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BUREAU OF MINES, STATE OF COLORADO.  
DENVER, U. S. A.

HARRY A. LEE, COMMISSIONER.

F. H. NYE, }  
C. N. CROWDER, } INSPECTORS.

*1899-1900*  
*.....*  
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# COLORADO

*Healy*  
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Papers  
gift of  
Mrs. Fred Smith.



BULLETIN No. 3.

MINING LAW RELATIVE TO BUREAU OF MINES.  
PRECIOUS METAL PRODUCTION.

BUREAU OF MINES, STATE OF COLORADO.  
DENVER, U. S. A.

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LETTER OF TRANSMITTAL

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CHARLES K. THOMAS  
GOVERNOR OF COLORADO  
COLORADO

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BULLETIN No. 3.

MINING LAW RELATIVE TO BUREAU OF MINES.  
PRECIOUS METAL PRODUCTION.

REPUBLIC OF THE STATE OF COLORADO  
DENVER

DENVER, COLORADO  
THE SMITH-BROOKS PRINTING COMPANY  
STATE PRINTERS  
1899

AN ACT

LETTER OF TRANSMITTAL.

TO HIS EXCELLENCY,  
CHARLES S. THOMAS,  
GOVERNOR OF COLORADO.

SIR: I HAVE THE HONOR TO TRANSMIT HEREWITH A COPY OF "AN ACT TO AMEND AN ACT ENTITLED 'AN ACT TO CREATE A BUREAU OF MINES, ETC.'" ALSO STATISTICAL TABLES SHOWING THE PRECIOUS METAL PRODUCTION OF COLORADO; THE SAME BEING DESIGNATED AS BULLETIN NO. 3 OF THIS DEPARTMENT.

RESPECTFULLY SUBMITTED,

HARRY A. LEE,  
COMMISSIONER OF MINES.

DENVER, COLORADO, APRIL 22, 1899.

LETTER OF TRANSMITTAL

STATE OF COLORADO,  
OFFICE OF BUREAU OF MINES.

The following act, amending the law governing the Bureau of Mines, is a copy of House Bill Number 212 as certified to this Department by the Honorable Secretary of State. The printed law herewith has been carefully compared with the certified copy now on file in this office.

This act passed both houses of the Twelfth General Assembly almost unanimously, received the approval of His Excellency, Charles S. Thomas, at 9 o'clock a. m., April 10, 1899, and the same will be in full force and effect at 9 o'clock a. m., July 9, 1899.

The especial attention of all owners, agents, managers or lessees, operating or controlling mines, mills or metallurgical plants within the State is called to sections 8, 10, 11, 13, 14 and 20.

Respectfully,

HARRY A. LEE,  
Commissioner of Mines.

Denver, Colorado, April 22, 1899.

## AN ACT

TO AMEND AN ACT ENTITLED "AN ACT TO CREATE A BUREAU OF MINES, TO DEFINE THE DUTIES OF THE COMMISSIONER OF MINES AND PROVIDE FOR THE GOVERNMENT THEREOF, AND MAKING AN APPROPRIATION THEREFOR; AND TO REPEAL AN ACT ENTITLED 'AN ACT DIVIDING THE STATE OF COLORADO INTO METALLIFEROUS MINING DISTRICTS, AND APPOINTING AN INSPECTOR OF METALLIFEROUS MINES,' APPROVED APRIL 1, 1889, AND PORTIONS OF OTHER ACTS IN CONFLICT HEREWITH.

*Be it enacted by the General Assembly of the State of Colorado:*

Section 1. That section 1 of an act entitled "an act to create a Bureau of Mines, etc., Approved March 30, 1895, be and the same is hereby amended to read as follows:

Section 1. There shall be and is hereby established in this State a department to be known as "The Bureau of Mines of the State of Colorado," the principal office of which shall be maintained at the State Capitol, in the City of Denver.

Sec. 2. That section 2 of said act be and the same is hereby amended to read as follows:

Sec. 2. It shall be the duty of the Governor to appoint a citizen of this state, having had not less than seven (7) years practical experience in mining in the State of Colorado, together with a practical and scientific knowledge of Mining, Metallurgy, Mineralogy and Geology, to the office of Commissioner of

Mines, to hold the said office for the term of four (4) years, or until the appointment and qualification of his successor, as provided in section 1 of Article XVI. of the Constitution of the State of Colorado, who shall take and subscribe the oath of office prescribed by the Constitution; and he shall give bond to the State in the sum of \$20,000. to be approved by the Governor of the State, conditioned upon the faithful discharge of his duties.

The Governor shall have power at any time to remove from office the Commissioner of Mines, for incompetency, neglect of duty or abuse of the privileges of his office.

Sec. 3. That section 6 of said act be and the same is hereby made section 3 of this act and amended to read as follows:

Sec. 3. The Commissioner of Mines shall, with the consent of the Governor, appoint two inspectors of practical experience in mining, citizens of the United States and legal voters of the State of Colorado, and having had not less than seven (7) years practical experience in mining in the State of Colorado, who shall hold their office for the term of two years, and whose duties shall be as hereinafter specified and he shall appoint a clerk who must have a general knowledge of Mineralogy and shall act as assistant curator for the state mineral collection; and before entering upon the discharge of their duties they shall subscribe to the oath required by the constitution, and each give bond to the state in the sum of \$5,000. to be approved by the Governor, conditioned upon the faithful performance of their duties, respectively; said bonds shall together with the Commissioner's bond, be deposited with the Secretary of State. The Commissioner of Mines may appoint a stenographer, who shall act as assistant clerk, and

such other competent assistants as he may deem necessary for the carrying out of the object of this act; provided, appropriation be made therefor, and shall have the power, with the consent of the Governor, at any time, to remove the inspectors, clerks or other assistants for incompetency, neglect of duty or abuse of the privileges of his office.

Sec. 4. It shall be the duty of the inspectors to examine and report to the Commissioner the condition of the hoisting machinery, engines, boilers, whims, cages, cars, buckets ropes and cables in use in all the metalliferous mines in operation in the state, the appliances used for the extinguishment of fires, the manner and methods of working and timbering the shafts drifts inclines stopes, winzes, tunnels and upraises through which persons pass while engaged in their daily labors, all exits from the mine and how the mine is ventilated, together with the sanitary condition of the same, and also how and where all explosives and inflammable oils and supplies are stored, also the system of signals used in the mine. He shall not give notice to any owner, agent, manager or lessee of the time when such inspection shall be made.

Sec. 5. That section 5 of said act be hereby made section 5 of this act and amended to read as follows:

Sec. 5. The Commissioner of Mines may as appropriations may be made therefor, from time to time, appoint deputy inspectors in the various mining camps or districts to investigate or report on accidents, or appoint such other competent assistants as he may deem necessary and proper for the carrying out of the object of this act; for the purpose of making more extended geological researches and surveys concerning the mineral districts of the State; the appointments of said deputy inspectors or assistants to

become void upon the performance of the specific things or acts designated by the commissioner in their said appointment; but the entire expenses of the bureau must not in any one year be greater than can be paid out of the fund or appropriation provided therefor.

Sec. 6. That section 4 of said act be hereby made section 6 of this act and be amended to read as follows:

Sec. 6. The Secretary of the State board of capitol managers shall provide suitable and ample rooms in the state capitol building for the use of said bureau and shall provide the necessary fuel, lights and appurtenances to the proper and creditable management of said office; said office shall be deemed a public office, and the records books and papers thereof or on file therein, shall be deemed public records of the state; all books and documents and all other articles whatever in the office of the commissioner of mines, shall be transferred by him to his successor in office, who shall give him a receipt for the same. The Commissioner shall keep and maintain a complete list and record of all articles, papers, and documents received by him and belonging to the said office.

Sec. 7. That section 3 of said act be hereby made section 7 of this act and amended to read as follows:

Sec. 7. That it shall be the duty of the Commissioner of Mines, as he has opportunity and means, aided by the other officers, except the inspectors, of the bureau, working under his instructions, to collect and preserve for study and reference, specimens of all the geological and mineralogical substances including mineral waters found in the state, especially those possessing economic or commercial value, which specimens shall be marked, arranged, classified and described, and a record thereof preserved, showing the

character thereof and the place from whence obtained; to collect and in like manner preserve in his office minerals, rocks and fossils of other states, territories and countries; to collect and make a part of the records of his office the geological surveys and reports bearing upon the mining industry heretofore made by other officers of the state or by the United States Government; to collect and record all data and records giving the history and showing the progress of the mining industry of the state from the earliest date up to the present time; to examine, report and record the geological formation of each important mining district and each important mine, giving the name of the mine, altitude, location, name of owners, character of vein development, character of walls or enclosing rocks, character and extent of ore veins or deposits, methods of ore extraction, powder (power) used, fuel used, water used in boilers, pressure carried, cost of fuel, cost of timbers, cost of transporting supplies to mine, cost per ton for transporting ore to market, method of treatment, cost of treatment per ton, average cost of sinking per foot, average cost of drifting per foot, average number of men employed, wages paid and hours worked, and all other information that will tend to give a correct idea of the expense and serve as a guide to profitable mining and milling of ore; to investigate and report and record the successfully used methods for the recovery of the precious metals, describing in detail mechanical operations of all important milling and reduction plants and results obtained; to investigate, report and record the advancement made in the application of electricity, compressed (compressed) air, water power and steam as labor (labor) saving devices to all branches of mining operations; to collect statistics upon smelting, concentrating, milling and dressing of metalliferous ores, and upon all the mineral products of the

state for reference and study; to distribute reliable information regarding the product, available supply, location, character and adaptability for economic purposes of the resources of Colorado in coal, coal oil, asphalt, iron, building stone, slates, marble, fire clays, cements, pottery and porclain (porcelain) clays, asbestos, mica and the various mineral waters, and such other items within the provence (province) of this bureau as in the judgment of the commissioner of mines may be advisable to procure standard works on the mining industry, smelting, concentrating, milling and dressing of metalliferous ores, mining engineering, geology, mineralogy and other subjects which can aid in the study and promote knowledge of all who are interested in mining or manufacturing of any of the mineral products of this state; and the commissioner of mines shall give receipt, when demanded, for all enumerated herein to the persons from whom he receives them; to make or cause to be made, with the approval of the Governor and under the direction of some officer of the bureau, exhibits of the mineral resources and products of the state, at such industrial exhibitions held in this or other states or countries, as may be deemed advisable or desirable, and for which due appropriations shall have been or may be provided.

Sec. 8. Section 7 of said act be and the same is hereby made section 8 of this act, and amended to read as follows:

Sec. 8. The Commissioner of Mines, inspectors, or either of them, shall not act as manager, or agent or lessee, for any mining or other corporation during the term of his office, but shall give his whole time and attention to the duties of the office to which he has been appointed. No officer of this bureau nor any agent or person in any way connected therewith, shall

make a report of any mine or mining property with the intent to promote or aid in the sale or other conveyance thereof, and any such officer, agent, or person violating this provision shall, upon conviction thereof, pay a fine of not less than five hundred (\$500.00) dollars, nor more than five thousand dollars (\$5,000.00) or be imprisoned in the state penitentiary not less than one (1) nor more than three (3) years or both in the discretion of the court. The Commissioner shall, on receipt of reliable information relating to the health and safety of the workmen employed in any metalliferous mine, mill or reduction plant in the state, or whenever he deems such inspection necessary, examine or instruct one of the inspectors to examine and report to him the condition of the same. The owner, agent, manager or lessee shall have the right to appeal to the commissioner on any difference that may arise between such parties and the inspector. On receipt of notice of any accident in a mine, mill or reduction plant, whether fatal or not, the commissioner shall inquire into the cause of such accident.

Sec. 9. It shall be the duty of the commissioner of mines to biennially make report to the Governor, showing the amount of disbursements of the bureau under his charge, the progress made and such statistical information in reference to mines, mining, milling and smelting as shall be deemed important, and shall transmit copies of said report to the general assembly at the biennial session. There shall be printed at least one thousand (1,000) copies of said report for distribution and said reports shall contain a review of the work of the bureau.

The commissioner may, from time to time, with the consent of the Governor, as appropriations (appropriations) may be made therefor, compile, publish and distribute bulletins upon subjects, districts and counties; such bulletins, when treating of a dis-

trict or county, shall give in detail the history, geology, mines, mills, process of treatment and results, together with a classification and location of mines and prospects together (together) with maps of the same; one thousand (1,000) copies shall be distributed free to state and county officers, public libraries, newspapers, magazines and exchanges of the bureau, and the remainder sold at cost of printing.

Sec. 10. That section 9 of said act is hereby made section 10 of this act and amended to read as follows:

Sec. 10. Every owner, agent, manager or lessee of any metalliferous mine or metallurgical plant in this state shall admit the commissioner or inspector on the exhibition of his certificate of appointment, for the purpose of making examination and inspection provided for in this act, whenever the mine is in active operation and render any necessary assistance for such inspection. But said commissioner or inspector shall not unnecessarily obstruct the working of said mine or plant. The refusal of the owner, agent, manager or lessee to admit the commissioner or inspector to such mine or plant to lawfully inspect the same, shall upon conviction, be deemed a misdemeanor, and shall be subject to a fine of not less than fifty dollars (\$50.00) nor more than three hundred dollars (\$300.00) or be imprisoned not less than one (1) nor more than three (3) months or by both such fine and imprisonment.

Sec. 11. That section 11 of said act be and the same is hereby made section 11 of this act and amended to read as follows:

Sec. 11. The commissioner and inspectors shall exercise a sound discretion in the enforcement of this act and if they shall find any matter, thing, or practice in or connected with any metalliferous mine or metallurgical plant to be dangerous or defective, so as to, in their opinion, threaten or tend to the bodily injury of any person, the commissioner or inspector

shall give notice in writing thereof to the owner, agent, manager or lessee of such mine or plant, stating in such notice the particulars in which he considers such mine, or plant, part thereof or practice to be dangerous or defective; and he shall order the same to be remedied; a copy of said order shall be filed and become a part of the records of the bureau of mines, and said owner, agent, manager or lessee shall, upon compliance of said order immediately notify the commissioner of mines in writing. Upon the refusal or failure of said owner, agent, manager or lessee to report within reasonable length of time, said owner, agent, manager or lessee shall be subject to a fine of not less than fifty dollars (\$50.00) nor more than three hundred (\$300.00) dollars for each and every such refusal or failure.

Sec. 12. That section 10 of said act be and the same is hereby made section 12 of this act and amended to read as follows:

Sec. 12. If the commissioner, inspectors or either of them, shall reveal any information in regard to metallurgical processes, ore bodies, shoots or deposits of ore or location, course or character of underground workings or give any information or opinion respecting any mine or metallurgical process; obtained by them in making such inspection, except in the way of official reports filed for record, as hereinbefore provided, on conviction thereof he or they shall be removed from the office and fined in a sum not less than one thousand dollars (\$1,000.00) nor more than five thousand dollars (\$5,000.00).

Sec. 13. That section 12 of said act be and the same is hereby made section 13 of this act and amended to read as follows:

Sec. 13. In case the owner, agent, manager or lessee, after written notice being duly given, does not conform to the provisions of this act, or disregards

the requirements of this act, or any of its provisions, or lawful order of the commissioner or inspector made hereunder, any court of competent jurisdiction, may, on application or information of the commissioner of mines, by civil action in the name of the people of the state of Colorado, enjoin or restrain the owner, agent, manager or lessee from working the same until it is made to conform to the provisions of this act; and the costs of action paid by defendant, and such remedy shall be cumulative, and shall not effect (affect) any other proceedings against such owner, agent, manager or lessee, authorized by law for the matters complained of in such action.

Sec. 14. That section 13 of said act be and the same is hereby made section 14 of this act and amended to read as follows:

Sec. 14. Any owner, agent, manager or lessee having charge or operating any metalliferous mine or metallurgical plant, whenever loss of life or accident serious enough in character to cause the injured party to stop work for two consecutive days and connected with the workings of such mine or metallurgical plant, shall occur, shall give notice immediately and report all the facts thereof to the commissioner of mines. The refusal or failure of the said owner, agent, manager or lessee to so report within reasonable length of time shall be deemed a misdemeanor and shall upon conviction be subject to a fine of not less than fifty dollars (\$50.00) nor more than three hundred dollars (\$300.00) or be imprisoned not less than one or more than three months, or by both such fine and imprisonment. The commissioner of mines upon receipt of notice of accident shall investigate and ascertain the causes and make or cause to be made a report, which report shall be filed in his office for future reference.

Sec. 15. The commissioner of mines shall receive for his services a salary of twenty-five hundred dollars (\$2,500.00) per annum to be paid as other officers of the state are paid and shall also receive his necessary traveling expenses when traveling on the business of his office, not to exceed the sum of one thousand dollars (\$1,000.00) per annum. The inspectors shall each receive the sum of fifteen hundred dollars (\$1,500.00) per annum and actual traveling expenses, not to exceed the sum of one thousand dollars (\$1,000.00) per annum. The clerk or assistant curator shall receive the sum of fifteen hundred dollars (\$1,500.00) per annum; the stenographer or assistant clerk shall receive one thousand dollars (\$1,000.00) per annum. The whole of said salary and expenses to be paid out of the bureau of mines fund hereinafter provided for and not otherwise.

The commissioner of mines shall have at his disposal the sum of two thousand dollars (\$2,000) for the fiscal years of 1899 and 1900, and shall, in his annual report, itemize the expenditures made from this fund.

Sec. 16. That section 14 of said act be and the same is hereby made section 16 of this act and amended to read as follows:

Sec. 16. The Commissioner of Mines is hereby authorized, with the approval of the Governor, to draw upon the funds appropriated by this act, from time to time, to pay the salaries and traveling expenses of himself and inspectors and the salary of the clerk and other assistants, and printing of bulletins hereinbefore provided, and to defray the necessary expenses of his office; and the State Auditor is hereby required to issue his warrant on the State Treasurer for such payments or expenses as they may accrue, and in all accounts rendered or presented for payment, on account of the bureau of mines, the commissioner shall be required to make vouchers in duplicate, one of

which shall be filed in his office. He is hereby authorized to procure such instruments and apparatus from time to time as may be necessary to the proper discharge of the duties under this act, not to exceed the amount appropriated for incidental and operating expenses.

Sec. 17. That section 15 of said act be and the same is hereby made section 17 of this act and amended to read as follows:

Sec. 17. For the purpose of carrying out the provisions of this act, there is hereby appropriated out of the funds in the State Treasury not otherwise appropriated, the sum of twenty-four thousand dollars (\$24,000.00) for the fiscal years 1899 and 1900, said amounts, including the sum of two thousand dollars (\$2,000) for printing, incidental and operating expenses, to be at the disposal of the Commissioner of Mines, as otherwise provided for.

Sec. 18. That section 18 of said act be and the same is hereby made section 18 of this act.

Sec. 18. It shall be the duty of the Commissioner of Mines to furnish as far as practicable, to the proper officials of the State School of Mines, such information, plats, surveys, etc, resulting from the researches of his department, from time to time, as said officials may ask or deem advantageous to the advancement of the interest of the State School of Mines.

Sec. 19. That section 19 of said act be, and the same is hereby made section 19 of this act and amended to read as follows:

Sec. 19. The mineral specimens heretofore collected by the bureau of immigration and the Worlds Fair Commissioners are hereby transferred to the custody of the Bureau of Mines, and if found necessary, the Attorney General shall bring suit to recover the same.

For the purpose of providing the necessary rules and regulations for the government of metalliferous mining in this State, the following section, to be known as section 20, is hereby enacted and made a part of this act:

Sec. 20. First—That explosives must be stored in a magazine provided for that purpose alone; said magazine to be placed far enough from the working shaft, tunnel or incline to insure the same remaining intact in the event the entire stock of explosives in said magazine be exploded; that all explosives in excess of the amount required for a shift's work must be kept in said magazine; that no powder or other explosive be stored in underground workings where men are employed; that each mine shall provide and employ a suitable device for thawing or warming powder and keep the same in condition for use; that oils or other combustable (combustible) substances shall not be kept or stored in the same magazine with explosives.

Second—That the Commissioner of Mines shall have authority to regulate and limit the amount of nitro powder stored or kept in general supply stores in mining camps or mining towns where there is no municipal law governing the storage of same.

Third—That oils and other inflammable (inflammable) materials shall be stored or kept in a building erected for that purpose, and at a safe distance from the main buildings, and at a safe distance from the powder magazine, and their removal from said building for use shall be in such quantities as are necessary to meet the requirements of a day only.

Fourth—That no person shall, whether working for himself or in the employ of any person, company or corporation, while loading or charging a hole with nitroglycerine powder or other explosive, use or employ (employ) any steel or iron tamping bar; nor shall

any mine manager, superintendent, foreman or shift boss, or other person having the management or direction of mine labor, allow or permit the use of such steel, iron or other metal tamping bar by employes under his management or direction.

Fifth—That all old timber removed shall as soon as practicable be taken from the mine and shall not be piled up and permitted to decay underground.

Sixth—That no person addicted to the use of intoxicating liquors or under eighteen years of age shall be employed as hoisting engineer.

Seventh—That all hoisting machinery, using steam, electricity, air or hydraulic motive power, for the purpose of hoisting from or lowering into metalliferous mines employes and material, shall be equipped (equipped) with an indicator geared positively to the drum shaft, and so adjusted with dial or slide as to move a target or indicator and thereby at all times show the exact location of the cage, bucket or skip, said indicator to be so placed near to and in clear view of the engineer and to be free of gong, bells or other automatic attachments.

Eighth—That all mines employing steam and other hoisting power, and equipped with cage or skip, shall, when hoisting material from two or more levels, employ a man to be known as a "cager" whose duties shall be to load and unload said cage or skip at said levels and to give all signals to the engineer.

Ninth—That there shall be established by the Commissioner of Mines a uniform code of signals, embracing that most generally in use in metalliferous mines, and the commissioner shall have the power to enforce the adoption of such code of signals in all mines using hoisting machinery. The code of signals shall be securely posted, in clear and legible form, in the engine room, at the collar of the shaft and at each level or station.

Tenth—That all mines having but one exit, and the same covered with a building containing the mechanical plant, furnace room, and blacksmith shop, shall have fire protection. Where steam is used, hose of sufficient length to reach the farthest point of the plant shall be attached to feed pump or injector, and the same kept ready for immediate use. In mines where water is not available, chemical fire extinguishers or hand grenades shall be kept in convenient places for immediate use.

Eleventh—That all persons shall be prohibited from riding upon any cage, skip or bucket loaded with tools, timber, powder or other material, except for the purpose of assisting in passing same through shaft or incline, and then only upon special signal.

Twelfth—All persons giving or causing to be given false signals, or riding upon any cage, skip or bucket upon signals that designate to the engineer that no employes are aboard, shall be deemed guilty of a misdemeanor under this act.

Thirteenth—That all shafts more than fifty (50) feet in depth equipped with hoisting machinery shall be divided into at least two (2) compartments, and one compartment to be partitioned off and set aside for a ladderway. The ladders shall be made sufficiently strong for the purpose demanded, and in verticle (vertical) shafts, landings shall be constructed not more than twenty (20) feet apart, said landings to be closely covered, except an opening large enough to permit the passage of a man; said ladders shall be inclined at the most convenient angle which the space allows, and shall be firmly fastened, and kept in good repair. In all incline shafts the landings shall be put in as above described, but a straight ladder on the incline of the shaft. Ladders in upraises and winzes shall be likewise provided and kept in repair, but

where winzes connecting levels are used only for ventilation and exit, only one such winze on each level need be equipped.

Fourteenth—That hereafter shafts equipped with buildings and machinery, with only the working shaft for exit, shall be divided into at least two (2) compartments, one of which shall be tightly partitioned off and used for a ladderway as hereinbefore provided for, said ladderway shall be securely bulkheaded at a point at least twenty five feet below the collar of the shaft, and below this bulkhead, a drift shall be run to the surface, if location of drift is upon side hill, or wall without the building and upraised to the surface, if upon a level. Said ladderway and landings shall be kept at all times in good repair and afford easy mode of escape in event of fire.

Fifteenth—That hereafter all tunnels or adit levels at safe distance from mouth of same shall connect with the surface, and be provided with safe and suitable ladders, and thus afford a means of exit in case of fire destroying buildings over the mouth of tunnel or adit level.

Sixteenth—That employes engaged in sinking shaft to incline, shall at all times be provided with chain or other kind of ladder so arranged as to insure safe means of exit.

Seventeenth—That all shaft collars hereafter constructed, shall be covered and so arranged that persons or foreign objects cannot fall into the shaft. Where a mining cage is used a bonnet which raises with the cage and falls back into place when the cage descends, (descends) shall be used. This bonnet or shaft cover need not be tight beyond what would exclude anything from falling into the shaft that would endanger life, and the cage shall also be equipped with safety clutches and a steel hood, or bonnet, oval in

shape, if solid, and if divided in the middle and hinged at the sides, the angles of the sides when closed shall not be less than forty-five degrees, nor the steel less than three-sixteenths (3-16) of an inch thick.

When wooden doors are used, the shaft must be housed in and covered and said doors so constructed as to stand at an angle of not less than forty-five degrees pitch, when closed, hinged at the lower sides, and opening upward, or outward, and said doors shall not be less than four inches in thickness.

Eighteenth—That all stations or levels shall, when practicable, have a passage-way around the working shaft, so that crossing over the working compartment can be avoided. At all shaft stations a guard rail or rails shall be provided and kept in place across the shaft, in front of the level, so arranged that it will prevent persons from walking, falling or pushing a truck, car or other conveyance into the shaft. All winzes and mill holes extending from one level to another shall be covered or surrounded with guard-rails, to prevent persons from stepping or falling into the same.

Nineteenth—That where any shaft is sunk on a vein, ore shoot or body, a pillar of ground shall be left standing on each side of the shaft of sufficient dimensions to protect and secure the same, and in no case shall stoping be permitted up to or within such close proximity to the shaft as to render the same insecure, until such time as the mine is to be abandoned and said pillar withdrawn.

Twentieth—That all abandoned mine shafts, pits or other excavations endangering the life of man or beast shall be securely covered or fenced.

Twenty-first—That any person or persons removing or destroying any covering or fencing placed around or over any shaft, pit or other excavation, as

hereinbefore provided, shall be deemed guilty of a misdemeanor under this act, and upon conviction thereof in any court of competent jurisdiction shall be fined in a sum of not less than fifty dollars \$(50.00) or more than three hundred dollars \$(300) or imprisonment in the county jail for six (6) months, or by both fine and imprisonment

Twenty-second—That any person or persons operating any metalliferous mine or mill and employing five or more men, shall report the same to the bureau of mines and state when work is commenced and when stopped, and mines working continuously shall report on or before December 1, of each year, together with the names of the owners and managers or lessee in charge of said work, together with the post office address, the name of the claim or claims to be operated, the name of the county and mining district, together with the number of men employed, directly or indirectly, the same being classified into miners, trammers, timbermen ore assorters, mill men, teamsters, etc. The necessary blanks to carry out the provisions of this section shall be furnished upon application by the commissioner of mines.

Twenty-third—That any owner, lessee, manager, superintendent or foreman in charge of any metalliferous (metalliferous) mine who shall wilfully misrepresent or withhold facts or information from any inspector or other officer of this bureau regarding the mine, such as length of time timbers have been in place, or making any misrepresentation tending to show safety when the reverse is true, shall be deemed guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction, shall be fined in any sum not less than one hundred dollars, nor more than three hundred dollars.

Twenty-fourth—That strangers or visitors shall not be allowed underground in any mine, unless ac-

accompanied by some owner, official or employe deputized to accompany same.

Twenty-fifth—Notice of the maximum number of men permitted to ride upon or in the cage, skip or bucket, at one time, shall be posted at the collar of the shaft and at each level. All men or employes riding upon or in an overloaded cage, skip or bucket, as provided in notice so posted, shall be guilty of a misdemeanor, and upon conviction in a competent court, shall be fined not less than five dollars, nor more than fifty dollars for each and every offense.

Twenty-sixth—The commissioner of mines or inspectors under this act shall have power to make such examination and inquiry as is deemed necessary to ascertain whether the provisions of this act are complied with; to examine into and make inquiry respecting the condition of any mine, mill or part thereof, and all matters or things connected with or relating to the safety of the persons employed in or about the same; to examine into and make inquiry respecting the condition of the machinery or mechanical device, and if deemed necessary, have same tested; to appear at all coroner's inquests held, respecting accidents, and if deemed necessary, call, examine and cross-examine witnesses; to exercise such other powers as are necessary for carrying this act into effect.

Twenty-seventh—Any person, owner, agent, manager or lessee operating a metalliferous mine or mill in this state, who fails to comply with the provisions herein set forth, shall be deemed guilty of a misdemeanor against this act, and, when not otherwise provided, shall be liable to the penalty prescribed in section 13 of this act, or to a fine of not less than twenty-five dollars (\$25.00), nor more than three hundred dollars (\$300.00), for each and every provision not complied with, or both, at the discretion of the court.

Sec. 21. The secretary of state shall provide the bureau of mines with a seal, the same to be marked "The Bureau of Mines of the State of Colorado," and bear the coat of arms of the state. The commissioner of mines is hereby empowered to affix seal to all certified copies of sections of record and shall charge the legal rate allowed for such service. Any and all moneys thus collected shall be transferred to the proper officer and by him credited to the bureau of mines fund.

Sec. 22. All justices of the peace and county courts in their respective counties, shall have original jurisdiction in prosecution for the violation of sections nine (9), ten (10), thirteen (13), nineteen (19) and twenty (20), of this act, with the right to appeal from judgment of justices of the peace to county courts in their respective counties, under the same conditions as in civil cases; and in all trials before justices of the peace and in county courts the defendant shall be entitled to a trial by jury as in other misdemeanor cases. District courts in their respective districts shall have original jurisdiction upon information or indictment in all prosecutions for violations of this act.

Sec. 23. That sections eight (8), sixteen (16) and seventeen (17) of said act be and the same hereby repealed.

Sec. 24. That section 20 of said act be and the same is hereby made section 24 of this act.

Sec. 25. An act dividing the state into metalliferous mining districts and appointing an inspector of mines, approved April 1, 1889, and all other acts inconsistent herewith are hereby repealed.

Sec. 26. That section 21 of said act be and the same is hereby made section 26 of this act.

Approved this 10th day of April, A. D. 1899, at 9 o'clock A. M.

ANNUAL GOLD PRODUCTION

PRODUCTION OF PRECIOUS METALS  
IN COLORADO

STATE OF COLORADO,  
OFFICE OF THE  
SECRETARY OF STATE.

UNITED STATES OF AMERICA, } ss.  
STATE OF COLORADO,

I, ELMER F. BECKWITH, Secretary of State of the State of Colorado, do hereby certify that, by virtue of the authority vested in me by law, I have prepared for publication, and caused to be printed, a copy of House Bill Number 212, passed by the Twelfth General Assembly of the State of Colorado, at the biennial session thereof; that I have carefully compared the said printed law with the original manuscript now on file in my office, and that the following is a true, full and correct copy thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the Great Seal of the State of Colorado, at the City of Denver, this twenty-second day of April, A. D. 1899.

[SEAL.]

ELMER F. BECKWITH,  
Secretary of State.

## PRODUCTION OF PRECIOUS METALS IN COLORADO.

### TOTAL PRODUCTION PRIOR TO JANUARY 1, 1899.

Gold .....	\$196,618,054	28
Silver .....	326,482,532	15
Lead .....	87,131,457	93
Copper .....	10,742,167	10
	\$620,974,211	46

### PRODUCTION FOR 1898.

Gold.....	1,138,584 Ozs., @ \$20.67	\$23,534,531	28
Silver.....	23,502,601 Ozs., @ .5825	13,690,265	15
Lead.....	113,417,168 Lbs., @ .0363	4,117,043	24
Copper.....	10,870,869 Lbs., @ .12	1,304,504	28
		\$42,646,343	95

### PRODUCTION FOR 1897.

Gold.....	947,249 Ozs., @ \$20.67	\$19,579,636	83
Silver.....	21,278,202 Ozs., @ .5965	12,692,447	47
Lead.....	80,799,778 Lbs., @ .0338	2,731,032	49
Copper.....	9,151,592 Lbs., @ .105	960,917	13
		\$35,964,033	92

Increase 1898 over 1897.....		\$ 6,682,310	03
Per cent. of increase, 1898 over 1897.....		18.58	
Per cent. of increase, 1898 over 1897, Gold.....		20.19	
Per cent. of increase, 1898 over 1897, Silver.....		7.86	
Per cent. of increase, 1898 over 1897, Lead.....		50.69	
Per cent. of increase, 1898 over 1897, Copper.....		35.75	

## ANNUAL GOLD PRODUCTION.

Year	Fine Ounces	Price per Ounce	Value
Previous to 1870	1,316,550	\$ 20 67	\$ 27,213,081 00
1870	145,864	20 67	3,015,000 00
1871	175,808	20 67	3,633,951 00
1872	128,034	20 67	2,646,463 00
1873	88,788	20 67	1,835,248 00
1874	99,932	20 67	2,065,595 00
1875	112,291	20 67	2,321,055 00
1876	131,897	20 67	2,726,311 00
1877	145,138	20 67	3,000,000 00
1878	162,864	20 67	3,336,404 00
1879	156,023	20 67	3,225,000 00
1880	154,814	20 67	3,200,000 00
1881	159,652	20 67	3,300,000 00
1882	162,554	20 67	3,360,000 00
1883	198,355	20 67	4,100,000 00
1884	205,612	20 67	4,250,000 00
1885	203,193	20 67	4,200,000 00
1886	215,288	20 67	4,450,000 00
1887	193,517	20 67	4,000,000 00
1888	181,809	20 67	3,758,000 00
1889	187,898	20 67	3,883,859 00
1890	200,774	20 67	4,150,000 00
1891	222,545	20 67	4,600,000 00
1892	256,410	20 67	5,300,000 00
1893	364,151	20 67	7,527,000 00
1894	462,009	20 67	9,549,731 00
1895	656,021	20 67	13,559,954 00
1896	738,618	20 67	15,267,234 00
1897	947,249	20 67	19,579,637 00
1898	1,138,584	20 67	23 534,531 28
Total	9,512,242	-----	\$ 196,618,054 28

## ANNUAL SILVER PRODUCTION.

Year	Fine Ounces	Price per Ounce	Value
Previous to 1870	250,000	\$ 1 32	\$ 330,000 00
1870	500,000	1 32	660,000 00
1871	779,590	1 32	1,029,058 00
1872	1,524,207	1 322	2,015,001 00
1873	1,683,370	1 298	2,185,014 00
1874	2,415,435	1 278	3,086,926 00
1875	2,306,253	1 246	2,873,591 00
1876	2,552,125	1 156	2,950,256 00
1877	3,480,548	1 201	4,180,138 00
1878	4,172,744	1 152	4,807,001 00
1879	9,049,424	1 123	10,162,503 00
1880	13,148,735	1 145	15,955,302 00
1881	13,272,488	1 138	15,104,092 00
1882	12,707,866	1 136	14,436,136 00
1883	13,434,915	1 11	14,912,756 00
1884	12,375,280	1 13	13,984,066 00
1885	12,220,589	1 065	13,014,927 00
1886	12,375,280	995	12,313,404 00
1887	11,600,826	978	11,345,608 00
1888	14,695,645	94	13,813,906 00
1889	18,375,519	936	17,199,486 00
1890	18,800,425	1 046	19,665,245 00
1891	21,160,480	988	20,906,554 00
1892	26,350,000	876	23,082,600 00
1893	25,838,600	782	20,205,785 00
1894	23,236,025	63	14,638,696 00
1895	17,891,626	653	11,683,232 00
1896	21,547,743	671	14,458,536 00
1897	21,278,202	5965	12,692,448 00
1898	23,502,601	5825	13,690,265 15
Total	362,526,541	-----	\$ 326,482,532 15

## ANNUAL LEAD PRODUCTION.

Year	Pounds	Price per Pound	Value
1872.....	80,000	\$ 0 0625	\$ 5,000 00
1873.....	112,000	0632	7,078 40
1874.....	624,000	0601	37,502 40
1875.....	1,636,000	0585	95,706 00
1876.....	1,334,000	0613	81,774 20
1877.....	1,794,000	0549	98,490 60
1878.....	13,338,000	0361	481,501 80
1879.....	47,348,000	0414	1,960,207 20
1880.....	71,348,000	0504	3,595,939 20
1881.....	81,094,000	0481	3,900,621 40
1882.....	110,000,000	0491	5,401,000 00
1883.....	141,114,000	0432	6,096,124 80
1884.....	126,330,000	0374	4,724,742 00
1885.....	111,000,000	0395	4,345,000 00
1886.....	118,000,000	0463	5,463,400 00
1887.....	126,000,000	0450	5,670,000 00
1888.....	131,000,000	0442	5,790,200 00
1889.....	138,000,000	0393	5,423,400 00
1890.....	109,000,000	0448	4,883,200 00
1891.....	128,000,000	0435	5,568,000 00
1892.....	123,000,000	0409	5,030,700 00
1893.....	84,396,000	0373	3,147,970 80
1894.....	97,264,000	0329	3,200,000 00
1895.....	91,477,214	0323	2,954,714 00
1896.....	82,018,000	0283	2,321,109 40
1897.....	80,799,778	0338	2,731,032 49
1898.....	113,417,168	0363	4,117,043 24
Total.....	2,129,524,160	-----	\$ 87,131,457 93

## ANNUAL COPPER PRODUCTION.

Year	Pounds	Price per Pound	Value
Previous to 1870	200,000	\$ 0 20	\$ 40,000 00
1870	97,088	206	20,000 00
1871	90,909	33	30,000 00
1872	155,172	29	45,000 00
1873	28,172	232	65,000 00
1874	400,876	225	90,197 00
1875	428,571	21	90,000 00
1876	376,244	186	70,000 00
1877	504,283	186	93,796 64
1878	539,393	165	89,000 00
1879	766,082	171	131,000 00
1880	915,422	201	184,000 00
1881	889,503	181	161,000 00
1882	1,494,000	185	276,390 00
1883	1,153,000	1585	182,750 50
1884	2,013,000	1385	278,800 50
1885	1,146,000	1112	127,435 20
1886	409,000	11	44,990 00
1887	2,012,000	1125	226,350 00
1888	1,621,000	1666	270,058 60
1889	3,100,000	1375	426,250 00
1890	6,000,000	1575	945,000 00
1891	7,000,000	1262	883,400 00
1892	7,250,000	1155	837,375 00
1893	7,121,157	1075	765,535 13
1894	6,528,214	0956	624,097 26
1895	6,125,000	1076	659,050 00
1896	7,539,245	1088	820,269 86
1897	9,151,592	105	960,917 13
1898	10,870,869	12	1,304,504 28
Total	86,177,792		\$ 10,742,167 10

## PRODUCTION BY COUNTIES DURING 1898.

County	Value of Gold	Value of Silver	Value of Lead	Value of Copper	Total Value
Arapahoe	\$ 702 78	\$ 4 08	-----	-----	\$ 706 86
Archuleta	144 69	23 30	-----	-----	167 99
Boulder	581,302 41	53,259 14	\$ 325 50	\$ 2,694 24	637,581 29
Chaffee	227,535 36	49,671 52	91,568 71	13,704 24	382,479 83
Clear Creek	605,527 65	913,949 49	212,128 74	38,090 76	1,769,696 64
Conejos	18,354 96	17,345 10	-----	-----	35,700 06
Costilla	5,518 89	578 42	-----	117 96	6,215 27
Custer	723 45	14,165 82	36,186 64	177 00	51,252 91
Delta	578 76	9 32	-----	-----	588 08
Dolores	88,281 57	269,899 05	24,923 47	17,957 64	401,061 73
Douglas	124 02	-----	-----	-----	124 02
Eagle	30,570 93	41,231 10	67,209 89	8,525 88	147,537 80
El Paso	13,507,348 92	39,492 92	37 39	20 16	13,546,899 39
Fremont	8,702 07	739 78	76 27	-----	9,518 12
Gilpin	1,983,513 87	178,062 68	44,153 07	76,044 84	2,281,774 46
Grand	806 13	6 41	-----	-----	812 54
Gunnison	81,005 73	89,006 00	72,475 13	14,288 64	256,775 50
Hinsdale	51 282 27	108,610 62	356,773.90	12,484 56	529,151 35
Huerfano	144 69	23 30	-----	-----	167 99
Jefferson	1,839 63	59 42	-----	-----	1,899 05
Lake	2,073,035 64	4,117,533 48	1,304,803 72	665,274 48	8,160,647 32
La Plata	30,384 90	2,532 71	-----	308 16	33,225 77
Larimer	11,161 80	34 95	-----	2,938 08	14,134 83
Las Animas	124 02	-----	-----	-----	124 02
Mesa	165 36	11 65	-----	-----	177 01
Mineral	46,383 46	2,433,209 68	197,947 68	1,767 48	2,679,308 32
Montrose	2,707 77	3,663 93	-----	4,159 68	10,531 38
Montezuma	8,268 00	507 36	305 17	-----	9,080 53
Ouray	852,554 82	827,342 23	101,637 68	124,267 44	1,905,802 17
Park	159,489 72	115,749 16	70,893 94	2,514 84	348,647 66
Pitkin	71,001 45	2,316,759 78	577,303 66	546 36	2,965,611 25
Rio Grande	3 720 60	913 36	86 87	1,175 28	5,896 11
Routt	12,753 39	1,265 77	561 82	72 00	14,652 98
Saguache	19,677 84	1,524 99	4,808 37	2,605 32	28,616 52
San Juan	1,132,591 98	610,750 68	532,157 96	270,290 52	2,545,791 14
San Miguel	1,572,676 95	1,240,190 27	243,199 55	43,299 72	3,099,366 49
Summit	343,824 78	242,137 68	177,478 11	1,179 00	764,619 57
Total	\$ 23,534,531 28	\$ 13,690,265 15	\$ 4,117,043 24	\$ 1,304,504 28	\$ 42,646,343 95

NOTE.—In the above table gold is figured at \$20.67, silver at \$0.5825 per ounce, lead at \$0.0363, and copper at 12 cents per pound.

## TOTAL PRODUCTION OF PRECIOUS METALS IN COLORADO.

	Value of Gold	Value of Silver	Value of Lead	Value of Copper	Total Value
Previous to 1870	\$ 27,213,081 00	\$ 330,000 00	-----	\$ 40,000 00	\$ 27,583,081 00
1870.....	3,015,000 00	660,000 00	-----	20,000 00	3,695,000 00
1871.....	3,633,951 00	1,029,058 00	-----	30,000 00	4,693,009 00
1872.....	2,646,463 00	2,015,001 00	\$ 5,000 00	45,000 00	4,711,464 00
1873.....	1,835,248 00	2,185,014 00	7,078 40	65,000 00	4,092,340 40
1874.....	2,065,595 00	3,086,926 00	37,502 40	90,197 00	5,280,220 40
1875.....	2,321,055 00	2,873,591 00	95,706 00	90,000 00	5,380,352 00
1876.....	2,726,311 00	2 950,256 00	81,774 20	70,000 00	5,828,341 20
1877.....	3,000,000 00	4,180,138 00	98,490 60	93,796 64	7,372,425 24
1878.....	3,366,404 00	4,807,001 00	481,501 80	89,000 00	8,743,906 80
1879.....	3,225,000 00	10,162,503 00	1,960,207 20	131,000 00	15,478,710 20
1880.....	3,200,000 00	15,055,302 00	3,595,939 20	184,000 00	22,035,241 20
1881.....	3,300,000 00	15,104,092 00	3,900,621 40	161,000 00	22,465,713 40
1882.....	3,360,000 00	14,436,136 00	5,401,000 00	276,390 00	23,473,526 00
1883.....	4,100,000 00	14,912,756 00	6,096,124 80	182,750 50	25,291,631 30
1884.....	4,250,000 00	13,984,066 00	4,724,742 00	278,800 50	23,237,608 50
1885.....	4,200,000 00	13,014,927 00	4 345,000 00	127,435 20	21,687,362 20
1886.....	4,450,000 00	12,313,404 00	5,463,400 00	44,990 00	22,271,794 00
1887.....	4,000,000 00	11,345,608 00	5,670,000 00	226,350 00	21,241,958 00
1888.....	3,758,000 00	13,813,906 00	5,790,200 00	270,058 60	23,632,164 60
1889.....	3,883,859 00	17,199,486 00	5,423,400 00	426,250 00	26,932,995 00
1890.....	4,150,000 00	19,665,245 00	4,883,200 00	945,000 00	29,643 445 00
1891.....	4,600,000 00	20,906,554 00	5,568,000 00	883,400 00	31,957,954 00
1892.....	5,300,000 00	23,082,600 00	5,030,700 00	837,375 00	34,250,675 00
1893.....	7,527,000 00	20,205,785 00	3,147,970 80	765,535 13	31,646,290 93
1894.....	9,549,731 00	14,638,696 00	3,200,000 00	624,097 26	28,012,524 26
1895.....	13,559,954 00	11,683,232 00	2,954,714 00	659,050 00	28,856,950 00
1896.....	15,267,234 00	14,458,536 00	2,321,109 40	820,269 86	32,867,149 26
1897.....	19,579,637 00	12,692,448 00	2,731,032 49	960,917 13	35,964,034 62
1898.....	23,534,531 28	13,690,265 15	4,117,043 24	1,304,504 28	42,646,343 95
Total.....	\$196,618,054 28	\$326,482,532 15	\$ 87,131,457 93	\$ 10,742,167 10	\$ 620,974,211 46

NOTE—In the above table the calculation is on the average market price of the metal for each year.

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