THE STATE OF WYOMING

GEOLOGIST'S OFFICE

Bulletin Number 9 **Series B**

BIENNIAL REPORT

1913-1914

L. W. TRUMBULL, STATE GEOLOGIST

CHEYENNE, WYO.
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To His Excellency,
Joseph M. Carey,
Governor of Wyoming.

Sir:

I have the honor to submit herewith the Biennial Report of the State Geologist's Office for the two year period ending September 30, 1914.

Very respectfully yours,
L. W. Trumbull, E. M.,
State Geologist.

Cheyenne, Wyo., October 31, 1914

BIENNIAL REPORT

1913-1914

The Twelfth Wyoming Legislature appropriated the sum of $15,000 as contingent fund for the State Geologist's Office for the years 1913 and 1914. This appropriation was reduced to $10,000 by the Governor before signing the appropriation bill. The then Geologist thereupon began suit to determine the legality of this reduction. The Supreme Court handed down its decision about the middle of June 1913, and on June 18 the writer was given the appointment of State Geologist.

Of the contingent fund $1,316.63 had been spent when the writer took office, leaving $8,683.37 to meet the expenses of the office up to April 1, 1915.

The following classification shows what expenditures have been made from April 1, 1914, to and including September 30, 1914.

Traveling expenses	$894.99
Hotel and board	488.03
Clerk hire	721.27
Assistants' wages	1,289.44
Printing	1,861.23
Instruments	645.62
Postage, telephone, telegraph	203.05
Field parties	1,019.18
Miscellaneous	53.45
Expended total	$7,176.36
Leaving for use October 1, 1914, to April 1, 1915	2,823.64
Total contingent fund	$10,000.00

The estimate of the items of expenditure for the two year period, April 1, 1915, to April 1, 1917, has been filed with the State Auditor, as required by law. The following is a copy:

Geologist's Contingent	Clerk hire	$1,800.00
	Drafting	1,000.00
	Postage, telegraph and telephone	1,000.00
	Printing	2,100.00
	Traveling expenses	2,400.00
Field expenses		4,000.00
Co-operation with the U. S. G. S. on topographic maps		3,000.00
Assaying and analyses, (Assistant to State Chemist)		3,000.00
Total		$18,300.00

Work of the Geologist's Office

The State Geologist is required by law to fulfill the following duties:

(1) Supply reports and information to the Commissioner of Public Lands upon any State Land, when requested by the Commissioner.

(2) Make confidential formal reports upon any mine or prospect, for promotion purposes, to anyone paying the legal fees.

(3) To "collect official information relating to the various mines and mining projects of the State and to publish and circulate such information as he may deem advisable for advertising the mineral wealth of the State".

(4) "and also to take any steps which would be likely to advance the development of the mining industry."

(5) To examine free of charge all specimens of rock or mineral and to classify and name such specimens so far as it be in his power, *without an assay*, and to make returns to the persons sending the same.

(6) To perform, ex-officio, the duties of inspector of mines other than coal mines.

(7) To perform the duties specified by the Voluntary Publicity Act. This act is now a dead letter. During the present term there has been neither a report filed, nor a

request for a certified copy of any filed report made under the law. As a dead letter law is of no benefit, or even worse, I would recommend that the above law be repealed.

During the time the office has been held by the present geologist, all duties under paragraphs 1, 2, 5 and 6 have been met in their regular course, as provided by the law, and all moneys received have been turned into the State Treasury, as provided by law. Under paragraphs 3 and 4 much work has been accomplished and we think much benefit has resulted to the State. This work can be divided in the following sub-heads:

(a) Reconnaissance surveys.
(b) Detailed field surveys.
(c) Published reports.
(d) Correspondence.

(a) Reconnaissance Work

A large part of the Geologist's time is taken up in visiting districts and places where someone thinks the geologic conditions may be right for the presence of some mineral resource, or where, from the general geology of the region, it seems possible that a visit will prove the presence of correct conditions.

Wherever possible, every request that a certain place be visited, is complied with, and the Geologist makes such a visit without charging any fee, the person making the request meeting all expenses of the trip from the railroad back to the railroad. Whenever a formal written report is wanted, the regular fee required by law must be paid for it.

In a territory as large as Wyoming, three hundred and fifty miles long and three hundred wide, there are many people asking that the Geologist visit some place in which they are interested and tell them what he thinks the chance of finding valuable mineral may be. It is often impossible to meet such requests for weeks, and it is not reasonable to go to the expense of a long trip across the State to make one single visit.

During the past year the Geologist has been in every

county of the State and in some of them several times. During the preliminary visits the Geologist determines what areas are worthy of detailed mapping and study, the results of which are later given to the public in the form of a bulletin.

Advising against Prospecting

Whenever it is found that prospecting wells for oil are to be drilled in areas which are of such geologic structure that an accumulation of oil is necessarily impossible, the Geologist has tried in every way to discourage the waste of money. In every instance such advice is resented by the local people. In no instance has oil been found in a locality which was so stated to be impossible. While the duty of telling people that they are sure to be disappointed is an unpleasant one, it seems as clearly the duty of the Geologist to prevent useless waste as it ist o "promote the mineral industry of the State", for money wasted is so much money lost from possible development uses.

(b) Detailed Field Surveys

The present Geologist was appointed so late in the field season of 1913 that preliminary visits could not be made to learn the relative importance of the areas to be covered by field work. A small party was equipped and began work early in July on the Moorcroft Oil Field. After completing this area, a small area near Upton was mapped, and, lastly, a larger area on Buck Creek north of Lusk was mapped. Late in the fall a small area about Atlantic City was worked over and a bulletin published later in the winter.

For the field work to be done in 1914, plans were made well in advance and the equipment, instruments, teams, cook, etc., were gathered at Basin, so that the party was organized and the work begun early in June. To have direct charge of this work, F. F. Hintze, Ph. D., Professor of Geology of Lehigh University, was hired. To assist him the following men were engaged: H. L. Kennedy of Laramie, a Wyoming University graduate, G. F. Coons of Basin, at present a Senior at Wyoming University, Walter Storrie of Hat Creek, Wyoming, and Warren F. Hadsell of Lehigh University, Pennsylvania. This party surveyed

and mapped large areas on three oil fields of the Big Horn Basin, reports of which will shortly issue in bulletin form.

A detailed study of the occurrence of sulphur and sulphur springs had been planned for the 1914 field season, but this had to be abandoned, due to the crowding of other important matters, and will probably be taken up during 1915.

State Map

There is a constant demand upon the Geologist's office for a general geologic map of the State. A large part of the State of Wyoming has already been covered by some published report, either State or Federal, and these can be compiled into a statewide map, which will be of tremendous value. Before publishing such map, however, it will be necessary to do field work at certain points in order to fill out the gaps in the areas discussed in reports already published. Some of the field work has already been done, but a considerable amount must yet be done before the office compilation can be made.

This office should be supplied with funds which will permit the necessary field work, the office compilation into one map, and the printing of the same.

(c) Publications of the Geologist's Office

When the present incumbent took office, he found a mailing list which was practically a State directory and list of "who's who" in America. To mail a copy of any report to each name on the list would require an edition of a thousand copies. Many of the people listed have no interest in geological reports, others are interested in oil reports, others in copper, and so on. For this reason the mailing of reports to a heterogeneous mailing list has been suspended. When a new report is ready for distribution, copies are sent to all the State newspapers with a request that they notice it and print a statement that a copy will be mailed free to each person requesting it. As one of the reports of this office costs forty-five cents per copy, not adding the cost of mailing, it is evident that this change has resulted in a large saving in the printing bill of the office.

During the past year the following new bulletins have been published:

No. 5, Series B, Prospective Oil Fields, Weston, Niobrara, Natrona, and Lincoln Counties, 1913.

No. 6, Series B, Mining Laws—State and Federal, 1913.

No. 7, Series B, The Atlantic City Gold Mining District, 1914.

No. 8, Series B, The Salt Creek Oil Field, 1914.

In addition to the above new reports, it was found necessary, in order to meet the continual and insistent demand, to have reprints made of the following bulletins:

No. 2, Series B, The Lander Oil Fields, 1912.

No. 3a, Series B, The Douglas Oil Field, 1912.

No. 3b, Series B, Muddy Creek Oil Field, 1912.

These were reprinted with illustrations omitted, in small type, on thin paper. Certain portions (Fossil lists, etc.) were omitted also, resulting in a much less costly edition than the first.

Owing to the desire of the Federal Government to prevent all exploitation and development of coal, oil, gas, phosphates, and potash by the segregation of any lands upon which there is likelihood of such being found, it seemed unwise to issue certain preliminary reports which would have otherwise been issued.

The Geologist had been working for nearly a year trying to get responsible concerns to prospect certain territory in the western part of the Big Horn Basin, when the territory was suddenly segregated as petroleum lands by order of President Wilson. Had the local papers not printed such optimistic articles regarding the prospects of Grass Creek and Little Buffalo Basin, there would probably have been no segregation. Since that time the Geologist has carefully warned all newspapers not to print articles which may reach Washington and call down further segregations.

Bulletins Ready to Issue

Bulletins upon the following fields are now ready to print, or will shortly be ready.

Moorcroft Oil Field.

Basin and Greybull Oil and Gas Field.

Little Buffalo Basin Oil Field.

Grass Creek Oil Field.

Press Bulletins

In addition to the items given to the local newspapers at various times and places, general press bulletins have been mailed to all the State newspapers at times when it seemed advisable to get certain information to all the people of the State in the most rapid manner. The bulletins are run off a duplicating machine in the office and cost only the paper and postage, as the newspapers generally use them as news items.

Correspondence and Office Calls

The increased numbers of inquiries by mail, as well as the number of people who call at the office for information, made it imperative that a clerk who could handle routine letters, and give intelligent information to callers, be employed and keep the office open all the time. This was done early in 1914 and her time is fully occupied. Complete files of Federal and other reports have been secured as far as possible, and all inquiries are answered immediately if an answer can be found in the reports and records. Visitors are now sure of finding the office open, and the records, reports, etc., available. Without the clerk the office is locked up during any absence of the Geologist and mail piles up so that answers are often weeks late.

The number of inquiries received and the diversity of subjects of inquiry would surprise one not acquainted with the work of the office. The correspondence is really world-wide and the subject matter almost as wide.

The following list from the correspondence shows the variety of minerals about which inquiries have been received during the past year and which had to be answered after making a review of the information available upon each subject.

Alumite
Aluminite
Asbestos
Asphalt
Bentonite
Bismuth
Carnotite
Chalcopyrite
Coal
Cobalt or Nickel
Clay
Felspar
Fire-clay
Flint

Fluorspar
Graphite
Granite
Iron
Leucite
Limestones
Marble
Mica
Mineral Waters
Molybdenum
Onyx
Pallucite (Caesium ore)
Phosphates
Platinum
Portland Cement
Potash
Pyrites
Pyrolusite
Quartz, gold
Salt
Sandstones
Silver Ore (oxidized)
Soda
Stones
Sulphur

Departmental Library

When the present Geologist took office, he found a few scattering state and federal reports on the book shelves. Of these practically none were of value to the office or to visitors making inquiries at the office. As the U. S. G. S. has always sent copies of all reports to this office at the time such were issued, it is evident that such reports applying to or descriptive of Wyoming have been removed from the office. It is now very difficult to obtain copies of some of the older reports, but an effort is being made to obtain them and have the files of the office library practically complete.

Very unfortunately, too, the files of the early government surveys in the Miscellaneous State Library are not complete, or, if complete, portions are boxed up and are not accessible at the present time. As these early reports will continue to become more rare and less easily obtained, it is strongly urged that an early effort be made to complete the files. However, there is a complete file of all recent Federal Geologic publications, and visitors can be referred to these.

Wyoming Geologic Index

A bibliography and index of the literature of Wyoming geology is now being prepared by this office and will cause the geologic reports of the library of both the department and the State University and also of the General State Library to be of greatly increased value.

It is hoped that the funds of this office will be sufficient to print a small edition of this index. Whether this can be done or not, cannot now be stated.

Chemical Analyses

The State Geologist should be working upon the natural resources of several minerals which cannot be handled without the services of a chemical analyst. Among these minerals are the following:

Fire Clay	Potash
Brick Clay	Phosphates
Fuller's Earth	Soda and Magnesia
Cement Material	Mineral Waters

At present there is no provision for the State Chemist to do work for this office, and any analyses and assays must be paid for. To pay, at custom rates, for such analyses as should be made from time to time, as data upon the above listed minerals are gradually accumulated, will use up a lot of money. An assistant to the State Chemist and State Assayer can probably be hired for less than the amount that would be used in paying custom analysts, but the work will not be continuous, as samples will be collected only on occasions when they are found during the course of other work being done by this office. On account of the expense of the analyses no work on the above list of resources is being done.

Lectures

At the State Fairs of 1913 and 1914, the State Geologist has delivered lectures upon Wyoming geology and resources. This is one of the pleasant tasks of the office, and one that seems to be appreciated by the public. It would seem that, if there were time (and the work may possibly be crowded in during the winter season), it might be worth while for the Geologist to give lectures throughout the State on general geologic and economic subjects. Up to the present time this has not been attempted, however.

Fraudulent Stock Selling

One matter of constant inquiry is that of the personnel, standings, holdings, equipment and development of the various mining and oil companies. From such inquiries it frequently develops that there are outfits selling stock in other states, who own no land, have done no development, and are not even incorporated in this State. Some of these seem to fade into thin air when investigated; others refuse to quit and have to be turned over to the postal authorities before they will cease operations.

Another class of operators is probably not fraudulent in the eyes of the law, but one investing in their stock is sure to lose his investment. The companies of this class incorporate legally and obtain title or lease to lands, which cost them but little, and then proceed to sell stock, using up the proceeds in salaries, expenses, etc., so that no money is ever spent in actual development work on their land. After a few years these die a natural death and the promoters take up a new proposition and proceed to rework the stock-buying field. Under the present law there seems to be no way to prevent this kind of fraud. This office tries to have a knowledge of such concerns operating in the State and always warns prospective buyers who inquire before paying down the money.

Mine Inspection and Mine Accidents

Such mines as must be inspected by the Geologist acting as Mine Inspector, *i. e.*, those employing more than five men, have each been visited at least once during the past eighteen months. I am glad to report that in nearly every case the metal mine owners of the State are doing everything in their power to insure a maximum degree of safety to their employees.

There have been no serious accidents to life or limb during my term, so I have not been called upon to act as in such cases is prescribed by law.

Inspection of Oil and Gas Wells

The Twelfth Legislature passed an act entitled, "An act amending and re-enacting Chapter 228 of the Wyoming

Compiled Statutes, 1910, regulating the plugging of oil and gas wells, and providing a penalty for the violation of the same."

This act requires that a sworn statement of method of plugging, etc., be filed with the County Clerk when any well is abandoned. It is recommended that it be revised so that a copy of such statement is filed with the State Geologist in addition to that filed with the County Clerk. Also that a notice be sent to the State Geologist before plugging and abandoning any well, so that he may be present before and when such plugging is done in case he so wishes.

Records of Wells Being Drilled

The Geologist's office should have a record of every deep well drilled in the State. Much valuable information is soon lost unless a record is filed at the time of the completion of the well. The writer has made an effort to collect such records wherever possible. The owners and drillers have shown a spirit of co-operation, and in no case has a copy of such record been refused.

It will be much easier, however, to secure such records, if a law be passed compelling the filing of the same in the Geologist's office. A reasonable length of time after the completion of the well should be allowed, and where, for any reason, the owner of such well does not wish his well record to become public information, the record shall be treated as confidential for, say, a year, or for such reasonable time as the owner may name when he files it.

The Moorcroft Segregation and Release

When the field work was being done on the Moorcroft Oil Field, it became evident that there was no possibility of the field being a large oil producer. Much of the ground was taken up by homesteaders who were unable to secure patent because the Federal Government had segregated the ground as petroleum reserve. Patented grounds inside the reserve were being leased by fake oil companies and stock sold under the statement that the government "practically guaranteed the presence of oil by segregating the surrounding ground".

Early in January, 1914, the writer went to Washington and took the matter up with the officials responsible for the segregation. In February the lands were released and the homesteaders are now able to secure their patents.

Due to the impossibility of oil ever being found in large quantities in the Moorcroft Field, it has seemed best not to go to the expense of publishing the geologic map and report upon that area. The manuscript is on file in the office and may be studied by anyone interested. If it becomes evident during the later part of the fiscal period that there is enough of the current contingent fund remaining, a small edition of this report may be printed, as it contains considerable information of a general geologic character.

Phosphate Segregations

A rank injustice is being done homesteaders and other entrymen who have taken up lands in the foothills of the Wind River Mountains and other ranges in the west central part of the State. The Federal Government has withdrawn all lands which may have a stratum of phosphate under them. Homesteaders who took up their lands and made homes before the Government or anyone else considered the phosphate, are now unable to secure patents.* The resource is worthless at the present time, it being impossible to pay freight on the rock to any point where it is being used. Its only large use is as fertilizer. Thousands of square miles in Wyoming are now closed to entry on the pretext of valuable phosphate rock contents. No business man would take the best square mile as a gift and pay taxes upon it for its phosphate contents.

It is expected that a future federal law will allow the patent to issue to surface only. This will help the homesteaders, but results in their obtaining only a crippled title when they in all justice and fairness should have a title extending from the sky to the earth's center.

Co-operation with the U. S. G. S.

Many of the states of the Union are getting their topographic mapping done by making an agreement with

* Recent legislation allows the homesteader to secure title to the surface of these lands.

the U. S. G. S., whereby each party pays one-half the expense of the work; the State specifies what areas are to be mapped and the U. S. furnishes the men and the apparatus and does the printing. As every state following the plan finds that it works out to its advantage, it seems best that Wyoming should take advantage of her share of the Federal appropriation for topographic work. Unless the State set aside an equal amount, however, the Federal apportionment goes to the other states. I would recommend that Wyoming set aside $3,000.00 to be used for this purpose during 1915 and 1916.

Railroad Travel Expenses

In time past it has been the custom for the various railroads in the State to supply the State Geologist with free transportation. The present Geologist has had a pass over the Union Pacific Railroad, within this State, part of the time. This has resulted in a large saving to the State. Upon all other railroads the usual fare has been paid.

As an anti-pass law will do away with all free transportation formerly issued to this office, I wish to draw attention to the fact that a much larger amount of contingent fund money will hereafter have to be spent in the purchase of transportation.

Legislation Recommended

To summarize from the foregoing discussion, I would recommend that laws be passed by the next legislature as follows:

(1) Compelling the filing of well logs with the State Geologist.

(2) The law regarding the plugging of wells amended to require filing of certificate with the State Geologist as well as with the County Clerk.

(3) Appropriating money and authorizing the expenditure of the same in co-operating with the U. S. G. S. upon topographic mapping.

(4) Authorizing the appointment of an assistant to

the State Chemist who shall do analytical work for the State Geologist, analytical work for the public, the fees being turned into the State Treasury, and who will be State Assayer under the present laws.

(5) Some means whereby the flotation of fraudulent oil and mining companies may be stopped.

(6) The repeal of the Voluntary Publicity Act.

INDEX

SUBJECT	PAGE
Analyses	161
Appropriations	153
Bibliography	160
Co-operation with U. S. G. S.	164, 165
Correspondence	159
Development of Mining Industry	154, 156
Expenditures, 1912-1914	153
Estimate, 1915-1917	154
Railroad Travel	165
Examination of Specimens	154
Field Surveys	156
Atlantic City	
Big Horn Basin	
Buck Creek	
Moorcroft	
Upton	
Fraudulent Stock Selling	162
Index	160
Inspection	
Oil and Gas Wells	162
Mines	154, 162
Lectures	161
Library	
Departmental	160
State	160
Logs, Well	163
Oil	
Advising against prospecting	156
Moorcroft oil field	156
Buck Creek	156
Big Horn Basin	156, 158
Inspection of wells	162
Records of wells	163
Publications, oil	158
Segregations, oil	158, 163
Map, Geologic	157
Minerals, list of	159, 161
Mine	
Accidents	162
Inspections	154, 162
Office calls	159
Plugging of wells	163
Phosphate	164
Press bulletins	159
Publications	157
New bulletins	158
Reprints of bulletins	158
Reconnaissance work	155
Reports	
Mines and prospects	154
Published reports	154, 157
State Land Commissioner	154
Verbal reports	156

SUBJECT	PAGE
Recommendations	165
Filing of well logs	163
Plugging of wells	162
Appropriation for map	154, 157
Appointment of Assistant State Chemist	161
Stopping flotation of fraudulent stock	162
Repeal of Voluntary Publicity Act	154
Records, well	163
Segregations	
Basin	158
Moorcroft	163
Phosphate	164
State Chemist, Assistant	161
Sulphur	157
Verbal Advice	156
Voluntary Publicity Act	154
Work of Geologist's Office	154
Reports to Commissioner of Public Lands	154
Reports on prospects	154
Published reports	157
Developing mining industry	154
Examination of specimens	154
Inspection of mines	162
Voluntary Publicity Act	154