

FOURTH ANNUAL REPORT
OF THE
STATE MINE INSPECTOR
OF TEXAS

UNIVERSITY OF ILLINOIS LIBRARY

OCT 12 1915

FOR THE YEAR 1914

ISIDORE J. BROMAN
STATE MINE INSPECTOR



Government Publications
JUL 7 9 1915

Dallas County Library



AUSTIN, TEXAS
VON BOECKMANN-JONES COMPANY, PRINTERS
1915

LETTER OF TRANSMITTAL.

AUSTIN, TEXAS, February 16, 1915.

Hon. James E. Ferguson, Governor of Texas, Austin, Texas.

DEAR SIR: We have the honor to submit herewith for your consideration and approval the fourth annual report of Isidore J. Broman, State Mine Inspector of Texas.

This report has been submitted to the State Mining Board, and has been passed upon and approved with the recommendation that the same be published and made available for distribution.

Respectfully submitted,

C. N. AVERY, Chairman;
W. K. GORDON,
A. S. MASTERS,
WILLIAM WIMBERLEY,
N. M. BULLOCK,
H. C. KOEHLER,
W. R. DULANEY,
State Mining Board.

LETTER OF TRANSMITTAL.

AUSTIN, TEXAS, February 16, 1915.

State Mining Board, Austin, Texas.

GENTLEMEN: In compliance with Section 22 of the State Mining Law, requiring the State Mine Inspector to make annual reports to the State Mining Board, I have the honor to submit the following annual report for your approval, which constitutes my fourth annual report:

The law specifying the duties of the State Mine Inspector does not require him to make any report for general distribution. This is a defect in the law, as the coal mining industry of this State is of sufficient importance to receive the same recognition by the State as regards the issuance of reports as any other department. I have attempted several times to have my annual reports printed, but have never been able to secure the assent of the proper authorities for this purpose.

There are several reasons why such reports should be made available for general distribution. In the first place, the mine operators have shown me the greatest courtesy in furnishing this department with data. There have been few exceptions to this rule, but they are negligible. It would be no more than just that these reports should be returned in pamphlet form to all those who have assisted in their compilation. The mine workers having a great interest in the work of this department should have the same privilege. Numerous inquiries are received during the year by parties interested in the mining industry of this State for reports. Many of the inquiries come from parties outside the State, and it would be to the best interest of the industry if these demands could be satisfied.

I recommend, therefore, that the Mining Board take the necessary steps toward securing the publication of this report. The objection on the part of those in authority during the old administration against the publication of these reports was that the State reports are made out for fiscal years, whereas it is impossible to secure the necessary data in this department for other than calendar years. This objection does not seem to be valid. There should be no reason why the reports of the State Mine Inspector should not be issued for calendar years, and secure at the same time the right to publication as is enjoyed by other State departments.

I have endeavored to make this report something more than a mere inspection report, which is of interest to very few, and to make it cover the essential facts and statistics pertaining to the coal mining industry of Texas. This plan, I trust, will meet with your approval.

As numerous requests have been received for copies of the law governing the safety of coal mining, I recommend that said laws be included in this report and be published as an addenda to the same.

Respectfully submitted,

I. J. BROMAN,
State Mine Inspector.

GENERAL STATEMENT.

A BRIEF REVIEW OF THE COAL MINING INDUSTRY OF TEXAS FOR THE YEAR 1914.

During the year 1914 there were forty-eight mines in operation. Of these, nineteen were bituminous, and twenty-eight were lignite mines. The average number of days of active operation of the bituminous mines during the year was 222. The average number of days of actual operation of the lignite mines during the year was 207. The total tonnage of bituminous coal for the year was 1,123,230 tons. The total of lignite coal during the year was 732,197 tons. (Owing to the incomplete returns from the lignite field, the above figure is only approximately correct.) The total of underground workers in the bituminous field was 3180. Three hundred and fifty men worked on top. The total number of workers underground in the lignite field was 1200. (Approximate number.) Those working on top numbered 100. Approximately 4900 men worked in and about the mines in Texas during the year. The statistics show a marked industrial depression in both fields, as indicated by a diminished output and a decrease in the number of days of active operation. In the bituminous field this depression seems to be due to a general industrial depression and partly to competition with oil and gas. In the lignite field competition with fuel oil has become the dominant factor.

Three mines were abandoned during the year, and four new mines were in the progress at the close of the year. The financial depression has hindered development to a great extent in both fields.

There were eleven fatal and twenty non-fatal accidents of a serious nature during the year. The increase of fatal accidents is largely due to falls of rock and coal at the face, and to the handling of pit cars. The number of miners killed per thousand men employed was 2.4, an increase of 1.2 over last year. The average number killed in the country taken as a whole is approximately 3.5.

INSPECTION REPORT.

During the year 1914 I made forty inspections of the coal mines of the State, covering the lignite field and most of the bituminous field. I was prevented from finishing my inspection work this year by a serious illness contracted while inspecting the mines at Thurber. However, the most needed inspections were made, so that the work did not suffer greatly on account of the loss of time due to my illness.

As regards safety, the general condition of the coal mines in Texas is good. Estimated on a percentage basis, 75 per cent of the mines are in good condition, 20 per cent are in fair condition, and 5 per cent may be considered indifferent. (By indifferent is meant that such mines need more or less constant watching.)

The coal mine operators of the bituminous field have shown perfect willingness to comply with my recommendations and to obey the law. In no instance during my four years' service, as Inspector, have I been met with a spirit of antagonism on the part of the bituminous operators, but have been treated with consideration and respect in the performance of my duties. My work, therefore, in the bituminous field has been very satisfactory as far as my dealings with the operators is concerned, and I believe it has been more successful for the same reason. My inspection reports have been considered a check on the general condition of the mines as well as on the work of the pit bosses. Owing to this fact the majority of the pit bosses have made special efforts to keep their shafts in a condition such as to admit of a favorable report being made.

In the bituminous field I have also met with considerable assistance on the part of the mine workers. It has been my practice to invite the respective pit committees to accompany me on my tours through the mines. As a general rule, my invitations have been accepted, and I have found the assistance thus given of considerable aid in the making of more thorough inspections, as my attention has been thereby called to details which I might have overlooked. I have made duplicate copies of the reports on each mine, one copy of which has been mailed to the secretary of the local or to some member of the pit committee. Both sides have thereby been enabled to keep a check on the condition of the mines.

Generally speaking, I can state that the attitude of the operators towards mine inspection has undergone a change during the last four years. Whereas to begin with it was considered a nuisance it is now considered an economic necessity and mine safety, an important factor in the success of the business.

The safety conditions of the mines at Thurber, Strawn, Bridgeport and New Castle are excellent. Great improvements have been made as regards ventilation. In some of the larger shafts the anemometer read-

ings registered a surplus volume of air at every point of measurement. This condition was unheard of four years ago.

With the closing down of mine No. 2 at New Castle the most difficult thermogenic problem that has ever existed in the coal fields of Texas was solved. It was an interesting but very hot problem while it lasted.

The conditions in the lignite field while reasonably good have never approached the bituminous field in point of safety or efficiency. Several reasons are to be held accountable for this. In the first place, the cheapness of the product has an effect on the expenditures which a dignite operator can make over and above those considered absolutely necessary. On the other hand, lack of system and untrained and often ignorant labor not only in the capacity of mine men but mine foremen as well have contributed greatly towards the lack of safety and efficiency. There are a few notable exceptions to this rule, but, generally speaking, there are very few up-to-date lignite operators in Texas.

It is worthy of notice that such mines as are well managed and capable of giving a large output give little or no trouble as regards the enforcement of the law.

A few mines in the Rockdale field have given me more trouble in this respect than any group of mines in Texas. My inspection reports show the recurrence of the same identical breaches of the law time and again. If I have succeeded in restoring ventilation in one section of the mine, on my next inspection trip I have found the same lack of ventilation in another section of the mine. In this field these conditions are due in part to a few unprogressive mine operators and in part to personal prejudice against myself, the cause of which I am innocent, as I have endeavored to treat said operators with the greatest fairness and consideration. So far from having shown any partiality as against this element, I have this to reproach myself with that I have been too lenient and should have resorted to legal prosecution, which it has been my policy to avoid if possible and has been found unnecessary in my dealings with all fair and honest coal mine operators in Texas.

Aside from a few unpleasant experiences where advantage has been taken with my leniency, I have had very little trouble in the lignite field, and have found few intentional or wilful violations of the law. I have endeavored to do what has been in my power for the furtherance of more systematic methods of lignite mining, and I find that the spirit along this line is growing. It takes time and patience, however, to eradicate primitive methods of mining, such as have been in vogue in this field since the industry started in Texas.

I have made mistakes now and then, but on the whole I feel greatly encouraged as to the results of my work, and appreciative of the confidence which has been placed in me during my term of office.

I am certain that the coal fields of Texas offer a great field of usefulness to a man of ability, judgment and experience in the position of State Mine Inspector.

COAL MINE ACCIDENTS—1914.

Fatal Accidents.

Date, 1914.	Name.	Age.	Residence.	Name of Mine.	Married or Single.	No. of Members in Family.	Cause of Death and Nature of Accident.
Jan. 19	Santiago Wilson.....	21	Mexico.....	Lamar.....	Single.....		Falling roof.
Jan. 27	Florentino Vasquez.....	35	Darwin.....	Dolores.....	Married.....	Three.....	Killed by fan.
Jan. 6	Jose Reyes.....	35	Rockdale.....	Texas Coal Co.....	Married.....	Two.....	Fell down shaft.
June 6	Severiano Briones.....	54	Darwin.....	Dolores.....	Married.....	Four.....	Falling roof.
June 8	Ambrosio Obregon.....	45	Lamar Mine.....	Lamar Mine.....	Married.....	Four.....	Falling roof.
July 28	Guiseppi Ugolini.....	19	Thurber.....	No. 8.....	Single.....		Traumatic peritonitis. Falling coal.
July 30	Charles Kreamble.....		Thurber.....	No. 12.....	Single.....		Powder burns on body.
Aug. 28	Graciano Gomez.....	30	Dolores.....	Dolores.....	Single.....		Burned by gas.
Nov. 24	Will Allen.....	29	New Castle.....	No. 4.....	Married.....	Four.....	Run over by trip.
	Carlos Rico.....		Calvert.....				Fall of coal.
	Joe Byan.....	30	Strawn.....	Mt. Marion.....	Married.....	Three.....	Broken back. Caught between cars and roof.

Non-Fatal Accidents.

Date, 1914.	Name.	Age.	Residence.	Name of Mine.	Married or Single.	No. of Members in Family.	Cause of the Accident.
Aug. 10	L. F. Freece.....	21	Thurber.....	No. 8.....	Single.....		Powder burns on body from explosion of keg.
Aug. 10	George Leedy.....	24	Thurber.....	No. 8.....	Married.....	Three.....	Powder burns on body from explosion of keg.
Oct. 19	Joe Phillipino.....		Thurber.....	No. 1.....	Single.....		Broken knee from falling of coal.
Dec. 16	Pacifica Santi.....	24	Thurber.....	No. 12.....	Single.....		Powder burns on body from explosion of keg.
Jan. 2	Joe Kastika.....	30	Thurber.....	No. 12.....	Single.....		Falling coal, loss of thumb.
April 20	P. Caronola.....	21	Thurber.....	No. 11.....	Single.....		Falling rock, broken arm.
April 14	Batista Georgeis.....	53	Thurber.....	No. 12.....	Single.....		Falling rock, broken right thigh.
April 30	John Heatherington.....	24	Thurber.....	No. 8.....	Married.....	Three.....	Motor wreck, broken right thigh.
Mar. 31	Stephen Lejos.....		Thurber.....	No. 8.....			Falling rock, dislocation spinal vertebra.
Mar. 8	Jake Ready.....	31	Thurber.....	No. 1.....	Married.....	Five.....	Run over by motor, loss of right leg.
June 15	J. N. Haney.....	50	Strawn.....	No. 10.....	Single.....		Fall of coal, broken left thigh.
July 29	Angelo Crespy.....	45	Thurber.....	No. 2.....	Married.....	Four.....	Fall of coal.
Nov. 4	Perfecto Saldano.....	57	Darwin.....	Cannel.....	Married.....	Three.....	Struck by mine car, broken leg.
Mar. 18	Bernarbe Espinosa.....	50	Glehnem.....	Bastrop Coal Co.....	Married.....	Five.....	Fall of dirt roof, broken leg.
July 27	Jose Marino.....	40	Vogel.....	Vogel.....	Married.....	Three.....	Struck by pit car, broken ribs.
April 23	John Wellbank.....	22	Malakoff.....	No. 2.....	Married.....	Three.....	Falling roof, bruised about head and arms.
June 23	Joe Reyna.....	23	Malakoff.....	No. 2.....	Single.....		Hip bruised and gash cut in face.
	F. Boyd.....		Strawn.....	Mt. Marion.....			Falling coal, leg broken.
	J. Kulinski.....	42	Lyra.....	Lyra.....			Falling coal, leg broken.

ANALYSIS OF ACCIDENT REPORT.

The causes of mine accidents in this State, with few exceptions, come under the following headings, enumerated in the order of their importance: Fall of coal, fall of rock, powder explosions, motor wrecks, struck by pit car. Gas explosions are fortunately rare in this State, while coal dust explosions are fortunately unknown.

From an analysis of the fatal and non-fatal accidents which have occurred during my term of office, I do not hesitate to state that 90 per cent of such accidents could have been prevented by proper precautions on the part of the individual mine worker. It is a well known fact that carelessness on the part of the miner is on the increase, not only in this State, but in all States, as testified to by the government Bureau of Mines, and by all State Mine Inspectors; and the problem of how best to deal with this situation is of interest to all who may be interested in the reduction of coal mine accidents. During the last session of the National Institute of State Mine Inspectors the problem was discussed at great length, and in accordance with my recommendations to the Mining Board, some time ago, it was suggested that the only way to reduce the number of accidents in our mines is to educate the individual miner in closer observance of safety regulations and to establish stringent systems of mine discipline. To do this is not an easy matter; but it has been done successfully in certain mines in other States, and it is not impossible of execution. The greatest difficulty in the way of decreasing mine accidents in this State is the ignorance on the part of the class of miners which must be employed, with special reference to Mexican and negro labor. There is a high-grade of labor in our mines also, but, unfortunately, this class is hopelessly in the minority.

I see but two ways out of the difficulty. Either the mine operators must employ their own safety inspectors, said inspectors to be given full powers to enforce all necessary safety regulations; or the State inspection force must be increased by at least one assistant inspector, so that said inspector could spend a week or more at each mine, devoting his time to training such miners as may be in need of training in the observance of safety regulations. Wilful negligence can be handled only in one way, viz., by the imposition of a heavy fine, by a summary discharge from service, or both. As I see the situation, no mine operator can afford to retain any employe who wilfully places his own life or that of others in jeopardy. If not amenable to the State law, a mine worker who wilfully disregards such safety regulations as may be promulgated should be discharged immediately. During my four years' service as Mine Inspector of this State, I have noticed that there has been little or no mine discipline. In fact, if there were as little discipline in other hazardous occupations as there is in our mines, the toll of human life would be enormous indeed. Aside from the factor of safety, the enforcement of mine discipline would promote efficiency to a great degree, and I believe in the end would stimulate a greater feeling of respect between employer and employe, and certainly more self-respect on the part of the employe.

The accident list will continue to grow in this State in spite of law and inspection if some such measures are not taken as above outlined; and, for the good of the cause of safety, I recommend for your consideration as members of the State Mining Board either the one or the other of these measures: Either this matter should be placed in the hands of the State Mine Inspector, and he be given assistance to carry on this work; or the several mining companies provide their own safety inspectors, who would be given full power to enforce discipline as well as the law regarding safety in conjunction with the State Mine Inspector and the Mining Board.

SUMMARY OF ACCIDENT REPORT.

Killed by fall of rock and coal, 5; by mine cars, 2; by powder burns, 1; by gas burns, 1; miscellaneous, 2. Total, 11.

Injured by fall of rock and coal, 11; by mine cars and motors, 4; by powder explosions, 3; by cause unreported, 1.

Total number of non-fatal accidents of a serious nature, 19.

RECOMMENDATIONS.

1. Recommending that appropriations be made for a special Coal Mining Course in the State School of Mines and Metallurgy.

For some time I have been interested in the question of providing proper educational facilities for miners and mine foremen. Recently this has been made possible by the establishing of the State School of Mines and Metallurgy at El Paso, Texas. This school began its first semester last fall with an enrollment of twenty-eight students, and is doing very good work. The Dean of the School, Mr. S. H. Worrell, has been formerly connected with the Bureau of Economic Geology and Technology in the capacity of chemist and assayer. He is a very capable man, and is working hard to make the school a success. Recently I had a conversation with him relative to the proposed coal mining course at the school. He thought very much of the plan and kindly suggested that I take the matter in hand and draw up a proposed course of study for this department, which I did. This course I submitted for the consideration of the Board at a former meeting. It was approved by the Board at that time. However, recently I revised this course, and, I believe, made it a great deal more applicable to the needs and requirements of the industry in Texas.

No one at all familiar with the coal mining industry of Texas can deny that the need of trained men is very great. Efficiency is at a very low ebb in Texas as regards mine foremen. Especially is this true of the lignite fields where the percentage of qualified men is as low as 5 per cent. The majority of pit bosses in the lignite field of Texas have neither practical nor technical qualifications for the position, and in the interest of safety, economy and efficiency both qualities are needed.

Our bituminous field is more fortunate in having several well qualified men from a practical standpoint, though most of these are handi-

capped by a lack of elementary technical training. It is true that a very well qualified man from a technical standpoint may never make a good mine man, but at the same time it goes without saying that by giving a good practical mine man the technical training which he may need his efficiency will be greatly increased, he will net his employer greater profits in the business and will have a greater regard for the factor of safety. Technical training for the practical mine men of this State will bring about radical changes for the betterment of the industry.

The course of study which I have formulated is based largely on the requirements for first-class mine foremen's certificates in other States. The course embraces two years' work, but those exceptionally qualified may finish the course in one year. Those working for a mine foreman's certificate must have had five years' experience in practical mining work. It will be the purpose of the head of this department to see to it that no person will be given a certificate of competency who cannot do credit to the School of Mines and to his employers. I have been asked to take charge of this department of the School, and I feel that with my experience as Mine Inspector and the opportunities which I have had to familiarize myself with the conditions throughout the field, I can do the industry more good than in my present position. For the benefit of those who cannot avail themselves of the courses of study offered by the school, it is my purpose to establish extension work so that intelligent miners may take up correspondence work, if they so desire. A series of lectures may be given also on subjects of importance to the industry. I shall endeavor to make this department of the school a kind of clearing house of information on up-to-date subjects pertaining to the industry.

However, if this department of the school is to accomplish its purpose, it is absolutely essential that it be given the support of the mine operators and mine workers of the State. This support we hope to receive, if not unanimously, at least in part until we have had an opportunity to establish the usefulness of such a course of study.

I respectfully submit this matter to the Board with the request that the members give the matter their consideration, and help me with such suggestions and recommendations as may be of use in the furtherance of the work.

I intend to have a prospectus out in printed form within the next few months. This prospectus will be distributed to all the mine operators and to such of the mine workers as may be interested.

2. Recommending that the position of Assistant Mine Inspector be created by the present Legislature.

Whereas, the coal mining industry of Texas has grown in production as well as in the extent of the territory embraced by the industry, and whereas it is impossible for one State Mine Inspector alone and unassisted to do justice to the cause of safety, be it hereby recommended that the office of Assistant Mine Inspector be created by the present Legislature. The problem of promoting the safety of coal mining in this

State has resolved itself into the taking of prompt disciplinary measures as regards the individual miner. It is safe to estimate that over 80 per cent of the accidents which are taking place in our mines are preventable. This State is not unique in this respect, as I have found the same condition prevailing in all the coal fields of this country. It is the opinion recently rendered by the United States Bureau of Mines, as well as by the American Institute of Mine Inspectors. Whereas, formerly it was the mine operator who was negligent in the observance of safety regulations for his men, this factor has to a large extent been remedied; but the mine employe, it might be said, shares the greatest blame and responsibility for the occurrence of mine accidents.

To educate and train the individual miner into greater respect for the dangers with which he is surrounded and into strict observance of all necessary rules and regulations for the promotion of safety is a difficult task and one which requires time, effort and close attention to detail. This work must be undertaken if fatal and non-fatal accidents are not to increase. Either the several coal mine operators must provide means of education for the miners along the lines of safety or the inspection staff must be increased so that this work may be taken up by the State. I know the conditions prevailing in our mines, and I speak advisedly when I make the above statement. We may not be in danger of extended mine disasters in Texas on account of natural conditions, but, while this be true, let us not forget that the fatality rate in this country is not made up of extended mine disasters as much as by individual accidents which possibly never get into the newspapers and are not made known to the public. It is the individual accident that counts in making up the sum total of mine accidents, and it is the individual accident that we must seek to prevent.

In consideration of the above statement, I strongly recommend that the State Mining Board take immediate action on this matter and recommend to the Legislature and to the Governor the enactment of a law providing for an Assistant Mine Inspector.

Let the qualifications of the assistant be practically the same as for the chief. The age qualifications may be reduced to twenty-eight years, but he should have had at least five years' experience in and about coal mines of the State.

It should be the duty of the Chief Mine Inspector to suggest a candidate to the State Mining Board, whose duty it would be to examine into his qualifications, and if found qualified he should be recommended to the Governor for appointment.

His salary should be eighteen hundred (\$1800) dollars per year, and one thousand (\$1000) dollars per year should be allowed for traveling expenses.

He should be under the direct supervision of the Chief Mine Inspector, and should hold office for two years, unless removed for cause.

MINES ABANDONED AND MINES OPENED, 1914.

Name of Company.	Mines Abandoned.	Mines Opened.
Bastrop Coal Co.....		1—Sayers, Texas. Nos. 7 and 8.
Consumers Lignite Co.....	Slope No. 5.....	
Belknap Coal Co.....	No. 2.....	No. 4 in progress. No. 4 in progress.
Texas and Pacific Coal Co.....	No. 8.....	
Houston County Coal Co.....		One mine in progress.
Vogel Coal and Manufacturing Co.....		One.
Carr Coal Co.....		

Total, 3 mines abandoned and 7 mines opened and in progress.

LAWS OF TEXAS RELATING TO THE SAFETY OF COAL MINES.

Mine Regulations.

SECTION 1. (a) Any shaft in process of sinking and any opening projected for the purpose of mining coal of all kinds shall be subjected to the provisions of this act. Articles 5923 to 5946, R. S., 1911.

(b) At the bottom of every shaft and every caging place therein a safe, commodious passageway must be cut around said landing place, to serve as a traveling way by which employes shall pass from one side of the shaft to the other without passing under or on the cage.

(c) The upper and lower landings at the top of each shaft, and the openings of each intermediate seam from or to the shaft shall be clear and free from loose materials and shall be securely fenced with automatic or other gates or bars so as to prevent either men or materials from falling into the shaft.

(d) Every hoisting shaft must be equipped with substantial cages fitted to guide rails running from the top to the bottom. Said cages must be safely constructed, they must be furnished with suitable boiler iron covers to protect persons riding thereon from falling objects, and they must be equipped with safety catches. Every cage on which people are carried must be fitted with iron bars, rings, or chains in proper place and in sufficient number to furnish a secure handhold for every person permitted to ride thereon. At the top landing, cage supports, where necessary, must be carefully set and adjusted so as to work properly and securely hold the cages when at rest.

In all cases where the human voice cannot be distinctly heard there shall be provided a metal tube or telephone from the top to the bottom of the shaft or slope through which conversation may be held between persons at the bottom and top of such shaft or slope, and that there shall also be maintained an efficient system of signaling to and from the top of the shaft or slope and each seam or opening.

Every underground place on which persons travel, worked by self-acting engines, windlasses or machinery of any description, shall be provided with practical means of signaling between the stopping places and the ends of the plane, and shall further be provided, at intervals of not more than sixty feet, with sufficient manholes for places of refuge.

Every mine shall be supplied with props and timbers of suitable length and size, and if from any cause the timbers are not supplied when required, the miners shall vacate any and all such working places until supplied with timber needed.

All openings worked out or abandoned portions of every operate mine likely to accumulate explosive gases or dangerous conditions shall be securely gobbled and blocked off from the operated portions thereof so as to protect every person working in such mines from all danger that may

be caused or produced by such worked out portions of such mines. Acts of 1907, p. 331.

SEC. 2. (a) Throughout every mine there shall be maintained currents of fresh air sufficient for the health and safety of all men and animals employed therein, and such ventilation shall be produced by a fan or some other artificial means; provided, a furnace shall not be used for ventilating any mine in which explosive gases are generated.

(b) The quantity of air required to be kept in circulation and passing a given point shall be not less than one hundred cubic feet per minute for each person and not less than three hundred cubic feet per minute for each animal in the mine, measured at the foot of the downcast, and this quantity may be increased at the discretion of the inspector whenever in his judgment unusual conditions make a stronger current necessary. Said current shall be forced into every working place throughout the mine so that all parts of the same shall be reasonably free from standing powder smoke and deleterious air of any kind.

(c) The measurement of the current of air shall be taken with the anemometer at the foot of the downcast, at the foot of the upcast and at the working face of each division or split of the air current.

(d) The main current of air shall be split or subdivided [so] as to provide a separate current of reasonably pure air to every one hundred men at work, and the inspector shall have authority to order separate currents for smaller groups of men if in his judgment special conditions make it necessary.

(e) The air current for ventilating the stable shall not pass into the intake air current for ventilating the working parts of the mine.

(f) Whenever the inspector shall find men working without sufficient air he shall at once give the mine manager or operator notice and a reasonable time in which to restore the current, and upon his refusal or neglect to act promptly the inspector may order the endangered men out of the mine. Ib.

SEC. 3. Immediate notice must be conveyed by the miner or mine owner to the inspector upon the appearance of any large body of fire damp in any mine, whether accompanied by any explosions or not, and upon concurrence [occurrence] of any serious fire within the mine or on the surface. Ib.

SEC. 4. Cages on which men are riding shall not be lifted or lowered at a rate greater than six hundred feet per minute, except with the written consent of the inspector. No person shall carry any tools or material with him on a cage in motion, except for use in making repairs, and no one shall ride on a cage while the other cage contains a loaded car. No cage having an unstable or self-dumping platform shall be used for the carriage of men or materials unless the same is provided with some convenient device by which said platform can be securely locked, and unless it is so locked whenever men or material are being conveyed thereon. Ib.

SEC. 5. No miner or other person shall carry powder into the mine

except in the original keg or in a regulation powder can securely fastened, and the can in otherwise air-tight condition. Ib.

SEC. 6. It shall be the duty of the mine foreman to see that proper cut throughs are made in all the pillars at such distances as in the judgment of the mine inspector may be deemed requisite, not more than twenty yards nor less than ten yards apart, for the purpose of ventilation and the ventilation shall be conducted through said cut throughs into the rooms and entries by means of check doors made of canvas or other material, placed on the entries or in other suitable places, and he shall not permit any room to be opened in advance of the ventilating current. Should the mine inspector discover any room, entry, air way or other working place being driven in advance of the air current contrary to the requirements of this section he shall order the workmen in such places to cease work at once until the law is complied with. Ib.

SEC. 7. At any mine where the inspector shall find fire damp is being generated so as to require the use of a safety lamp in any part thereof, the operator of such mine upon receiving notice from the inspector that one or more such lamps are necessary for the safety of the men in the mines, shall at once procure and keep for use such number of safety lamps as may be necessary. Ib.

SEC. 8. It shall be unlawful for any miner, workman or other person knowingly or carelessly to injure any shaft, safety lamp, instrument, air course or brattice, or to obstruct or throw open any air way, or to carry an open lamp or lighted pipe or fire in any form into a place worked by the light of safety lamps or within three feet of any open powder, or to handle or disturb any part of the hoisting machinery, or to enter any part of the mine against caution, or to do any wilful act whereby the lives or health of persons working in mines or the security of the mine machinery thereof is endangered. Ib.

SEC. 9. It shall be the duty of every operator to post on the engine house and at the pit top of his mine, in such manner that the employes of the mine can read them, rules not inconsistent with this act, plainly printed in the English language, which shall govern all persons working in the mine. And the posting of such notice, as provided, shall charge all employes of such mine with legal notice of the contents thereof. Ib.

SEC. 10. The owner or operator of every mine shall provide adequate and accurate scales for weighing coal, and it shall be the duty of the mine inspector to examine such scales and if the same are not found to be accurate he shall notify the owner to repair same, and if such owner fails or refuses to repair same within a reasonable time said inspector shall institute proceedings under the law against the proper parties. Ib.

SEC. 11. The employes in any mine in this State shall have the right to employ a check weighman at their own option and their own expense. Ib.

SEC. 12. No miner or other person employed in a mine shall use any kind of oil other than a good quality of lard oil for lighting purposes, except when repairing downcast or upcast shafts. Ib.

SEC. 13. Any person who shall wilfully violate any of the provisions

of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding five hundred dollars, or imprisonment in the county jail for a period not exceeding six months. Ib.

SEC. 14. For the purpose of securing efficiency in the mine inspection service a board of examiners to be known as the State Mining Board, whose duty it shall be to make formal inquiry into and pass upon the practical and technical qualifications and personal fitness of persons seeking appointments as State Inspector of Mines, shall be appointed by the Governor. Ib.

SEC. 15. Said board shall be composed of seven members, three of whom shall be practical miners, three shall be mine operators, and it shall be the first duty of the six members thus appointed to nominate to the Governor the seventh member of said board; provided, that if the six members aforesaid shall fail for a period of ten days after their appointment to so nominate the seventh member, the same shall be appointed by the Governor. Such board shall be appointed by the Governor within ninety days after the passage of this act. Said board shall hold office for a period of two years and until their successors have been appointed and qualified. Ib.

SEC. 16. The board shall meet in the capitol building at Austin within thirty days after its appointment and biennially thereafter, for the purpose of hearing applications for the office of State Mining Inspector. It shall be the duty of the board to thoroughly examine all applicants who may come before it, and to select from among such applicants the person who in its opinion is best qualified to perform the duties of State Mining Inspector, and upon the nomination of said board the Governor shall appoint the person so recommended. Ib.

SEC. 17. The State Mine Inspector shall be a citizen of the United States, and shall have resided in the State of Texas for one year, of temperate habits, of good repute, a man of personal integrity, shall have attained the age of thirty years, and shall have had at least five years' experience working in and around coal mines, and shall not have any pecuniary interest whatever in any mine in this State. He shall hold office for a period of two years unless sooner removed as provided herein. Ib.

SEC. 18. It shall be the duty of the State Mining Board to exercise supervision over the acts of the State Mine Inspector, and in the event of his incompetency or the neglect of his duty being proved to the board, said board shall recommend to the Governor that he be removed from office and his successor shall be chosen as herein provided. Ib.

SEC. 19. The State Mining Board shall meet twice each year and at such time and place as the majority may select for the purpose of receiving reports from the inspector and instructing him in the performance of his duty. Ib.

SEC. 20. The members of the State Mining Board shall receive as compensation for their services the sum of five dollars per day for a period not exceeding thirty days in any one year and traveling expenses in going to and returning from board meetings. Ib.

SEC. 21. It shall be the duty of the State Mining Inspector to enforce

the provisions of this act under the instructions of the State Mining Board, and to make a report to said board at its semi-annual meetings, and oftener if required. He shall receive for his services the sum of two thousand (\$2000) dollars per year and actual traveling expenses incurred in the discharge of his duty; provided, that his traveling expenses shall not in any one year exceed the sum of one thousand (\$1000) dollars. Said mining inspector shall file an itemized statement, showing the actual amounts expended, and the number of times he inspected each mine or mines. Acts of 1900, p. 163.

SEC. 22. It shall be the duty of the State Mining Inspector to enforce the provisions of this act, under the instructions of the State Mining Board, and to make report to said board at its semi-annual meetings, and oftener if required. Provided, that neither the instructions of said board nor the acts of said inspector shall ever discriminate in favor of or against any mine or mines, nor against any owner, operator, or employe of any mine or mines, but said acts, either of the board, or of the inspector, shall be impartial, fair and just to all persons or corporations, subject to this act.

Before receiving his appointment by the Governor, the inspector of mines shall be required to enter into and deliver to the Governor a good and sufficient bond in the sum of ten thousand (\$10,000) dollars, with at least three good lawful and sufficient securities, for the faithful and impartial performance of his duty, and the sureties herein required shall make affidavit before some officer authorized to administer oaths that they, in their own right, over and above all exemptions, are worth the full amount of the bond they sign as sureties, said bond to be approved by the Governor provided he is satisfied as to its sufficiency, and said bond shall be conditioned that there shall be no discrimination in favor of or against any mine or mines, nor against any owner, operator or employe of any mine or mines. Provided, further, if the fact may be shown that said inspector has discriminated against and to the injury of any mine or mines, or against and to the injury of any owner, operator or employe, then the said owner, operator or employe may sue upon the bond herein provided for, and shall be entitled to recover such liquidated damages as may be proven and shown in such suit. Ib.

Mine Regulations.

SECTION 1. It shall be unlawful for the owner, agent, lessee, receiver or operator of any mine in this State to employ any person or persons in said mine for the purpose of working therein unless there are in connection with every stream or stratum of coal or ore worked in such mine not less than two openings or outlets, separated by a stratum of not less than one hundred and fifty feet at surface and not less than thirty feet at any place, at which openings or outlets safe and distinct means of ingress and egress shall at all times be available for the persons employed in such mine. The escapement shafts or slopes shall be fitted with safe and available appliances by which the employes of the mine may readily escape in case of accident. In slopes used as haulage roads where the

dip or incline is ten degrees or more there must be provided a separate traveling way which shall be maintained in a safe condition for travel and kept free from dangerous gases. Acts of 1903, p. 103.

SEC. 2. The time which shall be allowed for completing such escape shaft or opening as is required by the terms of this act shall be: For mines already opened when this act shall become a law, one year for sinking any shaft or slope two hundred feet or less in depth, and one additional year or pro rata portion thereof for every additional two hundred feet or fraction thereof; but for mines which shall be opened after the taking effect of this act the time allowed shall be two years for all shafts or slopes more than two hundred feet in depth, and one year for all shafts two hundred feet in depth or less; and the time shall be reckoned in all cases from the date on which coal or ore is first hoisted from the original shaft or slope for sale or use. Ib.

SEC. 3. Any person, owner, agent, lessee, receiver or operator of any mine in this State who shall violate or suffer or permit the violation of any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction shall be fined in any sum not less than two hundred nor more than five hundred dollars, and each day such violation continues shall constitute a separate offense. Ib.

Mines—Prohibiting the Feeding of Animals in, and the Storage of Feed.

SECTION 1. It shall be unlawful for any person, association of persons, corporation or receiver, owning, operating or managing any mine in this State, to feed or permit to be fed any work animal in said mines, or to store or keep any feed for such animals in said mines. Acts of 1911.

SEC. 2. It shall be unlawful for any person, association of persons, corporation or receiver, owning, operating or managing any mine in this State, to permit any work animal to remain in any mine longer than ten consecutive hours.

SEC. 2a. It is further provided that Sections 1 and 2 shall not apply to mines complying with the following provisions:

All stables in mines in which work animals are kept shall be equipped with fireproof doors at each opening, with a door frame of concrete, stone or brick, laid in mortar, and such stable door shall be kept closed during working hours of mines.

All feed, hay, grass, cane, etc., except corn, corn chops, bran and shelled oats, shall not be taken down the hoisting shaft until after the regular day shift is out of the mine.

It is further provided that no open light shall be taken into any underground stable by any person.

It is further provided that not over twenty-four (24) hours' supply of hay, grass or cane, or any other kind of inflammable stock food, except corn, corn chops, bran and shelled oats, shall be taken down in any one day.

SEC. 3. Each and every person, company, corporation or receiver who shall in any manner violate any of the provisions of this act shall for

each and every offense committed forfeit and pay to the State a penalty of not less than one hundred dollars nor more than five hundred dollars, and it shall be the duty of the district or county attorney to institute suit in the name of the State for the recovery of same.

SEC. 4. In addition to the penalties provided in Section 3 of this act, every person violating any of the provisions of this act shall be guilty of a misdemeanor and upon conviction shall be punished by imprisonment in the county jail for not less than one month nor more than one year.

SEC. 5. It shall be the duty of the State Mining Inspector to see that the provisions of this act are complied with, and he shall report all violations thereof to the State Mining Board and to the district or county attorney of the county where the offense is committed.

Mines—Requiring Owners and Operators of to Insulate Live Wires to Protect Persons and Animals.

SECTION 1. From and after September 1, 1911, in all mines in this State where electricity is or hereafter shall be used as a part of the system, power or means of mining and procuring the coal or other mineral from any of said mines, that the owners or operators of every such mine shall cause all wires conducting electricity in and about said mine to be carefully and thoroughly insulated or protected in a safe manner, so that the persons or animals coming in contact therewith shall not be injured thereby; all wires as aforesaid shall either be thoroughly insulated or placed where persons employed in and about the mines cannot come in contact therewith, or shall be covered, protected or shielded in a safe manner, so as to prevent any injuries or accidents therefrom to those in or about the mines; provided, however, it shall not be necessary to insulate or cover trolley wires, but they shall all be hung and kept not less than five feet and six inches above the rail, and shall be securely fastened, and not permitted to sag less than said height. Where there is sufficient height in existing entries to permit this, but where sufficient height is not available in existing entries, then the trolley wires shall be placed to one side of the entry, six inches outside the rail; and in all such cases the trolley wire shall be placed on the side of the entry opposite from the working rooms, except where there are rooms on both sides of the entry, in which event the trolley wires may be placed over the opening of said rooms, said trolley wires to be safely shielded; provided, where it is impracticable in existing entries to place trolley wires six inches outside of the rail, or five feet six inches high, and where separate travel way is not provided, then the trolley wire shall be safely shielded; and it is further provided that this act shall not apply to entries that are not used as travel ways for workmen or work animals; provided, however, that this section shall not apply to mines in operation in this State on January 1, 1902, and prior thereto, and which have developed until there is at least two thousand (2000) feet distance from the shaft to the surface of the coal being operated, except

as to extensions of trolley wires made and to be made after January 1, 1910, in such mines.

SEC. 2a. Each and every person, company, corporation or receiver, who shall in any manner violate any of the provisions of this act, shall for each and every offense committed forfeit and pay to the State a penalty of not less than one hundred (\$100) dollars nor more than five hundred (\$500) dollars, and it shall be the duty of the district or county attorney to institute suit in the name of the State for the recovery of same.

SEC. 2. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding five hundred (\$500) dollars, or imprisonment in the county jail for a period of not exceeding six months.

SEC. 3. It shall be the duty of the State Mining Inspector to see that the provisions of this act are complied with, and shall report all violations thereof to the State Mining Board and to the district or county attorney of the county where the offense is committed.

SEC. 4. It shall be the duty of every operator of a coal mine in the State of Texas to make a map of the underground workings of every mine in his charge, under operation on the first day of January, 1912, or that may be opened thereafter; said map shall be drawn on a scale of one inch to one hundred feet, and shall indicate the surface land lines as well as the rooms, entries or openings underground. It shall be brought up to date at least once each month, covering operations for the preceding month. The original of said map shall be on file at the office of the operator at or near said mine. Said map shall be extended or brought up to date at any time requested by the State Mine Inspector, at least every three months; if, for any reason, a mine should be closed, then a final map shall be made and filed; provided, however, that maps existing on the date of the passage of this act may be continued on the same scale as begun, if not smaller than one-half inch to one hundred feet.

SEC. 5. The penalty for non-compliance with Section 4 hereof shall be by a fine of not less than twenty-five (\$25) dollars nor more than fifty (\$50) dollars for each offense. Acts of 1911.

PHYSICAL CHARACTERISTICS OF THE COAL MINES OF TEXAS FOR THE YEAR 1914.

This table is a list of the Coal Mine Operators of the State showing the name and location of the mines, the kind of coal mined, the depth of each shaft, the thickness of the seams, the general character of the mines, the methods of mining, the total tonnage for the year, etc.

Name of Operator.	Postoffice.	Name or Number of Mine.	Railroad Location of Mine.	Kind of Coal, Lig. Bit. Cannel.	Depth of Coal.	Average Thickness of Coal.	Shaft, Slope or Draft.	Entries, Single or Double.	Longwall or Room and Pillar.	Hoisting, Steam or Horse.	Haulage: Mule, Tail-ropes, Comp. Air, Gasoline, Electric, Endless Rope.	Number of Haulage Motors.	Mining: Hand, Electric, Compressed Air.	Number of Mining Machines.	Manner of Mining: Blasting from solid, Undercut, Breaking, Hand-picking.	Total Number of Miners.	Number of Days of Active Operation During the Year.	Average Daily Output, 1914.	Total Tonnage of Mine Run Coal for the Year 1914.	Number of Men on Top.	Ventilation: Fan, Furnace or Natural.	General Condition of the Mines: Good, Fair or Indifferent, as Indicated by Inspection Reports.
Texas and Pacific Coal Co.	Thurber	1	T. & P.	Bit.	155 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric	48	Hand and electric	2	U. C. and B. R.	1,600	233	2,897	675,144	100	Fan	Good
Texas and Pacific Coal Co.	Thurber	2	T. & P.	Bit.	310 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Texas and Pacific Coal Co.	Thurber	3	T. & P.	Bit.	150 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Texas and Pacific Coal Co.	Thurber	8	T. & P.	Bit.	225 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Texas and Pacific Coal Co.	Thurber	10	T. & P.	Bit.	231 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Texas and Pacific Coal Co.	Thurber	11	T. & P.	Bit.	189 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Texas and Pacific Coal Co.	Thurber	12	T. & P.	Bit.	189 ft.	28 in.	Sh.	S.	Lw.	Steam	Electric											
Wise County Coal Co.	Bridgeport	5	C. R. I. & P.	Bit.	18 in.	18 in.	Sh.	S.	Lw.	Steam	Mule											
Bridgeport Coal Co.	Bridgeport	3	C. R. I. & P.	Bit.	92 ft.	18 in.	Sh.	S.	Lw.	Steam	Mule											
Bridgeport Coal Co.	Bridgeport	2	C. R. I. & P.	Bit.	112 ft.	18 in.	Sh.	S.	Lw.	Steam	Mule											
Belknap Coal Co.	New Castle	2	W. S.	Bit.	110 ft.	4 ft.	Sh.	D.	R. and P.	Steam	Mule											
Belknap Coal Co.	New Castle	4	W. S.	Bit.	100 ft.	4 ft.	Sh.	D.	R. and P.	Steam	Mule											
Sallie Alice Mining Co.	Loving	1	G. T. & W.	Bit.	54 in.	54 in.	Sh.	D.	R. and P.	Steam	Mule											
Strawn Coal Mining Co.	Strawn	2	T. & P.	Bit.	400 ft.	28 in.	Sh.	S.	Lw.	Steam	Mule and El.											
Mt. Marion Coal Mining Co.	Strawn	1	T. & P.	Bit.	418 ft.	30 in.	Sh.	S.	Lw.	Steam	Mule											
Cannel Coal Co.	Darwin	3	R. G. & E. P.	Semi-Bit.	150 ft.	22 in.	Sh.	D.	R. and P.	Steam	Gasoline											
Cannel Coal Co.	Darwin	3	R. G. & E. P.	Bit.	200 ft.	26 in.	Sh.	D.	R. and P.	Steam	Gasoline											
Olmos Coal Co.	Eagle Pass	Lamar	G. H. & S. A.	Bit.	55 ft.	7 ft.	Sh.	D.	R. and P.	Steam	Mule											
International Coal Mining Co.	Eagle Pass	International	G. H. & S. A.	Semi-Bit.	208 ft.	4 ft.	Sh.	D.	R. and P.	Steam	Mule and tail rope											
McKay Lignite Mining Co.	Dallas	2	M. K. & T.	Lig.	80 ft.	6 ft.	Sh.	D.	R. and P.	Steam	Mule											
Houston Co. Coal and Mfg. Co.	Crockett	2 and 3	T. & B. V.	Lig.	57 ft.	7 ft.	Sh.	D.	R. and P.	Steam	Mule											
Houston Co. Coal and Mfg. Co.	Crockett	3 and 4	I. & G. N.	Lig.	50 ft.	5 1/2 ft.	Sh.	D.	R. and P.	Steam	Mule											
Como Lignite Mining Co.	Como	1	M. K. & T.	Lig.	68 ft.	5 1/2 ft.	Sh.	D.	R. and P.	Steam	Mule											
Alba Malakoff Lignite Co.	Malakoff	1	M. K. & T.	Lig.	65 ft.	7 ft.	Sh.	D.	R. and P.	Steam	Mule											
Lower Strata Lignite Co.	Ledbetter	1	H. & T. C.	Lig.	60 ft.	9 ft.	Sh.	S.	R. and P.	Steam	Mule											
Independence Mining Co.	Phelan	3	M. K. & T.	Lig.	.....	.....	Sh.	D.	R. and P.	Steam	Mule									
Rockdale Consolidated Coal Co.	Rockdale	Worley	I. & G. N.	Lig.	64 ft.	7 1/2 ft.	Sh.	D.	R. & P.	Steam	Tail rope											
Vogel Coal and Mfg. Co.	Rockdale	Vogel	I. & G. N.	Lig.	92 ft.	7 ft.	Sh.	S.	R. and P.	Steam	Mule											
Texas Coal Co.	Rockdale	.....	I. & G. N.	Lig.	80 ft.	8 ft.	Sh.	S.	R. and P.	Steam	Mule										
American Lignite Briquet Co.	Rockdale	5	I. & G. N.	Lig.	69 ft.	9 ft.	Sh.	D.	R. and P.	Steam	Electric											
Bastrop Coal Co.	McDade	1, 2 and 3	H. & T. C.	Lig.	87 and 50	4 1/2 ft.	Sh. & Sl.	D.	R. and P.	Steam	Mule											
Libby Manufacturing Co.	Mt. Pleasant	.....	Cotton Belt	Lig.	7 ft.	7 ft.	Sl.	D.	R. and P.	Steam	Mule										
Calvin Coal Co.	Calvin	.....	M. K. & T.	Lig.	45 ft.	4 ft.	Sh.	D.	R. and P.	Steam	Mule										
Consumers Lignite Co.	Hoyt	6, 7 and 8	M. K. & T.	Lig.	.....	7 ft.	Sl.	D.	R. and P.	Steam	Gasoline and Mule										
Carr Coal Co.	McDade	5	M. K. & T.	Lig.	60 ft.	4 ft. 4 in.	Sh.	D.	R. and P.	Steam	Mule											