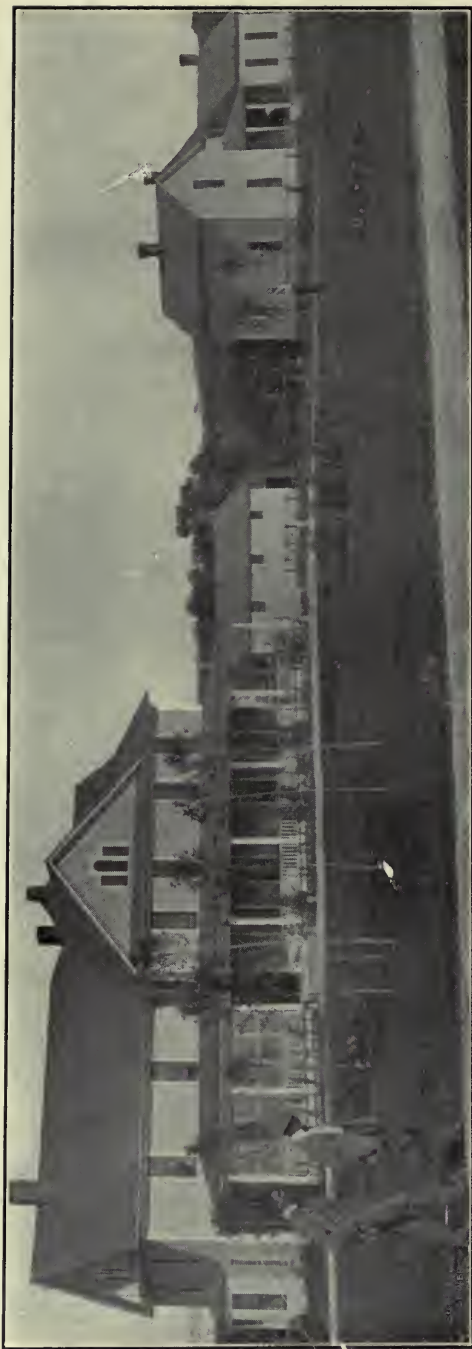


Photo by Stimson.

MONCREIFFE BROTHERS' RANCH HOUSE.

ment necessary for the enjoyment of a thoroughly up-to-date city and has the rural mail delivery system. There are eight churches, lodges of all fraternities and a club. Within three miles of the city is situated Fort McKenzie, garrisoned by United States troops. About twelve miles north of the city is the south boundary line of the Crow Indian Reservation, which Indians come to Sheridan in large numbers to trade. At Sheridan, also, is located a State Hospital.

This county is one of the best agriculturally developed counties in the State, and is a splendid example of what will shortly be done in this line in other counties.

The United States land office for this county is located at Buffalo.

Sweetwater County.

This was originally called Carter County, after a pioneer, Judge Carter, when a part of Dakota, but upon the organization of the Territory of Wyoming, in 1869, the name was changed to Sweetwater, after the Sweetwater River, which was so named by General Ashley in 1823.

The chief industries are coal mining and stock raising.

In the year 1903 the total assessed value of property in the county was \$3,869,769, divided as follows: Railroad property, \$1,409,906; lands and improvements, \$1,363,881; cattle, \$21,318; horses, \$34,216; sheep, \$543,173. The total bonded indebtedness is \$76,700; the rate of taxation, 20 1-3 mills.

Green River, the county seat of Sweetwater County, has a population of about 1,200, and is essentially a railroad town, being a division point on the Union Pacific. Extensive repair shops are operated here by the railroad company. The surrounding country is devoted largely to the grazing of sheep and other live stock. A system of waterworks has been constructed at a cost of nearly half a million dollars, for the purpose of pumping water from Green River to Rock Springs, a distance of eighteen miles, where extensive coal mining operations are carried on by the Union Pacific. Large quantities of ice are annually stored at Green River, and during the summer season between four and five hundred thousand railroad ties and mine props are floated down the river and

distributed at this point. A saw mill is maintained for the manufacture of rough lumber.

The most promising industry in Green River, at the present time, is the production of sal soda, which is likely to assume vast proportions in a short time. Several wells have been sunk on the bottoms of Green River, that yield an inexhaustible supply of water containing an average of twenty-five per cent. of soda crystals, or, in other words, twenty-five pounds of sal soda to every one hundred pounds of water. The development of this industry at first was very much retarded by the failure to secure freight rates that would enable the chemical company to place their product on the market. A few months ago rates were obtained that enables this product to compete at Missouri River points and on the Pacific coast. The result was that in September last the company shipped 150 tons of sal soda, which had a market value at Omaha of \$24 per ton. Wyoming sal soda is superior to that manufactured from salt, and has been given the preference wherever installed.

Rock Springs.—Eighteen miles distant on the line of the Union Pacific is located the town of Rock Springs. Here are operated the largest coal mines in the State. It has a population of 5,000, composed very largely of miners, and is one of the most active business points in Wyoming. It is well built, having fine business blocks, a water system, electric light plant and a magnificent \$25,000 city hall. At this point is located the Wyoming General Hospital, maintained by the State.

Industries.—The county is well suited to sheep raising, and many citizens are so engaged. The broken and diversified character of the country, covered as it is with white sage and nutritious grasses, furnishes just the conditions conducive to the successful management of that class of live stock, 450,000 head being run upon the plains.

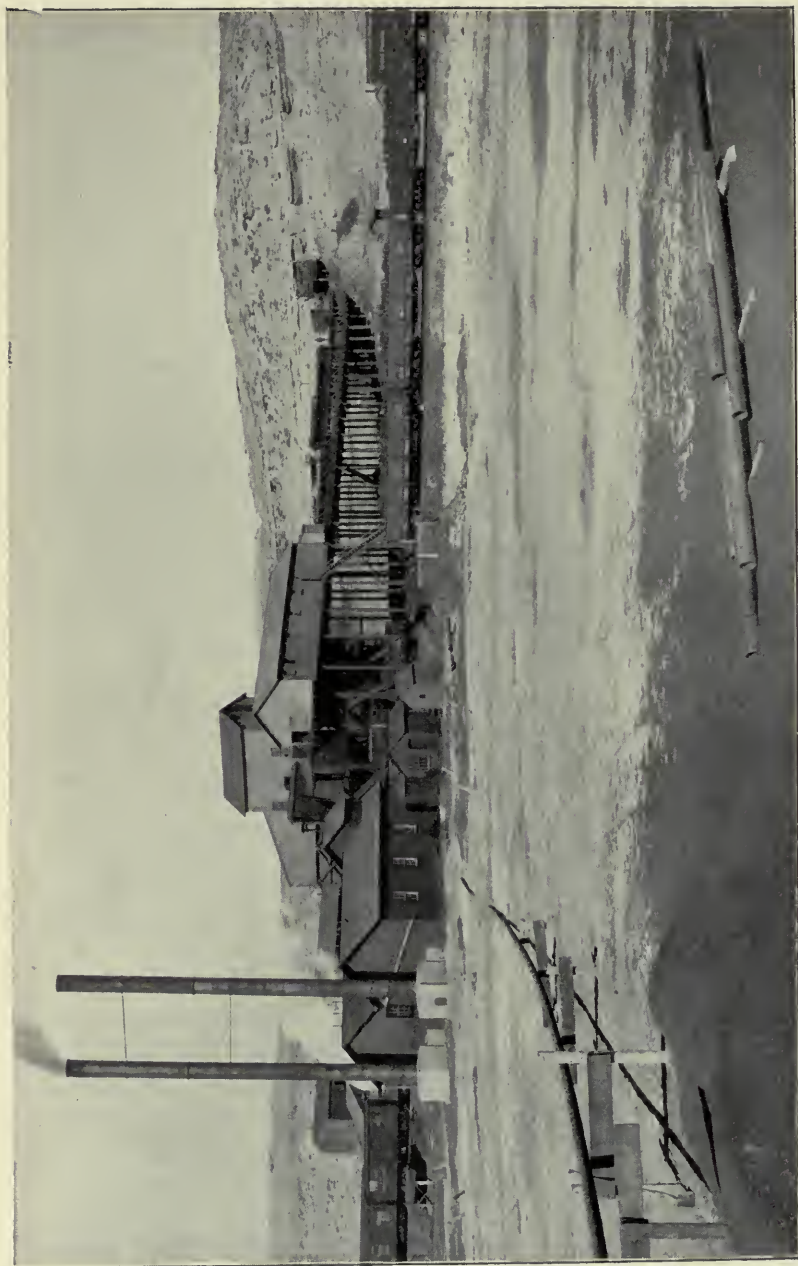
The entire county is underlaid with veins of coal, which, however, have been more extensively developed at Rock Springs than elsewhere, and the term Rock Springs coal is synonymous throughout the West with coal of exceptional quality. The output is 2,000,000 tons per annum. The Union Pacific Coal Company is the largest operator, although there are others located at or near Rock Springs. This company owns five mines, the Central Coal and Coke Company two, and the others are the property of individuals. In addition to obtaining a full supply of fuel for the Union Pacific railroad, the first named company sells thousands of car loads throughout Wyoming and adjacent States.



Photo by Strason.

GREEN RIVER.

PLANO
1875



COAL MINE NO. 9, ROCK SPRINGS.

There are vast areas of undeveloped coal lands in the county, principally to the north of the railroad, much of which on being prospected shows excellent coal in veins from three to twelve feet thick.

The United States land office for this county is located at Evanston, except for a few townships in the southeastern portion of the county, which are in the Cheyenne land office district.

Uinta County.

Uinta County was organized in 1869, and was named for the Uintah Indians. It lies in the extreme western portion of the State and extends from the northern boundary of Utah to the southern boundary of the Yellowstone National Park. It covers over 15,000 square miles, and much of this vast area is unentered Government land. The Union Pacific railroad crosses the county in its southern portion, and the Oregon Short Line in the south central portion. The elevation ranges from 5,000 to 8,000 feet.

Topography.—The county is characterized by a charming alteration of wooded hill and arable valley, of rolling upland pasturage and well drained meadow. Some parts of the county are very mountainous, but broad extents of valleys and plateaus blend with the hills in charming and picturesque beauty. The mountains are cut by a number of swift rivers running through deep canons, and the valleys are threaded by the numerous forks and tributaries of these rivers. Fair lakes are embosomed in the hills and feed great rivers and streams.

Streams.—The rivers of the county are the Bear, Green, Salt and Snake. The principal tributaries of Bear River are Black's Fork, Twin Creek and Smith's Fork. Those of the Green are Horse, Cottonwood, the three Piney Creeks, La Barge, Fontenelle and Henry's Fork Creeks. Those of the Snake are Buffalo Fork, Gros Ventre and Hoback's Rivers from the eastward, and John Day's and Salt Rivers from the south.

Besides the lakes and rivers, there are about forty named creeks of considerable size traversing the surface of the county.

Statistics.—Lands and improvements are assessed at \$1,408,727; total assessed valuation of all property, \$5,524,344; rate of taxation, state and county, 18½ mills; county debt, \$99,500 (bonded); number of schools, 69; teachers, 81; districts, 21; school children between five and seventeen years, 3,303; population, census of 1900, 12,223; present population, about 16,000.

Principal Towns.—The county seat is Evanston; population, 2,110. It is pleasantly situated in the Bear River Valley; has many natural advantages, and is one of the most prosperous and attractive towns in the State. It is the home of prosperous merchants, cattlemen and sheepmen. The Union Pacific shops are located here, and there are two banks, three newspapers, five churches, commodious brick school house, large court house and jail, electric light plant, waterworks and three hotels. The State Insane Asylum is situated here and also the United States land office for Evanston district. Diamondville, Kemmerer, Cokeville and Cumberland are the principal towns on the Oregon Short Line, and are large coal producers. The coal of Uinta County is but slightly exposed, being largely covered by the tertiary; and it is only where recent erosion has occurred that the coal outcrops. Owing to this fact, it may be years before the full extent of the coal lands of Uinta County is thoroughly known. The output is extensively used by the smelters of Montana, the railroads of Utah, Idaho, Oregon, California and Nebraska, for which purposes it is admirably suited.

Star Valley, a fine agricultural section, 125 miles distant from the county seat, is traversed by Salt River, Cottonwood Creek, mountain streams and many large canals and laterals. The population is about 2,300. The people, mostly Mormons, are thrifty and prosperous. They raise timothy and alfalfa, hay, oats, barley and winter wheat, large crops of potatoes and garden truck, and in agricultural wealth and splendid ranges for cattle, rival the people of the southern end of the county.

There are many thousand acres of good agricultural land open for settlement under the homestead and desert entry laws of the United States. This land is admirably adapted for the cultivation of hay and small grain crops, and there is an abundance of water for irrigation purposes. Settlers would be welcomed, and there are good opportunities for those who have a little capital, as good land already brought under cultivation can be purchased for from four to ten dollars per acre. School, road and mail facilities are already well estab-

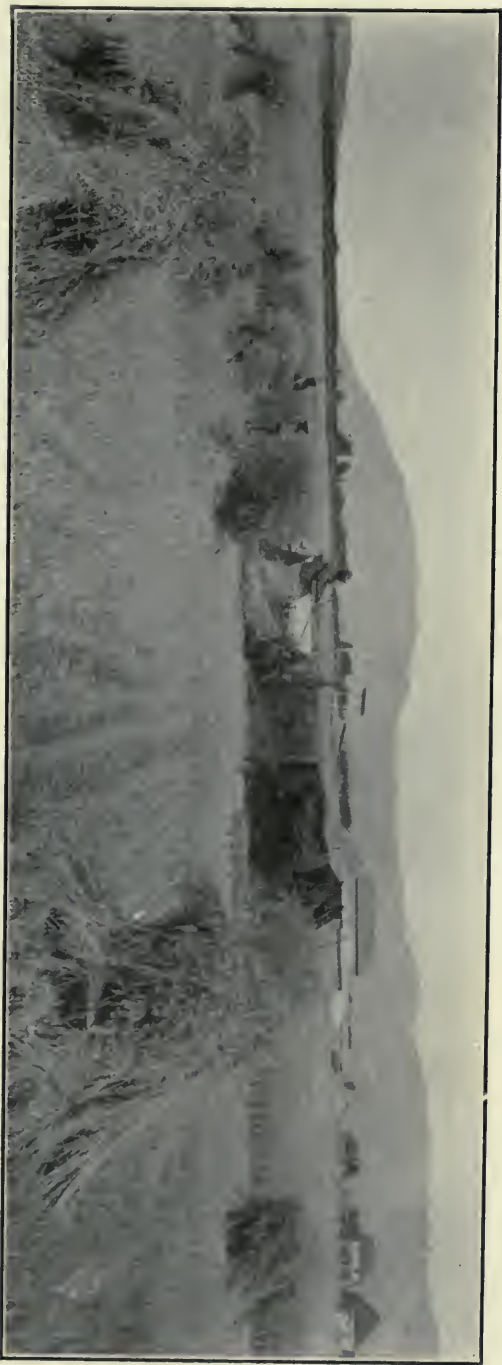


Photo by Stimson.

WHEAT FIELD NEAR COKEVILLE, UINTA COUNTY.

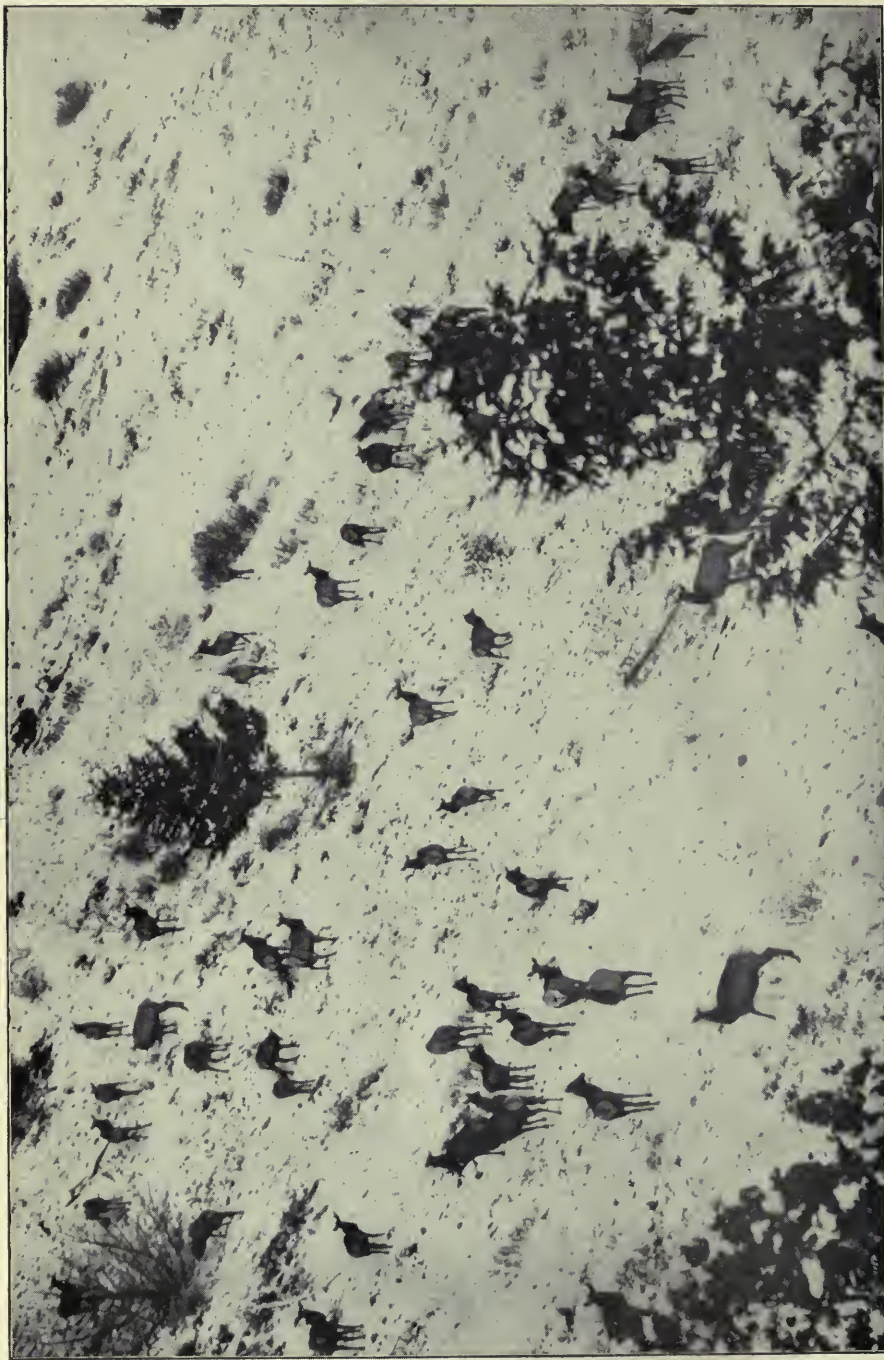


Photo by S. N. Leek. By courtesy of "Outdoor Life."

WYOMING ELK—VIEW IN JACKSON'S HOLE IN WINTER.

lished, and railroad communication is easy of access. Those desirous of making permanent and comfortable homes at little expense of means and labor would do well to visit this section and see for themselves the advantages which this beautiful and healthful locality affords.

This county has developed wonderful oil fields. See article on Oil.

The famous Jackson Hole and Jackson Lake lie in the northern part of the county, south of the Yellowstone National Park. Jackson's Hole was named in 1828 after David E. Jackson, a wealthy partner of the Rocky Mountain Fur Company. Jackson Hole is an extensive valley of fertile land and some good farms, and is traversed by Snake River and numerous creeks. Prior to 1871 Jackson Hole was practically unknown to others than the hardy trapper and prospector, and it was not then supposed that this great valley would one day become an important part of the body politic of the State of Wyoming, and that magnificent farms and homes would cover its fertile expanse, or the range of the wild game, in its last retreat before the perpetual blow of advance civilization. In 1884 the first settlement was made on the Little Gros Ventre River. From this nucleus has sprung a hardy pioneer opposition to the inclemencies and vicissitudes of the seasons, and today ranching and stock raising are carried on with success and thousands of acres have been improved into great bodies of the finest hay and farming lands in the State.

The soil of Jackson Hole is a rich sandy loam, and while the principal crops produced are native hay and tame grasses, vegetables and small fruits mature and are raised in sufficient quantities to supply all local demand. All kinds of cereals will mature, and while the approximate elevation of the valley is 6,200 feet above sea level, the surrounding mountains protect it from the killing winds and insure its becoming one of the future agricultural districts of the State.

The stock interests consist entirely of cattle and horses. Owing to the location and conditions surrounding it, the valley is not a good place for sheep. Stock is generally fed and sheltered during the more inclement part of the winter. Hay in great quantities is raised and is worth from \$2.50 to \$3.50 per ton. A ton of hay will feed each head of grown stock. Ranchmen following the cattle business have without exception become well-to-do, building large irrigation canals, comfortable residences and large barns for the shelter of their stock. Improvement is everywhere evident, and for a new community Jackson Hole has as many valuable ranch improvements as any other new community in the State.

Prospects have been found that indicate that there is mineral in the vicinity of this valley. Since 1860 the bars on the Snake River have been worked for placer gold, and good wages can be and are now obtained by sluicing or rocking the gravel. Where the gold comes from has never been determined; that it is there is beyond question. Coal beds of vast dimensions and superior quality lie on the east side of the Gros Ventre River.

Jackson Hole, being situated as it is in the heart of the Rocky Mountains, immediately south of the Yellowstone National Park, is the most important big game preserve in the United States. All kinds of fur bearing animals are to be found, while bear, mountain lions, moose, elk, deer, antelope and mountain sheep are always in evidence. Hunters from all over the world have had a try and can testify as to the sport to be had in this locality. Grouse, geese and ducks are found everywhere, and the streams that traverse the valley in every direction abound with fish. The Jackson Valley Guide Association, comprising a membership of competent resident guides, through their officers at Jackson, Wyoming, will furnish all necessary information and prices of guides and approximate expenses to those seeking information. No place in Wyoming, outside of the National Park, opens to the view a more varied and comprehensive study of nature's handiwork than this locality, a level fertile valley, covered with the improved ranches of the settler, traversed by numerous streams of purest crystal water, with numerous lakes, while above and beyond rise great magnificent snow-capped mountains, and, ever in view, the Grand Tetons protrude themselves against the western sky. Their scraggy granite peaks far above the surrounding ranges stand sentinel-like over the shadows of the silent valley below, once seen never to be forgotten.

Soil.—The soil is of three distinct classes: First, the bottom or meadow lands, usually possessing a rich, black and somewhat heavy soil, lying next to the streams, always easily irrigated, and on that account generally the most desired by settlers; second, the bench lands, rising terrace-like toward the neighboring hills, possessing as a soil a warm sandy loam, always easily drained, usually presenting no great obstacle to irrigation, and now being generally recognized as the soil capable of the widest range of production; third, the high bluff lands, watered by numerous streams, usually too sandy for cultivation, but naturally affording the most ample and nutritious pasturage for horses, cattle and sheep.

Climate.—The winters are not severe, and the summers are always temperate. Clear, frosty days, with an occasional exceptionally cold night; usually severe weather in March; some very warm days in summer, but always cool and reviving breezes in the night. The sunshine of this county, as of the State in general, is remarkable not only for its brilliancy, but for its persistency, cloudy days being in this section the exception.

Agriculture.—The production of timothy and wild hay, alfalfa, oats, potatoes, winter wheat, and in some sections barley, occupy the whole attention of Uinta County farmers. Possessing a soil singularly fertile and lasting, this county offers exceptional inducements to the agriculturist, with the assurance that the waters will never fail, that his crops will never be blighted by drought, and abundant harvest will surely follow seed time.

Timber.—Throughout the county timber is abundant on the hill sides for lumber, fuel and mining purposes. Yellow and white pine, some cedar and spruce, cottonwood and aspen, are the principal growths. Saw mills are in operation in many portions of the county, and much lumber is produced.

The United States land office for this county is at Evanston.

Weston County.

Weston County was organized in 1890, and was named after a gentleman of that name, who was interested in building the Burlington railroad through that section of the State. It is 100 miles long by forty-eight miles wide, comprising 3,133,440 acres, and has a population of 3,203. The total assessed valuation of all kinds of property in 1903 was \$1,800,778, divided as follows: Farm lands and improvements, \$278,704; town lots and improvements, \$111,295; cattle, \$556,078; horses, \$89,110; sheep, \$303,308. County indebtedness, \$33,820; rate of taxation, 21 2-3 mills.

Weston County, although enjoying an altitude between 4,000 and 5,000 feet above the sea level and possessing good soils, is not so well watered as other sections of the State, owing to the absence of large streams having their sources in the lofty mountains of the snowy ranges. The rainfall, however, is considerably greater than at a higher altitude, averaging from eighteen to twenty inches per annum. The

dark loamy soils, in part of the county, are quite productive without irrigation, and the reddish gypsum soils found at the base of table lands retain the moisture and are very fertile. Precipitation is mainly in the spring and early summer, and crops make rapid progress from germination to maturity. Wild fruits of the smaller varieties, such as plums, gooseberries, currants and strawberries, grow plentifully. All the farm products known in the northern latitudes are produced in this region, even Indian corn, and the yield is most excellent. Wheat of the spring varieties yields over fifty bushels, rye over forty, oats seventy to even one hundred bushels, and corn, of the flint, dent and squaw varieties, also makes good returns. Timothy, alfalfa, red clover and other tame grasses are cultivated with success, as are also potatoes, rutabagas, turnips, carrots and sugar beets, the last named producing as high as six tons per acre, with twenty per cent. of sugar, as shown by analysis. Stock growing makes an excellent accompaniment of farming throughout this region. Shorthorn, Hereford, Sussex and West Highlands cattle find favor for the range. Horses also receive much attention and are increasing in value. There is good pine timber in the Black Hills, and numerous saw mills supply the wants of the settler. Gypsum is found in inexhaustible quantities, and superior quality of building stone, granite and lime. Salt producing springs have been discovered near Jenney's Stockade, and an oil district in the same locality covers over 400 square miles. (See article on Oil.) Weston County is famous for its coal, which finds a ready market in the adjoining States of South Dakota and Nebraska and along the line of the Burlington railroad, which traverses the entire length of the county, east and west.

Newcastle, the county seat, is a thriving town. The first building was erected in September, 1889, the Burlington railroad having reached that point in the previous month. After the discovery of coal the population grew very rapidly, and in 1900 was 756. In 1890 extensive waterworks were constructed at a cost of over \$100,000 by the Cambria Mining Company, which furnishes an abundant supply of water for Newcastle, Cambria and the great coal mines. A \$6,000 town hall and \$12,000 school building have been erected. Within the immediate vicinity are several oil wells, the first discovery being made fifteen years ago. All lines of business are well represented and prosperous.

Cambria is a coal mining town, the population being actively engaged in that industry. The quality of coal mined is excellent, and is described elsewhere in this publication.

Modern equipment and methods are the characteristics of the mining plant. The coal here is of a coking quality, and coke ovens are in operation. The population of the Cambria district is 962.

The United States land office for this county is located at Sundance.

Public Buildings.

The Capitol Building at Cheyenne is classical in style and bears a resemblance to the Capitol at Washington.

The Wyoming University, located at Laramie, is described under the article on Education.

The State maintains Fish Hatcheries at Laramie, Saratoga, Sundance, Sheridan and Lander, which hatcheries each year stock the mountain streams with trout of various varieties.

The Penitentiary Building is located at Rawlins.

The State Deaf, Dumb and Blind Asylum is located at Cheyenne, but is not in use on account of the small number of such unfortunates.

The Insane Asylum is located at Evanston.

Two General Hospitals are maintained by the State, one at Rock Springs for the southern section of the State, and one at Sheridan for the northern section of the State.

The Soldiers' and Sailors' Home is located at Buffalo, where the State owns 1,270 acres of rich agricultural land and has buildings worth \$100,000.

Wyoming also possesses a Poor Farm, situated at Lander, but owing to the fact that the State has no poor, the farm has been rented and the proceeds applied to its improvement, so far as necessary, and the remainder allowed to accumulate as a fund for the future, should it ever be needed.

Banks and Interest.

In all the larger towns are located national banks, while in the smaller towns are found banks incorporated under State law. The legal rate of interest is eight per cent., but any rate agreed upon, not exceeding twelve per cent., is valid. The usual bank rate on time deposits is four per cent.; the bank loan rate is from ten to twelve per cent.

A Brief Abstract of the Reports of the Banks of Wyoming at the Close of Business November 17, 1903.

CITY	Name of Bank	Loans and Discounts, Overdrafts, and Securities	Bank's House Furniture, Fixtures, and Real Estate	Due from Banks and Bankers and Cash on Hand	Capital and Surplus and Undivided Profits	Due to Banks and Bankers, Rediscounts, and Bills Payable	Deposits
Basin	Big Horn County Bank	\$ 84,204.81	\$ 2,800.00	\$ 30,132.23	\$ 23,386.21	\$ 8,000.00	\$ 85,740.93
Buffalo	First National Bank	201,089.13	11,251.00	85,479.96	85,151.92	168.15	213,452.02
	Stock Growers Bank	90,367.17	1,635.79	27,054.77	39,489.98	15,503.85	73,063.85
Casper	Casper National Bank	272,711.30	2,070.00	58,927.31	51,980.51	3,115.12	278,613.07
Centennial	Centennial Trust Company	6,000.00	2,060.26	3,510.50	9,805.87		1,764.95
Cheyenne	First National Bank	799,855.43		203,064.20	153,071.02		849,848.61
	Stock Growers National Bank	805,844.49		365,220.37	145,650.84		1,095,414.02
Cody	Amorettili, Parks & Co.	30,583.75	1,227.13	15,703.75	10,000.00		60,634.63
Douglas	First National Bank	216,124.04	11,178.00	15,143.36	98,151.42		65,413.77
Encampment	Copper State Bank	61,648.60	824.25	25,005.34	17,064.42	5,000.00	239,630.19
Evanston	Beckwith & Company	216,124.04	11,000.00	60,076.58	47,122.61	2,750.98	453,427.05
	North and Stone	388,091.89	11,593.00	87,320.72	40,737.38		65,487.33
Gillette	Bank of Gillette	35,746.72	3,618.61	39,973.37	13,851.37		42,642.04
Green River	The Morris State Bank	29,974.95	1,250.00	21,512.63	10,095.54		33,089.86
Hanna	Carbon State Bank	79,434.83	2,000.00	48,671.10	35,006.07		161,052.31
Kemmer	First National Bank	191,434.97	7,000.00	65,679.91	45,716.04	1,513.70	149,529.72
Lander	First National Bank	146,369.82	6,149.29	44,845.40	32,914.27	3,427.36	306,036.78
	Noble, Lane and Noble	132,963.00	11,600.00	111,530.91	154,135.88		626,716.02
Laramie	Albany County National Bank	340,469.00	35,020.85	186,645.75	139,264.06	33,054.46	84,908.96
	First National Bank	577,367.94	1,258.66	63,460.83	18,209.83		80,207.53
Lusk	Bank of Lusk	38,389.30	5,500.00	40,387.88	29,627.31	1,692.20	31,421.80
Meeteetse	First National Bank	65,669.16	1,798.15	10,700.42	17,244.66	2,530.00	327,127.84
Newcastle	Stock Growers & Merchants Bank	38,719.32		138,907.02	131,775.03	50,437.88	29,157.10
Rawlins	First National Bank	370,433.73	6,488.00	81,364.91	121,822.08	10,159.17	424,036.16
	Rawlins National Bank	310,359.03	19,645.20	154,257.47	113,530.56	22,222	332,610.74
Rock Springs	First National Bank	373,843.62	10,296.52	198,328.23	97,068.75	2,663.83	196,282.66
	Rock Springs National Bank	241,073.90		50,195.02	17,506.59	3,825.51	208,428.10
Saratoga	Saratoga State Bank	96,298.06	3,386.00	84,409.39	38,244.97		287,910.96
Sheridan	First National Bank	165,703.26	5,000.94	107,385.45	120,322.42	2,630.96	48,418.36
	Bank of Commerce	284,217.88	1,383.48	26,011.12	10,335.16	44,826.78	195,081.36
	Sheridan Banking Co.	25,749.01	6,471.61	43,489.74	76,001.08		26,309.63
	State Bank of Sheridan	205,947.87		18,299.53	25,654.42		81,525.67
Sheridan	Sheridan County Savings Bank	33,697.52		20,353.71	18,500.12	3,997.70	48,503.21
Sundance	Rogers and Bush	81,458.78	4,750.00	16,411.02	26,751.31	1,266.25	10,349.70
Thermopolis	First National Bank	55,359.75	550.00	2,905.64	6,729.19	4,000.00	64,647.85
	J. W. Martin & Co.	17,623.25	4,135.00	25,065.09	22,013.46		
Wheatland	State Bank of Wheatland	59,523.22					
Totals		\$7,358,249.85	\$197,019.71	\$9,751,164.54	\$2,109,440.93	\$22,179.04	\$7,964,814.13

Taxes and Public Indebtedness.

The wise restrictions in the State Constitution are a sure guarantee that in Wyoming taxation will never be excessive, or the public debt burdensome. It is there provided that for State revenue there shall not be levied to exceed four mills on the dollar of the assessed value of property for all State purposes, except for the payment of the public debt, with interest, and the support of State charitable and educational institutions, and not to exceed twelve mills on the dollar for all county purposes, excepting the county debt. Special school taxes may be authorized by the qualified voters of the several districts:

The State's original bonded indebtedness was \$320,000. This is being reduced as rapidly as possible under the conditions of the bonds, \$60,000 having been paid off during the last three years, leaving now a debt of only \$260,000. Each county in the State is also paying off its bonded indebtedness.

Incorporated cities and towns are limited to eight mills on the dollar, excepting for the payment of their public debt. The State debt is limited to one per cent. of the assessed valuation, while two per cent. is the limit on counties, cities and towns.

Statement Showing the Valuation of the Several Counties of the State for the Year 1903—One-fourth Actual Value.

Albany County	\$ 4,248,938.64
Big Horn	3,005,256.91
Carbon	5,534,731.53
Converse	2,642,427.76
Crook	2,171,510.48
Fremont	1,946,348.00
Johnson	1,930,851.00
Laramie	6,569,077.81
Natrona	2,192,582.82
Sheridan	3,232,615.90
Sweetwater	3,869,769.52
Uinta	5,524,344.09
Weston	1,800,778.70
Total	\$44,669,233.16

Total Property Assessed in 1903 at One-fourth Actual Value.

Railroad and car companies.....	\$ 7,718,380.79
Telegraph and telephone lines.....	290,987.85
Lands and improvements (7,135,977.17 acres)....	10,847,600.69
Town lots and improvements.....	6,611,359.50
Horses (157,809).....	1,919,995.00
Cattle (512,659).....	6,850,877.00
Mules and asses (901).....	30,517.00
Sheep and goats (2,796,226).....	5,322,075.05
Swine (3,931).....	18,833.50
Dogs (110).....	1,560.00
Clocks, watches, jewelry, gold and silver plate....	24,046.00
Musical instruments.....	93,070.00
Capital employed in manufactures and mer- chandise.....	2,436,915.75
Carriages and wagons.....	444,040.03
Moneys and credits, after deducting debts.....	812,861.00
Stocks in corporations.....	413,349.00
Farming utensils and tools.....	230,444.00
Private libraries.....	25,853.00
Household furniture (\$100 exempt).....	131,165.00
Other property not enumerated.....	445,303.00
Total.....	\$44,669,233.16

County and School District Bonded Indebtedness.

COUNTY.	Tax Levy Mills	City Bonds		County Bonds	School District Bonds
Albany.....	20.	Laramie.....	\$ 86,400.00	\$ 127,000.00	\$ 23,000.00
Big Horn.....	19.375	Cody.....	16,000.00	34,000.00	11,870.00
Carbon.....	17.375	Rawlins.....	60,000.00	129,200.00	32,200.00
Converse.....	18.	Douglas.....	17,000.00	36,900.00	12,429.50
".....		Lusk.....	4,500.00		
Crook.....	22.375	Sundance.....	14,725.00	51,500.00	1,600.00
Fremont.....	22.375			32,200.00	12,000.00
Johnson.....	23.750	Buffalo.....	45,400.00	50,800.00	11,700.00
Laramie.....	21.250	Cheyenne.....	350,500.00	400,000.00	70,050.00
Natrona.....	20.375	Casper.....	37,500.00	15,900.00	6,300.00
Sheridan.....	18.	Sheridan.....	105,900.00	21,700.00	18,110.00
Sweetwater.....	20.375	Rock Springs.....	20,000.00	76,700.00	4,700.00
Uinta.....	18.5	Evanston.....	26,000.00	99,500.00	41,400.00
Weston.....	21.625	Newcastle.....	12,000.00	33,820.00	10,300.00
Totals.....			\$795,025.00	\$1,109,220.00	\$225,659.50
Total of all bonds.....					\$2,129,904.50
Decrease since 1901.....					270,818.50

Railroads and Stage Routes.

Tourists passing through Wyoming on the transcontinental railroads see little of the agricultural portion of the State, as the railroads for the most part run on the divides between water courses, while the farming settlements and irrigated lands, as in all semi-arid regions, are in the valleys of the rivers and creeks. The Union Pacific runs across the southern portion of the State for 468.98 miles, connecting at Granger with the Oregon Short Line for Oregon and the Northern Pacific country. The Colorado and Southern has a line running from Cheyenne to Orin Junction, 153.68 miles, connecting with the Chicago and Northwestern branch running from Crawford to Casper, with a trackage of 130.43 miles in Wyoming. The Burlington Route has four branch lines entering the State—twenty-nine miles of the Cheyenne and Holdredge line; 236.59 miles of the main line from Lincoln, Neb., to Billings, Mont., running through Newcastle and Sheridan, connecting at Toluca, Mont., with the branch line to Cody, Wyo., a distance of 129 miles (44.61 in Wyoming), and by which all points in the Big Horn Basin may be reached; and 41.32 miles of the line from Alliance up the Platte River to Guernsey, Wyo. The Colorado and Wyoming ore road, 14.55 miles long, connects the Colorado Southern and Burlington roads with the iron mines at Sunrise.

There is a coal road, 6.6 miles of which is in Wyoming, from Belle Fourche to Aladdin, and another nineteen miles long from Diamondville to Spring Valley.

Stage lines cover the State thoroughly. Daily stages running from Laramie to North Park, Colorado, carry mail and passengers to points on the Big Laramie River. To reach the Encampment country the best route is from Walcott station, on the Union Pacific railroad, where all trains stop regularly. From this point stages run to Encampment via Saratoga, leaving Walcott regularly at seven o'clock in the morning daily. Extra stages in afternoon. These stages are four and six-horse Concord coaches, in charge of experienced drivers, and run through on schedule time. The distance is twenty-three miles to Saratoga and forty-three to Encampment from Walcott.

From Encampment daily stages leave for Battle, twelve miles; Rambler, fourteen miles, and Dillon, nineteen miles;

and connections are made for camps south or near the State line and Pearl, Colorado, about thirty miles.

Livery teams and saddle horses may be had here for different parts of the district not reached by stage. A line runs daily from Laramie, the county seat of Albany County, to Holmes, a distance of forty-five miles, via Centennial.

For Dillon and Rudefeha, where the Ferris-Haggarty mine is located, connections by team may also be made from Rawlins, the county seat of Carbon County, on the Union Pacific railroad, a distance of fifty-two miles, over a good road recently opened up for travel.

From Saratoga the different points in the Elk Mountain vicinity may be reached by team, and also a number of the camps on Spring Creek and Jack Creek.

Freight is brought in mainly over the Walcott-Saratoga-Encampment road and distributed to the various camps throughout the district.

A daily stage and a mail route runs from Rawlins, on the Union Pacific railroad, to Lander, 135 miles, with connections at Meyersville, ninety miles out of Rawlins, for Lewiston, Atlantic and South Pass City.

Lander, the county seat of Fremont County, may also be reached by team, and stage connections there made for Thermopolis and Cody, on the B. & M. railroad, and to Casper, 150 miles, on the Chicago and Northwestern railroad.

The best method of reaching the South Pass district for a short stay is by team from Rock Springs, as the eighty miles to South Pass may be covered in two days without material inconvenience, and good accommodations had at Washington's ranch, a half-way station.

South Pass has a good hotel, and this may readily be made headquarters while the district is being investigated.

The most direct way into the Sunlight country is from Cody, by way of Hart Mountain, Pat O'Hara Creek, Dead Indian Hill and Sunlight Creek, the road having been built up the latter creek as far as the mouth of Galena Creek. From this road trails for pack animals lead up to Sulphur Creek, up Galena Creek, and thence over and around the mountain to the mines in Hughes Basin and Silver Tip Basin, on the west side of Stinking Water Peak.

The new road just constructed by the United States Government from Cody to the National Park, and which, by the way, is one of the finest and most picturesque roads in the West, runs within twenty miles of Silver Tip Basin, with a good pack trail from the mouth of Jones Creek to the Basin. When a wagon road is built to the west side of this region,



Photo by S. N. Leek. By permission.

ELK NEAR THE TETONS.

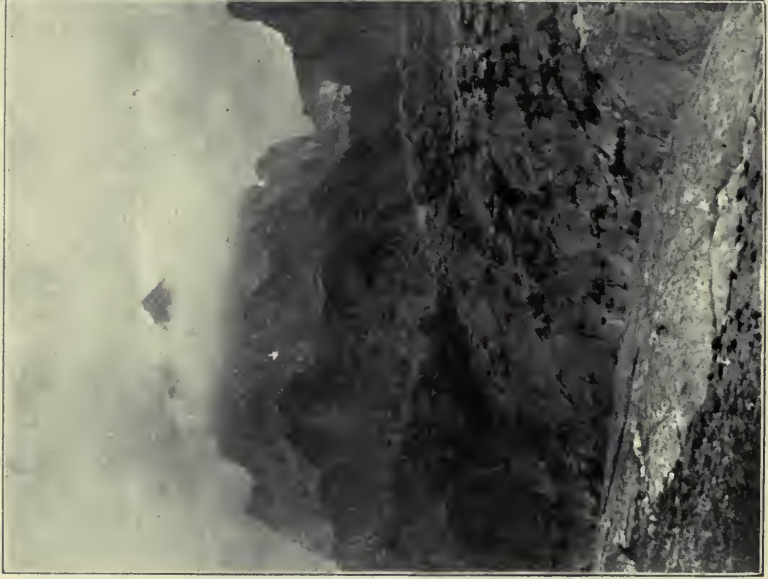
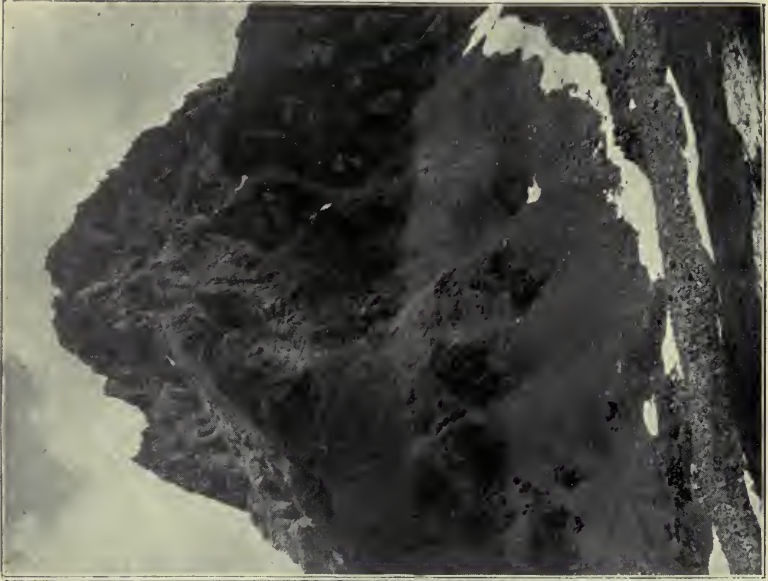


Photo by C. T. Johnston.

TWO VIEWS OF GRAND TETON, UINTA COUNTY.

this will certainly be the route selected, being the most accessible and with a practicable grade.

Other lines leave Rawlins for Dixon and Baggs and the Snake River, Colorado, country; from Casper to Central Wyoming; Clearmont to Buffalo; Moorcroft to Sundance, connecting with mail routes; from Sheridan to interior points in Sheridan and Johnson Counties; from Garland to Byron, Cowley and Lovell; from Garland to Basin; from thence to interior towns; from Cody to Meeteetse and Thermopolis; branches from Meeteetse to interior postoffices; Basin to Thermopolis, via Welling and Worland. Stage lines run from Opal to Big Piney, connecting with interior points.

Hunting and Fishing.

For many years game was killed for food purposes at all seasons and in unlimited quantity, but since 1895 stringent laws for the protection of fish and game have been enforced, and, in consequence, Wyoming now stands pre-eminent as a hunting and fishing ground.

Game fish may be caught, by means of rod, line and hook, in the Big Horn and North Platte Rivers and their tributaries during May, June, July, August and September; and from the Snake, Green and other Western streams during June, July, August and September; but no more than twenty pounds of game fish may be in the possession of any one person or party at any time. No trout or black bass less than six inches in length can be legally caught. No game fish can be offered for sale or shipped within or without the State. The State Fish Commissioner may permit seining in lakes which have been stocked with lake trout, whitefish or carp.

A bona fide citizen of the State of Wyoming may hunt, during the open season, within the limits of the county in which he is an actual resident without the payment of a gun license. Upon the payment of one dollar to any Justice of the Peace, he is entitled to a gun license, which will permit him to hunt in any county in the State. It is not necessary to have a gun license to hunt game birds. Non-resident hunters must secure a license at a cost of fifty dollars, and must be accompanied by a registered guide.

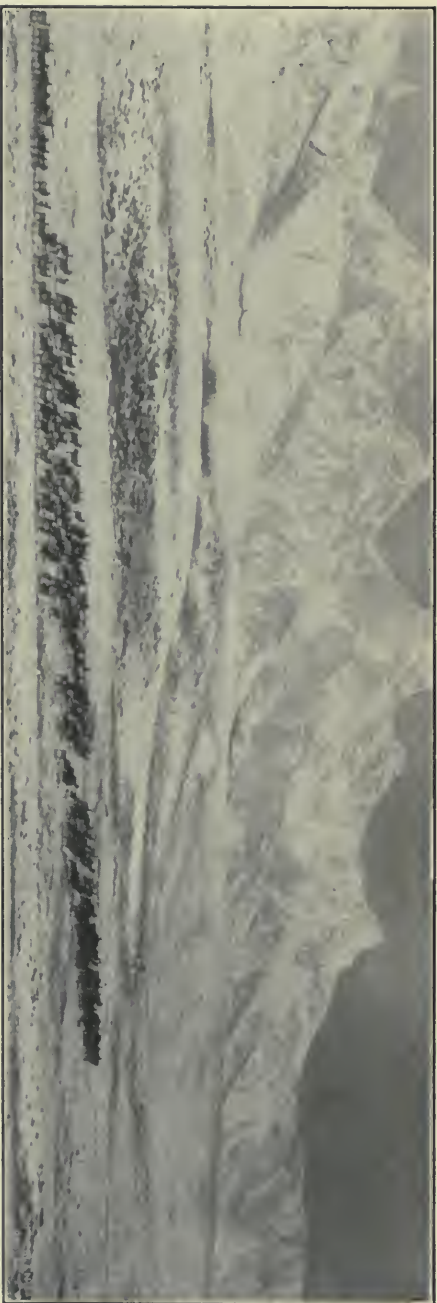
During the open season licensed parties may kill two elk, two deer, two antelope, one mountain sheep and one mountain goat, between September 15th and November 15th. The barter or sale of any part of the animals above mentioned, or the possession of more than the specified number, is prohibited, under penalty of heavy fine or imprisonment. License must be carried and shown upon request. Game killed by non-resident licensed hunters may be shipped from the State, upon a certificate from a Justice of the Peace stating that such animals were killed according to law. It is unlawful to sell any part of any wild animal, hides, horns or tusks, or to use dogs for the purpose of coursing or running the animals above mentioned. Taxidermists cannot buy hides, horns or any part of game animals or birds, but mounted birds or stuffed heads and horns of animals lawfully killed may be shipped within or without the State.

Trout fishing may now be enjoyed in every part of the State. Tourists coming West through Cheyenne and Denver will find splendid trout fishing on the Big or Little Laramie Rivers, leaving the railroad at Laramie City. A little farther west the fisherman can leave the Union Pacific train at Walcott and drive twenty-three miles to Saratoga, where he may fish in the North Platte River, running through the town, go up stream to some of the ranches which furnish fishermen with accommodations, or fish down stream, as he may prefer. Brook trout weighing five pounds and rainbow trout weighing ten pounds are caught in the Platte near Saratoga. Many hundreds of rainbow trout weighing from two to eight pounds have been caught within the city limits.

Jackson's Hole is the greatest big game hunting ground left in the world. Five thousand elk were seen there in one day last fall. Lying as it does south of the Yellowstone Park, it has been a safe retreat for large game for a number of years, and has gradually filled up with the game driven from other States. Sportsmen may leave the Union Pacific at any point in the western part of the State and outfit for the Jackson's Hole country. Parties can secure outfits at Cody and find competent guides who will take them through the beautiful scenery of the National Park, Yellowstone Forest Reserve and Jackson's Hole.

Prairie chickens may be shot from September 1st to December 1st of each year; sage chickens and grouse, from July 15th to October 15th; snipe or other wader or plover, duck, brant and geese may be shot from September 1st to May 1st.

The following is as complete a list of guides as is at present obtainable. Write them for specific information:



Photos by S. N. Leek. By permission.

ELK IN JACKSON'S HOLE.



ELK FEEDING WITH CATTLE—JACKSON'S HOLE.



Photos by S. N. Leek. By permission.

A FEW MORE ELK—JACKSON'S HOLE.

Hon. D. C. Nowlin, State Game Warden, Lander, Wyoming.

Of Jackson: G. M. Matson, Harvey K. Glidden, S. E. Osborn, J. C. Anderson, Walter Nichols, U. G. Bird, J. B. Gray, J. P. Nelson, Frank L. Peterson, Thomas Winegarden, F. S. Woods, Frank Nickell, J. A. Adams, E. B. Ferrin, S. N. Leek, O. E. Williams, Stephen F. Adams, William T. Crawford, A. J. Curver, Charles Wilson, A. N. Davis, C. J. Wort, John Cheney, Charles W. Hedrick, Clark Caswell, B. F. Blodgett, John Maynard, James S. Simpson, G. A. Wilson, William Bierer. Of Wilson: J. Van Winkle, A. Ward, J. K. Stadler, George Goodrich, U. G. Foster, J. A. Corder, C. E. Hale, John Miller. Of Elk: Frank Lovell, C. I. Sheffield. Of Alta: T. R. Wilson. Of Moran: Frank Lovell, G. H. Whiteman, Charles J. Allen, Caldez Allon, A. T. Milligan, Noble Gregory, W. E. Smith. Of Zenith: James Crane, Fred Crane, Frank P. Price, Richard Mayers, Lewis Price. Of Grovont: Albert Nelson, Frank Sebastian, James S. Simpson, T. L. Hanshaw, W. M. Biber, Hud Pormon, John Pormon, William Binkley, William Merritt, James I. May, H. H. Meanor. Of Mammoth Springs: Albert Collins. Of Bedford: Stephen Turner. Of Merna: Rudolph Rosecrans. Of Kemmerer: W. J. Madson. Of Cheney: Elias Wilson, John Wilson, S. Cheney, G. A. Wilson. Of Evanston: E. H. Horrocks. Of Fontenelle: A. P. Sommers. Of Valley: B. F. Thompson, James L. McLaughlin, Henry Smith, N. E. Brown, Jennie L. McLaughlin. Of Ishawood: S. W. Aldrich, W. H. Jordan, W. A. Kepford, G. E. Russell. Of Cody: W. P. Webster, George Sheets, S. H. Berry. Of Clark's Fork: John T. Gilbert. Of Crandall: Sanford Keple. Of Alexander: E. E. Hill, Frank Alexander, W. J. Alexander, Albert Hill. Of Cora: P. J. Buych, Charles Nettleton, I. N. Lozier, N. H. Groo, William J. Glen, P. V. Sommers. Of Kendall: M. J. Collins. Of Fort Washakie: W. C. Jackson. Of Wells: William Wells, Thomas Pixley, George Pixley. Of Rock Springs: J. M. Hodge. Of Painter: Samuel Thompson, Arthur Whitney. Of Ten Sleep: H. E. Miller. Of Byron: Dee Davis.

State Fair.

The Wyoming Industrial Association is a volunteer organization, composed of five hundred delegates appointed by the Association President from all walks of life, which, meeting each

year in a different city, holds a three days' convention. At this convention papers are read and discussions had upon all topics of industrial interest, looking to the stimulation of practical and scientific promotion of the State's development.

At the last convention, held at Sheridan, through the kindness of the railroad companies giving free transportation for exhibits, a fair was held at which a building 50x125 feet was completely filled with agricultural and mineral exhibits. A live stock exhibit was also made.

This product exhibit has now become a permanent feature with the association, and as the next place of meeting, September 20, 21 and 22, is at Casper, in the central part of the State, a splendid fair is assured.

The following pictures were taken of four of the fourteen sections of the exhibit hall, at the last convention, showing fruits, vegetables, grains and grasses:

Wyoming Wants.

In reading the history of this Northwest, viz.: De la Verendrye's Expedition in 1742; Lewis and Clark Expedition, under authority of Congress, in 1804; Washington Irving's Astoria, 1811; Captain Bonneville's Expedition, 1832, and Coutant's History of Wyoming—in all of which the territory embraced within the limits of Wyoming was the center of the scene of action—one is astonished at the terrible hardships, privations and perils undergone by brave men for the comparatively little wealth to be realized from peltries. Today, surrounded by the best civilization and without hardship, privation or peril, an unlimited and permanent wealth awaits the investor and worker in the following needs of Wyoming:

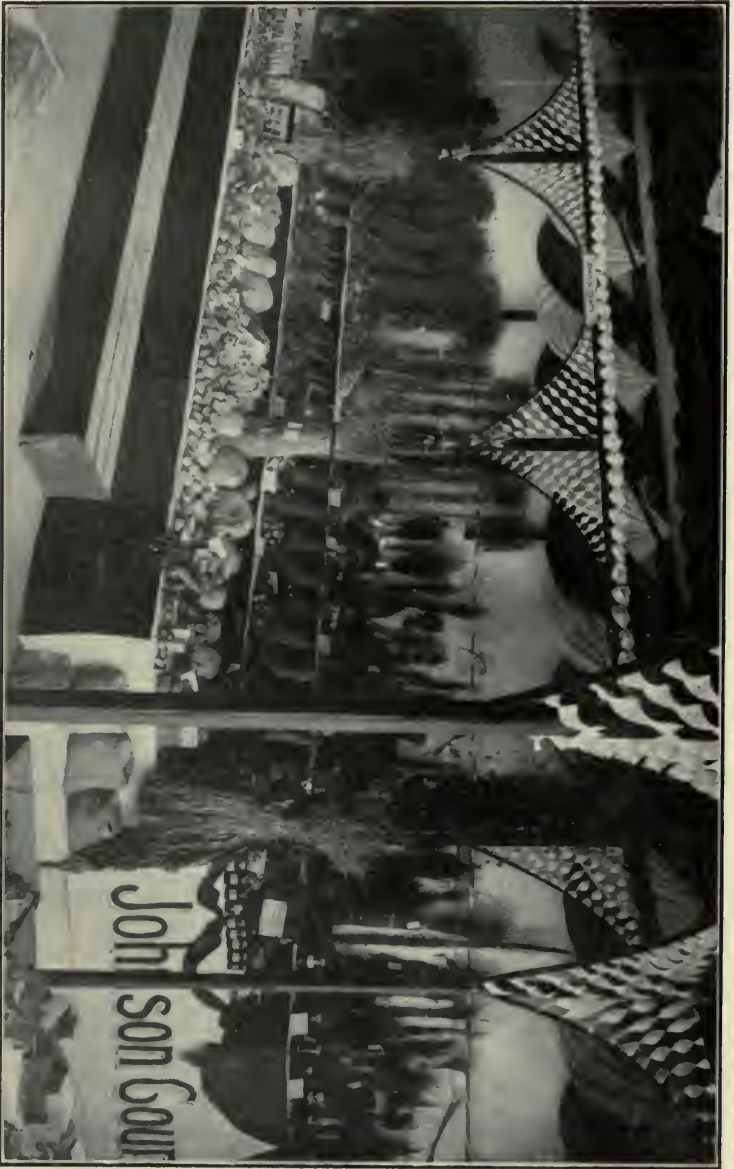
The Burlington railroad to extend from Guernsey west across the center of the State.

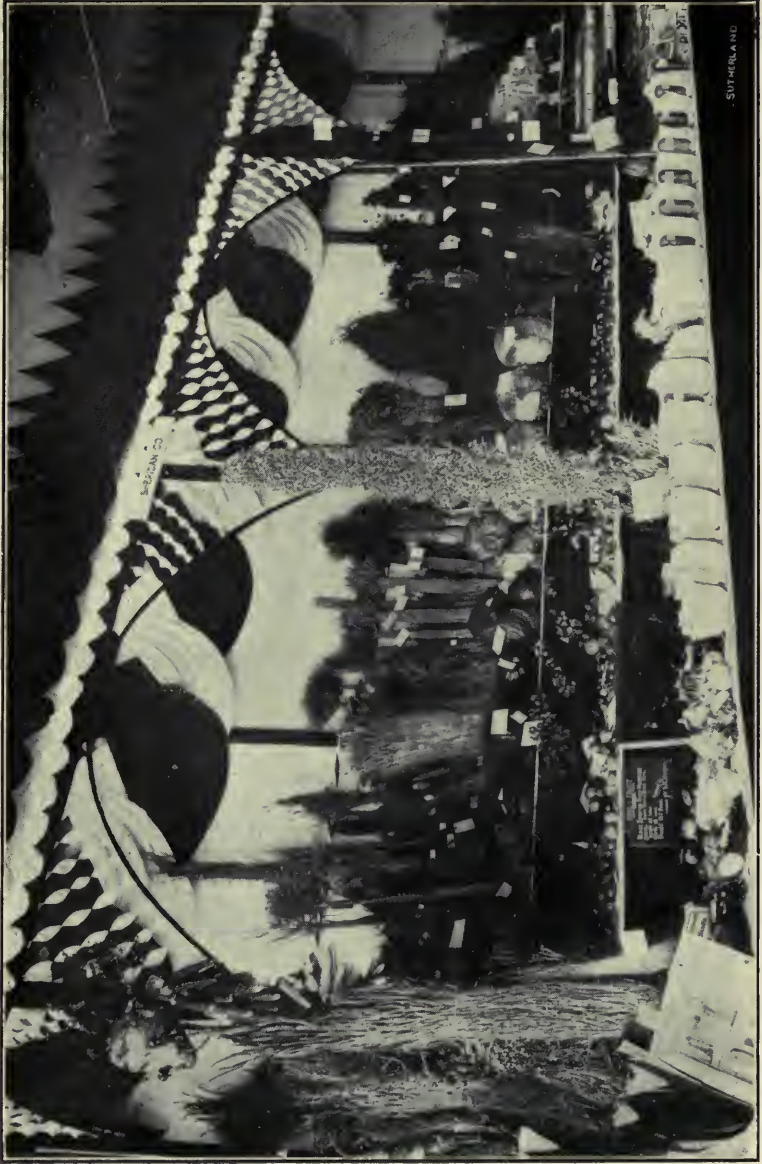
A north and south railway through the center of the State.

A number of short railway spurs or feeders to the present railway lines, for the development of mineral, oil and agricultural resources—which must otherwise remain undeveloped or unprofitable.

With the accomplishment of the above, the following wants would be speedily fulfilled:

INDUSTRIAL CONVENTION—JOHNSON COUNTY EXHIBIT.





SUTHERLAND

INDUSTRIAL CONVENTION—SHERIDAN COUNTY EXHIBIT.

Iron foundries and rolling mills. There are mountains of the finest iron ore in the world.

More coal mines. Wyoming is all underlaid with coal.

More capital invested in irrigation systems—ditches and reservoirs.

More practical irrigators.

More farmers who are not afraid to work.

More practical prospectors.

More practical mining men as investors, operators and workers.

More practical oil investors and well drillers.

Beet sugar factories.

Money to loan at six and eight per cent. on A No 1 securities.

A local trust company.

A local fire and life insurance company.

Every city in the State needs a truck garden. There are a hundred opportunities in this line to make a competency.

Five hundred chicken ranches. Eggs sell for 25 to 50 cents per dozen. Chickens sell for 50 to 80 cents each.

Woolen mills—great opportunity.

Flour mills.

Glass factory.

All "knockers" rounded up and colonized on a Pacific island.

Wyoming only needs thorough investigation by capital and workers to become the home of prosperity.



List of Postoffices in Wyoming.

Albany County.

Binford	Holmes	Mandel	Sherman
Bosler	Jelm	Marshall	Sibylee
Buford	Laramie	Moore	Springhill
Centennial	(County Seat)	Owen	Tie Siding
Dover	Little Medicine	Rockcreek	Toltec
Fishcreek	Lookout	Rock River	Woods
Garrett	McGill		

Big Horn County.

Basin	Embar	Jordan	Painter
(County Seat)	Fenton	Kane	Redbank
Bigtrails	Fourbear	Kirwin	Rome
Bonanza	Frannie	Lovell	Shell
Burlington	Garland	Marquette	Sunshine
Byron	Germania	Meeteetse	Tensleep
Clark	Hyattville	Middleton	Valley
Cloverly	Ho	No Wood	Welling
Coburn	Irma	Olwen	Winchester
Cody	Ishawood	Otto	Worland
Cowley			

Carbon County.

Arlington	Dixon	Hanna	Rockdale
Baggs	Downington	Leo	Rudefeha
Battle	Elk Mountain	Medicine Bow	Saratoga
Bennett	Elwood	Morgan	Shirley
Carbon	Encampment	Rambler	Victoria
Como	Ferris	Rawlins	Walcott
Dana	Fort Fred Steele	(County Seat)	Widdowfield
Dillon	French	Riverside	

Converse County.

Beaver	Douglas	Inez	Manville
Big Muddy	(County Seat)	Kirtlev	Northview
Boxelder	Glenrock	Labonte	Orin
Careyhurst	Hatcreek	Lusk	Ross
			Warren

Crook County.

Aladdin	Eothen	Inyankara	Morse
Alva	Farrall	Linden	Sheldon
Beulah	Felix	Manhattan	Sundance
Carlile	Gillette	Mona	(County Seat)
Croton	Hulet	Moorcroft	

Fremont County.

Arapahoe Agency	Fayette	Lost Cabin	Pinedale
Atlantic City	Fort Washakie	Lyons	Rongis
Bruce	Hailey	Milford	Saint Stephens
Burns	Kendall	Muskrat	Shoshone Agency
Circle	Lander	Myersville	South Pass City
Cora	(County Seat)	Newfork	Thermopolis
Dallas	Leckie	Olson	Union
Deranch	Lewiston	Pacific	Wells
Dubois			

Johnson County.

Barnum	Greub	Kaycee	Sussex
Buffalo	Griggs	Kearney	Trabing
(County Seat)	Hazelton	Mayoworth	

Laramie County.

Archer	Fort Russell	Iron Mountain	Pinebluffs
Arcola	Foxton	Islay	Pratt
Athol	Frederick	Junction	Raw Hide Buttes
Banks	Glendo	Lagrange	Salem
Bordeaux	Goldsmith	Lakeview	South Bend
Chevenne	Granite Canyon	Little Bear	Sunrise
(County Seat)	Grant	Little Horsecreek	Torrington
Chugwater	Grayrocks	Macfarlane	Trelona
Davisranch	Guernsey	Meadow	Underwood
Diamond	Hartville	Meriden	Uva
Egbert	Hecla	Patrick	Wheatland
Fort Laramie	Hillsdale	Phillips	Wyncote

Natrona County.

Alcova	Ervay	Independence	Splitrock
Casper	Freeland	Oilcity	Wolton
(County Seat)	Houck		

Sheridan County.

Arvada	Dietz	Ranchester	Story
Banner	Hamilton	Sheridan	Ulm
Bighorn	Monarch	(County Seat)	Verona
Clearmont	Parkman	Slack	Wolf
Dayton			

Sweetwater County.

Almond	Granger	Lucerne	Sweetwater
Bittercreek	Greenriver	Maxon	Wamsutter
Burntfork	(County Seat)	Rock Springs	Wilkins
Creston			

Uinta County.

Afton	Daniel	Grovont	Oakley
Almv	Diamondville	Halfway	Opal
Alta	Elk	Jackson	Palisade
Altamont	Evanston	Kemmerer	Piedmont
Auburn	(County Seat)	Knight	Robertson
Bedford	Fairview	Labarge	Sage
Bigpiny	Fontenelle	Lonetree	Smoot
Bondurant	Fort Bridger	Lyman	Springvalley
Border	Fossil	Mason	Stanley
Carter	Freedom	Merna	Thayne
Chenev	Frontier	Midway	Viola
Cokeville	Glencoe	Moran	Wilson
Cumberland	Grover	Mountainview	Zenith

Weston County.

Boyd	Cambria	Newcastle	Horton
Buckhorn	Hampshire	(County Seat)	Upton

National Park Reservation.

Yellowstone Park

Elevation of Cities and Mountains.

CITY.	ELEVATION IN FEET.	CITY.	ELEVATION IN FEET.
Alcova	6,000	Hanna	6,788
Atlantic City	7,850	Hyattville	4,550
Buffalo	4,600	Jackson Hole	6,820
Basin	3,700	Jackson Lake	6,800
Battle	9,866	Kirwin	9,500
Cambria	5,100	Lander	5,372
Casper	5,101	Laramie	7,153
Carbon	6,821	Lovell	3,700
Cheyenne	6,050	Lusk	5,007
Cheyenne (Capitol)	6,101	Medicine Bow	6,562
Cody	4,900	Meeteetse	5,000
Corbett	4,659	Newcastle	4,319
Douglas	4,816	Otto	4,011
Embar	5,900	Rambler	9,500
Encampment	7,322	Rawlins	6,744
Evanston	6,759	Rock Springs	6,260
Fort Laramie	4,270	Rock Creek	6,704
Fort Steele	6,505	Sherman	8,247
Fort Washakie	5,462	Sheridan	3,738
Fort Yellowstone	6,370	Saratoga	7,000
Four Bear	6,500	Sundance	4,750
Garland	4,183	Thermopolis	4,350
Glendo	4,716	Ten Sleep	4,513
Glenrock	4,900	Tie Siding	7,890
Green River	6,077	Wheatland	4,700

NAME.	MOUNTAIN RANGE.	ELEVATION IN FEET.
Big Horn		8,000 to 12,000
Bradley Peak	Seminole	9,500
Bridger Peak		11,400
Chimney Rock	Wind River	11,853
Cloud Peak	Big Horn	12,506
Mt. Doane	Yellowstone	10,118
Elk Mountain	Medicine Bow	11,511
Fremont's Peak	Wind River	13,790
Grand Encampment	Park	11,003
Grand Teton	Teton	13,800
Index Peak	Yellowstone	11,740
Laramie Peak	Laramie	11,000
Laramie Range		7,000 to 9,000
Medicine Peak	Park	12,231
Medicine Bow Range		8,000 to 12,000
Mt. Moran	Teton	12,000
Park Range, in Wyoming		11,500
Phlox Mountain	Owl Creek	9,136
Pilot Knob	Yellowstone	11,977
Quien Hornet	Uintah	9,300
Sailor Mountain		10,046
Seminole Mountains (highest)		10,500
Washakie Needles		12,252
Mt. Washburn		10,388
Yount's Peak	Yellowstone	12,250



