

FIRST BIENNIAL REPORT
of
DIVISION OF MINES AND MINING
June 1, 1935, to December 31, 1936

Hon. J. B. Fink, Acting Director
Department of Conservation and Development,
Olympia, Washington.

Sir:

I have the honor to submit herewith the first biennial report of the Division of Mines and Mining, from June 1, 1935 to December 31, 1936.

Respectfully,

THOMAS B. HILL, Supervisor.

INTRODUCTION

There was passed by the Legislature, and approved by the Governor March 21, 1935, the Mines and Mining Act, its purpose being to aid in the development of the mineral resources of the state. It went into effect June 1, 1935. Under the terms of the act, its administration devolved upon the Director of the Department of Conservation and Development, who, for the purpose of administration, created the Division of Mines and Mining. As no appropriation was made the intention of the Legislature was carried out under the budget of the Department of Conservation and Development.

The work that has been done by the Division of Mines and Mining has been a continuation of that which had been carried on under an allocation of funds from the Emergency Relief Administration, made in September, 1933, which was supplemented by C. W. A., W. E. R. A., and W. P. A. projects. This report will therefore give a summary of what has been accomplished, since the report of Natural Resources Survey issued March 1, 1935.

FUNCTIONS OF DIVISION

According to the provisions of the Act creating the Division of Mines and Mining, the following functions are authorized:

1. To collect, compile, publish and disseminate statistics and information relating to mining, milling, and metallurgy;
2. To make special studies of the mineral resources and industries of the state;
3. To collect and assemble an exhibit of mineral specimens, both metallic and nonmetallic, especially those of economic and commercial importance, such collection constituting the museum of mining and milling development;
4. To collect and assemble a library pertaining to mining, milling, and metallurgy of books, reports, drawings, tracings, and maps and information relating to the mineral industry, and the arts and sciences of mining and metallurgy;
5. To make a collection of models and drawings, descriptions of the mechanical appliances used in mining and metallurgical processes;
6. To issue bulletins and reports with illustrations and maps with detailed information of the natural resources of the state;

7. To preserve and maintain such collections and library open to the public for reference and examination, and maintain a bureau of general information concerning the mineral and mining industry of the state, and to issue from time to time at cost of publication and distribution such bulletins as may be deemed advisable relating to the statistics and technology of mineral and the mining industry;

8. To make determinative examinations of ores and minerals, and consider such other scientific and economical problems relating to mining and metallurgy;

9. To cooperate with all departments of the State government, state educational institutions, the United States Geological Survey and the United States Bureau of Mines.

These functions have been performed insofar as time, funds, and facilities have permitted.

NO. 1—COLLECTION OF INFORMATION

In many respects the collection of information on the mineral resources of the state, and making it available for the use of prospectors, miners and the public, is the most important factor that enters into the practical development of the mineral industry. It is only on the basis of dependable information that capital may be interested and the public protected. The Division, therefore has directed its major efforts to collecting and compiling such information as would be most useful in actual development programs. This information relates first to mining properties, and includes:

List of claims that have been filed on and recorded in county auditors' offices;

Claims that have been surveyed for patent;

Prospectors' leases and mining contracts on State lands;

Claims and properties on which there has been development work, and extent of such work;

Mining corporations of the state with such information as might be obtained with respect to their operations, etc.

Mining Claims

As mining claims are recorded in the auditor's office of the county in which the claim is located, it was necessary to obtain such information from these offices. To do this a W. P. A. project was established to operate in the counties reputed to have large mineralized areas. The work in some of these counties was completed, in others suspended for lack of funds before completion, and in others was not begun. It is estimated that approximately one-half of the mineral claim records or approximately 90,000 have been transcribed.

This W. P. A. project has been continued and will be expanded to include all the counties in the state. When completed the total will amount to approximately 200,000 mineral claims.

Records of claims surveyed for patent have been transcribed in the U. S. Public Survey Office. There have been 2,361 surveyed for patent.

All of these claim records are filed chronologically for each county in the Division of Mines and Mining, with information as to status of claim with respect to kind of ores or mineral material, assessment work, intention to hold, whether patented, and development work that has been done. Ultimately

all claims that have been abandoned will be segregated, and a file of live claims maintained. Claims also will be segregated according to mining properties which they comprise. Ultimately complete information on every mining claim in the state will be compiled and made available.

Mining Properties

The Division has obtained information, more or less complete, on mining properties, on which there has been development. This information includes the names and location of claims comprising the property, the kind and character of ore, results of assays or milling or smelter runs, extent of development work, improvements in the way of buildings and equipment, engineers' reports where these have been made, condition with respect to transportation facilities, and all other information that could be obtained from whatever source.

Where properties are developing or operating number of men employed, and amount of production are reported.

According to reports received by the Division there are 61 operating mines and 25 doing active development work. These figures are known to be low because there have been no field staff or facilities by which information could be obtained or checked in the field.

Mining Corporations

The Division has obtained a list of Washington mining corporations, both active and delinquent for one year in the payment of fees. These have been divided into two classes: Those owning, leasing or otherwise interested in properties in this state, and those with holdings outside the state.

The Division receives many letters and personal inquiries with regard to old mining corporations in which the inquirer holds stock. The Division has given all the information that could be obtained, which usually, because reports of activities of these corporations is not required, is not extensive.

Prospectors' Leases and Mining Contracts

Compilation of information with respect to efforts looking to the production of minerals and oil on State lands reveals the fact that there have been issued by the Commissioner of Public Lands to date 2,080 mineral prospecting leases and 227 mining contracts.

There are in force at the present time about 376 mineral prospecting leases, and about 116 mining contracts.

There have been issued to date about 7,050 oil leases on State lands, of which about 550 are now in force.

Within the last two years there has been a marked increase in interest and activity in prospecting, mining and exploration for oil, not only on State lands, but generally throughout the state.

NO. 2—SPECIAL STUDIES OF MINERALS AND RESOURCES

Although lacking funds and facilities the Division has made a substantial beginning in special studies of the mineral resources and industries of the state. This work has been largely in co-operation with other agencies, such as U. S. Bureau of Mines, U. S. Geological Survey, State departments and institutions and the mining industry. Information that had been developed and compiled,

especially with respect to manganese, chromite, and other minerals, has been made available to public investigators.

The Division furnished to the U. S. Bureau of Mines and the State Metallurgical Research Laboratory at Pullman approximately 4,000 pounds of manganese ores from the Olympic Peninsula. This is the ore that was used in working out successfully a process for the recovery of the metal from these silicate ores. The discovery of this process is regarded as of outstanding importance.

The reports furnished by this Division on the chromite deposits of Whatcom County have been used by those interested in the development and production of this mineral, resulting in much interest and activity.

Information has been furnished to many inquirers on diatomite, molding sands, iron deposits and building stone.

NO. 3—EXHIBIT OF MINERAL SPECIMENS

The Division has begun the assemblage of a mineral exhibit representing mining properties in the state. Already there has been collected and placed on display in the office of the Division approximately 150 specimens of typical ore. In addition to the specimens full information is being obtained with regard to the properties. It is intended that every property in the state shall be represented, and complete information with respect to the properties from which they come shall be on file. This information will show location, owner, character of ore or ores, amount of development work, production, uses, markets, etc. The specimens now on exhibit come from properties in the following counties:

The Olympic Peninsula	Lewis	Skamania
Cowlitz	Okanogan	Snohomish
Chelan	Pend Oreille	Spokane
King	Pierce	Thurston
Kittitas	Skagit	Whatcom
		Yakima

In connection with this exhibit there has been donated to the Division a set of typical ore samples, and also some specimens of gem stone materials found in Washington. In this connection it should be mentioned that the Division is encouraging prospecting and discovery of Washington gem stone material, for which there is an increasing demand.

NO. 4—MINING LIBRARY

The Division has started a library pertaining to mining, milling and metallurgy. This library now contains the following books and publications:

- Two complete sets of The Mineral Year Book, issued annually by the U. S. Bureau of Mines, from 1915 to date.
- Volume 44 of Mineral Industry.
- Glossary of the Mining and Mineral Industry, by Albert H. Fay—U. S. Bureau of Mines Bulletin No. 95.
- A History of American Mining, by T. A. Rickard.
- Choice of Methods in Mining & Metallurgy—A.I.M.E. Series.
- Determination of Minerals, by Edward Henry Kraus & Walter Fred Hunt.
- Elements of Mining, by George J. Young.
- Flotation, by A. M. Gaudin.
- Gems and Gem Materials, by Edward Henry Krause and Edward Fuller Holden.
- Geologic Structures, by Bailey Willis & Robin Willis.
- Geology Applied to Mining, by Josiah Edward Spurr.
- Getting Acquainted With Minerals, by George Letchworth English.
- Handbook for Prospectors, by M. W. von Bernewitz.
- Handbook of Non-Ferrous Metallurgy—Vol. I and Vol. II, by Donald M. Liddell.
- Introduction to Geology, by E. B. Branson.
- Introductory Economic Geology, by W. A. Tarr.
- Man and Metals—Vol. I and Vol. II, by T. A. Rickard.
- Mineral Economics—A.I.M.E. Series.

Mineral Deposits, by Waldemar Lindgren.
Mineralogy, by Edward Henry Kraus.
Non-Metallic Minerals, by Raymond B. Ladoo.
Petroleum Production Engineering, by Lester Charles Uren.
Physiography of Western United States, by Nevin M. Fenneman.
Practical Mine Development and Equipment, by Lucien Eaton.
Principles of Mining, by Herbert C. Hoover.
Technical Writing—A.I.M.E. Series, by T. A. Rickard.
The Alloys of Iron and Silicon, by Earl S. Greiner, J. S. Marsh and Bradley Stoughton.
The Examination of Prospects—A.I.M.E. Series, by C. Godfrey Gunther and Revised by Russell C. Fleming.
The Stone Industries, by Oliver Bowles.
World Minerals and World Politics, by C. K. Leith.
All Bulletins of old Washington Geological Survey not out of print.

In addition there are many bulletins, reports and publications relating to the mineral industry, from various authoritative sources.

NO. 5—COLLECTION OF DESCRIPTIONS OF MECHANICAL APPLIANCES, ETC.

Many books, catalogs, drawings, bulletins, etc., have been furnished by manufacturers, distributors, and others interested in the industry. These are filed and indexed for ready reference and are open to the public.

NO. 6—BULLETINS, REPORTS, ETC.

Having no funds for printing the Division has been able to issue only a few bulletins and reports in typewritten and mimeographed form. Among these has been a summary of federal and state mining laws, for which there has been much demand. Certain reports on the mineral resources including diatomite, manganese deposits of the Olympic Peninsula, chromite deposits, and various miscellaneous reports have been distributed to meet special demands.

NO. 7—BUREAU OF GENERAL INFORMATION

The Division has served as a bureau of general information, in which capacity it has furnished information daily to callers and inquirers by letter on matters pertaining to the mineral resources, mining development, mining properties, companies, etc. Whenever the information has been available it has been given direct. Equally important has been the service rendered in directing inquirers to original sources of information.

Almost daily the Division receives letters asking about companies in which stock is held by the inquirer, or in which the inquirer is otherwise interested. Everything that may be obtained with respect to such companies from the office of the Secretary of State, or other authoritative sources, is collected and furnished. This is a service that is much in demand, and which appears to be deeply appreciated. With reasonable facilities this service will be of great value to the public.

NO. 8—DETERMINATIVE EXAMINATIONS

Through the co-operation of the departments of mining and metallurgy at the University of Washington and State College of Washington, the Division of Geology and the U. S. Bureau of Mines, the Division has been enabled to have determinative examinations made on many samples submitted by prospectors and others interested. These determinations are only qualitative, but in most instances are sufficient to identify the material and to indicate whether there is

likelihood of commercial value. This service somewhat expanded and carefully administered so as not to encroach into the field of private enterprise would be of exceptional value in aiding in the development of our mineral resources.

NO. 9—CO-OPERATION

The Division has co-operated fully with federal and state departments and institutions in furnishing information with respect to the mineral industry of the state. It provided samples of manganese ore to the U. S. Bureau of Mines and to the State Metallurgical Research Laboratory at the State College at Pullman for experiments in developing a process for recovery of manganese metal from silicious ores. It has furnished reports and other information to engineers representing the U. S. Army Engineers in connection with studies of markets for power to be generated at Bonneville and Coulee Dam, and the Department of Interior in a special survey that was made. The Division has co-operated fully with miners and prospectors organizations, with individual miners and prospectors, and all others interested in mineral development.

Mine-to-Market Roads

Lack of roads to serve mineralized areas has been one of the greatest obstacles to the development of the mineral resources of the state. The Division has co-operated with those interested in mineral development during the biennium to have needed roads constructed. The Division has presented information as to mineralized areas to the Forest Service, to Works Progress Administration, to county commissioners in various counties and to the State Highway Department, with the view to having projects undertaken. The forest service has co-operated to the fullest extent, wherever possible under its program and policy, to construct or extend roads that might assist the mining industry. Although W.P.A. is purely a relief agency, it has co-operated as fully as its principles and regulations would permit. County Commissioners are sympathetic and deeply interested. Because of lack of funds, or due to the fact that no provision had been made in their budgets, no extensive work has been done by them. C.C.C. camps have constructed some roads that will serve mineralized sections. However, a beginning has been made in the construction of some roads and in establishing a mine-to-market road policy. There has been some such construction in several parts of the state, some of which has been of great benefit to mining operations. It is probable that hereafter county commissioners will use some of the money obtained from the gas tax for this purpose, and in addition that federal appropriations may be obtained to match with county funds used in mine-to-market roads construction.