

Record Copy

REPORT
OF THE
STATE GEOLOGIST
WYOMING

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PROPERTY OF
STATE GEOLOGIST

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1904

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A REPORT

TO THE

GOVERNOR OF WYOMING

PROPERTY OF
STATE GEOLOGIST

BY THE

STATE GEOLOGIST

HENRY C. BEELER, E. M.
STATE GEOLOGIST
AND (EX-OFFICIO) INSPECTOR OF MINES
DECEMBER 31, 1904

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CHEYENNE, WYO.
DAILY LEADER PUBLISHING CO
1904

CHEYENNE, December 31st, 1904.

HON. FENIMORE CHATTERTON,
Acting Governor of Wyoming,
Cheyenne, Wyoming.

SIR—Complying with the provisions of Section 7, Chapter 45, Session Laws of Wyoming, 1901, I have the honor to hand you herewith a report of all examinations and reports made by this office during the years 1903 and 1904, together with a statement of all fees received for such reports and examinations. I also include a general statement of the work carried on by this office, a brief review of the present mining and allied interests of the State and such recommendations for the improvement of these conditions as have been brought to my attention, and which I trust will receive your consideration.

Very respectfully,

HENRY C. BEELER,
State Geologist.

REPORT OF THE STATE GEOLOGIST 1903-1904

The work of this office for the past two years has shown a gratifying increase in all branches and has demonstrated beyond a doubt the wisdom of its establishment in 1901, as a factor in the upbuilding of the industrial prosperity of the State.

Mining in Wyoming has made steady progress during the past few years, and none has been more marked than that of the period above stated. Prospecting has been general throughout the mineral localities of the State and the prospects of a year or so ago have been developed to the extent of their owners' means, in many cases showing a gratifying result, but in other instances the means on hand have been inadequate and work was compelled to cease for a time until more capital was secured. In this latter case this office has often been called upon for aid and in many cases has been the means of causing the work to be resumed. In other cases the property was found to warrant more development but the parties failed to arrange terms to suit all interested. Circumstances of this nature have tied up a number of promising properties in this State, and the slump in industrial stocks generally throughout the country has of course affected the development of new prospects in Wyoming, but these conditions appear to be changing and it is only a question of a little more time until the work of the past few years begins to show a profitable and productive condition that will be of immense value to the whole State.

The whole aim and object of the law under which this office works is to provide means for interesting capital in the undeveloped mineral resources of the State and to aid in the legitimate

development of the mines and allied industries of Wyoming, and no effort has been spared to carry out the letter and intent of this law.

REPORTS BY THE GEOLOGIST

Applications have been received and reports made upon thirty-two properties, situated in six counties of the State and representing a variety of geological conditions and ore occurrence, the fees amounting to \$1,050.00.

Compared with 1901-1902 this work is as follows:

	1901-2	1903-4
Albany County	4	4
Big Horn County	1	
Carbon County	14	9
Converse County.....		10
Fremont County		1
Johnson County		3
Laramie County	3	5
Totals.....	22	32
Fees received	\$700	\$1,050

The following is a detailed statement of this work, giving a brief description of each report and fees received in each case.

STATEMENT OF REPORTS MADE AND FEES RECEIVED,
1903 and 1904

No.	DATE	DESCRIPTION	FEE
23.	May 9, 1903.	For the Spring Hill Mining Company, Douglas, Wyo. A brief report on the showings of the Tenderfoot group, north of Laramie Peak in northern Albany Co.....	\$ 25.00
24.	May 9, 1903.	For the French Joe Mining Co., Douglas, Wyo. A brief report on surface showings of the French Joe group in French Joe Park on West LaBonte Creek, Converse County.....	25.00
25.	May 9, 1903.	For A. D. Lee et al., Douglas, Wyo. Report on the Trail Creek group north of Laramie Peak in southern Converse Co...	25.00
		Amount of fees forward.....	\$ 75.00

	Amount forward	\$ 75.00
26.	May 9, 1903. For Worrell & Allen, Lincoln, Neb. Report on the surface showings and workings of the Horace Greeley group, near the head of branch of LaPrele Creek, Converse County.....	25.00
27.	May 27, 1903. For Gibraltar Copper Mining Co., Encampment, Wyo. Report on the showings made on the Gibraltar group, near Big Creek in the southern part of Carbon County.....	25.00
28.	May 28, 1903. For the King Mining Co., Riverside, Wyo. A report on the showings made in the tunnel and other features of the King-of-the-Camp group on the south fork of the Grand Encampment River in southern Carbon County.....	50.00
29.	May 9, 1903. For George Nagle, Cheyenne, Wyo. A brief report on the surface showings, conditions of formation, etc., on coal lands at Inez Station, C. & N. W. R. R., Converse County.....	25.00
30.	June 11, 1903. For the Lucky Gus Mining Co., Wheatland, Wyo. Report on showings made and development to be done on the Lucky Gus group, twelve miles west of Wheatland, Laramie County.....	25.00
31.	June 13, 1903. For La Prele Oil Co., Cheyenne, Wyo. A brief preliminary report on the surface and formation conditions noted on oil lands held by this company in the Brenning Basin on LaPrele Creek, Converse County.....	25.00
32.	June 13, 1903. For Moses Bijur, New York, N. Y. A brief report on coal lands held by La Prele Oil Co. near Inez Station, C. & N. W. R. R., Converse County.....	25.00
33.	Mar. 21, 1903. For Moses Bijur et al., New York, N. Y. A brief report upon the formations and conditions noted at Sparks Butte, near Douglas, Converse County.....	25.00
34.	July 30, 1903. For I. M. Conness, Saratoga, Wyo. A general report on the Cumberland group on Coad Mountain, east of Saratoga, Carbon County.....	100.00
	Amount of fees forward.....	\$ 400.00

	Amount forward	\$ 400.00
35.	Aug. 3, 1903. For Eagle Mountain Mining Co., Cheyenne, Wyo. A brief surface report on the Eagle Mountain group, near Hecla P. O. Laramie County.....	25.00
36.	Sept. 30, 1903. For Anthony Barker, Philadelphia, Pa. Brief report on the Raven group on Iron Creek, twenty-five miles east of Encampment, Carbon County.	25.00
37.	Sept. 30, 1903. For the Fremont Copper Co., Fremont, Neb. A general report on the showings made on the Fremont group, on Dunkard Creek, near Encampment, Carbon County.	50.00
38.	Oct. 22, 1903. For Dudley N. Hale, Basin, Wyo. A general report on the surface showings and method of development on the Fremont group, on Copper Mountain, twenty-eight miles southeast of Thermopolis, in Fremont County.....	25.00
39.	Nov. 30, 1903. For the New Lincoln Copper Co., Chicago, Ills. A brief report on the showings made on the Skylark group, near Holmes, Albany County.....	25.00
40.	Jan. 10, 1904. For O. E. Tisch et al., Wheatland, Wyo. A brief report on the Independence group on Slate Creek, twenty-two miles west of Wheatland, Laramie County.....	25.00
41.	Feb. 16, 1904. For the Great Standard Copper Mining Co., Boston, Mass. A report on surface showings on the Great Standard group, near Granite Cañon Station, U. P. R. R., Laramie County.....	25.00
42.	Mar. 10, 1904. For the King Mining Company, Fremont, Neb. A report on the physical conditions noted in the King Tunnel on the King-of-the-Camp group, on the south fork of the Grand Encampment River, in southern Carbon County.....	100.00
43.	Mar. 21, 1904. For Benton & Richie, Holmes, Wyo. Brief report on the showings made on the Maudem group on Lake Creek, Albany County.	50.00
	Amount of fees forward	\$ 750.00

	Fees forward	\$ 750.00
44.	May 21, 1904. For A. D. Lee et al., Douglas, Wyo. A brief report on the surface and formation conditions noted at the Maggie Murphy group north of Laramie Peak, Albany County.	25.00
45.	May 31, 1904. For the Hoosier Boy Copper Co., Lincoln, Neb. A brief report on the surface and formation conditions noted on the Hoosier Boy group, about thirty miles southwest of Douglas, Converse County.....	25.00
46.	June 1, 1904. For the Oriole Copper Mining Company, Douglas, Wyo. A report on the showings made in the Oriole Mine, on La Prele Creek, Converse County.....	50.00
47.	July 15, 1904. For the Jupiter Mining Company. A brief report on the surface and formation conditions noted on the Jupiter group, near Holmes, Albany County.	25.00
48.	July 15, 1904. For the Buckeye Mining Enterprise Company, Lorain, Ohio. A brief report on the Lorain group on French Creek, Carbon County.....	25.00
49.	Aug. 13, 1904. For the Echo Copper Mining & Milling Co., Chicago, Ills. A brief report on the formation and surface conditions noted on the Echo group, near Dillon, Carbon County.	25.00
50.	Oct. 11, 1904. For the Island City Copper Mining Company, Eaton Rapids, Michigan. A brief report on the showings at the Creede group near Dillon, Carbon County.....	25.00
51.	Oct. 29, 1904. For Roe Brothers, Buffalo, Wyo. A brief report on the surface and prospect conditions on the Roe Bros. group, seventeen miles from Buffalo, Johnson County. . .	25.00
52.	Oct. 29, 1904. For the Bull Camp Mining Company, Buffalo, Wyo. A brief general report on the showings and general conditions noted at the Bull Camp group, seven miles south of Hazelton, Johnson County.	25.00
	Amount of fees forward	\$1,000.00

	Fees forward	\$1,000.00
53.	Oct. 29, 1904. For F. A. Sparhawk et al., Buffalo, Wyo. A brief report on the surface showings and conditions noted at the Top Hand group, eight miles south of Hazelton, Johnson County.....	25.00
54.	Dec. 31, 1904. For the Maverick Copper Company, Douglas, Wyo. A brief report on the surface showings and work done, and recommending future work on the Maverick group, in northwestern Laramie County, near Laramie Peak	25.00
	Total Fees... ..	\$1,050.00

These fees have been collected and covered into the State Treasury as provided in Section 5, Chapter 45, Session Laws of 1901, the usual receipts taken and duplicates filed with the State Auditor.

PRESENT CONDITION OF THESE PROPERTIES

Of the thirty-two reports made as above stated, twenty-eight were lode claims, twenty-two of which were prospects and six were in the mine class under the law; the remaining four reports were on coal and oil lands, two in each class; no development had been done on either of the lands examined, and as these reports were largely in the nature of advice to owners how to proceed with prospecting, rather than a report on showings actually made, were therefore put in the prospect class.

Of these twenty-eight properties, twenty are working or preparing to start permanent work, three are not working, and five were prospects on which a report was required for the owners' and others' information.

It may be here stated that as these reports deal largely with surface or shallow working conditions, the time has not been sufficiently long to admit of the development outlined being carried out in detail and not sufficiently opened up to show ore reserves or to be steady producers.

CONTINGENT EXPENSES

The sum of \$2,000.00 was appropriated for the contingent expenses of this office for 1903 and 1904 (under the usual re-

strictions) and while this sum has been made to cover the actual work of the office, no regular geological field work could be attempted. Some necessary furniture was purchased and printing done as hereinafter explained.

STATEMENT OF EXPENDITURES TO JANUARY 1, 1905

	ESTIMATE FOR TWO YEARS	EXPENDITURES JAN. 1, 1905
Traveling Expenses.....	\$ 700.00	\$ 571.65
Board while Traveling	300.00	195.90
Stenographer and Typewriting...	300.00	247.00
Postage and Telegraphing.....	100.00	165.80
Records, Stationery and Printing	400.00	369.52
Office Furniture	150.00	120.50
Miscellaneous.....	50.00	74.30
Amount of Appropriation.....	\$2,000.00	Total \$1,744.67
Expended to January 1, 1905	1,744.67	
Balance on January 1, 1905.....	\$ 255.33	(one-eighth of appropriation as required).

The above statement shows the expenses during the time given and the expenditure of the balance will bring up the figures to about the amount of the original estimates given.

The following is a statement of the needs of the office for the coming two years:

ESTIMATE OF CONTINGENT EXPENSES, 1905-1906

Traveling Expenses	\$ 600.00
Board while Traveling.....	275.00
Stenographer and Typewriting	500.00
Postage, Telegraphing, etc.....	150.00
Records, Stationery and Printing.....	300.00
Office Furniture	75.00
Miscellaneous Expenses .	100.00
Total amount asked for	\$2,000.00

Of the above amount asked for, the larger portion is needed for necessary traveling expense, record and mail work. A desk and additional files are needed in the office.

There is a supply of blanks, mine signals, index material, etc., on hand which need not be duplicated this year, and small

pamphlets need not be issued during 1905 (unless to cover some new district) if the new report pamphlet is authorized.

A new edition of the Mining Laws, which met with such favorable reception in 1903 and is now out of print, should be issued, brought up to date and made to cover all the phases of securing and holding mineral lands in this State.

For the season of 1906 a few small pamphlets will be needed, as a year's development changes the aspect of a pushing mining district and a concise up-to-date pamphlet is the best means of advertising our resources, as shown by the work of the past two years.

The sum of \$500.00 is asked for office help when necessary, in order that correspondence may be promptly handled and reports sent out, and this will be especially necessary if the registration of working mines is authorized, as hereinafter requested.

In the State Auditor's report the sum of \$3,000.00 is asked for by this office. This was intended to include the above expenses and new report, but since submitting this estimate, the scope of this latter work has grown fifty per cent. and the sum of \$1,500.00 for this report is asked, making a total of \$3,500.

WORK AS INSPECTOR OF MINES

The Seventh State Legislature passed a law making the State Geologist ex officio Inspector of Mines, giving him police authority to enter mines and metallurgical works, providing for the establishment of a code of signals for metal mines and otherwise protecting the miners.

This work has been carried on in connection with the other work of the office, formal inspections made where necessary and suggestions made to the management tending to make more safe the various working places of the mines, which have been carried out in every instance.

Accidents serious enough to be reported to this office, as provided by this law, have happily been few in number, only five of which were fatal, twelve cases in all being reported, as follows:

1. Leo Sauter, at Esterbrook Mine, Albany County, March 13, 1903. Premature blast; not seriously hurt.

2. Elton Mansfield, at Rising Sun Mine, Jelm, Albany County, March 16, 1903. Cave-in of open cut; not seriously hurt.
3. John Mitchell, Copper Bar Mine, Dillon, Carbon County, March 6, 1903. Picking out a missed shot; no serious injury.
4. D. D. Wolf, Dexter Tunnel, Atlantic, Fremont County, April 22, 1903. Leg broken while working on pump house.
5. Henry Brown, Louise Mine, Hecla, Laramie County, August 14, 1903. Killed by fall from ladder. In this case neglect by contractor was charged, but investigation failed to sustain the charges.
6. Eli Munden, Maggie Mine, Encampment, Carbon County, August 29, 1903. Killed by fall of a bucket in a prospect hole, caused by defective chain. Munden was working in his own property at the time of accident.
7. George Guard, Haggarty Mine, Rudefeha, Carbon County, June 23, 1904. Struck by machine, knocked down by a falling slab. Injury caused paralysis and death resulted later.
8. Clinton Morgan, Haggarty Mine, Rudefeha, Carbon County, June 23, 1904. Struck by slab that caused injury as above to George Guard. This slab fell without warning after the place had been tested and appeared safe. It is likely that the jarring caused by running the machine loosened the slab and caused its fall. Timbering in this mine substantially done and no blame attached. Extent of injury, fatal.
9. Otis Kelley, Doane-Rambler Mine, Rambler, Carbon County, July 12, 1904. Powder explosion at mouth of tunnel, caused by setting fire to powder in car while intoxicated by whiskey smuggled into the mine. Not serious.
10. John Johnson, Albany Mine, Holmes, Albany County, August 18, 1904. Killed by premature blast that exploded as cage passed the level, knocking Johnson to bottom of shaft with above result. Coroner's jury returned no blame attached.
11. Alfred Tambllyn, Norvell Tunnel, Encampment, Carbon County, September 5, 1904. Stayed too long after lighting shots in tunnel and explosion shattered right arm.
12. J. M. Hennesy, Doane Rambler Mine, Rambler, Carbon County, Nov. 18, 1904. Fell from bulkhead to bottom of shaft, distance eight feet; broke both bones of right arm.

The conditions attending these accidents were looked into in each case, but no culpable negligence on the part of employers has developed and the companies in each case have done all that was possible for the relief of the injured men, who have all recovered, except in the five cases above noted.

At the request of a number of miners and mine owners, I recommend that at the next session of the Legislature it be made a felony in this State to carry intoxicating liquor into a mine or to use the same while working underground or about the mine works where the lives of the miners or others are endangered, as in the case of accident No. 9 at the Doane-Rambler Mine, where, in spite of precautions by the management, the liquor was smuggled into the mine (where the remainder was found after the explosion) by the top man, and it was only a lucky circumstance that saved the other miners from the results of this one man's negligence and appetite.

The code of signals established for this State has been printed on cloth, sent to all mines in this State using hoisting machinery and posted at the hoist, shaft and various levels as required.

The law regulating the use and sale of high explosives has been put into effect without friction, has met with the approval and co-operation of the mining men and dealers, and only dated fresh powder is now on sale in this State.

It has been the aim as Inspector of Mines to aid and assist the various companies in their operations and to protect the miner in his work, and this effort has been cordially seconded in every camp in the State.

PUBLICATIONS ISSUED DURING 1903 AND 1904

During the past two years six publications have been issued by this office, as follows:

"Mining Laws of Wyoming and the United States and regulations thereunder," April 15, 1903; 104 pages; 700 copies.

"A Brief Review of the South Pass Gold District, Fremont County, Wyoming," July 15, 1903; twelve pages; 300 copies.

"Mining in the Grand Encampment Copper District, Carbon and Albany Counties, Wyoming," August 10, 1903; twenty-six pages; 1,000 copies.

"Wyoming Mines and Minerals, 1904" (at request of Wyoming Commission, Louisiana Purchase Exposition) Feb. 1, 1904; fifteen pages; 7,500 copies.

"The North Laramie Peak Copper District in Converse, Albany and Laramie Counties, Wyoming," July 1, 1904; sixteen pages; 2,000 copies.

"A Brief Review of the South Pass Gold District, Fremont County, Wyoming," 2nd edition, July 15, 1904; sixteen pages; 1,000 copies.

Making a total pamphlet circulation of 12,500 copies by this office in the past two years.

Of this number, 5,500 were circulated directly by the Geologist, and printed at a total cost to the State of \$241.30. The remaining 7,000 were printed by the Wyoming Commission, Louisiana Purchase Exposition, and distributed by them at the World's Fair at St. Louis.

In addition to the above, numerous articles on the mining and allied industries of the State have been written and published in the papers of the State and various prominent mining and investment journals, and thus received a large circulation; material was also written and compiled, at the request of the Secretary of State, for the "State of Wyoming" pamphlet, 1904.

Circulars of instruction and suggestion were also drawn up for the Industrial Conventions at Sheridan and Casper, to cover the minerals of the State as completely as possible and aid in their advertisement.

By these means it has been possible to advertise the State in a more thorough and systematic manner than heretofore and to greatly enlarge the field covered by the State publications, as these pamphlets have been placed in the various libraries, industrial exchanges and technical societies of the United States and many in Europe, where they are noted, as shown by inquiries received at this office and elsewhere.

In all these works the aim has been to present the exact truth as briefly as possible and to make no statement that cannot be verified on the ground.

It is believed that this work has been an important factor in attracting capital to the mines and other industries of the State, as shown by inquiries and requests for these pamphlets

from those interested, both investors and operators, and that the money thus expended has been returned to the State's revenues, many times over.

PUBLICATION OF GEOLOGIST'S REPORT

In view of the results attained by the pamphlets issued in the past two years, I would strongly recommend that the Eighth State Legislature provide for the publication of a report by the Geologist, covering the mining and allied mineral industries of the State, their situation, present condition and possibilities in a thorough and practical manner; to contain half-tones and views of the most prominent and interesting works throughout the State, authentic analyses and statistics vital to the economical development of these industries on a productive basis.

This report should be devoted to the business side of mining rather than to technical descriptions of the general geology of the State, which latter can only be properly taken up with extensive equipment and a large fund.

There is a great deal of valuable information and data regarding these subjects now in private hands which has been secured for publication, which can only be used in a report by this office and would otherwise be lost to the public if not preserved in a permanent official form in the near future.

A greater part of this data is the result of persistent investigation by private enterprise in the various lines represented and embraces a variety of products in the oils, clay, coal and other raw materials, and which has never heretofore been published. In this or other matter used in this manner, full credit will be given the investigators or publication from which it is secured, as it is not the intention of the Geologist to claim this as original work but simply to act as compiler of such information, in connection with the results of the field work actually done during the past four years.

This latter part of the proposed pamphlet would consist of a concise description of the natural divisions of the State, prominent features and characteristics of each, both topographical and geological, in order to afford a practical idea of the conditions to be encountered. A brief description of the prominent

mineral-producing localities, mining districts and salient features of the most prominent properties of each should also be included, with views of the best and most interesting works.

These views and illustrations will, in many cases, be furnished by the owners of the various properties, who have always shown a keen interest in the publications of this office, and the mining men of the State would co-operate most heartily in presenting the facts of the mineral industry of the State in a concise and reliable manner.

It is estimated that this material would make a pamphlet similar in size to the "State of Wyoming" pamphlet of 1904, and would contain thirty-five or forty cuts and illustrations. An edition of 3,000 would permit an adequate circulation and cost about \$1,500.00.

It will be possible to put this pamphlet in the hands of the public about the first of May or June, 1905, in order that the matter contained may be used in next season's development work and the full benefit of the investment derived at once by the State.

TO REGISTER WORKING MINES

The greater part of the development of mining property in this State is being done by companies organized for this purpose under the laws of Wyoming, the majority of which are making every effort to push the development of their properties in a legitimate manner.

Numerous inquiries have been and are received at this office from persons either at present interested or about to become interested in these projects, regarding the actual existence, holdings, officers, etc., of such companies operating in this State, which at present this office has no adequate means of answering.

Blanks have been sent out from time to time to these mining companies and others as provided, who, as a rule, have responded promptly in furnishing any desired information. Received in this manner, however, the information is vague and often perfunctory.

I would especially recommend that the Eighth Legislature authorize this office by law to establish an Official Bureau of

Mining Statistics where any information relating to the mining industry of the State may be collected and filed for reference and distribution as hereinafter provided.

FORM OF STATEMENT PROPOSED

To this end it is suggested that each company be given the opportunity to file with the State Geologist, upon suitable blanks to be furnished by this office, a *sworn* statement properly attested by its officers, giving:

- The name of the company and object of the same.
- Postoffice address of office and mine.
- Names and addresses of officers of company.
- Location of property, and title.
- Description of property, number of claims, acreage, etc.
- Number of shares of stock and par value.
- Number of shares of treasury stock.
- Number of shares of stock sold to date.
- Amount received from sale of above stock.
- Amount expended for development work.
- Amount expended for office work, supplies and machinery.
- Total amount of work done on property.
- Extent of workings, size of vein, etc.
- Estimate of ore in sight.
- Estimate of work proposed for the coming year.
- Statement of shipments made and value of same.
- Number of men employed and length of time work was carried on.
- General statement regarding the property, giving amount, kind and condition of machinery, etc.
- Other resources of the company.

These statements to be filed in duplicate once each year and a properly certified duplicate returned to each company making the filing, to be retained in their office or published as they might see fit; and it is certain that these would nearly all be published.

FEEES FOR FILING STATEMENTS

For the receiving and filing of this yearly statement, the State Geologist should be authorized to charge the sum of one dollar and should be further authorized to furnish a properly certified copy of any statement so filed, to any person desiring

the same, upon the payment of the sum of one dollar for each copy so furnished; these fees to be covered into the State Treasury as provided for the other fees of the office.

EXTENT OF SYSTEM

The system thus inaugurated would naturally admit of expansion on lines of further usefulness to include the stone, clay, oil, coal and other industries of the State, whose statements should show certified analyses of their various products, and would furnish accurate data upon which to base reliable statistics for the future great mineral industry of Wyoming.

BENEFITS OF SYSTEM

Certainly many of the companies now operating under the laws of Wyoming are steadily working for the legitimate development of their properties and it is believed this proposed method of registration will be a material benefit to all such companies, by enabling them to make an authoritative statement of their work and status.

It is believed, from consultation with practical and experienced mining men, that these legitimate companies would readily avail themselves of this opportunity to make such a statement, and the information so gained, being given under oath, would be reliable and have a tendency to curtail extravagant statements in a prospectus; also intending investors, especially those investing small amounts, would be enabled to secure for a small fee an authoritative statement of the existing condition of the property in question, not as a report on the property but as a safeguard for both the investors and owners of the property against the numerous frauds and swindles known to exist in the mining business.

It is quite evident that none of the latter class of enterprises would care to avail themselves of the publicity necessarily connected with these matters of record, and it would only be a short time until the necessity of a reputable company being so registered would be generally recognized.

As far as possible this office would seek to verify the statements made by the different companies filing statements, both from the data already collected and knowledge of the mines of

the State, as well as by further investigations as opportunity might be afforded, and any misstatement discovered would be promptly made known to the companies and investors, and an opportunity given the company to correct its error before the facts were made public.

As the statements given out would be verbatim copies of the statements filed by the companies and simply certified to as being correct copies of the same, no liability will attach to the State from the filing of these statements, it being the intent of this system to merely register the working mines and mineral projects of the State in order that reliable information may be had and circulated regarding their progress and condition, and not to guarantee their value or to recommend the stocks in any way.

Under the laws of the State, the filing of this statement, or any portion thereof, by any company would be purely optional and need not interfere in any way with the requirements of any of the incorporation laws and precedents.

It is considered that this system would be the means of advertising the mineral and other wealth of the State in a solid and substantial manner, that it would attract capital to the legitimate enterprises of the State and add materially to the revenues of this office as well as increase its field of usefulness and efficiency, and would be the means of assisting many small owners in the development of their properties. Many of these small owners are without the funds to apply for a formal examination and by extending this system to include properties not yet incorporated, but held by individuals, these owners would be enabled to first interest intending investors and later apply for a formal report upon their properties.

The business of mining in Wyoming is yet in its infancy and there are numbers of companies yet to be organized and thousands of dollars yet to be invested in mines by those who cannot personally investigate these points, whose small individual investment may not warrant an engineer's report upon the property, but who would be glad to avail themselves of this opportunity to learn the facts of the case.

Hundreds of letters are received every year by the banks and business men of the State inquiring about Wyoming enter-

prises, many of which are unknown to them; but with this system established and properly advertised, the information could be promptly and correctly furnished and the general business wealth of the State increased.

It would bring the monied investor to the moneyless prospector, and that is what we need in Wyoming.

PRODUCTIONS—1904

The year 1904 has witnessed a marked improvement over the results obtained in the work of 1903, the principal improvement being noted in the copper mining regions, and more copper was produced than in any previous year.

The total copper production of Wyoming from the earliest record to December 31st, 1904, is as follows, the prices given being the average price of copper for the year:

YEAR	NUMBER OF POUNDS	PRICE PER POUND	VALUE
1882	75,000	17.1 cents	\$ 12,757.50
1883	962,468	13.7 cents	131,858.11
1884	No record		
1885	No record		
1886	No record		
1887	No record		
1888	232,819	15.9 cents	36,017.32
1889	100,000	12.00 cents	12,000.00
1890	No record		
1891	No record		
1892	No record		
1893	No record		
1894	No record		
1895	6,872	10.11 cents	694.07
1896	No record		
1897	127,471	11.10 cents	14,149.28
1898	233,044	12.00 cents	27,965.28
1899	3,104,827	17.10 cents	530,925.39
1900	4,206,776	16.25 cents	683,601.50
1901	914,412	16.11 cents	140,909.82
1902	75,297	11.62 cents	8,749.51
1903	947,106	13.42 cents	127,101.62
1904	4,220,000	12.831 cents	541,046.20
Total	15,206,092		\$2,267,775.60

It will be noted that the year 1900 shows a greater copper value with a less production in pounds, due to the marked difference in the price of copper for that year and that of 1904. In 1900 three properties were shipping from the Grand Encampment District, namely, the Ferris-Haggarty, the Doane-Rambler and the New Rambler mines, which had just been opened up and were shipping high grade ores only.

At that time there was not a smelter or reduction works in the State and the only benefit derived by the State from these shipments was the necessary freight charges on the ore from the mine to the railroad, but in the past year the copper produced was literally produced in Wyoming, being both mined and smelted here, and the State derived the benefit from the wages paid for the whole process as well as that of the freighting in of the coke from the railroad and of the copper bars out to the railroad, in addition to the benefit accruing from the operation of the tramway from the mine to the smelter in the case of the Encampment works.

Local treatment has been demonstrated to be the most profitable method for handling these ores and several works are now projected for the coming year which will add materially to the production of copper for the future.

The gold production is low, being \$42,000.00 for 1904 according to the best advices procurable. Silver is likewise small, being about 10,500 ounces; and no lead is reported.

The year's output of iron is estimated at 250,000 tons, that of 1903 being 214,880 tons and the past year more active.

No oil was produced commercially during 1904, the work in this line being confined to drilling and equipment.

The State Coal Mine Inspectors give the coal production as follows:

	TONS COAL MINED	MEN EMPLOYED
District No. 1.....	3,956,586	7,857
District No. 2.....	1,040,242	1,320
Total Production, 1904....	4,996,828	9,177
Increase over 1903.....	393,899	3,454

The total production from 1868 to date is 59,086,367 tons.

A BRIEF REVIEW OF WYOMING MINING

The following is a brief statement of the conditions noted in each of the counties of the State without any attempt to discuss the geological features or formations. For this matter, all are referred to the special publications of this office, or those of the United States Geological Survey, Washington, D. C., which bear upon these subjects.

ALBANY COUNTY

Mining in this County is practically confined to the southwest and northeast corners of the County, the former comprising the eastern slope of the Snowy Range and Medicine Bow Mountains and Jelm Mountain near the Colorado-Wyoming line.

Gold was sought years ago in these ranges, but with varying success, though considerable placering was done in Lincoln Gulch and on Douglas and adjacent creeks, but it was not until the New Rambler Mine was opened in 1900 that mining became active and has so continued.

The Rambler Mine is a series of ore bodies in fissures in the dioritic-granite and displays all the characteristic oxidized iron and copper ores and conditions, passing into sulphides with depth, but the ore for which this mine is noted is Covellite or indigo copper, a beautiful blue sulphide of copper which is here found in great quantities, as well as a number of remarkable forms of copper ores. These ores have also been found to contain platinum, usually in the Covellite, running as high as 1.4 oz. per ton of ore. Palladium has also been noted.

A complete mechanical plant has been installed here with a small matte smelter, which was opened during 1902-3, and the total production is given at 981,836 pounds of copper; value \$113,797.41.

Recently a similar ore has been found adjacent to the Rambler property, but has not been fully opened up.

West of the Rambler is the Blanche property, which has installed a mechanical plant, and the Blanche Mining Company is sinking a shaft for the Rambler ore shoots, which have not yet been traced beyond the Rambler groups.

East of the Rambler the American Company has been sinking a development shaft on the Albany group of claims, and has reached a depth of 300 feet, with considerable drifting at various levels, following a low grade ore shoot.

Near by is the Cuprite claim of the Medicine Bow Mines Company of Laramie, where a tunnel now in 825 feet is being run to cut the showings made in the Cuprite shaft as well as a number of adjacent leads.

On Lake Creek are the Maudem and Ottumwa properties, where tunnels are being driven to cut leads exposed on surface, and have good showings.

The Florence and Keystone mines were reopened this summer and some good showings made in gold ores. The Oakes, Mount Rose and Douglas are also busy.

The Wyoming Queen at Jelm and properties at Centennial have made good progress during the year.

The Strong Mine northeast of Laramie has developed steadily all the year; a shaft house and hoist have been erected and the development work in the main shafts and drifts on the ore has shown up a remarkable body of concentrating ore, which is still being further opened up and gives promise of being a valuable producing property.

In the northeastern corner of the County there is a promising camp north of Laramie Peak in the North Laramie Hills. Here the principal property in this County is the Esterbrook, which has this season erected a new shaft house and mechanical plant, new buildings, etc., and is in shape to continue sinking on the vein, which is now being done steadily and with gratifying results.

South of the Esterbrook is the Three Cripples, where a shaft is being sunk on a promising lead which shows material improvement with the depth attained. The Maggie Murphy, further south, is a work on a similar dyke or ledge and by another year will have demonstrated the commercial value of these

iron ledges in this locality. This section embraces portions of Laramie and Converse counties and reference is made to other properties under these heads.

In the vicinity of Laramie, the less valuable minerals, gypsum, clays and shales are being worked commercially and will be treated in detail in a later work by this office.

BIG HORN COUNTY

This County is attracting the attention of a great many mining men at the present time and the showings made have fully justified the faith placed in the mineral contents of the ranges which skirt the Big Horn Basin on all sides.

SUNLIGHT MINING DISTRICT

Sunlight Basin, in northern Big Horn County, is attracting attention. 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.

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 chalcopyrites 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 then nearest railroad point, at Red Lodge, Mont., 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.

The new camp of Kirwin, lying seventy-five miles southwest of Cody, has made wonderful strides during the past year and the work is rapidly advancing at the present time. The Galena Ridge M. & M. Co., Shoshone Mountain Mining Co. and others have been developing a large number of claims here for the past eight years, doing prospecting and improvement work where necessary, and have reached the point of permanent development. Mechanical plants are being installed and mills erected and the underground development work carried forward under favorable auspices.

The ores are copper and lead, carrying a higher silver and gold contents than is usual in this State, and the deeper works have shown that the values may confidently be expected to continue and improve with depth.

Further south, towards Washakie Needle and the Wind River Range, are a number of promising prospects and a vast territory to hear from. This, with the mountains of these chains in Uinta and Fremont counties, is the most available new and undeveloped mining country in the West and is certain to be the scene of many rich discoveries within the next few years.

Drilling has been going on throughout the County and at Bonanza oil was struck of a fine illuminating grade.

Coal prospecting has been general in the central portion of the Basin and many properties have been opened that will be valuable with the advent of a railroad, which now seems a certainty.

~~CARBON COUNTY~~ 3

X This is the principal copper-producing county in the State, as well as showing the greatest activity in mining generally.

The Grand Encampment District is mostly included in the southern part of this County and the remainder in southern Albany County. At Encampment are situated the only reduction works in the State and the longest tramway in the West.

The North American Copper Company, capitalized at \$20,000,000.00, which owned these works, the Ferris-Haggarty Mine

at Dillon and a number of smaller industries, has been succeeded by the Penn-Wyoming Copper Company, capitalized at \$10,000,000.00 and all holdings of the first company taken over.

This reorganization is resulting in a great benefit to the Encampment District in general and places the company on a sound basis which will enable them to produce copper on a large scale, as many improvements are under way at their various works and an active campaign is outlined for 1905.

Also see Mines & Minerals vol. 25, pp. 200-201 Nov. 1904
 THE ENCAMPMENT TRAMWAY AND REDUCTION WORKS

The tramway is one of the most important works in this region and is sixteen miles in length, divided into four sections with three auxiliary power stations. These stations are equipped with power plants, etc., to facilitate the operation 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 are 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 the 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 breakdown in the mine or on the line.

The Encampment Reduction Works are located at the eastern tramway terminal and are favorably situated as regards convenience in operating, handling ores and tailings, with 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 fines 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 briquetting plant, the tailings or waste being run into a tailings dam and settled. A mechanical straight line roaster has been installed to roast 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 compressors, which are driven direct from water power obtained from the Grand Encampment River. Twelve hundred horse power can be developed in this plant. 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, and lights the works and the towns of Grand Encampment and Riverside.

ORES

The ores in this district are, as a rule, the yellow copper pyrites or chalcopryrite, although many different varieties have been found. The outcrops are usually a yellow or brown variety of iron oxides or limonite, sometimes stained with the green and blue carbonates of copper and followed at the water level by the sulphides of copper and iron. These are bornite, chalcopryrite, copper glance, covellite or indigo copper, and so on through nearly the whole category of copper-bearing minerals, which are found and shipped to the Encampment works.

FERRIS-HAGGARTY MINE

This is the main producing property of the district, has produced over \$1,400,000.00 since it was opened up and is the main source of ore supply for the Encampment smelter.

The vein is a contact deposit between schist and quartzite, showing a series of ore bodies varying in length up to 250 feet and in width from fifteen to forty feet; the ore is bornite and chalcopryrite and the grade varies from a 35 to 40 per cent. ship-

ping ore to a six and eight per cent. concentrating ore, the latter predominating.

Originally the property was worked by shaft and hoist, but a working tunnel has been run in at the lowest practicable level (giving about 500 feet depth on the dip of the vein) and complete plant installed at the mouth of the tunnel. The ore is stoped out by machine drills, thrown into chutes, run to the tunnel level and hauled out by compressed air haulage, seven cars to a train, and run directly into the tramway ore bins and thence to the smelter sixteen miles away.

A hoist has been installed at the tunnel level and a winze sunk below this level, where drifts are being run on the ore and an active campaign opened for the production of ore during the season, which usually opens about May and closes December 15th following.

DILLON VICINITY

Work around Dillon has been very active this year, the Anchoria, Jackpot, Independence, Pluto, and Oshkosh-Wyoming companies being especially prominent. These companies are all backed by Wisconsin investors and have a number of promising properties where work is being done systematically and well.

The Congo property has developed steadily and makes a fine showing. The Bachelder has improved the plant and shaft and is now doing permanent work. Work has also been active on the Octavia, Island City, Copper Bar, Home Run and a dozen others.

The Echo property is especially interesting and promising, as a shaft is being sunk on a capping of iron oxides, identical with that of the Ferris-Haggarty, but lying with schist foot-wall and quartzite hanging-wall, where the Haggarty has a quartzite foot-wall and schist hanging-wall. Mining men are much interested in the outcome of this work, as well as that of the Keystone, a new property where similar conditions are noted, and of the deeper workings of the Doane-Rambler, east of Dillon.

DOANE-RAMBLER MINE

Work on this mine, which is the oldest operating mine as well as one of the best known of the district, for this year has

been entirely on development, only the ore taken out during this work having been mined and saved, to be shipped at convenient intervals, and no attempt made at regular shipments.

Great improvements have been made in the condition of the mine. Large new buildings have been erected and complete mechanical plant installed. The main tunnel has been completed, main shaft sunk from the 400 to the 500 level and is rapidly approaching the 600.

Drifts and crosscuts on the 400 and 500 levels have exposed ore conditions that fully warrant large works and it is understood that such reduction arrangements will be completed during the summer of 1905. The ore is of the same general character noted all through the district and can be readily treated, as the season's work at the Encampment works has demonstrated.

On what is known as the Portland Mine, owned by the Battle Lake Copper Mining Co., work has been resumed within the past six months. Open cuts and shafts have been opened along the vein, following it west and down the hill to Battle Creek, where a tunnel was started to follow the vein east into the mountain. At thirty-five feet from the portal the vein was encountered, which at this point shows gold and copper ore of workable grade and quantity. The tunnel has since been run a distance of nearly 200 feet and has shown almost all the way ore of the same character as that opened at the surface. Open cuts and shafts have been sunk along the vein for a distance of about 2,000 feet and show ore of good grade.

The Cow Creek country along the tramway line is again active; the Lena Shields, Continental and Copper Age are steadily developing with good results. South of Battle, the Itmay, Verde and Three Forks work is making steady progress on promising showings.

At Baggs on Snake River, placering by dredge is being carried on, but most of the work is over the State line in Colorado.

South of Encampment, the King Tunnel, Fremont, What Cheer, Aetna, Evening Star and many others have made good progress and are still developing.

East of Encampment and Saratoga are a number of work-

ing properties on the west slope of the Medicine Bow Range. On Iron Creek the Aksarben Company is sinking a shaft on one of the largest iron caps of the vicinity and their work is being watched with interest.

North of this on Coad Mountain are the Cumberland and Camperdown properties, the Gold Hill Mine at Gold Hill and the Elk Mountain Mine at Elk Mountain, which has shipped ore to the Encampment smelter and is equipped with a first class plant.

North of the line of the Union Pacific Railroad in the Seminoe, Freezout and Ferris Mountains are a number of properties which promise well for development both in gold and copper, with iron and coal in the immediate vicinity. These will be taken up in a later bulletin by this office.

The iron ore or paint minerals at Rawlins are too well known to need description. Work this year on the copper showings north of the town has shown considerable high grade ore and the district should by all means be fully prospected.

Stone and coal mining in this County are both flourishing and on the increase. Some drilling for oil has been done but results not published.

CONVERSE COUNTY

The southwestern corner of this County has made a decided advance in mining during the last two years. Previous to this time a few properties had been worked for a time but no general work had been carried on and no depth attained.

This section includes that part of the Laramie Hills lying north and west of Laramie Peak at the junction of Laramie, Albany and Converse counties, and working properties are situated in all three counties and are described under their respective heads.

The most prominent property in this County is the Oriole Mine on LaPrele Creek in the western part of this range, where a shaft 225 feet deep has been sunk on a large ledge of low grade copper ore and drifts run to the ore at various levels. This mine is equipped with steam plant, etc., which is being enlarged to permit of more extensive development during the coming season. The ore is of concentrating grade and will lend

itself readily to treatment. A mill on this property is not improbable during the next year.

Near the Oriole is the Swede Boy with a good showing, and east is LaBonte Tunnel in LaBonte Cañon, where a crosscut tunnel has reached a length of 535 feet, cut a mineralized ledge 140 feet wide, and a drift on the most promising portion is now being run to cut an ore body indicated on the surface.

Near by are the Pyramid, Copper King, Mammoth and Lee properties, while further east is the Hoosier Boy on a showing similar to the Oriole, and at the eastern edge are the Trail Creek and Snow Bird properties on Elkhorn Mountain.

No shipments have been made this year from this locality, but another year should certainly tell a different tale.

Oil drilling at Brenning Basin near Douglas has been active all year and one new well has been reported near the edge of the basin, showing a fine quality of light kerosene oil at a shallow depth. Natural gas has also been struck in commercial quantities here and the wells capped until lines can be laid to Douglas, twelve miles away, for commercial purposes.

Coal shipments from this County are also increasing and the less valuable minerals are receiving close attention in connection with the cheap gas fuel.

CROOK COUNTY

Mining in this County is confined to the western edge of the Black Hills, which extend into the eastern portion of the County at Welcome and Bear Buttes, where capitalists from the Black Hills have been directing work on a number of properties, the Golden Fleece and Treadwell companies being especially active.

This district became famous during the Black Hills rush in 1876, and Nigger Hill was the scene of rich placer workings.

Tin was also discovered years ago, but no commercial mining has been carried on for a long time in this region, which merits close inspection and development for these and other minerals.

At Moorcroft in the southern portion of the County drilling for oil has been active, with good results, but no official advices as to the quality and quantity of the oil have been received.

The lignite coal fields of the County are also being prospected and show some valuable coal lands.

FREMONT COUNTY

Here are located the famous Sweetwater and South Pass gold fields, noted for their rich placer beds and equally rich lodes in the earliest history of Wyoming mining.

This district is about thirty miles long and twelve miles wide, lying in the central part of the County and sixty-five to 150 miles from a railroad at the present writing. A brief description of the leading properties is here given and bulletins on this district may be obtained on application to this office.

THE CARISSA MINE AT SOUTH PASS

This property, located in 1867, has been a producer for many years, and is to-day the best known and developed property in the whole South Pass District. The Carissa high grade ore occurs in quartz lenses, lying in schist, having the same dip and strike as the schist, and these lenses occur at irregular intervals. Associated with these quartz lenses are bodies of mineralized schist carrying pay values in gold, and lying between or near the quartz lenses have been found schist ores of very high grade, but with the usual intervals of lower grade material in the same ore.

Until recently the development of these ores has been carried on on the high grade lenses above mentioned and the low grade ores practically ignored, owing to lack of facilities for treating them profitably, but during the past year a crosscut has been run west from the lower or 400 level and the occurrence condition of these low grade ores determined. This crosscut is 180 feet long and cut through a series of quartz lenses and schist leads, which were found to vary in value from a trace to \$50.00 per ton gold, but the free condition remained unchanged as in the other parts of the mine. Tests on this work showed an average mill value of \$6.00 per ton for the whole length of 180 feet.

This is the most important work accomplished in the district for many years, as it demonstrates the existence of great

bodies of low grade ore capable of treatment on a large scale and indicates the course to be pursued in the other mines of the district.

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. As development proceeded the oxidized ores passed out and the sulphide forms came in, being mostly arsenical pyrites, but experience in milling these ores has shown the free gold character of the ore still pertains, and on the lower level from 60 per cent. to 90 per cent. of the gold values may be saved on the plates and ore is frequently met with that shows free gold associated with the pyrites, both in the quartz and adjacent schists. The ore is being treated in a ten-stamp mill, with amalgamating plates and concentrating tables.

THE DEXTER WORKS AT ATLANTIC

Atlantic City is the working headquarters of the Dexter Mining and Development Company of Rochester, N. Y. They have recently added to their original large holdings and are now operating the Tabor Grand, the Bryan, the Dexter Tunnel and Garfield, besides a number of smaller works.

This company holds placer ground on Rock Creek, consisting of 1,600 acres of patented placer ground, and controls the whole bed of Rock Creek to its junction with the Sweetwater River, about 3,000 acres of placer claims held by location in the usual manner. The Dexter Company have made extensive tests in the bed of this creek by hydraulic elevators and other mechanical means for handling the gravel and will put in dredges as the result of these experiments. The water for this work is secured from Christina Lake and Rock Creek by a system of about twenty-five miles of ditches, flumes, etc. An interesting feature of these experiments is the high assays obtained from the black sand after the placer gold has been taken out, the remaining sand assaying from \$400.00 to \$800.00 per ton.

The Dexter Tunnel is being driven to crosscut several leads 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, which has reached a length of 1,500 feet and has cut several leads of low grade ore. It is being rap-

idly pushed ahead by air drills and a complete mechanical plant.

This company has installed a hoist and shaft house on the Rose or Bryan Mine, on the line of the Dexter Tunnel, sunk a shaft on the vein to connect with the main tunnel, and are running drifts on the vein on two levels. This Bryan Mine has produced a great deal of the richest and most beautiful gold ore of the region, but the values have been difficult to save.

A new mill has been erected by the Dexter Company at a point on Rock Creek just below Atlantic to treat both their own and custom ores, extensive experiments having been made during the past year to determine the best method of treatment. This mill, which will start up February 1st, 1905, is of 150-ton capacity, using twenty 1,050-pound stamps, with amalgamating plates and having complete cyanide department for saving values other than free gold.

The Ground Hog group on Rock Creek, above Atlantic, shows characteristics similar to the Carissa at South Pass, showing the same lenses of quartz ore and the heavily mineralized schist carrying profitable values. Development work only has been done on this property and has shown up a fine proposition for further development on a large scale.

The Pay Rock group at Peabody Hill near Miners' Delight shows a number of veins or quartz stringers in what is evidently a huge body of ore, but so far developed to only a shallow depth and on the rich streaks.

The Miners' Delight Mine, abandoned for many years, after a production record of over \$1,000,000.00, has cleared its title and is now in a fair way to be opened up again on a commercial scale.

Prospecting is again active at Lewiston and during the past year a number of lenses of quartz have been found on Strawberry Gulch, which show the characteristic free gold condition of the Burr and other famous properties, but this camp needs a deep mine similar to the Carissa to demonstrate its value and permanence, and there is no doubt but that the showings here fully warrant the necessary expenditure, in view of the showings already made in other parts of the district.

There are fifty meritorious properties in the South Pass District that would pay handsomely on the development expend-

iture and it is certain that this district will be heard from as a gold producer in the next few years.

Brief mention only is made here of the great Popo Agie oil fields near Lander, which have been acquired by the Belgo-American Drilling Trust interests of Paris, France, and are now being held for future development, as well as other less well-known fields in the eastern portion of the County; but space does not permit a full discussion of them and they will be taken up in a later publication.

The coal of this County has hardly been touched and the plastic materials and building stone are scarcely known in a commercial sense. All grades and kinds exist in immeasurable quantity, waiting for the time when it is needed.

The greater part of this County has been neglected until the present time and the principal drawback to the development of this certainly rich country has been the distance from a railroad, and the hitherto barren character of most of the intervening country, which made it a necessity that the camps should supply the whole business for a railroad aside from stock shipments, prevented any tangible attempt for railroad communication up to the present time; but with completion of the proposed Government storage reservoirs, the wonderfully rich agricultural country around Lander, the opening of the Shoshone Indian Reservation and the other resources of that vicinity being so rapidly developed, that objection no longer holds and the long vexed question of transportation is being solved by the construction of the new line of the Chicago & Northwestern R. R. from Casper, Wyo., to Lander and Thermopolis, now under way, which will open the way to the practically unexplored portion of the Upper Wind River Ranges, the Shoshone and Absaroka Mountains, which have been giving up specimens for many years but are now being brought within reach of commercial mining for the first time and will bear watching.

JOHNSON COUNTY

During the past two years there has been considerably more prospecting than ever before in this County and a number of interesting finds have been located.

The Bull Camp property, south of Hazelton, has sunk a shaft on a quartz lead in granite and has found some good ore. East of this claim is the Top Hand group which presents a good opportunity for development and has been taken hold of by Messrs. Oliver, Van Houten, Thom, Young and Smith, all of Buffalo, who are placing a plant and are prepared to carry on prospecting in a businesslike way. The proving of this showing is a most important event in this locality, and being done by local capital indicates that the home people have faith in their own county.

Coal and oil have also been found in quantity here and development on these lines is proceeding rapidly.

LARAMIE COUNTY

The iron mines at Sunrise produce all the iron at present mined in Wyoming and a tonnage is blocked out to run for many years. In 1903 the production was 214,880 tons, and in 1904 137,166 tons. New hoisting plant and works have been installed at the shaft recently sunk to work the deeper ore bodies and the open cut steam-shovel methods hitherto used will be gradually superseded by the shaft, drift and stope system.

The Laramie Hills west of Cheyenne and along the western county line have shown considerable activity, especially at Silver Crown, where the Hecla Company have been sinking a shaft on a vein of copper sulphides and have shown up a workable body of ore; a recent crosscut from this shaft has cut a parallel vein and work on this is now going on.

Near Hecla, the Globe Company has opened up the Fairview Mine again and will continue development all year. Other properties are working here, and further north at Slate Creek, Fish Creek and east of Laramie Peak miners are at work and the outlook for the year is decidedly bright.

Prospecting for coal is being carried on at Horse Creek and points in the County and the plastic minerals and stone are receiving more attention than for many years.

NATRONA COUNTY

This is the oil-producing county of the State, the only oil refinery in the State being located at Casper, where the lubri-

cating oils from the Salt Creek wells, fifty miles north of Casper, are treated.

This plant and wells are all owned by the Belgo-American Drilling Trust interests of Paris, France. Capacity of this refinery is 100 barrels per day and the oil yields from 75 per cent. to 90 per cent. reduced lubricating stock, from which fifteen oils of different grades are manufactured, as well as axle and compressor grease. Without exception the Salt Creek oil is the best natural lubricating oil known in the world to-day.

Other fields in this County have been opened, but distance from shipping points or refinery has held them back, as well as the other natural products of the country west of Casper; but with the completion of the new railroad line west from this point, a new era is confidently looked for, as the raw materials are certainly here. Copper is noted at Casper Mountain under conditions similar to those near Rawlins, and prospecting is active there.

SHERIDAN COUNTY

Lignite coal is the chief mineral product of Sheridan County and the fields are as yet but touched upon. At Bald Mountain in the Big Horn Range, work has been prosecuted for several years on remarkable gold showings, and heavy iron caps noted at other points on the range have indicated copper deposits but have never been developed. The plastic minerals and stones, marbles, etc., have not been opened up except in scattered instances and are in evidence everywhere.

SWEETWATER COUNTY

This is the coal County of the State, and aside from the soda industry at Green River this is the only mineral at present mined.

There is a large field in this County as yet untouched and will continue to supply fuel for the State for many years to come.

Drilling for oil has been carried on at Salt Wells, but none of the wells were of sufficient depth to reach the formation believed to contain the oil.

UINTA COUNTY

Coal and oil are the principal minerals hitherto noted in this County, these being found in the southern end of the County and both in commercial quantities, as the coal production yearly shows. Litigation has kept the oil properties tied up for a number of years, but prospecting and drilling has gone on steadily with encouraging results.

The northern part of the County has sent out interesting specimens for years, but in common with the adjacent part of Big Horn and Fremont counties has never been mined in a commercial way and is a practically virgin field for the well posted prospector.

WESTON COUNTY

Here is found the only commercially coking coal of the State and seventy-four beehive ovens are used in this industry.

Drilling has been carried on at Newcastle and in the western part of the County, and a number of oil springs have been noted for years, where a fine lubricating oil has been found. The clay and gypsum beds of this County and the Salt Springs near Cambria offer an entirely new field for investment in this County, but so far no metal mining has been done here.

To sum up, the mining business and its allied industries are all advancing rapidly. The prospects of a few years ago are in shape to produce profitably when the vexed question of transportation is once settled, and this new day seems to be breaking for a number of localities. Bonanzas are scarce in Wyoming, but large low grade propositions are not, and when handled with the same attention and knowledge required by any other successful business are just as desirable and certain.

All of which is respectfully submitted.

HENRY C. BEELER,

State Geologist.