

ANNUAL REPORTS

OF THE

Inspector of Mines

OF THE

State of Kentucky,

FOR 1903 AND 1904.

C. J. NORWOOD, Chief Inspector.
A. G. SPILLMAN, Assistant.

Prepared by the Chief Inspector.
OFFICE: LEXINGTON, KY.

PRINTED BY THE GEO. G. FETTER COMPANY, LOUISVILLE, KY.
1905.

I N D E X.

Accidents, Fatal, for 1903.....	30, 121
" " " 1904.....	32, 134
Accidents, List of Non-fatal, for 1903.....	125
" " " 1904.....	142
" from Roof Falls.....	33, 35
" Tamping Bars.....	35
" Due to Open Shaft.....	35
Animals and Powder.....	59
Assistants Needed.....	2
Barite Production in Western Kentucky.....	75
Bell County Coal Mines.....	162
Bituminous Coal Value.....	51
Boyd County Coal Mines.....	152
Breathitt County Coal Mines.....	154
Butler County Coal Mines.....	182
Cannel Coal, Value.....	51
" " Output.....	53
Carter County Coal Mines.....	154
Christian County Mines.....	183
Crittenden County Coal Mines.....	183
Coal Output.....	40
" " by Counties and Companies.....	42
" " Disposition of.....	48
" Shipped to Other States.....	48
" Output, Value of.....	50
" Consumed at Home.....	50
" Production, Progress of.....	54
" " by Fields.....	55
" Produced on Railroads.....	52
" Mined by Machine.....	59
Coke Production.....	55
Daviess County Coal Mines.....	184
Days Worked and Employes.....	57
Disposition of Coal Product.....	48
Employes and Days.....	57
Expansion of Mining.....	3
Falls of Top.....	35
" " " for a Series of Years.....	35
Fatal Accidents for 1903.....	30, 121
" " " 1904.....	32, 134
Fire-sand Production, W. Ky.....	76
Fluorspar, Lead, and Zinc Production, W. Ky.....	62

Fluorspar, etc., Mines, List of, in W. Ky.....	77
Geological Department.....	14
General Condition of the Mines.....	29
Hancock County Mines.....	185
Home Consumption of Coal.....	50
Henderson County Mines.....	185
Hopkins County Mines.....	188
Idle Coal Mines.....	28
Inspections Made.....	36
Inspection of Mine Scales.....	7
Johnson County Mines.....	157
Knox County Mines.....	167
Laurel County Mines.....	169
Lawrence County Mines.....	158
Lee County Mines.....	158
Legislation Proposed.....	8
List of Coal Mines.....	16
" " Fluorspar, etc., Mines, of W. Ky.....	77
Machine-mined Coal.....	59
Maps.....	13
McLean County Mines.....	193
Mines, General Condition.....	29
" New and Idle.....	23
" Coal, List of.....	16
Mine Maps.....	13
Mine Scales, Inspection of.....	7
Miners' Oil Law, Proposed.....	4
Mining Laws.....	218
Monthly Reports.....	4
Morgan County Mines.....	160
Muhlenberg County Mines.....	194
Notes on the Mines.....	152
New Coal Mines.....	23
Ohio County Mines.....	206
Oil Law, Proposed.....	4
Output of Coal.....	40, 42
" " Disposition of.....	48
" " Shipped to Other States.....	48
" " Coke.....	55
Pike County Mines.....	161
Powder and Animals.....	59
Progress of Coal Production.....	54
Pulaski County Mines.....	172
Railroads, Coal Produced on.....	52
Roof Falls.....	33, 35
Rockcastle County Mines.....	174
Selling Value of Coal Produced.....	50

Tonnage Raised per Fatal Accident, 1903-1904.....	31, 32
Union County Mines.....	210
Wage Scales.....	104
Value of Coal Output.....	50
" " Fluorspar, etc., W. Ky.....	70
Webster County Mines.....	212
Whitley County Mines.....	174

LETTER OF TRANSMITTAL.

*To His Excellency, J. C. W. BECKHAM,
Governor of Kentucky.*

Sir: I have the honor to submit herewith the report of this office covering the calendar years 1903 and 1904.

In explanation of the fact that a separate report for the year 1903 has not been printed, I will say that a report was prepared for that year, but was destroyed by fire. Burdened with a multiplicity of duties, and with health impaired, I found it well nigh impossible to prepare another report within reasonable time, and I ventured, after publishing the statistics for the year, to defer it and combine it with the report for 1904. The circumstances being considered, I trust that this course will receive your approval.

I beg that you will accept my thanks for the kindly consideration which you have accorded me, and I trust that by sincere effort to administer this office in a faithful manner I may continue to be honored with your confidence.

I have the honor to be

Your obedient servant,

CHARLES J. NORWOOD,

Chief Inspector of Mines, Etc.

State College of Kentucky,
Lexington, Ky.

I

PRELIMINARY.

As hitherto, the correspondence and miscellaneous clerical work of the office have been cared for by the Chief Inspector, while the Assistant Inspector has been kept in the field as constantly as possible.

The office work, which for some years has been large, has greatly increased within the last two years. During 1903 the Inspector found it necessary to employ help at his personal expense—having no office funds for such purpose. During the larger part of 1904 he has had assistance from the Secretary of the Geological Survey, and it is believed that with the continuation of the Survey, office affairs may ultimately be so arranged that he can have more time for other duties which attach to his position. With the increased and rapidly-growing correspondence of the office, however, which necessarily must in larger part receive the personal attention of the Chief Inspector, it will not be possible for the latter, in any event, to take as large a share in the inspection of mines generally as was possible in past years; it will be necessary for him to limit his field work to special inspections, and to those mines where normal conditions are most critical. As indicated above, the burden of field work has necessarily fallen on the Assistant Inspector, and it is only his due that the industry and faithfulness of Mr. Spillman should be fully recognized.

ADDITIONAL ASSISTANTS NEEDED.

The head of this office is keenly anxious to enforce the law and see that every mine is kept in a safe and healthful condition; but, with only one Assistant, however diligent he and the Chief may be, it is no longer possible to maintain a

thorough supervision of all the mines. It is physically impossible to make the necessary number of inspections of each mine during the year. The time consumed in simply going from one point to another is an important element in determining the number of times that a mine can be inspected within a given time. As the number of mines increases and the extent of excavation in each grows, it becomes less and less possible for the small force of the office to make the three inspections per annum specified in the law; indeed, since more time is consumed in the mere matter of travel from mine to mine, and more time is required for the examination of each mine as it grows in size, the total number of mines that can be visited even once within a year must grow less. The time consumed in travel may be illustrated by two mines now operating in the eastern part of Pike county. To reach the Vulcan mine—which ships its coal by the Norfolk & Western Railway, the coal being sent from the mine to the road across Tug Fork by means of an aerial rope tramway—one must travel more than a hundred miles outside of the State, in West Virginia, if going by way of Ashland; or travel twice as far through parts of Tennessee, Virginia, and West Virginia, if going by way of Middlesborough.

That the mining industry in Kentucky is on the eve of an immense expansion—the prospect being that the coming two years will witness a very large increase in the number of mines and a great extension of the territory to be traveled in passing from one mining point to another—is beyond question. Within the last year Pike county has been added to the inspection list; Floyd county, and probably Martin, will doubtless be added within the coming twelve months; and Perry, Letcher, and Harlan will probably be added within much less than two years. The operations in these counties alone will soon be sufficient to occupy a large share of the office's attention. The two commercial mines now in operation in Pike constitute a mere beginning; several others are being opened along the Tug Fork of Big Sandy river, and still others will soon be opened along the extension of the Chesapeake & Ohio railway which follows up the Levisa and Russell forks, the extension, which will be completed to within a few miles of the Virginia line by the summer of 1905, having been pro-

jected chiefly for the opening of mines. Indeed, preparations are under way for vast mining operations in Pike and contiguous regions. Unless needed additions to the inspection force of the office are provided, the latter will be utterly unable to cope with the demands upon it. It has been counted that one man can properly care for about sixty mines of the average capacity, if not too widely separated. A glance at a map of Kentucky, with the mines of the two coal fields marked thereon, will reveal what an extraordinarily large area the small inspection force of this office is expected to cover and yet maintain supervision of more than 200 mines widely distributed over it.

Two additional assistants are urgently needed to meet the present demands and those of the immediate future. It is hoped that the next Legislature will grant the needed increase. Two years ago it was thought that one additional assistant would be sufficient, but it is now very plain that one would not be enough. There should be one assistant constantly in the Western Field, one constantly in the Eastern one, and one to work in both fields.

When the office of Inspector of Mines was created in 1884, there were only about 45 important coal-mining companies, operating 57 mines, with a production of about 1,500,000 tons. In 1892, when an Assistant Inspector was provided by the Legislature, there were about 75 important companies, operating 88 mines, producing about 3,000,000 tons. At this writing, April, 1905, there are 153 companies, operating 203 mines, and the number will be materially increased within the year. The output for 1904 was 7,167,324 tons, and the prospect is that within two years it will exceed 10,000,000 tons. In addition to the coal mines, the metalliferous, spar, and underground clay mines will doubtless be placed under State supervision, since there is no good reason why men employed in them should be deprived of protection by the State, while to the coal miner it is accorded. These facts alone are sufficient to indicate to any one familiar with mining matters the necessity there is for adding two assistants to the force of this office.

MONTHLY REPORTS.

During the past year some of the mining companies were very dilatory about sending in the monthly reports of output, etc., required by law. In some instances delays were doubtless due to good causes, but in most cases they appeared to be due to indifference, and reports were not sent until it became manifest that action would be taken in court to compel compliance with the law. The Inspector earnestly asks that all companies send their reports promptly, and that they take pains to fill out the schedules fully and accurately.

MINERS' OIL LAW.

Remarks made in the writer's preceding report on the necessity for a law to regulate the character of oil used for illumination in mines, are still apropos, and are here repeated:

For years, beginning in 1892, and repeated in nearly every report issued since that year, this office has called attention to the desirability of a law regulating the character of oil used in the mines of the State. That a great deal of it is simply vile is a matter of universal knowledge, and many of the mining companies will freely acknowledge that the quality of oil used is far below what, under proper conditions, it should and would be. Coal companies are far less to blame for the poor quality of oil used than appears on the surface. The root of the evil lies in the fact that Kentucky is now one of the very few mining States in which the compounders of the "cheap," nasty, soot-producing oils are permitted to sell their product. The better oils cost the miner more per gallon (and yet they are cheaper in the long run), and when a coal company undertakes to sell to its men the better grades, it soon finds itself threatened with a rival who sells the compounded stuff at so much less per gallon that, to save its oil trade, the company is itself practically driven into the "cheap oil" business. There may be companies that find more profit in the inferior oils, and sell them through preference, but for such the writer does not speak. There is but one effective way in which to deal with the question, and that is to absolutely prohibit the sale of miners' oil below a certain standard anywhere in the

State. So long as these inferior, compounded oils are allowed to come into the State, so long will they be sold by mining companies, and so long will the mines be filled with clouds of soot and loads of carbonic acid that defy the efforts of even the best of foremen to give their mines thorough ventilation.

An excellent bill* to cover the question was introduced by Hon. R. B. Bradley at the session of the Legislature of 1902, but too late in the session for its passage through both Houses. The essential features of the measure were incorporated in a bill which was prepared by the writer at the suggestion of representatives of the miners, for submission to the General Assembly of 1904. Said measure contains provisions, (1) for the appointment of an additional Assistant Inspector, (2) for preventing the use of inferior illuminating oils—oils below the standard adopted in other States—in the mines, and (3) for the inspection of mine scales. The bill was delivered to one of the miners' representatives at Frankfort, who expressed approval of it. Those in charge of the matter, however, substituted another bill for it; the latter failed to pass. The writer ventures to remark that those who had charge of proposed "mining legislation" at the time must surely have acted through a misunderstanding. The Chief Inspector was both willing and desirous to co-operate with the miners' representatives to the fullest extent practicable, and it is believed that had the latter not been influenced by an erroneous impression the passage of a measure satisfactory to all interested might have been secured. While the bill offered contained some excellent provisions, the section relating to miners' oil would have been of no avail. Said section is as follows:

"4. The district inspectors are further invested with all powers and authority of county inspectors of oils in this State, but they shall exercise said authority in connection only with the oils to be used in the mines which it is their duty under the law to inspect."

The law under which county inspectors of oils act relates only to oil used for house illumination (to "petroleum," or "coal oil"), and the method prescribed in the law for testing that oil is entirely different from that which must obtain in

*Published in the report of this office for 1901-1902.

the testing of miners' oil;" indeed, it is in no respect applicable to miners' oil. Petroleum ("coal oil") is tested as to safety; it must not take fire, or "flash" below a certain temperature. Miners' oil is tested to see whether it will burn well and without yielding an excessive quantity of smoke, and in the operation it is necessary to ascertain its specific gravity, at a certain temperature, as compared with a standard. In any law relating to the inspection of an oil, it is necessary to prescribe the method of testing, otherwise troublesome questions may arise; and since the only practicable way to prevent the use of inferior oils in mines is to prevent the sale of such oils in the State, a "miners' oil law" must provide for proper methods of procedure and for adequate penalties with that end in view.

Doubtless the failure to confer authority on the Chief Inspector equal to that of the district inspectors in the section quoted above was merely an oversight.

INSPECTION OF MINE SCALES.

Now and then requests are received by the head of this office to inspect and test the scales used at mines for weighing the coal for which the miners are to be paid; such requests have been received not only from miners, but from county officials. The officials of this office have no authority at all in that respect; hence such requests can not be complied with. To meet the difficulty, a provision was incorporated in the bill prepared by the writer, which has already been referred to, and it is believed it would have proved effective. In the bill which was substituted for it, it was sought to provide for the testing of mine scales by the following section:

"3. The district inspectors are hereby invested with all the powers and authority of county sealers of weights and measures in the different counties of this State, and for any services performed as such sealers they shall receive the same compensation as now provided by law for the payment of services of county sealers of weights and measures."

Again, no doubt through oversight, authority is conferred on the district inspectors which is not given equally to the Chief. The real difficulty with the section is, however, that

under it the miner would be no better off than he is now. County sealers of weights and measures are authorized to inspect and test scales only when the owner of them requests that it shall be done. The law should specifically require that when differences arise between operator and miner as to the accuracy of the mine scales, the question shall be submitted to the office of the State Mine Inspector for settlement—the Chief Inspector being authorized to, either in person or by an assistant, inspect and test the scales.

PROPOSED LEGISLATION.

The following proposed bill, for which favorable consideration is respectfully asked of the next General Assembly, is essentially a copy of the measure prepared by the writer for submission at the last session, the only material change being as to the additional number of Assistants provided for.

An Act to provide for the inspection of miners' oil and mine scales, and to increase the efficiency of the office of Inspector of Mines, and thus afford greater protection of the lives and health of persons employed in the coal and other mines of this State.

Be it enacted by the General Assembly of the Commonwealth of Kentucky:

Section 1. That only a pure animal or vegetable oil, or other material as free from smoke and bad odor and of equal merit as an illuminant as pure animal or vegetable oil, and not the product or by-product of rosin, and which shall, on inspection, comply with the following test, shall be used for illuminating purposes in the mines of this State. All such oils must be tested at 60 degrees Fahrenheit. The specific gravity of the oil must not exceed 24 degrees Tagliabue. The test of the oil must be made in a glass jar one and five-tenths inches in width and seven inches in depth. Should the oil to be tested be below 45 degrees Fahrenheit in temperature, it must be heated until it reaches about 80 degrees Fahrenheit; and should the oil be at or over 45 degrees Fahrenheit, but below 60 degrees, it must be raised to a temperature of 70 degrees Fahrenheit; and then after being well shaken, it is to be allowed to cool gradually to a temperature of 60 degrees

Fahrenheit before finally being tested. In testing the gravity of the oil the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. Should the oil under test be opaque or turbid, one half of the capillary attraction shall be deemed and taken as the true reading. When the oil is tested under difficult circumstances, an allowance of one-half a degree may be made for possible error in parallax before condemning the oil for use in the mine. All oil or other material used for illuminating purposes in mines shall be contained in barrels, casks or packages branded conspicuously with the name of the dealer, the specific gravity, and date of shipment.

Sec. 2. It shall be the duty of the State inspector of mines, in person or by an assistant inspector of mines, to inspect all miners' oil or equivalent material used for illuminating purposes in mines, and when said oil complies with the requirements or test of the first section of this act, he shall stencil each barrel, cask or package in which it is contained as follows: "Approved this — day of — by Inspector —," the blank to be filled out with the date and name of the inspector making the inspection; but if the oil does not come up to the tests specified in this act, the barrel, cask, or package shall be branded as follows: "Rejected for illuminating purposes in the mines of the State of Kentucky this — day of — by Inspector —," the blank to be filled out with the date and name of the person making the inspection. A record shall be kept in the office of the chief inspector of mines, showing the number of barrels or other packages or gallons inspected, whether approved or rejected, and giving date, place of business and name of the person, firm or corporation for whom inspection was made.

Sec. 3. Upon complaint of two or more persons it shall be the duty of the chief inspector of mines, in person, or by an assistant inspector of mines, as soon after receiving such complaint as practicable, to inspect oils being used by miners, to determine whether the grade is of the standard prescribed in section 1 of this act. Should he find the grade of oil used below that fixed in this act, he shall notify the owner, agent or operator of the mine, and also the miners using the oil, that

the quality is inferior, and if a change is not made as soon as practicable he shall notify the prosecuting attorney of the county in which the mine is located, giving him all the facts, and the prosecuting attorney shall forthwith proceed to enforce the provisions of this act relating to oil and oil inspection.

Sec. 4. Any person, firm or corporation which ships any oil contained in any barrel, cask or package not branded as prescribed in sections 1 and 2, said oil to be used for illuminating purposes in mines; and any person, firm or corporation which sells any oil other than that prescribed in section 1 to be used for illuminating purposes in the mines; and any person, firm or corporation having in charge the operation or running of any mines under his or its charge, that uses or permits the use of any oil other than that prescribed in section 1; and any miner or mine employe who uses, with knowledge of its character, in any mine in this State, any oil other than that prescribed in section 1, shall be guilty of a misdemeanor, and on conviction shall be fined not less than five dollars nor more than fifty dollars; and each person convicted of a second or other offense under this section shall be fined not less than fifty dollars nor more than one hundred dollars, or shall be imprisoned in the county jail not less than ten days nor more than three months, or by both fine and imprisonment. Justices of the peace shall have jurisdiction to try any violation of this section.

Sec. 5. The owner, agent or operator of every coal mine in this State at which the miners are paid by weight, shall provide at such mines suitable and accurate scales for the weighing of the coal for which the miners are to be paid; and when differences arise between the owner, agent or operator of the mine and the miners employed in the same as to the accuracy or capacity of the scales, the question shall be referred to the chief State inspector of mines, whose duty it shall be to inspect and test said scales, in person or by an assistant inspector of mines, as early as practicable after receiving notification; and should said inspector find the scales inaccurate or defective beyond the limit admitted in scales of standard manufacture, he shall notify the owner, agent or operator of the mine and said scales shall forthwith be repaired

and made accurate, or accurate scales substituted therefor. Any owner, agent or operator of a coal mine who refuses or fails to comply with instructions to render his mine scales accurate, shall be guilty of a misdemeanor, and on conviction shall be fined not less than five dollars nor more than fifty dollars.

Sec. 6. All mines known to generate fire-damp or explosive gas shall, as nearly as practicable, be inspected every sixty days; and the chief inspector of mines is hereby directed to procure the most efficient and modern appliances and instruments, including a Shaw, or other equally efficient, gas tester, for detecting and estimating the amount of explosive gas in the mines, the same to be paid for upon the order of the inspector approved by the Governor, and they shall be the property of the State.

Sec. 7. All mines in which six or more persons are employed underground shall be subject to the law providing for the ventilation of coal mines and the better protection of miners, so far as said law may be susceptible of general application; but nothing in this section shall be construed as applying to openings made only for prospecting purposes.

Sec. 8. In order that the provisions of this act may be carried out, and to the end that the efficiency of the office of inspector of mines may be increased and greater protection be afforded the lives and health of persons employed in the mines of the State, the Governor is hereby authorized and directed to appoint two additional assistant inspectors of mines, who shall hold office for four years and until their successors are appointed and qualified. Said assistants shall have a practical knowledge of the different systems of working and ventilating coal mines, and of the nature and properties of mine gases, especially of explosive gas, and shall have a practical knowledge of mining gained by an experience of at least five years' work in such mines. Said assistant inspectors before entering upon the discharge of their official duties shall be sworn to discharge them faithfully and impartially, which oath shall be certified by the officer administering it and said certificate shall be filed with the Secretary of State in his office; and each of said assistants shall give bond in the penal sum of two thousand dollars, with surety, to be

approved by the Governor, for the faithful discharge of his official duties. Each of said assistants shall give his entire time and attention to the duties of his office, which shall consist of aiding under the direction of the chief inspector of mines in carrying out the provisions of this act and of all other acts relating to the inspection of mines. He shall keep a record of all inspections made by him, and make monthly report of the same to the chief inspector, and he shall at all times and in all things pertaining to the duties of his office be subject to the orders of the chief inspector. Said assistants shall not be interested in operating any mine in this State, and they shall each be liable to dismissal for willful neglect of duty or malfeasance in office. Each assistant inspector shall receive an annual salary of twelve hundred dollars, payable monthly, and shall likewise be allowed and paid his necessary traveling expenses when engaged in the discharge of his official duties.

Sec. 9. In order that the work of inspection of the mines may be systematized and expedited, the State is hereby divided into two inspection districts, the main line of that division of the Louisville & Nashville railroad which extends from Louisville, Ky., to Nashville, Tenn., being the division line between them. That part of the State west of the said railroad line shall be known as the First, or Western District, and that part east of said line shall be known as the Second, or Eastern District. But whenever he may deem it advisable to do so, the chief inspector of mines may divide the Eastern District into two districts, thus making three inspection districts in all. One of the assistant inspectors shall reside in the Western District and have as his especial assignment the inspection of the mines thereof; one shall reside in and have as his especial work the inspection of mines of the Eastern, or Second, District; and one shall work in both districts, as the chief inspector may direct. Whenever the chief inspector may deem it expedient to divide the second district into two districts, he shall assign one of the assistant inspectors to work in the third district resulting therefrom, so that each of the three assistant inspectors (the two additional ones herein provided for and the one already provided for by law) shall have charge of a district; but all assistants shall be subject to the rules

and regulations laid down by the chief inspector for the general conduct of the office of Inspector of Mines, and whenever the chief inspector may deem it necessary in the interest of efficient supervision of the mines to temporarily employ the services of two or of all three of the assistants at the same time in one and the same district, or whenever he may deem it desirable in the interest of efficient inspection to temporarily change the assistant from one district to another, he shall have authority so to do.

Sec. 10. There shall be provided for the office of Inspector of Mines all the instruments and appliances necessary for carrying out the provisions of this act, which shall be paid for on the order of the chief inspector approved by the Governor, and which shall belong to the State.

Sec. 11. On account of the nature of the work to be carried on under this act, and the importance that its benefits shall be received by those employed in the mines at an early day, an emergency is hereby declared and this act shall take effect upon its approval by the Governor.

MINE MAPS.

Notwithstanding the repeated explanations of the requirement of the law as to mine maps given in the reports of this office, and the citations to the law which are made in each warning notice sent at the close of the year, tardiness in sending maps when due and failure to attach certificates as to accuracy are still to be complained of. It seems well to repeat what was said in regard to maps in the last report of the office, as follows:

The law requires that the map shall be a map in fact; not a mere sketch or survey of entries; it is required that the maps shall show *the form and extent of all the excavations*, which, of course, includes the rooms; and the accuracy of the map must be certified to by the person making it. It is to be presumed that no mining engineer needs to be told what constitutes a mine map, and what sort of a map is, therefore, to be filed with this office; and yet so-called maps have been received within the year from unquestionably competent engineers, which showed entries only, and which, in event of

disasters, would prove of very little value; while for working purposes and for the enlightenment of this office as to conditions in the excavated portions of the mine they are of no value whatever. When such "maps" were rejected, and attention called to the requirements of the law both as regards character of map and certification, real maps were furnished. The rejection of maps by this office should not be rendered necessary, and it is hoped that hereafter engineers will not undertake to send in what they know are not maps of their mines, and what they must know will be rejected. Other plans, designated as "maps," have been sent in which were failures simply through lack of knowledge on the part of those engaged to make the mine map; some bore evidences of a certain amount of surveying, and others were excellent examples of what a neat bookkeeper can do with his rule and red-ink pen, when gifted with an artistic imagination and untrammelled by survey notes.

But rejections on the score of inadequacy are the exception; the complaint here made is not based so much upon defective plans as upon the failure to certify to the maps sent in. As a rule, the requirement as to certification has been overlooked, notwithstanding the fact that attention was called to it in the "map-due notice" sent out January 1st. It is hoped that this reminder will prove sufficient, and that hereafter care will be taken to fully comply with section 8 of the law.

STATE GEOLOGICAL DEPARTMENT.

The General Assembly, at its last session, enacted a law for the revival of the field work of the Geological Survey, with the Curator of this Department as Director, and for the publication of reports and maps. The work of the Survey is being pushed with vigor. Within a few months reports on a number of subjects will be ready for distribution. A preliminary report on the Oil and Gas Sands of Kentucky, by J. B. Hoeing, and one on the Lead and Zinc Bearing Rocks of Central Kentucky, by A. M. Miller, have been placed in the hands of the printer. Other reports now in course of preparation are: On the Coal Beds of the Big Sandy Valley, by A. R. Crandall; on the Higher and Lower Coals of the Western Field, by C.

J. Norwood and S. A. Denny; on Miscellaneous Clay Deposits, by J. H. Gardner; on Clays of the Devonian and Silurian, by A. F. Foerste; and on Mining the Thin Seams of the Eastern Coal Field, by R. H. Barclay. During 1905 reports will be prepared on the Lead, Zinc and Spar District of Western Kentucky, by F. J. Fohs; on the Lead, Zinc and Spar Veins of Central Kentucky, by J. E. Wright; on the Cincinnati Rocks of Kentucky, with Notes on their Economic Values, by A. F. Foerste and J. M. Nickles; on the Coals of the Pineville Region, by G. M. Sullivan; and reports hitherto prepared by Mr. Hoeing, Dr. Loughridge, and Col. Crump on Breckenridge, Meade, Livingston, and Warren counties will be taken up, revised and brought to date. A chemical volume, containing analyses made for the Survey by the late Dr. Robert Peter, compiled and edited by his son, A. M. Peter, with additional analyses, will also be prepared. Prof. Crandall will take up work in the coal regions on the upper waters of the Licking river, including Morgan and Magoffin counties; Mr. Hoeing will continue work in the oil fields; Prof. Miller will continue his work on the Ordovician rocks; Prof. W. F. Pate will take up work in the Western Coal Field, other work also being carried on there; and an effort will be made to obtain sufficient data to warrant the publication of a revised geological map of the State. It may be well to state here that it is required by law that the reports of the Survey shall be sold at cost.

II COMMERCIAL MINES.

There are now in operation 202 mines, operated by 152 companies. This is a net increase of 64 mines and 49 companies within the last two years. Judging from the number of companies that have been formed and working plans that are known to have been laid, it seems probable that the list for 1905 will include 170 to 175 companies, and 220 to 225 mines. The following list shows the names of the operators and of the counties in which the mines are situated, the character of the openings, and the postoffice address of each mine. In some cases the principal office is not at the mine; the address of that office will be found in the descriptions given in the chapter headed "Notes on the Mines."

GENERAL LIST OF MINES.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Wallsend Coal & Coke Co.	Wallsend . . .	Bell	8	Drift
National Coal & Iron Co.	Straight Creek .	"	2	"
Black Raven Coal Co.	Four Mile . . .	"	1	"
Excelsior Coal Mining Co.	Excelsior . . .	"	1	"
Winona Coal & Coke Co.	Middlesboro . .	"	1	"
Sagamore Coal Co.	"	"	1	"
Stoney Fork Coal Co.	"	"	1	"
Black Bear Coal Co.	Four Mile . . .	"	1	"
Highland Rim Coal Co.	"	"	8	"
Luke & Drummond Coal Co.	Logmont	"	1	"
Ashland Iron & Mining Co. (No. 12) .	Rush	Boyd	1	"
Ashland Iron & Mining Co. (No. 11) .	"	"	1	"
John Wurts, Lessee (Clinton 8)	Ashland	"	1	"
John Wurts, Lessee (Winslow 1)	"	"	1	"

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Princess Land & Mining Co.	Princess	Boyd	1	Drift
Geo. L. Hull	Rush	"	1	"
Norton Branch Coal Co.	"	"	1	"
Kentucky Union Co.	Jackson	Breathitt . . .	2	"
Frozen Creek Cannel Coal Co.	Boxer	"	1	"
Aberdeen C. & M. Co.	Aberdeen	Butler	1	"
Flener & Barber	Flener	"	1	"
Eastern Kentucky Ry. Co. (Lost Cr.) .	Willard	Carter	1	"
Ashland Iron & M'g Co. (Bailey 1 & 2)	Rush	"	2	"
Ashland Iron & M'g Co. (Rush 10) . .	"	"	1	"
Strait Creek Coal Co.	Denton	"	1	"
Kentucky Cannel Co.	Grayson	"	1	"
Adkins Coal Co. (Meadow Br.)	Rush	"	1	"
Empire Coal & Mining Co.	Empire	Christian . . .	1	Shaft
Bell Coal & Mining Co.	Sturgis	Crittenden . .	1	Slope
Louis Hoback	Owensboro . . .	Daviess	1	"
Allen Deane	"	"	1	Shaft
Lessees Owensboro Coal & Mineral Co.	"	"	1	Drift
Overstreet & Rudy	"	"	1	Shaft
Fenley Coal Co.	Martendale . . .	Hancock	8	Drift
Pittsburgh Coal Co. (Baskett)	Baskett	Henderson . . .	1	Shaft
Green River Coal Co. (Rankin)	Spottsville . . .	"	1	"
Corydon Coal Co.	Corydon	"	1	"
J. L. Nicholson & Co.	Henderson	"	1	"
Peoples Mining Co.	"	"	1	"
W. Hayes & Son	Zion	"	1	"

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Magnolia Coal & Mining Co.	Corydon	Henderson .	1	Shaft
Smith Mills Coal & Mining Co. . . .	Smith Mills . .	" . . .	1	"
Carbondale Coal & Coke Co.	Hamby Station .	Hopkins . .	1	Drift
Crabtree Coal Mining Co.	Ilsley	" . . .	1	"
Oak Hill Coal Co.	Chesley	" . . .	1	"
St. Bernard Mining Co. (No. 9) . . .	Earlington . . .	" . . .	1	Slope
St. Bernard Mining Co. (No. 11) . . .	"	" . . .	1	Sl&Sh
St. Bernard Mining Co. (Hecla) . . .	"	" . . .	1	Slope
St. Bernard Mining Co. (Arnold) . . .	"	" . . .	1	Drift
St. Bernard Mining Co. (Diamond) . .	Morton's Gap . .	" . . .	1	"
St. Bernard Mining Co. (Barnsley) . .	Barnsley	" . . .	1	"
St. Bernard Mining Co. (St. Charles) .	St. Charles . . .	" . . .	2	"
Reinecke Coal Co.	Madisonville . .	" . . .	1	Shaft
Victoria Coal Co.	"	" . . .	1	"
Royal Coal Co.	"	" . . .	1	"
Rose Creek Coal Co.	Nebo	" . . .	1	"
Buffalo Creek Coal & Mining Co. . .	Daniel Boone . .	" . . .	1	Drift
Kington & Wolfe	Morton's Gap . .	" . . .	1	"
Nortonville Coal Co.	Nortonville . . .	" . . .	2	Shaft
Whitehouse Cannel Coal Co.	Myrtle	Johnson . .	2	Drift
J. N. Meek	Meek	" . . .	1	"
Sandy River Coal Co.	Eliza	" . . .	1	"
North Jellico Coal Co. (Bertha) . . .	Bertha	Knox . . .	2	"
North Jellico Coal Co. (Wilton) . . .	Wilton	" . . .	1	"
North Point Jellico Coal Co.	Gray	" . . .	1	"
Ross Jellico Coal Co.	"	" . . .	2	"

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Artemus Jellico Coal Co.	Artemus	Knox	1	Drift
East Jellico Coal Co.	Coalport	"	1	"
Hughes Jellico Coal Co.	Flat Lick	"	1	"
Bastin Coal Co.	Barbourville . .	"	1	"
Lily Jellico Coal Mining Co.	Lily	Laurel . . .	1	"
O. K. Jellico Coal Co.	"	"	1	"
Pittsburg Coal Co.	Pittsburgh . . .	"	2	"
New Laurel Coal Co.	"	"	2	"
Pitman Coal Co.	"	"	1	"
G. W. Curvin	Viva	"	1	"
Standard Coal Co.	"	"	1	"
Star Coal Co.	East Bernstadt .	"	1	"
Manchester Coal Co.	"	"	1	"
Altamont Coal Co.	Altamont	"	1	"
New Diamond Coal Co.	"	"	1	"
Peach Orchard Coal Co.	Peach Orchard .	Lawrence . .	2	"
Torchlight Coal Co.	Louisa	"	1	"
McGuire Coal Co.	Beattyville . . .	Lee	1	"
Norman Coal Co.	"	"	1	"
Contrary Creek Coal Co.	"	"	1	"
Richardson Coal Co.	"	"	1	"
Memphis Coal Co.	Island	McLean . . .	1	Slope
Green River Coal Co.	"	"	1	Shaft
Biggstaf Cannel Coal Co.	Biggstaf	Morgan . . .	1	Drift
Kentucky Block Cannel Coal Co. . . .	Cannel City . . .	"	8	"
Mountain Cannel Coal Co.	"	"	1	"

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
White Oak Cannel Coal Co.	Caney	Morgan . . .	1	Drift
Eureka Cannel Coal Co.	"	"	1	"
Central Coal & Iron Co. (Central) . .	Central City . .	Muhlenberg . .	1	Shaft
Greenville Coal Co.	Powderly	"	1	"
Hillside Coal Co.	Mercer Station .	"	1	"
Dovey Coal Co.	Central City . .	"	1	"
Crescent Coal Co.	Bevier	"	1	"
Lam Coal Co.	"	"	1	Slope
Oakland Coal Co.	Mercer Station .	"	1	Shaft
Bevier Coal Co.	Cleaton	"	1	Slope
Morgan Coal Co. (Gish)	Central City . .	"	1	"
W. G. Duncan Coal Co.	Luzerne	"	3	Drift
Black Diamond Coal Co.	Drakesboro . . .	"	1	Shaft
Drakesboro Coal, Coke & Mining Co. .	"	"	1	"
W. A. Wickliffe Coal Co.	Browder	"	1	"
Taylor Coal Co.	Taylor Mines . .	Ohio	2	Drift
Williams Coal Co.	McHenry	"	1	"
McHenry Coal Co.	"	"	1	Slope
McHenry Coal Co.	Echols	"	1	Shaft
Central Coal & Iron Co.	Render	"	1	Drift
Fordsville Block Coal Co.	Fordsville	"	1	"
Green River M'g., Mfg. & Tr. Co. . .	Coffman	"	1	"
Deaneville Coal Co.	Aetnaville	"	1	Shaft
Deaneville Coal Co.	"	"	1	Slope
Peacock Coal Co.	Reynolds	"	1	"
Borderland Coal Co.	Borderland, W. Va.	Pike	2	Drift

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Vulcan Coal Co.	Vulcan, W. Va.	Pike	2	Drift
Indian Head Coal Co.	Parker's Lake . .	Pulaski	1	"
Eagle Coal Co.	Barrenfork	"	1	"
New Cumberland Coal Co.	McGuffey	"	1	"
Peters & Souleyret (Cogar Cr.)	Flatrock	"	1	"
Alpine Coal Co.	Alpine	"	1	"
New Pine Hill Coal Co.	Pine Hill	Rockcastle . .	1	"
Big Hill Coal Co.	Johnetta	"	1	"
Ohio Valley Coal & Mining Co.	DeKoven	Union	1	Slope
Morganfield Coal & Mining Co.	Morganfield . . .	"	1	Shaft
U. S. Gas Coal & Coke Co.	Sturgis	"	1	"
Tradewater Coal Co.	"	"	1	"
Crittenden Coal & Coke Co.	Marion	"	1	Slope
Waverly Coal Co.	Waverly	"	1	Shaft
Bell-Union Coal & Coke Co.	Sturgis	"	1	Slope
Marion Coal Co.	Sullivan	"	1	"
Kentucky Coal Co.	Waverly	"	1	Shaft
Ben C. Davidson & Son	Uniontown	"	1	"
National Coal & Oil Co.	"	"	1	"
Providence Coal Co.	Providence	Webster	1	"
Providence Coal Co.	"	"	1	Slope
Sebree Coal & Mining Co.	Sebree	"	1	Shaft
St. Bernard Mining Co. (Shamrock) . .	Earlington	"	1	"
Caney Fork Coal & Mining Co.	Dixon	"	1	"
Wheatcroft Coal & Mining Co.	Wheatcroft	"	1	"
Wheatcroft Coal & Mining Co.	"	"	1	Slope

GENERAL LIST OF MINES—Continued.

Name of Operator.	Mine Office.	County.	No. of Mines.	Open- ing.
Thos. Blackwell Coal & Mining Co. . .	Clay	Webster . .	1	Shaft
R. L. Forsythe	Providence . .	" . .	1	"
Louisville Property Co.	Halsey	Whitley . .	3	Drift
East Tennessee Coal Co.	Jellico, Tenn. .	" . .	2	"
Mt. Morgan Coal Co.	Williamsburg .	" . .	1	"
Pocono Coal Co.	"	" . .	1	"
Main Jellico Mountain Coal Co. . . .	Kensee	" . .	3	"
Jellico Coal Mining Co.	Mountain Ash .	" . .	2	"
Procter Coal Co.	Red Ash . . .	" . .	4	"
Hoffman & Berry	Williamsburg .	" . .	1	"
Watts Creek Jellico Coal Co.	Wofford	" . .	1	"
West Jellico Coal Co.	Strunk	" . .	1	"
Pine Knot Coal Co.	"	" . .	1	"
Burk Hollow Coal Co.	Jellico, Tenn. .	" . .	1	"
Imperial Jellico Coal Co.	Rockhold . . .	" . .	1	"
Dowlais Blue Gem Coal Co.	Jellico, Tenn. .	" . .	1	"
Moore Jellico Coal Co.	"	" . .	1	"
Davisson Bros.	Pleasant View .	" . .	1	"
Pleasant View Jellico Coal Co.	"	" . .	1	"
Stearns Coal Co.	Stearns	" . .	3	"
French Coal Co.	Halsey	" . .	1	"
Emlyn Jellico Coal Co.	Emlyn	" . .	1	"
Jellico Mining Co.	Saxton	" . .	1	"

NEW AND IDLE MINES.

During the two years ending January 1, 1905, 49 new companies began operations, 22 of them in 1903. Four of the 27 that began in 1904 produced no coal during that year, but are now shipping to the markets. Following are the new mines:

NEW MINES AND CHANGES.

Bell County.—The Stony Fork Coal Co. opened its mine in 1903 and began shipping the latter part of that year. See Notes on the Mines.

Bell County.—The Black Bear Coal Co. opened a mine on Four Mile Creek in 1903 and made its first shipment November 21st of that year. See Notes on the Mines.

Bell County.—The Durell Coal Co. opened one mine, and the Four Mile Coal & Coke Co. opened two mines on Four Mile Creek in 1903. The latter began shipping in November, 1903. About November 1, 1904, they were consolidated under the name of Highland Rim Mining Co. See Notes on the Mines.

Bell County.—The Luke & Drummond Coal Co. opened a mine in the Log Mountains in 1903. First shipments were made in December of that year. See Notes on the Mines.

Boyd County.—Geo. L. Hull opened a mine near Rush and began shipping in June, 1903.

Boyd County.—The Norton Branch Coal Co. opened a mine near Rush and began shipping October 22, 1903. This is a small operation.

Breathitt County.—The Frozen Creek Cannel Coal Co. opened a mine near Boxer in 1903, with Robert Birch as manager.

Crittenden County.—The Bell Coal & Mining Co. reopened one of the old "Bell" mines, and opened a new mine to the "Bell" coal in 1903. Little was done during either 1903 or 1904. See Notes on the Mines.

Daviess County.—Allen Deane opened the Deane mine, near Owensboro, in 1903.

Daviess County.—Overstreet & Rudy opened a mine near Owensboro in 1903.

Henderson County.—The mine of W. Hayes & Son, at Zion, was added to the list coming under the supervision of the Inspector.

Henderson County.—The Magnolia Coal & Mining Co. opened a shaft mine at Corydon in 1903. Coal was reached in August of that year, but there was no production before 1904. See Notes on the Mines.

Henderson County.—The Smith Mills Coal & Mining Co. opened a shaft mine at Smith Mills in the early part of 1903. It is a steady, though small producer. Smith Mills is six miles north of Corydon.

Hopkins County.—The Buffalo Creek and Tradewater Coal Mining & Railroad Co. opened a mine, or rather, acquired a small local mine near Underwood on the Illinois Central Railroad, and began its development into commercial importance in 1903. Shipments began about September 9th of that year. Officers of the company were: C. W. Schulte, President and Treasurer, Memphis, Tenn.; C. W. Palmer, Vice-President, Chicago; A. S. Buchanan, Secretary; T. R. Troendle, General Manager; Richard Palmer, Superintendent; Sterling Pierson and A. S. Buchanan, Counsel. In 1904 the company was reorganized under another name, that of the Buffalo Creek Coal Mining Co., which it now bears. The mine is known as the Daniel Boone. See Notes on the Mines.

Hopkins County.—The Rose Creek Coal & Mining Co. opened a mine near Nebo, and commenced shipping, in 1904. See Notes on the Mines.

Hopkins County.—The Royal Coal Co. opened a shaft mine at Madisonville in 1904. There was no production during the year. By February 11, 1905, one entry had been driven south 100 feet and another north 62 feet. Under said date Mr. E. L. Shell, superintendent, wrote as follows:

"We are using two Goodman Standard, type E., chain machines, and developing rapidly. We will drive south 150 feet further, then east 130 feet to air-shaft, which is now 11 feet from the coal. I am ventilating by means of a steam jet, using one side of shaft for upcast. We have water pipes running to each side, and hose for sprinkling, and I do not expect to have the least trouble in reaching the air-shaft. We

have not decided whether to use the two or three-entry system. Personally, I am in favor of three entries. I intend to split the air at each cross entry, and thus give each set of men a separate current of air."

Hopkins County.—The Carbondale Coal & Coke Co. opened a new mine in 1903 in place of the old one which was exhausted.

Hopkins County.—Kington & Wolfe opened a mine near Morton's Gap in 1904, and began shipping that year. See Notes on the Mines.

Hopkins County.—The Nortonville Coal Co. opened an additional shaft mine at Nortonville in 1904. Shipments were made from the second mine in June. See Notes on the Mines.

Johnson County.—J. N. Meek opened a mine at the mouth of Greasy Creek. No reports of output have been received.

Knox County.—The Bastin Coal Co. acquired and began steady development of the "Knox Gem" mine near Barbourville in 1903. See Notes on the Mines.

Laurel County.—The Lily Jellico Coal Co. began operations at Lily toward the close of July, 1904, but practically did no more than get the mine ready for operation by January 1, 1905. Officers of the Company are: Oscar W. Black, President and Treasurer; Owen A. Black, Vice-President and Mine Superintendent; Frazier J. Black, Secretary and Manager. It is understood that this company in a sense is successor to the Leota Coal & Coke Co.

Laurel County.—The O. K. Jellico Coal Co. was established at Lily in 1904, but so far as known shipped no coal that year. The main office is at Louisville. Officers are: J. T. O'Neal, President; Geo. C. Norton, Vice-President; M. S. Kice, Secretary and Treasurer; Thos. C. Hulton, Superintendent.

Laurel County.—The Wells Coal Co. made a new opening on the old Kentucky Mine property, near East Bernstadt, in 1903, but so far as ascertained did little in the way of operating it. As organized, the officers were: J. L. Wells, President and General Manager; J. N. McCarthy, Mine Foreman.

Lee County.—The Richardson Coal Co. opened a mine near Beattyville and began shipments in July, in 1904. See Notes on the Mines.

Morgan County.—The Mountain Cannel Coal Co. opened a mine near Cannel City and commenced putting out coal in Sep-

tember, 1903. Its operations have been small, the mine being idle the larger part of 1904.

Muhlenberg County.—The W. G. Duncan Coal Co. opened an additional mine, the Graham, in 1903. See Notes on the Mines.

Muhlenberg County.—The Drakesboro Coal, Coke & Mining Co. opened a mine in No. 9 coal, near Drakesboro, in 1904. First shipments were made in September.

Ohio County.—The Green River Mining, Manufacturing & Transportation Co. opened a new mine, No. 3. The old No. 2 was about "done" in August.

Ohio County.—The Reynolds Coal & Clay Co. opened a mine near Reynolds Station, on the Fordsville extension of the Illinois Central railroad, in 1903. Subsequently the interests were incorporated as the Peacock Coal Co. Comparatively little mining has been done. The output for 1903 amounted to only 7,050 tons, and the mine stood idle during all of 1904.

Pike County.—The Vulcan Coal Co. opened a mine on Tug River, in the southeasterly part of the county, in 1903, but the first record of shipments is for 1904. This is the first commercial mine opened in the county. See Notes on the Mines.

Pike County.—The Borderland Coal Co. opened a mine on Tug River in 1904, the second commercial mine opened in the county. See Notes on the Mines.

Rockcastle County.—The Big Hill Coal Co. opened mines on Brush Creek in 1903. See Notes on the Mines.

Rockcastle County.—The New Pine Hill Coal Co. opened a mine at Pine Hill in 1903. See Notes on the Mines.

Union County.—The Crittenden Coal & Coke Co. opened a mine, the Davis Colliery, on the Illinois Central railroad, between DeKoven and Sturgis, in 1904. The coal worked is Owen's No 6, known in the region as "the 4-foot coal." See Notes on the Mines.

Union County.—The Morganfield Coal & Mining Co. opened a shaft mine at Morganfield in 1903. The coal was reached February 15, 1903. See Notes on the Mines.

Union County.—The Bell-Union Coal & Coke Co. reopened the old Curlew No. 9 Slope, near DeKoven, in 1904. The time was spent in unwatering the mine, developing working places, equipping the bank and putting up surface plant. The first shipment of coal was made January 24, 1905. Officers are:

Henry Brooks, President; R. Crosby Fairlamb, Secretary and Treasurer; R. S. Weitzell, Manager of Mines.

Webster County.—The Thos. Blackwell Coal & Mining Co. opened a mine at Clay in 1904. The first coal was loaded August 8th. See Notes on the Mines.

Whitley County.—The Burk Hollow Coal Co. opened a mine near Jellico, Tenn., in 1904. See Notes on the Mines.

Whitley County.—The Jellico Mining Co. opened a mine at Saxton in 1904. See Notes on the Mines.

Whitley County.—The Pleasant View Jellico Coal Co. opened a mine near Pleasant View in June, 1903. See Notes on the Mines.

Whitley County.—The Davisson Bros. opened a mine near Pleasant View in May, 1903. See Notes on the Mines.

Whitley County.—The Stearns Coal Co. opened mines at a point about seven miles westerly from the Cincinnati Southern Railway, subsequently christened Stearns, in 1903. The first shipment was made about May 25th, when five or six cars were shipped. The mines are connected by a branch with the Cincinnati Southern Railway. See Notes on the Mines.

Whitley County.—The Williams Coal Co., which was soon succeeded by the Emlyn Jellico Coal Co., opened a mine at Emlyn in 1903. See Notes on the Mines.

Whitley County.—The French Coal Co. opened mines at Halsey in 1904. See Notes on the Mines.

Whitley County.—The Dowlais Blue Gem Coal Co. opened a mine in the "Blue Gem" seam in 1904. See Notes on the Mines.

Whitley County.—Moore & Savage (subsequently the Moore Jellico Coal Co.) opened mines four miles east of Jellico in 1904. The first car was loaded March 2d. See Notes on the Mines.

Whitley County.—The Imperial Jellico Coal Co. opened a mine at Rockhold in 1903-'04. First shipment was made January 20, 1904. See Notes on the Mines.

Whitley County.—The Main Jellico Mt. Coal Co., at Kensee, opened a new mine called Jellico No. 2.

IDLE MINES.

Bell County.—The Tuckehoe Coal Co.'s mines, which went into the hands of a receiver the latter part of 1903, have been idle to date.

Boyd County.—Rush No. 11 of the Ashland Iron & Mining Co. was closed. It was about exhausted by June, 1904.

Daviess County.—The New Holland mine was about wound up in 1904. When it was visited, February 20th, work was confined to drawing pillars and stumps.

Hancock County.—M. H. Enright's Falcon mine was worked out by the end of 1903.

Hopkins County.—The Carbondale Coal & Coke Co.'s old mine was wound up in 1903 and a new mine opened.

Laurel County.—The old Laurel mine was finished in 1903, and the Laurel Coal Co. has gone out of business. (This company should not be confounded with the New Laurel Coal Co. The latter, in a sense, is successor to the former.)

Laurel County.—The Leota Coal & Coke Co. went into bankruptcy in 1903 and did not operate after April of that year.

Lawrence County.—In October, 1903, the Annie mine of the Peach Orchard Coal Co. was down to pillars and stumps.

Ohio County.—The Peacock Coal Co.'s mine was idle throughout 1904.

Pulaski County.—J. C. Parker, who operated a mine under the firm name of the Paris Coal Co., has changed his method, and now takes the coal from lessees or contractors who work in various parts of the mine.

Whitley County.—The Blue Gem mine of the Main Jellico Mtn. Coal Co. was shut down September 1, 1904, and not operated again during the year.

Whitley County.—C. C. Cordel & Co., who ran the old Tow Wad mines in a small way, have ceased to work them. The property is now controlled by the Pine Knot Coal Co.

III

GENERAL CONDITION OF THE MINES.

Now that the number of mines has so greatly increased and is still increasing at a rapid rate, it is becoming more and more difficult for this office, with its utterly inadequate inspection force, to see that all the mines are maintained in lawful condition. The best that can be done is to endeavor to keep in touch especially with those the underground management of which experience has shown to be most often defective, at the same time making of all others as many inspections within the year as time and circumstances will permit. It has happened during the past year, however, that some of the most ill-managed mines have received only one inspection. This has been due chiefly to the fact that at times when the region would be visited with the purpose of inspecting them it would be learned that the mines were idle for one reason or another—in some instances on account of strikes (particularly in Boyd, Carter, and Lee counties). Mines elsewhere would then be visited, and those which had been found idle could not again be reached before the expiration of the year. In many cases mines which could be inspected only once or twice during the past year have been visited since the preparation of this report was undertaken. Elsewhere the urgent necessity for two more assistant inspectors is set forth, and it is hoped that the next Legislature will authorize their appointment.

All circumstances being considered, it may be said that the mines as a whole have been maintained in fairly good condition, there being a comparatively few exceptional cases of great excellence and others of exceeding inefficiency in the management of underground conditions. Three aggravated cases of failure to comply with the law, even after repeated notice to do so had been given, two in 1903 and the other in 1904, may be noted. The mine in each case was found to be

in exceedingly bad condition, and finally this office sought, by application to the proper officials, to bring actions in court against the companies. One case, that of the Standard Coal Co., in 1903, was placed in the hands of Mr. Walker Moren, county attorney of Laurel county, but the Inspector has never been able to obtain official information as to just what was done in the matter. He has no knowledge of any trial ever having been entered into. The other case, that of the Deane-field Coal Co., Ohio county, in 1904, which was placed in the hands of the then acting county attorney, Mr. Wilson, and later in the hands of the Commonwealth's Attorney, Hon. Ben D. Ringo, is discussed elsewhere. In this instance—which was an especially aggravated case of disregard of the law and apparent indifference to the Inspector's instructions—it was sought to have the company enjoined from working more than five persons until the mine should be placed in lawful condition, and also to have the company indicted for continued violation of the law despite notices that had been served on it. Two indictments were returned against the company, and fines amounting to about \$100 (it is understood) were agreed upon; but the company (unfortunately, as subsequent events proved) was not enjoined as had been requested. The third case, that of the Paris Coal Co., Pulaski county, was placed in the hands of the Hon. J. N. Sharp, Commonwealth's Attorney, who pushed it vigorously, in all its phases, and obtained a substantial judgment against the company in July, 1903.

FATALITIES FOR 1903.

During the calendar year 1903 there were 23 fatal accidents underground, due to what may be termed the normal perils of mining—the total, therefore, which is considered when arriving at the tonnage raised for inside death. In addition, two boys who went to sleep where the ascending exhaust gases from a gasoline engine reached them, lost their lives by asphyxiation. There were two fatal accidents outside. Following is a statement of fatalities and causes:

Fall of Top	15
Fall of Coal	1
Returned on Hanging Shot	2
Premature Blast	2
Loading Cartridge	1
Prop Knocked Out by Derailed Car	2
Total Inside	23
Riding Trip, Outside	1
Walked Into Shaft, Outside	1
	25

The tonnage raised and the persons employed per fatal accident were as follows:

Tonnage raised per inside death	312,967
Employees inside per inside death	461
Tonnage raised per total of deaths in and out	287,930
Persons employed per total of deaths	424
Deaths inside per each 1,000 persons inside	2.1696
Total deaths per each 1,000 employees	1.8500

These figures, compared with those for 1902, show an increase of five in the number of inside fatal accidents, and a decrease of 44,222 tons in the amount of coal raised per inside death. The deaths from falls of top occurred chiefly in the Southeastern (8) and Northeastern (5) districts. They occurred at the following mines:

District.	Mine.	Number.
Western	Empire	2
Southeastern	Black Raven	1
Southeastern	Excelsior	1
Southeastern	Bertha	2
Southeastern	Wilton	1
Southeastern	Big Hill	1
Southeastern	Procter	1
Southeastern	West Jellico	1
Northeastern	Rush No. 6	8
Northeastern	A. I. & M. No. 8	1
Northeastern	L. C. Norman & Sons	1
		15

The foregoing mines, omitting Big Hill, which was not in operation in 1902, produced a total of 89,469 tons less coal in 1903 than in 1902.

FATALITIES FOR 1904.

During the calendar year there were 19 fatal accidents, 14 of which occurred underground. In addition, the death of a young man from blood poison resulting from a scratch (the young man being in a "badly diseased" condition) was reported. This case is included in the descriptive list of fatalities, but it is hardly to be classed among the "mine accidents" properly so called.

Following is a statement of the fatal accidents in 1904, with the causes:

Fall of Top	6
Fall of Coal	1
Cars	1
Returned on Hanging Shot	1
Caught by Shot and Suffocated by Smoke	1
Dust Explosion	2
Blown-out Shot, Ignited Smoke (and Dust?)	1
Fell from Moving Machine, Run Over	1
Total Inside	14
Knocked off Cars, Outside	1
Uncertain, Outside	1
Dust Explosion, Outside*	3
Total Deaths	19

The tonnage raised and the persons employed per fatality were as follows:

Tons raised per inside death	511,952
Employees inside per inside death	785
Tons raised per total of deaths in and out	377,227
Employees per total of deaths in and out	732
Deaths inside per each 1,000 employees inside	1.2736
Total deaths per each 1,000 total employees	1.3665

*See Descriptive List, Stearns Mine, Whitley County.

The figures compared with those for 1902 (which were more favorable than those for 1901) show an increase of 154,763 tons in the amount of coal raised, and an increase of 242 in the number of inside employees, per inside fatality; while the deaths per each 1,000 persons underground fell from 1.826 to 1.2736. Compared with the figures for 1903, they show an increase of 198,985 in the tons mined per inside death; an increase of 324 in the number of underground employees per inside fatality; and a marked decrease in the number of deaths per each 1,000 persons employed. This more favorable showing for 1904, which is due to the smaller number of fatal falls of top, compares well with that of the best years.

FALLS OF TOP.

As stated in the report for 1901-'02, the feature in our fatality lists which calls for most serious consideration is the number of deaths from falls of top. It is a waste of time to indulge in fine distinctions as to responsibility. The point is that men are being killed, and many more seriously injured, by falls of top at a rate that the ordinary risks of coal mining, with our tonnage, do not justify, and the thing for every mine manager to do is to take up the question and make earnest, vigorous efforts to lessen the dangers from bad roof. While more frequent inspections (were they made possible) would doubtless tend to lessen the evil, after all whether there shall be a reduction of roof falls to the minimum largely rests with the mine management and the miner. There must be wise mine rules vigorously enforced, diligent attention to the condition of the roof on the part of mine officials; and acute appreciation of the danger which threatens, when the roof is not properly supported, on the part of the miner.

A statement with reference to this matter made in the report for 1902 is still apropos, and may be repeated: "It is feared that the tonnage and expense question has too often been allowed to obscure the safety question. In some instances the physical conditions, as a whole, noted in the mines where such accidents occurred suggest faulty methods of mining—a system of mining out wide spaces, robbing everything back to the entry stump, using few props, and yet leaving but little in

the way of stump or pillar along the entries, a system which had gone on so long, unchecked, that there was a general tendency throughout the mine for falls to occur. In some of the mines, also, it was noted that not only were pillars allowed to be too thin, but too little regard was paid to keeping the rooms promptly and sufficiently propped. Another evil combination noted was thin room-pillars and staggered breakthroughs. And still another evil noticed—one which inevitably weakens the roof throughout the workings and causes patches of rock or slate to fall here and there—was lack of parallelism in the courses of the rooms on one and the same range, resulting in rooms cutting into each other here and diverging there, thus leaving thick and thin blocks of coal scattered about higgledy-piggledy fashion. Roof falls will occur most unexpectedly and despite the most careful management, but the danger can be materially reduced by making the excavations in a regular, systematic way, maintaining adequate pillars and keeping up regular lines of props. There are too many mines where sufficient attention is not paid to this matter—where mine maps are regarded rather as nuisances that must be gotten up once a year for the Mine Inspector, than as plans to be consulted frequently in pushing the workings ahead at the mine. . . . There is no economy in occurrences of falling roof in working places—certainly none where injuries to men result—and it is earnestly urged that this very serious question be given more vigilant attention than seems to have been the case at some of the mines. There may be no hope for the miner who persists in taking chances, such as delaying to reset knocked-out props, or delaying to set posts within proper time after his coal has been shot down, but the number of injuries due to such recklessness is really considerable when compared with the total, and a persistent, vigorous campaign against “bad top” (which will include a scientific, systematic method of mining) should certainly reduce the percentage of deaths due to falls of roofs.

The following table shows the number of tons raised per death from fall of top, and the percentages of deaths due to roof falls throughout the period that has elapsed since provision was made for the collection of mining statistics in an accurate way:

RELATING TO ROOF FALLS FOR A SERIES OF YEARS.

Year.	Deaths from Fall of Top.	Tons Raised per Death from Top Falls.	Percentage of Deaths Due to Top Falls.
1888	9	264,988	64.3
1889	9	239,584	75.0
1890	6	422,042	66.6
1891	10	295,013	76.1
1892	4	756,824	80.0
1893	9	366,916	81.8
1894	6	492,866	66.6
1895	4	801,942	57.1
1896	4	795,869	80.0
1897	5	660,810	41.7
1898	3	1,180,710	50.0
1899	4	1,126,359	44.4
1900	12	418,389	70.6
1901	5	1,064,942	26.3
1902	11	584,492	64.7
1903	15	470,883	60.0
1904	6	1,194,551	80.0

TAMPING BARS. SAFETY GATES.

Two accidents, one of them severe though not fatal, were caused in 1903 by the use of iron tamping bars. The danger of using such tamping bars has been so often insisted upon, and should be so manifest to every miner, that in the event of death from premature explosion following the use of one, a justifiable verdict would be “suicide.” One of the deaths reported in the same year was that of a man who walked into a shaft. Since ordinary discretion, no less than the law, calls for safety-gates at the mouth of a shaft, and that the gates shall be so arranged as to be always closed when the shaft is open, no

mining company can have any reasonable defense in the event of failure to provide them.

INSPECTIONS MADE.

During the years 1903 and 1904 inspections and visits have been made as follows:

MINE.	1903		1904	
	Inspection.	Visits: No Inspections.	Inspection.	Visits: No Inspections.
BELL COUNTY—				
Straight Creek No. 1.....	2	1	2	....
" No. 2.....	2	1	2	....
Pineville No. 1.....	2	....	2	1
" No. 2.....	2	....	....	1
" No. 3.....	2	1	2	....
Black Raven.....	2	1	1	1
Excelsior.....	2	....	1	1
Bennett's Fork.....	2	....	1	1
Sagamore (1904).....	....	....	1	....
Stony Fork (1904).....	....	....	1	....
Black Bear (1904).....	....	....	1	1
Durell.....	1	....	2	....
Four Mile.....	2	....	1	....
Luke & Drummond (1904).....	....	....	1	....
BOYD COUNTY—				
Rush No. 6.....	2	....	Done	....
" No. 11.....	3	....	Idle much	1
" No. 8.....	3	....	" "	1
Princess.....	3	....	1	1
Winslow.....	2	....	Idle much	1
Geo. L. Hull.....	3	....	1	1
Rush No. 12.....	1	....	1	....
Norton Branch.....	1	....	1	....
BREATHITT COUNTY—				
Kentucky Union (Jackson).....	2	....	1	....
Frozen Creek.....	....	2	....	Idle
BUTLER COUNTY—				
Aberdeen.....	1	....	1	1
W. Aberdeen.....	2	....	1	1
CARTER COUNTY—				
Lost Creek.....	3	....	1	1
Bailey No. 1.....	3	....	1	....
" No. 2.....	3	....	Idle	....
Asbland I. & M. No. 10.....	1	....	1	....
Straut Creek.....	3	....	....	1
Boghead.....	3	....	....	2
Meadow Branch.....	3	....	1	....
CHRISTIAN COUNTY—				
Empire.....	2	....	2	....
CRITTENDEN COUNTY—				
Bell Coal & Mining Co. ....	....	2	....	2

MINE.	1903		1904	
	Inspection.	Visits: No Inspections.	Inspection.	Visits: No Inspections.
DAVISS COUNTY—				
New Holland.....	2	....	1	Exhausted
Eberhart.....	1	1	Not subject	....
Owensboro Coal & Mining (1904).....	....	....	2	....
Louis Hoback (1904).....	....	....	1	....
Allen Deane (Bon Harbor).....	2	....	2	....
Overstreet & Rudy.....	2	....	1	....
HANCOCK COUNTY—				
Auburn Ash.....	3	....	3	....
Falcon.....	2	....	Exhausted	....
HENDERSON COUNTY—				
Baskett.....	2	....	2	....
Magnolia (1904).....	....	....	2	....
Rankin.....	3	....	2	....
Corydon.....	2	....	2	....
Henderson.....	2	....	3	....
Zion.....	2	....	2	....
Peoples.....	3	1	3	....
Smith Mills.....	1	....	2	....
HOPKINS COUNTY—				
Earlington No. 9.....	3	....	2	....
" No. 11.....	3	....	2	....
Hecla.....	8	....	2	....
Arnold.....	2	....	2	....
Diamond.....	2	....	2	....
Barnsley.....	2	....	2	....
St. Charles.....	2	....	2	....
Reinecke.....	3	....	2	....
Monarch.....	1	....	2	....
Daniel Boone.....	....	....	2	....
Kington & Wolf (1904).....	2	....	3	....
Nortonville No. 1.....	....	....	1	....
" No. 2 (1904).....	2	....	2	....
Carbondale.....	2	....	3	....
Crabtree.....	3	....	3	....
Oak Hill.....	....	....	....	....
JOHNSON COUNTY—				
Sandy River.....	2	....	....	1
Whitehouse No. 1.....	2	....	....	1
" No. 2.....	1	....	....	Idle
KNOX COUNTY—				
Bertha No. 4.....	3	....	2	....
" No. 5.....	3	....	2	....
Wilton.....	3	....	2	....
North Point Jellico.....	3	....	2	....
Ross Jellico.....	3	....	1	1
Artemus Jellico.....	3	....	1	....
East Jellico.....	2	....	1	....
Hughes Jellico.....	1	....	1	....
Knox Gem (Bastin).....	....	....	....	....

MINE.	1903		1904	
	Inspection.	Visits: No Inspection.	Inspection.	Visits: No Inspection.
LAUREL COUNTY—				
Lily (Leota)	2	....	Idle	....
Wells (Kentucky)	1	....	1	....
Pittsburg .....	....	....	....	....
New Laurel (1904) .....	....	....	1	....
Laurel	3	....	Exhausted	....
Pitman	3	....	1	1
Curvin's Crescent	3	....	....	1
Standard	3	....	1	....
Star	2	....	....	Idle
New Star	3	....	1	....
Manchester	3	....	1	....
Altamont (Flat Top)	3	....	....	2
New Diamond	3	....	1	....
LAWRENCE COUNTY—				
Peach Orchard (Annie)	2	....	1	1
Peach Orchard (Elizabeth)	2	....	1	1
Torchlight	2	....	1	....
LEE COUNTY—				
McGuire	3	....	....	2
White Ash (Norman)	2	....	1	....
Contrary Creek	2	....	2	....
Richardson Co. (1904) .....	....	....	1	....
McLEAN COUNTY—				
Memphis (Field)	3	....	1	....
Green River (Island)	3	....	1	....
MORGAN COUNTY—				
Kentucky Block	2	....	1	....
Bigstaff	2	....	1	....
Mountain Cannel (1904) .....	....	....	1	....
MUHLENBERG COUNTY—				
Central	3	....	2	....
Powderly	2	....	2	....
Hillside	2	....	2	....
Dovey	2	....	2	....
Crescent	2	....	2	....
Oakland	2	....	2	....
Bevier	3	....	2	....
Gish	2	....	2	....
Luzerne	2	....	2	....
Graham (1904) .....	....	....	2	....
Pierce	2	....	3	1
Drakesboro (1904) .....	....	....	2	....
OHIO COUNTY—				
Taylor No. 1	2	....	2	....
Taylor No. 2 (1904) .....	....	....	2	....
Williams	2	....	2	....
McHenry	3	....	2	....
Echols	3	....	2	....
Render	2	....	2	....
Fordsville (Johnson)	3	....	2	....
Deanfield (Etna)	3	1	2	....
Jamestown	2	....	1	....
Peacock	2	....	....	Idle

MINE.	1903		1904	
	Inspection.	Visits: No Inspection.	Inspection.	Visits: No Inspection.
PULASKI COUNTY—				
Indian Head	3	....	1	....
Barren Fork	2	....	1	....
New Cumberland	3	....	1	1
Cogar Creek	3	....	1	1
Alpine	4	....	1	1
Paris	4	....	Not Subject	....
ROCKCASTLE COUNTY—				
Big Hill	2	....	1	....
New Pine Hill	1	....	1	....
UNION COUNTY—				
DeKoven No. 9	2	....	2	1
Morganfield	1	....	2	1
Cumberland	2	....	1	1
Tradewater	2	....	2	1
Davis Colliery (1904) .....	....	....	1	2
Davidson	2	....	2	....
National C. & O. Co. (American)	3	....	2	....
WEBSTER COUNTY—				
Providence Slope	2	....	2	....
Providence Shaft	2	....	2	....
Seabee	3	....	2	....
Wheatcroft Shaft	2	....	3	....
Wheatcroft Slope	1	....	....	....
Thos Blackwell (1904) .....	....	....	1	....
Forsythe	2	....	2	....
Shamrock	2	....	....	1
WHITLEY COUNTY—				
Vanderpool	2	....	1	....
Birdeye	1	....	1	....
Dowlais No. 1	2	....	2	....
" No. 2	2	....	2	....
Mt. Morgan	2	....	2	....
Cockill (Pocono)	3	....	....	....
Kensee No. 1	2	....	2	....
" No. 2 (1904)	2	....	1	....
" Blue Gem	2	....	2	....
Mountain Ash	1	....	2	....
Procter	2	....	2	....
Grinstead	2	....	2	....
Klondyke	2	....	1	....
Hoffman & Berry	2	....	1	....
Watts Creek	3	....	1	....
West Jellico	2	....	1	1
Pine Knot .....	....	....	1	....
Burk Hollow (1904) .....	....	....	1	....
Imperial Jellico (1904) .....	....	....	2	....
Dowlais Blue Gem (1904) .....	....	....	1	....
Moore Jellico (1904)	2	....	1	....
Davisson Bros.	2	....	1	1
Pleasant View	2	....	2	....
Stearns	1	....	1	....
French Jellico (1904) .....	....	....	1	....
Emlyn	2	....	1	....
Jellico M'g Co. (1904) .....	....	....	Idle	....
Tow Wac (Cordell)	1	....	....	....

IV

STATISTICS FOR 1903 AND 1904.

For convenience and because of differences of trade relations, the counties producing commercial coal are, according to each one's relation, grouped in three districts, namely, the Western, the Southeastern, and the Northeastern. The Western District includes all counties that lie within the Western Coal Field. The Southeastern at present includes Bell, Knox, Laurel, Pulaski, Rockcastle, and Whitley counties. In the Northeastern are at present included Boyd, Breathitt, Carter, Johnson, Lawrence, Lee, Morgan, and Pike counties. Other counties in the Eastern Field will be assigned to their proper districts as they enter the commercial list. Morgan county became a commercial producer in 1900. Pike county entered the list in 1904. Floyd and Martin counties will probably enter the list in 1905, and Perry, Letcher, and Harlan will probably do so within two years. It may seem well, presently, to form an additional district, to be known as the Elkhorn District, to include the counties of Floyd, Pike, Letcher, Knott, Perry and Leslie.

Within the last six years the commercial output has more than doubled, rising from 3,542,132 short tons in 1898, to 7,198,251 in 1903, and to 7,167,324 tons in 1904.

The output, in short tons, by districts for the last two years is as follows:

District.	1903	1904
Western	4,244,782	4,121,564
Southeastern	2,147,026	2,431,125
Northeastern	806,443	614,635
Total	7,198,251	7,167,324

Compared with the output for 1903, the figures for 1904 show a net decrease of 30,927 tons. Had the source of production been only the mines that were operating in 1903, the net loss would have been much greater. The loss was kept down by contributions from fifteen new mines, as is shown by the following:

District.	Tons.
Western, loss shown by older mines	211,597
Northwestern; loss shown by older mines	245,872
	457,469
Southwestern, net gain by older mines	219,001
	238,468
Loss by older mines	207,541
Added by new mines, all districts	
Net loss	30,927

The decrease in the Northeastern District was due in part to strikes in Boyd, Carter, and Lee counties, but also in part to the strong competition in the home markets from West Virginia mines, the interests of which are understood to be fostered by the C. & O. railroad. In the Western District the loss was chiefly due to the less favorable market conditions than existed in 1903. A decrease in the demand for coke also affected the output.

The following tables show the tonnages of lump, nut, etc., reported for 1903 and 1904 respectively:

Classes of Coal Reported, 1903.

District.	Tons, Lump.	Tons, Nut.	Tons of all Other Classes.	Tons, Total.
Western	831,236	211,982	3,201,564	4,244,782
Southeastern	664,928	150,884	1,331,214	2,147,026
Northeastern	233,674	10,263	562,506	806,443
Total	1,729,838	373,129	5,095,284	7,198,251

OUTPUT BY COUNTIES, 1903 and 1904.

The tonnage reported by the respective coal companies, arranged by counties, for each of the years 1903 and 1904, was as follows, the counties being grouped in districts:

WESTERN DISTRICT—

	1903	1904
Butler County—		
Aberdeen Coal Co., Aberdeen, <i>a</i>	265	6,949
Fleener & Barber, Fleener, <i>b</i>	1,922	1,280
Total	2,187	8,229
Crittenden County—		
Bell C. & M. Co., Sturgis	1,500	291
Christian County—		
Empire C. & M. Co., Empire	99,226	91,943
Daviess County—		
A. Deane, Owensboro	10,000	6,501
New Holland C. Co., Owensboro	12,988	1,795
Lessees, Owensboro C. & M. Co., Owensboro	419	737
Overstreet & Rudy, Owensboro	8,012	11,799
Louis Hoback, Owensboro . . . . .	.....	3,635
Total	31,419	24,467
Hancock County—		
Auburn Ash Mine, Martindale	29,142	43,192
M. H. Enright, Adair (Exhausted)	2,926	.....
Total	32,068	43,192
Henderson County—		
Corydon C. Co., Corydon	5,608	4,068
Green River C. Co., Spottsville	63,978	46,929
J. L. Nicholson & Co., Henderson	16,585	17,101
Magnolia C. Co., Corydon, (New) . . . . .	.....	4,539
Smith Mills C. & M. Co., Smith Mills	8,964	3,085
Wm. Haves & Sons, Zion	2,658	2,786
Peoples M. Co., Henderson	10,308	9,993
Pittsburg C. Co., Baskett	59,335	39,811
Total	162,437	128,312

a In 1903 mine was operated by B. Baker, Lessee.

b In 1903 mine was operated by West Aberdeen Coal Co.

WESTERN DISTRICT—Continued.

	1903	1904
Hopkins County—		
Buffalo Cr. C. & M. Co., Daniel Boone	29,588	81,278
Carbondale C. & C. Co., Hamby Station	43,090	41,912
Crabtree C. M. Co., Ilsley	105,095	116,237
Kington & Wolfe, Mortons . . . . .	.....	38,907
Nortonville C. Co., Nortonville	26,553	28,422
Oak Hill C. Co., Chesley	67,607	76,389
Reinecke C. M. Co., Madisonville	291,718	284,921
Rose Cr. C. Co., Nebo . . . . .	.....	12,000
St. Bernard Mining Co., Earlington:		
Arnold	149,553	117,788
Barnsley	69,063	98,040
Diamond	173,755	147,646
Hecla	110,525	113,519
Earlington No. 11	193,982	135,080
Earlington No. 9	183,912	164,454
St. Charles (2)	124,224	139,133
Victoria C. Co., Madisonville	166,851	128,377
Total	1,735,516	1,724,098
McLean County—		
Green River C. Co., Island	71,491	55,838
Memphis C. Co., Island	50,141	39,893
Total	121,632	95,731
Muhlenberg County—		
W. G. Duncan C. Co., (2 mines) Luzerne	96,147	195,889
Black Diamond C. Co., Drakesboro	111,798	85,681
Bevier C. Co., Cleaton	101,670	64,030
Gish Mine (now Morgan C. Co.) Central City	17,333	45,371
Drakesboro C. Co., Drakesboro . . . . .	.....	15,413
Hillside C. Co., Greenville	43,388	50,648
Oakland C. Co., Greenville	37,095	45,771
Powderly Mine (now Greenville C. Co.) Powderly	43,444	40,161
Dovey Mine (now Dovey C. Co.) Central City	32,930	41,188
Crescent C. Co., Bevier	158,266	171,110
Central C. & I. Co., Central City	159,928	147,958
Total	801,999	903,205
Ohio County—		
Central C. & I. Co., Render	88,471	83,673
Deaneville C. Co., Aetnaville	56,540	33,738
Fordsville B. C. Co., Fordsville	6,647	8,910
Green River M. M. & T. Co., Coffman	13,252	7,089
McHenry C. Co., McHenry	110,884	67,375
McHenry C. Co., Echols	79,467	71,387
Taylor C. Co., Taylor Mines	132,394	134,342
Williams C. Co., McHenry	82,014	107,526
Peacock C. Co., Reynolds (Idle 1904)	7,050	.....
Total	576,719	509,040

WESTERN DISTRICT—Continued.

Union County—	1903	1904
Tradewater C. Co., Sturgis	110,795	115,254
U. S. Gas Coal & C. Co., Sturgis	89,409	91,722
National C. & O. Co., Uniontown	13,554	27,780
Ohio Valley C. & M. Co., DeKoven	117,611	89,488
Davidson & Sons, Uniontown	4,492	5,492
Morganfield C. & M. Co., Morganfield	6,832	10,706
Marion C. Co., Sullivan	1,600	877
Crittenden C. & C. Co.,	...	11,095
	344,293	352,414
Webster County—		
R. L. Forsythe, Providence	11,360	8,824
Sebree C. Co., Sebree	81,244	44,382
Providence C. Co., Providence	131,578	101,023
St. Bernard C. Co., (Shamrock) Earlington	85,881	18,573
Wheatcroft C. & M. Co., Wheatcroft	75,723	65,550
Thos. Blackwell C. & M. Co., Clay	...	2,790
	335,786	240,642

SOUTHEASTERN DISTRICT—

Bell County—		
Winona C. & C. Co., Middlesboro, <i>a</i>	19,801	27,050
Black Raven C. Co., Fourmile,	45,540	45,752
Durell Mine (now Highland Rim) <i>b</i>	2,948	7,811
Fourmile Mine (now Highland Rim) <i>c</i>	8,768	16,062
Highland Rim M. Co., Fourmile, <i>d</i>	...	5,049
Local and Mine fuel for Durell and Fourmile, 1904	...	1,132
Excelsior C. Co., Excelsior	45,558	66,870
Luke and Drummond C. Co., Logmont	259	16,095
National C. & I. Co., Straight Creek	185,036	189,882
Wallsend C. & C. Co., Wallsend, <i>e</i>	76,226	77,050
Sagamore C. Co., Middlesboro	3,173	28,391
Stony Fork C. Co., Middlesboro	2,795	20,701
Black Bear C. Co., Fourmile	...	13,831
	390,104	514,576

a.—Winona C. & C. Co. of 1904 is successor to Bennett's Fork C. & C. Co. of 1903.

b.—For 10 months in 1904.

c.—For 10 months in 1904.

d.—Highland Rim M. Co. is consolidation of Durell and Fourmile. Output is for last two months of 1904.

e.—Was the Pineville C. Co. in 1903.

SOUTHEASTERN DISTRICT—Continued.

Knox County—	1903	1904
Artemus Jellico C. Co., Artemus	27,518	19,652
Bastin C. Co., Barbourville	1,770	3,744
East Jellico C. Co., Coalport	60,778	79,586
Hughes Jellico Coal Co., Flatlick	51,493	55,052
North Jellico C. Co., Bertha	214,074	199,737
North Jellico C. Co., Wilton	122,583	180,889
North P't Jellico Coal Co., Gray	29,122	23,810
Ross Jellico C. Co., Gray	33,066	21,675
	540,404	584,095
Laurel County—		
Laurel C. Co. (old), Pittsburg	45,868	...
New Laurel C. Co., Pittsburg	5,533	53,953
Pitman C. Co., Pittsburg	55,979	45,040
Pittsburg C. Co., Pittsburg	72,616	62,950
Altamont C. Co., Altamont	22,289	19,429
G. W. Curvin, Viva	18,500	17,625
Lily M. Co., Lily ("Leota" in 1903)	1,450	137
Manchester C. Co., (5 mos. in 1904)	24,935	9,591
New Diamond C. Co., Altamont	60,005	40,210
Standard C. Co., Viva	26,441	32,879
Star C. Co., East Bernstadt	29,680	38,118
	363,296	319,932
Pulaski County—		
Alpine C. Co., Alpine	30,758	26,891
Eagle C. Co., Barrenfork	64,966	66,023
Indian Head C. Co., Parker's Lake	25,285	20,765
New Cumberland C. Co., McGuffey	48,585	48,777
Peters & Souleyrett, Flatrock ("Nixon" in 1903)	15,433	12,937
J. C. Parker, Parker's Lake (No report in 1904)	8,000	...
	193,027	170,393
Rockcastle County—		
Big Hill C. Co., Orlando	9,750	96,532
New Pine Hill C. Co., Pine Hill	4,375	9,950
	14,125	106,482

SOUTHEASTERN DISTRICT—Continued.

Whitley County—	1903	1904
Davison Bros., Pleasant View	2,543	2,723
East Tenn. C. Co., Jellico, Tenn.	72,269	55,741
Emlyn Jellico C. Co., Emlyn	8,863	15,593
Hoffman & Berry, Williamsburg	20,579	22,931
Jellico C. M. Co., Mountainash	72,495	62,903
Louisville Property Co., Halsey	20,442	32,018
Main Jellico Mtn. C. Co. (Blue Gem), Kensee	11,718	9,159
Main Jellico Mtn. C. Co., Kensee	92,152	103,072
Pine Knot C. Co., Strunk	62,395	57,522
C. C. Cordell & Co., Pine Knott (None in 1904)	1,605	...
Dowlais Blue Gem C. Co., Jellico, Tenn.	...	7,418
Jellico M. Co., Saxton	...	12,182
Burk Hollow C. Co., Jellico, Tenn.	...	9,837
Pleasant View Jellico C. Co., Pleasant View	16,047	13,511
Procter C. Co. (2), Red Ash	98,250	102,689
Smith (and Pocono) Jellico C. Co., Williamsburg	2,862	1,394
Stearns C. Co., Stearns	31,488	50,883
Watts Cr. Jellico C. Co., Wofford	17,646	25,858
West Jellico C. Co., Strunk	46,350	25,909
French C. Co., Halsey	...	5,831
Moore Jellico C. Co., Jellico, Tenn.	...	7,900
Mt. Morgan C. Co., Williamsburg	68,366	76,460
Imperial Jellico C. Co., Rockhold	...	34,112
	646,070	735,646

NORTHEASTERN DISTRICT—

Boyd County—		
Ashland I. & M. Co., Ashland (2)	99,561	20,033
John Wurts (2), Ashland	105,684	36,082
Norton Branch C. Co., Rush	2,511	6,625
Princess L. & M. Co., Princess	45,684	27,224
George Hull, Rush	8,244	4,542
	261,634	94,506
Breathitt County—		
Frozen Cr. C. C. Co. (now idle), Boxer	17,280	812
Kentucky Union Co., Jackson	23,865	30,419
	41,145	30,731

NORTHEASTERN DISTRICT—Continued.

Carter County—	1903	1904
Adkins C. Co., Mt. Sterling	13,724	25,880
Ashland I. & M. Co., Ashland	150,593	145,040
Eastern Ky. Ry. Co., Riverton	49,981	15,998
Kentucky Cannel Co., Riverton	10,472	4,126
Strait Cr. C. Co., Mt. Sterling	45,405	43,877
	270,175	234,421
Johnson County—		
Sandy River C. Co., Williamsport	10,472	10,675
Whitehouse C. C. Co., Louisa	58,552	15,554
	69,024	26,229
Lawrence County—		
Peach Orchard C. Co., Peach Orchard	50,841	50,475
Torchlight C. Co., Louisa	12,813	17,234
	63,654	67,709
Lee County—		
Norman C. Co., Beattyville	22,113	18,163
Contrary Cr. C. Co., Beattyville	10,471	22,898
Richardson C. Co., Beattyville	...	7,334
McGuire C. Co., Beattyville	6,566	6,405
	39,150	54,800
Morgan County—		
Bigstaff C. C. Co., Bigstaff	23,680	7,654
Mountain C. C. Co., Cannel City	883	200
Ky. Block C. C. Co., Cannel City	37,098	51,656
	61,661	59,509
Pike County—		
Vulcan C. Co., Vulcan, W. Va.	...	38,015
Borderland, C. Co., Borderland, W. Va.	...	8,715
	...	46,730

DISPOSITION OF THE PRODUCT.

The output in tons of the several districts was disposed of as follows:

For Calendar Year 1903.

DISTRICT.	Sold Locally.	Used at Mine.	Coked.	Shipped.	Total Product.
Western	150,545	109,219	108,225	3,876,793	4,244,782
Southeastern	24,618	31,841	86,016	2,004,551	2,147,026
Northeastern	5,699	12,876	55,062	732,806	806,443
Totals	180,862	153,936	249,303	6,614,150	7,198,251

For Calendar Year 1904.

DISTRICT.	Sold Locally	Used at Mine.	Coked.	Shipped.	Total Product.
Western	165,657	114,576	86,288	3,755,043	4,121,564
Southeastern	30,983	41,621	10,369	2,348,152	2,431,125
Northeastern	4,866	6,226	39,316	564,727	614,635
Totals	201,006	162,423	135,973	6,667,922	7,167,324

TONNAGE SHIPPED TO OTHER STATES.

In 1903 a larger proportion of the output was consumed within the State than in either the preceding or the succeeding year. Not only was this true, but the actual tonnage of Kentucky coal used within the State was larger than in 1902 or in 1904. The home consumption for the latter year was larger by 237,362 tons than that for 1902. It is to be expected that as the coal fields are developed the percentage shipped to other States will increase, but the actual tonnage used within the State should also show substantial increases if the establishment of industrial enterprises for which the State is suited can be brought about.

The following tables show the tonnage shipped to other States from the several districts:

Calendar Years 1903 and 1904.

DISTRICT.	1903.			1904.		
	Total Product.	Shipped to other States.	Per cent. of Product Ship'd out.	Total Product..	Shipped to other States.	Per cent. of Product Ship'd out.
Western	4,244,782	2,385,166	56.42	4,121,564	2,419,956	58.71
Southeastern....	2,147,026	467,554	21.77	2,431,125	695,728	28.61
Northeastern....	806,443	83,903	10.40	614,635	100,489	16.34
Totals....	7,198,251	2,936,623	40.79	7,167,324	3,216,173	44.73

Omitting the coal that is consumed at and near the mines (for steam, for ventilation, and by local trade) and that converted into coke at the mines, and dealing only with the tonnage shipped from the mines, it is found that the percentages of the shipments which go to other States are as follows:

DISTRICT.	1903			1904		
	Shipped from the Mines.	Tons to Other States.	Per cent. to Other States.	Shipped from Mines.	Tons to Other States.	Per cent. to Other States.
Western	3,876,793	2,385,166	61.52	3,755,043	2,419,956	64.44
Southeastern	2,004,551	467,554	23.32	2,348,152	695,728	29.62
Northeastern	732,806	83,903	11.46	564,727	100,489	17.78
Totals.....	6,614,150	2,936,623	44.39	6,667,922	3,216,173	48.26

HOME CONSUMPTION.

Following is a statement of the home consumption of the production of our mines for such years as statistics upon which it could be determined were gathered:

Home Consumption of Kentucky Product.

YEAR.	Western District.	Southeastern District.	Northeastern District.	Total Tons.
1892.....	1,039,515	671,847	361,385	2,072,247
1893.....	1,259,196	926,470	354,575	2,540,241
1894.....	1,110,825	644,247	231,745	1,958,817
1895.....	1,120,683	791,294	349,050	2,261,027
1896.....	1,000,776	846,524	299,092	2,146,392
1902.....	1,554,553	1,514,805	644,481	3,713,789
1903.....	1,859,616	1,679,472	722,540	4,261,628
1904.....	1,701,608	1,735,397	514,146	3,951,151

SELLING VALUE OF PRODUCT, 1903 AND 1904.

The total selling value at the mines of all commercial coal (bituminous and cannel*) for 1903 was \$7,718,600, giving an average of \$1.0722 per ton. The average selling value of the bituminous alone was \$1.0585 per ton, and of the cannel alone it was \$2.4041.

For the year 1904 the selling value, at the mines, of all commercial coal amounted to \$7,122,563, giving an average of 99.37 cents per ton. The average value of the bituminous was

*The distinctions, "bituminous" and "cannel," are in accordance with trade usage. While, of course, cannel is simply a variety of bituminous coal, its peculiar characteristics and higher market value render it necessary that it shall be considered apart from the more commonly occurring varieties.

98.51 cents per ton. The selling value of cannel varied considerably, according to quality and markets served. It ranged from less than \$2.00 to \$3.25. The average was about \$2.03.

The selling value, on board at the mines, of the bituminous product alone, according to districts, was as follows:

DISTRICT.	1903.			1904.		
	Tons Bituminous Product.	Total Value.	Average Value.	Tons Bituminous Product.	Total Value.	Average Value.
Western . . .	4,244,782	\$4,156,299	\$0.9191	4,121,564	\$3,675,886	\$0.8918
Southeastern	2,135,136	2,595,111	1.2154	2,425,752	2,809,847	1.1583
Northeastern	745,477	791,033	1.0611	551,608	497,972	0.9027
Total . . .	7,125,395	\$7,542,433	\$1.0585	7,098,924	\$6,983,705	0.9851

It will be observed that, compared with prices obtained in 1903, the figures for 1904 show losses, with respect both to bituminous and to cannel. The decrements in selling values for the several districts are as follows:

DISTRICT.	Loss in Cents.	
	Bituminous.	Cannel.
Western	2.78	.....
Southeastern.....	5.71	13.55
Northeastern	15.84	39.50
Average loss.....	7.34	37.41

PRODUCTION OF COAL ON RAILROADS.

The following table shows the production of coal on the several lines of railroad in the State:

RAILROADS.	Tons, 1903.	Tons, 1904.
LOUISVILLE & NASHVILLE R. R.:		
Henderson & Nashville Division *.....	1,306,026	1,166,513
Providence Division	470,537	424,841
Owensboro & Nashville Division	653,294	579,908
Knoxville Division.....	881,653	1,027,747
Cumberland Valley Division.....	930,508	1,098,671
Total.....	4,242,018	4,297,680
ILLINOIS CENTRAL R. R.:		
Main Line	1,092,114	1,291,313
Ohio Valley Division & Connections...	427,124	429,652
Owensboro Division	70,237	37,648
Total.....	1,589,475	1,758,613
Louisville, Henderson & St. Louis.....	171,967	147,034
Chesapeake & Ohio & Connections.....	664,487	469,595
Lexington & Eastern & Connections †.....	102,807	90,210
Cincinnati Southern.....	334,865	304,707
Louisville & Atlantic.....	39,150	54,800

* The Nortonville mines, the output of which is credited to the Illinois Central main line, connect with this road also. The output was 26,553 tons in 1903, and 28,422 tons in 1904.

† This road also receives coal from the Lee county mines, (39,150 tons in 1903, and 54,800 tons in 1904), the output of which is credited to the Louisville & Atlantic railroad.

PRODUCTION OF CANNEL.

The tonnage of cannel produced during the calendar years 1903 and 1904, respectively, and included in the total output reported for each year, were as follows:

Short Tons.		
	1903	1904
Bell	6,022	1,136
Breathitt.....	648	255
Carter	8,341	2,780
Johnson	5,632	7,500
Morgan.....	46,814	52,492
Whitley	5,869	4,237
Total.....	72,856	68,400

The companies producing cannel are: In Bell county, the Wallsend Coal Co. (successor to the Pineville Coal Co., which operated the mines in 1903). In Breathitt county, the Frozen Creek Cannel Coal Co. (now idle). In Carter county, the Kentucky Cannel Co. In Johnson county, the Sandy River Coal Co. In Morgan county, the Kentucky Block Cannel Coal Co., the Bigstaff Cannel Coal Co., and the Mountain Cannel Coal Co. In Whitley county, the Louisville Property Co.

PROGRESS IN COAL PRODUCTION.

The progress in the production of commercial coal, by Kentucky mines during the last twenty-three years, has been as follows. Figures are in tons:

YEAR.	Bituminous.	Cannel.	Total.
1880.....	.....	.....	914,000
1884.....	.....	.....	1,550,000
1888.....	2,342,058	42,835	2,384,893
1889.....	2,205,434	40,285	2,246,259
1890.....	2,483,144	49,382	2,532,526
1891.....	2,907,096	43,040	2,950,136
1892.....	2,973,455	53,842	3,027,297
1893.....	3,258,712	43,538	3,302,250
1894.....	2,899,692	57,503	2,957,195
1895.....	3,138,023	69,747	3,207,770
1896.....	3,128,818	54,660	3,183,478
1897.....	3,247,542	56,511	3,304,053
1898.....	3,492,243	49,889	3,542,132
1899.....	4,469,100	36,339	4,505,439
1900.....	4,901,205	29,470	5,020,675
1901.....	5,288,424	36,288	5,324,712
1902.....	6,362,362	67,057	6,429,419
1903.....	7,125,395	72,856	7,198,251
1904.....	7,098,924	68,400	7,167,324

The progress of production has been especially notable during the last six years. With the opening of new territory by the extension of transportation lines in the Eastern Field, which is now going on, and the large expansion of operations in the

Western Field, now under way, we may expect a great and rapid increase in the near future. It is not improbable that the output for 1906 will exceed 10,000,000 tons, should there be no disturbances in business affairs.

The progress in the production of commercial coal by each coal field since 1898 is shown in the following table, the amounts being in short tons:

Production of Commercial Coal by Fields.

YEAR	Western Field.	Eastern Field.
1898.....	2,071,070	1,471,061
1899.....	2,740,565	1,764,873
1900.....	2,933,398	2,087,277
1901.....	3,071,650	2,253,062
1902.....	3,644,315	2,785,104
1903.....	4,244,782	2,953,470
1904.....	4,121,564	3,045,760

The year 1904 shows an increase of 99.00 per cent. for the Western Field over the year 1898, and an increase of 107.04 per cent. for the Eastern Field. The prospect now is that the production of the Eastern Field will soon materially exceed that of the Western one.

PRODUCTION OF COKE.

In the production of coke there has been quite a drop since 1902. The production for 1903 showed a loss of 6,960 tons, as compared with that for 1902, and the output for 1904 was 56,877 tons less than that for 1903. The decrease was chiefly in the Pineville region, though practically all plants show losses in production. It was thought that by 1904 the Elkhorn field would be producing coke, but operations there were deferred for various reasons.

The output of coke for the calendar years 1903 and 1904, respectively, was as follows, in net tons:

COKE FOR 1903 AND 1904.

COUNTY.	Company.	Ovens.	1903	1904
Bell	National C. & I. Co.	200	37,754	3,628
"	Wallsend C. Co.	50	11,942	1,601
Boyd	Ashland I. & M. Co.	66	22,323	17,980
Hopkins	St. Bernard M. Co.	156	44,291	35,866
Union	Ohio Valley C. & M. Co.	20	2,049	3,647
Webster	Wheatcroft C. & M. Co.	3	1,240	...
Total		495	119,599	62,722

The production according to districts was:

	1903	1904
Western District	47,580	39,513
Southeastern District	49,696	5,229
Northeastern District	22,323	17,980
Total	119,599	62,722

The annual output, in short tons, since 1891 has been as follows:

YEAR.	Western District.	Southeastern District.	Northeastern District.	Total.
1891	22,167	10,527	...	32,694
1892	31,456	5,404	...	36,860
1893	34,814	11,334	...	46,148
1894	27,715	...	...	27,715
1895	25,261	198	...	25,459
1896	19,776	7,392	...	27,168
1897	30,327	1,958	...	32,285
1898	21,361	32	809	22,202
1899	35,801	19,797	11,430	67,010
1900	36,864	36,111	12,926	85,901
1901	42,023	32,420	23,320	97,763
1902	51,655	51,829	23,075	126,559
1903	47,580	49,696	22,323	119,599
1904	39,513	5,229	17,980	62,722

NUMBER OF EMPLOYES AND DAYS WORKED.

The average number of persons engaged at and in the mines during the calendar year 1903 was 13,514, of which 10,601 were employed underground. The average number of days, of ten hours, worked per district, was as follows: The Western District, 183; the Southeastern, 185; the Northeastern, 222.

The average number of persons employed in 1904, together with the average number of ten-hour days worked, was as follows:

Calendar Year 1904.

DISTRICT.	Inside.	Outside.	Total.	Days Worked.
Western	5,176	1,162	6,338	174
Southeastern	4,397	1,386	5,783	184
Northeastern	1,418	367	1,785	173
Totals	10,991	2,915	13,906	

The following table shows the number of persons employed in the various counties, together with the number of ten-hour days worked, per distinct mining operation, in each county, for the calendar year 1904:

COUNTY.	Total Employed.	Employed Inside.	Days Worked.
WESTERN DISTRICT—			
Butler	42	29	110.6
Christian	174	169	251.7
Crittenden	10	6	25.0
Daviess	51	40	167.2
Hancock	92	76	229.0
Henderson	279	231	196.6
Hopkins	2,184	1,686	220.5

COUNTY.	Total Employed.	Employed Inside.	Days Worked.
WESTERN DISTRICT—CONTINUED.			
McLean	165	157	125.8
Muhlenberg	1,432	1,231	142.5
Ohio	942	756	144.6
Union	608	479	183.9
Webster	409	316	151.9
Total	6,338	5,176	...
SOUTHEASTERN DISTRICT—			
Bell	1,366	984	198.4
Knox	1,035	822	202.8
Laurel	797	686	161.8
Pulaski	430	318	170.4
Rockcastle	198	153	211.5
Whitley	1,957	1,434	179.9
Total	5,788	4,397	...
NORTHEASTERN DISTRICT—			
Boyd	302	260	165.8
Breathitt	78	55	129.2
Carter	562	490	168.6
Johnson	177	116	172.0
Lawrence	138	108	194.7
Lee	196	159	170.2
Morgan	155	125	237.5
Pike	177	105	183.5
Total	1,785	1,418	...

The number of hours constituting a day varies in practice according to circumstances. At mines working under "union" agreements the number is eight or nine hours; at others it is usually ten. In the statistics here tabulated, the ten-hour day is used for the sake of uniformity.

POWDER AND ANIMALS.

Returns relating to consumption of powder are only approximately correct. Some companies do not attempt to keep an accurate record, and when pick miners are employed (who furnish their ammunition themselves) they not infrequently buy more or less of their powder elsewhere than at the commissary. The returns received indicate a consumption of 127,000 or more kegs in 1904. The number of animals employed was probably somewhat more than 1,600. Following are the aggregates of returns received from each district for 1904:

DISTRICT.	Powder Kegs.	Animals.		
		In.	Out.	Total.
Western	65,663	702	171	873
Southeastern	48,053	397	134	531
Northeastern	13,041	138	55	193
Totals	126,757	1,237	360	1,597

MACHINE MINED COAL.

With respect to the percentage of the total output that is mined by machine, Kentucky continues to be one of the leading machine-mining States. In 1902 mining machines were used by 31 companies; in 1903 the number was increased to 36, and in 1904 it advanced to 45. The percentage of the total output cut by machine has advanced as follows: In 1902 it was 45.60; in 1903 it was 48.62; and in 1904 it was 52.57.

The amount of coal mined by machine in each district, to-

gether with the percentage relation of the machine-mined coal to the total product, for 1903 and 1904, respectively, was as follows:

DISTRICT.	1903		1904	
	Tons Mined by Machinery.	Per Cent. of Product Cut by Machine.	Tons Cut by Machine.	Per Cent. of Product Cut by Machine.
Western	2,789,676	65.69	2,791,880	67.73
Southeastern	620,984	28.92	851,029	35.00
Northeastern	89,725	11.12	125,274	20.30
Totals	3,500,385	48.62	3,768,183	52.57

Coal is mined by machine in fourteen of the twenty-six counties producing commercial coal. Hopkins county stands first with respect to the relation its machine-mined tonnage bears to the total tonnage of machine coal. In 1904 its machine-mined tonnage amounted to 39.58 per cent. of the total tonnage so mined in the State. Muhlenberg comes next, with 13.09 per cent.; followed by Ohio, with 12.29 per cent.; Knox, with 11.12 per cent.; Whitley, with 4.57 per cent., and so on down to Breathitt and Henderson, whose respective machine-mined tonnages amounted to 0.85 and 0.52 per cent. of the total machine-mined coal.

The amounts of machine coal produced by counties were as follows:

COUNTY.	1903		1904	
	Tons Cut by Machine.	Per Cent. of Total County Output Cut by Machine.	Tons Cut by Machine.	Per Cent. of Total County Output Cut by Machine.
WESTERN DISTRICT—				
Christian	99,226	100.00	91,948	100.00
Henderson	2,942	18.11	19,905	15.51
Hopkins	1,559,881	81.88	1,494,315	86.67
Muhlenberg	430,417	53.66	493,539	54.64
Ohio	454,259	78.76	464,303	91.21
Union	176,504	51.26	160,608	46.13
Webster	66,447	19.75	57,167	23.75
Total	2,789,676	...	2,781,780	...
SOUTHEASTERN DISTRICT—				
Bell	41,877	10.73	163,170	31.70
Knox	382,240	70.73	420,121	71.92
Laurel	69,868	19.21	95,190	29.75
Whitley	126,989	19.65	172,549	23.45
Total	620,984	...	851,029	...
NORTHEASTERN DISTRICT—				
Carter	3,180	1.17	...	...
Breathitt	23,865	58.00	30,419	98.98
Lawrence	27,962	48.09	45,783	67.61
Morgan	34,718	56.30	49,072	82.34
Total	89,725	...	125,284	...

V

PRODUCTION OF LEAD, ZINC AND FLUORSPAR IN WESTERN KENTUCKY.

Although there is no provision in the mining law for the collection of statistics relating to the metalliferous and spar mines—an omission to be regretted, and which should be remedied—the opportunity to gather such information in regard to the Western Kentucky lead, zinc, and fluorspar district was presented through the organization of the State Geological Survey. Mr. F. Julius Fohs, one of the assistant geologists, who has in hand the investigations the State Survey is now making in the district, supplementary to and in extension of the work that was done in that region by the U. S. Geological Survey in 1902, was, therefore, detailed to gather statistics covering the field for publication in this report, and he presents the most comprehensive and accurate statement of the production of the district that has ever been prepared, together with the first complete list of mining operations. No similar report upon the production of the district having been published hitherto, Mr. Fohs has made his report as detailed as practicable. The report follows.

C. J. Norwood,

Director Kentucky Geological Survey.

Shipments of ores, etc., from the veins of this district have only been made from Caldwell, Crittenden, and Livingston counties, although some development work has been done in Christian, Lyon, and Trigg counties. Such shipments have been

confined to fluorite or fluorspar, spalerite (zinc sulphide), smithsonite (zinc carbonate), galena, barite or barytes, and a fireclay or firesand (the latter resulting principally from the disintegration of quartzite or quartzose sandstone, but in some instances in part from the disintegration of cherts and flints of the limestone wall of a fault, where quartzite forms the other wall).

Shipments of other natural products such as iron ores, cement materials, quarry products, quaternary clays, etc., have also been made, but at this writing no figures are available; so that the figures given below embrace only shipments of vein materials of the district.

FLUORSPAR.

The production and shipments of fluorspar from this district eclipse that of any part of North America, and have for several years past. Hardin and Pope counties, comprising the Southern Illinois District, supply most of the remainder; while two other districts have supplied small amounts, namely, the Central Tennessee, embracing Smith, Trousdale, and Wilson counties, and the Castle Dome District, in the vicinity of Castle Dome, Yuma county, Arizona. The production of the Western Kentucky Mining District since 1897 has been greater than that of any foreign country, save Germany.

The first fluorspar shipments, as well as it has been possible to determine, were made from this district in 1870. The River Valley Mining Co., operating the Royal mines, made some small shipments that year. This company erected the first mill for grinding fluorspar in the district, it being of the ordinary grist-mill type. For two barrels of No. 1 ground they receive payment on the basis of \$50 to \$60 per ton, and for two barrels of No. 2 they receive \$30 to \$40 per ton at glass works in Baltimore. But as the company had become involved in financial difficulties, although they had a fair demand for both lump and ground spar at these high prices, they were unable to continue the business. About the same time some spar had been mined at the Yandell mines, though it is doubtful whether any was shipped.

About 1882, the Walton Spar Mining Co., the Cincinnati Lead & Spar Mining Co., and the Dycusburg Lead Mining Co. made some fluorspar shipments from then until 1884 or 1885, but no figures are available.

About 1893, J. W. Waggoner came into the district and began mining gravel fluorspar from shallow pits, and shipped some in bulk and in barrels, but no figures were kept.

Porter and Hudson began really the first active shipments, in 1896, and the Kentucky Lead and Fluorspar Co., which they formed, continued to make shipments, the amounts increasing each year. This company erected a sort of fluoring mill at their Memphis mines and began grinding No. 1 spar, but the amount shipped is not known; neither was it possible to secure figures of the other shipments of this company from 1896 to 1898, as the company had been reorganized and the books were not turned over to the Kentucky Fluorspar Company of Tennessee, which was organized in its stead. However, Mr. J. C. Porter has assured me that the amount shipped in 1896 and 1897 was small, and that in 1898 it was but little less than that of 1899, which is given below.

The Fluorspar Co. entered the field about 1898, and made small shipments that year, increasing them till in February, 1900, the company reorganized, and from February, 1900, to February, 1902, according to figures given by Mr. H. A. Haynes, the secretary, they shipped 10,489,796 lbs., or 5,245 short tons. This represented a total output of 23.8 per cent. for the years 1900 and 1901.

About 1899, the Eagle Fluorspar Co. erected a mill for the concentration of lead, zinc, and fluorspar, and in addition, put in an improved fluorspar grinding plant, and ground 317 short tons, or 634,000 lbs. in 1899. Owing to their desire to concentrate their efforts on the separation problem, and also needing the space for additional machinery therefor, they discontinued their grinding plant. Their fluorspar shipments up to September, 1903, are as below—given in pounds—after which date their fluorspar mines were operated by the Kentucky Fluorspar Co.:

Fluorspar Production of Eagle Fluorspar Co.

	1899	1900	1901	1902*	1903, 8 months
Ground	634,000	.....	.....	.....	.....
Washed gravel . . . .	.....	884,000	3,506,000	3,400,000	2,268,755
No. 2 lump	156,000	432,000	.....	.....	.....
Totals	790,000	1,316,000	3,506,000	3,400,000	2,268,755

*Approximate.

In 1899, the Kentucky Fluorspar Co. discontinued their "Memphis Mill" and erected their "Kentucky Mill," at the depot just above Marion, an improved grinding plant for the fluorspar, grinding as fine as 100 mesh. The following table shows the shipments from this mill since 1900:

Production of Ground Fluorspar of Kentucky Fluorspar Co., "Kentucky Mill."

1900 Jan.-June	1901 Jan.-June	1902 Jan.-June	1903 Jan.-June	1904 Jan.-June	1905 Jan.-April
1,810,708	1,958,252	1,783,885	2,813,599	3,245,815	4,054,652
1,689,450	2,172,378	2,990,087	3,446,100	3,596,915	.....
3,500,158	4,130,630	4,773,972	6,259,699	6,842,730	.

About 1902, the Pittsburg Mining & Reduction Co. erected a similar mill to the above, at their Pittsburg mines, but as they had only No. 2 and No. 3 fluorspar to grind, it did not prove a success and was soon discontinued. Ground fluorspar is usually over 99 per cent. calcium fluoride and should not at any time fall below 98 per cent., consequently requiring No. 1 lump as pure as obtainable.

In the same year, in September, the Marion Mineral Co. began shipments of an unwashed gravel from their Pogue mine, but their shipments this year (1902) were small and figures

not securable. Their shipments of unwashed gravel operating the one mine, for 1903 and 1904 are: 1903, 1,856,490 lbs; 1904, 5,870,266 lbs. Shipments made from Mexico. No lump shipped from the mine till 1905.

In 1899, shipments were made by the National Lead, Zinc & Fluorspar Co., which shipped 1,366,550 lbs. of No. 2 lump; the Eagle Fluorspar Co., which shipped, as above noted, 790,000 lbs. The remainder, excepting small shipments by The Fluorspar Co., was shipped by the Kentucky Fluorspar Company of Tennessee.

In 1900, the National shipped 519,400 lbs., the Eagle F. S. Co., 1,316,000 lbs., and, beside what The Fluorspar Co. shipped, as above shown, the Kentucky Fluorspar Company of Tennessee shipped the remainder.

In 1901, shipments were made by the Chicago Mining Co., about 420,000 lbs.; The Fluorspar Co., as per above, the Eagle as shown in the table under that company, and the Kentucky practically the balance.

In 1902, in February, the Kentucky Fluorspar Company of Tennessee consolidated with The Fluorspar Company and became the Kentucky Fluorspar Company of Kentucky. Shipments made by this company in 1902 were, approximately, for the eleven months, about 26,500,000 lbs., the old Kentucky Fluorspar producing in January probably 700,000 additional. Other companies making shipments were the Eagle, see above; the Lucile, shipments small; the National, small.

"Mineral Resources"* for 1902 places the production of Western Kentucky at 29,030 tons, or 58,060,000 lbs., which, considering figures herewith given, seems rather large, and the discrepancy hard to explain. Placing the scattering production at 3,000,000 lbs., which it probably did not exceed, it would make the total, 33,600,000 lbs., a difference of 24,460,000 lbs.

The Kentucky Fluorspar Co., during 1903 and 1904, made shipments of fluorspar and galena as follows, amounts being in pounds:

* Issued by the U. S. Geological Survey.

**Fluorspar Production of Kentucky Fluorspar Co.,
Years 1903 and 1904.**

GRADES	1903	1904
Ground	6,259,699	6,842,730
No. 1 Lump	1,613,919	307,300
No. 2 Lump	3,012,925	1,688,391
Washed Gravel	11,540,813	6,905,671
Unwashed Gravel		2,533,605
Total Spar	22,427,356	18,272,697
Galena	23,152	59,515

Shipments for 1903 and 1904 by companies and from stations were as follows:

By Companies.

COMPANIES	1903	1904
Ky. Fluorspar Co.	22,427,356	18,272,697
Eagle Fluorspar Co.	2,268,755	
Marion Mineral Co.	1,856,490	5,870,266
Pitts. Min. & R. Co.	220,000	1,000,000 ^a
Roberts & Co.		600,000
Marion Zinc Co.	3,571,881	76,000
	30,244,482	25,818,963

^a Approximate.

From Stations.

STATIONS.	1903	1904
Crayneville	9,086,490	6,465,295
Mexico	10,015,900	10,845,632
Marion	9,142,092	7,862,036
Green's Ferry	1,000,000*	.....
Crider	1,000,000*	.....
Miscellaneous . . . . .	.....	1,146,000
	30,244,482	25,818,968

* Approximate.

The falling off in shipments in 1904, as compared with 1903, was due to two causes: First, the condition the mines had been put in by not doing sufficient dead work ahead to develop new bodies of fluorspar along the veins, thus requiring this work to be done with a less output of fluorspar. Second, the market for flux was not as steady, due to the depression in iron and steel industries, as compared with 1903.

Shipments from the districts, as compiled by us, as well as those compiled by U. S. Geological Survey (Bureau of Mineral Resources), are given below for comparison. The difference for the years 1902 and 1903 is quite marked, and we have been unable to account therefor. The figures as compiled by us shown herewith in detail are probably the nearer correct. Figures are short tons (2,000 lbs.):

From Mineral Resources, for 1903.						Compiled from Statistics Herewith.
United States.			Illinois District.	Tennessee and Arizona.	West Kentucky District.	W. Ky. Dis. Tons.
Year.	Tons.	Value.	Tons.	Tons.	Tons.	
1896	6,500	\$ 52,000	...	...	...	...
1897	5,062	37,159	...	...	...	...
1898	7,675	63,050	...	...	...	5,000 <i>d</i>
1899	15,900	96,650	...	...	...	6,500 <i>e</i>
1900	18,450	94,500	...	...	...	8,500 <i>e</i>
1901	19,586	113,803	...	...	...	13,500 <i>e</i>
1902	48,018 <i>a</i>	271,832	18,360	628	29,030	16,800 <i>d</i>
1903	42,623 <i>b</i>	213,617	11,413	275	30,835	15,122
1904	26,180 <i>c</i>	153,153	10,000 <i>d</i>	...	...	12,910

a 1902. Represents shipments, there being 800 tons additional produced, but held in stock.

b 1903. Represents amount produced, there being 6,950 tons held in stock, making the amount shipped according to these figures, 35,573 tons.

c Engineering and Mining Journal estimate.

d Approximate.

e Illinois Central Railroad shipments.

Below is given a table showing the amounts of ground fluorspar shipped from this district, compared with the total for the United States. The figures for the United States are from "Mineral Resources," as are those for the average price per ton. The remainder above what is shipped from this district was shipped from the Southern Illinois District:

Comparative Table of Ground Fluorspar Shipments.

	Total Tons for United States.	Tons Produced by West Kentucky.	Value per Ton for United States.	
			Average.	Total.
1899	3,500	...	\$7 15	\$25,000
1900	3,000	1,750	5 66	17,000
1901	3,700	2,065	9 21	34,100
1902	4,708	2,387	9 98	47,000
1903	5,235	3,130	9 99	52,840
1904	5,702 ^a	3,421	...	...

^a Estimated.

The average value per ton was slightly higher in 1904 than in 1903.

The average values per ton of the crude spar, for the total product of the United States, have been as follows:

Year.	Av. Value.
1899	\$5 76
1900	5 02
1901	5 02
1902	5 19
1903	4 28

The principal cause for the decrease of average value per ton for the lump fluorspar is due to the fact that less No. 1 Lump is being shipped and more No. 2 Lump and Gravel—the No. 1 Lump being practically all ground. It is probable that the average value for lump and gravel in 1904 was a little more than in 1903.

The following tables show the shipments, in pounds, of ground, gravel, and lump fluorspar from the stations of Marion, Mexico, and Crayneville, for the calendar years 1903 and 1904, and for the first four months of 1905:

Shipments from Marion:

KIND	1903	1904	First 4 Months of 1905
Ground	5,931,357	6,362,036	4,054,652
Gravel	2,366,178	1,240,082	573,324
Lump	844,557	974,177	111,000
Total	9,142,092	8,576,295	4,738,976

The foregoing is made up from monthly statements of shipments.

Shipments from Mexico:

KIND	1903	1904	First 4 Months of 1905 ^a
Gravel	8,416,900	9,651,632	10,669,824
Lump	1,599,000	1,194,000	979,595
Total	10,015,900	10,845,632	11,649,419

^a Figures for 1905 are approximate, from the I. C. Railroad.

Shipments from Crayneville:

KIND	1903	1904	First 4 Months of 1905
Gravel	5,645,110	3,987,795	175,000
Lump	3,441,380	2,477,500	96,000
Total	9,086,490	6,465,295	271,000

In addition, approximately 400,000 pounds of lump were shipped from Green's Ferry during the first four months of 1905.

The aggregate of the fluorspar shipments, from the above-named stations, for the first four months of 1905, stated in short tons, is as follows:

**Total Shipments, First Four Months, 1905.
In Short Tons.**

From	Ground	Gravel	Lump	Total
Crayneville		87.5	48.0	135.5
Marion	2,027.0	287.0	55.5	2,369.5
Mexico		5,335.0 <i>a</i>	490.0 <i>a</i>	5,825.0
Green's Ferry			200.0 <i>a</i>	200.0
Total	2,027.0	5,709.5	793.5	8,530.0

a Approximate.

The above are perhaps the largest shipments yet made in four months in district—the output for 1905 bidding fair to far eclipse that of any previous one. This is due to the fact that the demand is good and a good many of the mines are in shape to turn out a large production. Further, new uses for fluorspar are being found, and the general outlook for a large production and good demand for the ensuing year is flattering.

The following is a list of the companies of the district, now shipping direct to the consumer: Marion Mineral Co., Marion; Kentucky Fluorspar Co., Marion; D. C. Roberts, Marion.

Others who have produced fluorspar and who will probably make shipments in 1905, are as follows: C. R. Anderson, Pittsburg, Pa.; Albany Mining & Investment Co., Salem, Ky.; Big Four Mining & Development Co., Morganfield, Ky.; Columbia Mining Co., Marion, Ky.; Givens Mining Co., Marion, Ky.; S. W. Little & D. T. Macer, Evansville, Ind.; Louisville-Marion Mining Co., Marion, Ky.; Lucile Mining Co., Marion, Ky.; Marion Zinc Co., Fort Wayne, Ind.; Morganfield Mining Co., Morganfield, Ky.; Ogden & Curry, Evansville, Ind.; Senator Mining Co., Millersburg, Ky.; The Keystone Mineral & Mining Co., Marion, Ky.; The Sumner Marble Co., Crider, Ky.; Wheatcroft Mineral Co., care of A. J. Taussig, Marion, Ky.

ZINC ORES.

The first zinc ore was shipped in May, 1901, by Blue & Nunn from their Old Jim mine. Shipments made from this mine to

date aggregate 704 tons of zinc sulphide and 7,174 tons of zinc carbonate—a total of 7,878 short tons.

The following statement shows the shipments, by months, from the Old Jim mine for the last four years, as furnished by Messrs. Blue & Nunn, the amounts being given in pounds. Amounts marked "S" are for zinc sulphide; those marked "sc" are for zinc sulphide and carbonate together; and those without a mark are for zinc carbonate alone:

Shipments of Zinc Ore from the Old Jim Mine.

Month	1901	1902	1903	1904	1905	Totals, lbs
January		1,041,050	232,225			
February		152,555				
March		351,340			34,860	
April		1,066,155	64,440			
May		1,008,145	690,905			
June {	339,000	576,355	342,220	699,325		
			429,500S	66,255S		
July {	451,000	231,485	324,030	250,540		
			216,40S	68,075Sc		
August	568,566	509,805		50,900		
September {	444,410	690,615	482,500			
			297,630S			
October {	406,170	801,410	502,825			
			194,485S			
November {	620,560	541,515	86,910			
		50,000S				
December {	323,825	362,770				
		56,000S				
Totals, Sulphide		116,000	1,138,095	154,330		1,408,425
" Carbonate	3,154,151	7,432,700	2,726,055	1,000,765	34,860	14,348,531
						15,756,956

The ore in the main was hand-cleaned, the pea ore product washed with log washers and the sand ore cleaned over two Overstrom tables.

Small shipments of zinc sulphide were made by the Western Kentucky Mining Co., from the Lanham shaft, in 1901, at the Columbia mines. Their successors, the Columbia Mining Co., made no shipments in 1902, but shipped several carloads in 1903 and 122½ tons in 1904. Up to May 1st they have shipped only 26 tons in 1905. The ore the last two years was in the form of concentrates made at the mine, at their Columbia mill, a wet concentration plant of the Joplin type.

The Marion Zinc Co. made small shipments from the Mann & McDowell mines, in 1902, but have not operated them to any extent since, the former being in litigation. The Marion Mineral Co. began making shipments from the Old Dad Mine in the fall of 1903, but the figures were not available; they shipped 140 tons in 1904. This was in part hand-cleaned carbonate, and in part washed by log washers.

The Henderson Co. also made small shipments in 1903, shipping 59 tons from their Lady Farmer Mine, and in 1904 they shipped 65 tons. This ore was carbonate and was treated in a way similar to that followed with the Old Dad ore. Neither the Marion Mineral Co. nor The Henderson Co. have as yet made any shipments in 1905.

Blue & Nunn, in 1904, shipped 53¾ tons of zinc ore, principally sulphide, and 38¾ tons the first four months of this year, from their Nine Acre Mine. Part of the ore was hand-picked, part hand-jigged, and part was put through the Columbia Mill.

A statement of the shipments of zinc ore by months for 1903 and 1904 will be found in the general table of shipments from Marion, the only point from which zinc has been shipped.

The Eagle Fluorspar Co. will probably be in the list of producers for 1905, from their new dry concentration plant. Other companies who are producers and may become shippers this year, are: The Marion Zinc Co., the Big Four Mining Co., the Commodore Mining Co., the Deer Creek Mining Co., and perhaps one or two others.

LEAD ORE.

The first lead smelter erected in the district was put up by the River Valley Mining Co., in 1869 or 1870, first for smelting the lead of the Royal Mine, and then for separating the silver from the lead; but it did not attain much success. A few runs were made and all the lead which had been mined at the mine was smelted and shipped; but when the company, as has been noted, got into financial straits, work was discontinued.

Between 1874 and 1877, lead was shipped from the Columbia Mines by Page & Krausse, who had erected a small Scotch hearth smelter. When the price of lead dropped from 5c to 2½c, the work had to be discontinued, owing to the small per cent. of galena in the ore, etc.

The next lead produced was by the National Lead, Zinc & Fluorspar Co., in 1902, from the Marble Mill, but the amount was very small.

In 1903, the Columbia Mining Co. shipped 60,000 lbs. from the Columbia Mill, and 30,000 in 1904.

The Kentucky Fluorspar Co., shipping from their Kentucky Mill, a mill of the same type as the Columbia, shipped 23,152 lbs. in 1903, and 59,515 lbs. in 1904.

Blue & Nunn have shipped 11,920 lbs. from their Nine Acre Mine in 1905, this being the only lead shipment so far this year.

Among the companies who may be among the lead producers during 1905 are the Eagle Fluorspar Co., the Marion Zinc Co., the Albany Mining & Investment Co., and possibly one or two others.

BARITE.

A few carloads of barite were shipped in 1903 by the Marion Zinc Co. from their Ray & Lowery Mines, situated about two miles east of Fredonia, in Caldwell county. They have also possibly 350 tons on the dump, ready to be washed and then shipped. No work of consequence was done at these mines in 1904, as the company were concentrating their work on other mines. They expect to put in a washing plant, and possibly a mill for grinding and preparing the barite for the market.

There are large deposits of this mineral along the Tabb vein near Mexico, in Crittenden county, but none other than test lots have been shipped.

FIRECLAY OR FIRESAND.

The only shipments of this product have been made by the Western Clay and Mining Co., from their Stevens Tunnels. This product contains 91 to 93 per cent. of silica (in part perhaps colloidal), 2 to 3 per cent. of alumina; 0.5 to 1.5 per cent. of iron oxides, the remainder consisting of calcium and magnesium carbonates and alkalies. The shipments have aggregated 5,978 tons, the first being shipped in 1903. For detailed shipments see table of general shipments from Marion, 1903 and 1904, appended. This product is procured from between the walls of a large fault; one wall of which is Chester quartzite and the other St. Louis limestone, the width of the clay being in places 35 feet.

Two other deposits of similar character have been found. One of them contained too large a percentage of iron oxides. The other, which was found only recently (in May, 1905), has not been fully investigated.

Following are tables showing shipments of various mineral products from Marion for 1903, 1904, and the first four months of 1905, as compiled from the shipping books of the Illinois Central Railroad. Amounts are given in pounds:

Mineral Shipments from Marion.

KIND.	1903	1904	First four months 1905
Fluorspar	9,142,092	7,862,036	4,789,976
Zinc Ore	4,455,785	1,269,076	169,470
Lead Ore	83,152	122,536	.....
Fire Clay	8, 96,798	3,260,000	.....

LIST OF COMPANIES, ETC., OPERATING.

Following is a list of companies, firms and individuals operating in the Western Kentucky lead, zinc, and fluorspar district, as on May 3, 1905, with certain data relating to each. For the sake of saving space, certain abbreviations and marks are used to indicate certain facts. A number of them will be readily understood; the key to others is as follows:

Key to Abbreviations and Marks.

- A.=Acres.
- Br.=Barite (barytes, heavy spar).
- Cl.=Calcite (calc-spar, calcium carbonate).
- Flt.=Fluorite (fluorspar).
- Flt.=Fluorite in quantity. The name of any mineral in *italic type* indicates that the mineral is found in quantity. Minerals not in italics have thus far been found only in less amount.
- Glt.=Galenite (galena).
- Hmt.=Hematite.
- Lmt.=Limonite.
- Mica-peridot=Mica-peridotite, the dark green dike rock of the district.
- Pyrt, or prt.=Iron pyrites.
- Smt.=Smithsonite (zinc carbonate, dry bone).
- Splt.=Sphalerite (blende, jack, zinc sulphide).
- Syn.=Synonymous names.
- *=Ore has been found.
- ‡=Ore found and shaft over 100 feet deep.
- †=Equipped with machinery.
- ‡=Ore has been shipped.

0—Anderson, C. R.

1905. C. R. Anderson purchased part of property held by Pittsburg Fluorspar Mining & Manufacturing Co., which ceased to exist as such since first of year. Mr. Anderson's office is Pittsburg, Pa.

Properties: In Livingston county:

Pittsburg Mines, leased from F. B. Moody. *‡†. Flt, glt, splt, clt. Syn: Bernard Mines, Binkley Mines, Klondyke Mines.

Donake Prosp. * Glt, splt, flt. Syn: Coker prosp. Lease from Moody.

?Pierce Prosp. * Flt., lease.

Possibly a few other properties.

In Crittenden county:

Ebbie Hodge Mine, * $\frac{1}{2}$ Smt, flt, glt, fee in litigation.

1—*Albany Mining & Investment Co., Inc.*

Laws of W. Va. Org.: June, 1902. Cap.: \$100,000.
Stock P. V.: \$1.00 per share.

Offices: Main, Albany, Ind. Branch, Salem, Ky.

Officers: Pres., A. L. Stephenson, Findlay, O. V. Pres.,
E. L. Lewis, Albany, Ind. Sec., L. W. Tucker, Albany Ind.
Treas., J. M. Willhite, Albany, Ind. Supt. and Gen. Mgr.,
C. E. Ratcliff, Salem, Ky.

Directors: Elmer Stephenson, Jed Clark, Walter L.
Vera, Wm. Hoffman, James Bantz, and W. N. Russell.

Properties:

Nancy Hanks, * $\frac{1}{2}$, sublease of Morning Star property.
Glt, flt, clt. Liv. co.

John Butler *, lease. Brt, flt. Crit. co.

Alec. Guill *, lease. Splt, flt. Crit. co.

C. R. Babb No. 2 *, fee. Flt. Liv. co.

2—*American Lead, Zinc & Fluorspar Co., Inc.*

Laws of Ariz. Org.: 1900. Cap.: \$100,000. 100,000
shares of \$1 each.

Offices: Cleveland, O.

Organizers: Ed Langenbach, A. J. Morton, R. T. Lan-
genbach, Ed Barnes, W. R. Drake.

Close corporation: Stock owned by H. W. Gazell, Ed
Langenbach and A. J. Morton.

Officers: Pres., T. J. Charlesworth; V. Pres., Ed. Lan-
genbach, Canton, O.; Sec., C. W. Laird; Treas., Henry W.
Gazell, Cleveland, O.

Directors: Ed Langenbach, H. W. Gazell, A. J. Morton,
R. T. Lagenbach, C. W. Laird, and T. J. Charlesworth.

Properties:

Morning Star * $\frac{1}{2}$, lease 404A. Glt, flt, clt. Syn: Mrs.
Cox Prosp. Liv. co.

The Nancy Hanks Mine on same land subleased to Al-
bany Min. & Inv. Co.

Bonanza * $\frac{1}{2}$, 67A., fee. Flt. Liv. co.

Mitchell, L. P., lease. * Flt.

Mann, W. H., * $\frac{1}{2}$, lease. Smt, traces of flt, some prt.

In litigation: Liv. co.

Properties formerly held by Langenbach & Mortou con-
solidated with this company.

2a—*Beard Heirs.*

Office: Marion, Ky.

Property: In Crittenden county:

Cordelia Beard, fee. * Flt, glt, clt.

3—*Bement & Schwab.*

Geo. W. Bement, of Evansville, Ind., and M. C. Schwab,
of Marion, Ky.

Properties:

Dave Vaughn * lease. Smt, clt. Syn: Bement
Shafts. Liv. co.

J. Vaughn, lease. Liv. co.

4—*Big Four Mining & Development Co., Inc.*

Org.: 1904. Office: Morganfield, Ky. A. D. Noe, Gen.
Mgr. & Supt.

Properties:

Big Four Mine, * $\frac{1}{2}$, fee. Flt, splt, glt, clt. Syn: J.
C. Miller mine. Crit. co.

Big Four Hand Jig plant for concentration of glt, flt.

5—*Blue Heirs.*

J. W. Blue, Jr., Marion, Ky.

Properties: In Crittenden county.

Blue Heirs, 100 A., fee.

Blue Heirs, 140 A., fee.

Blue Heirs *, 11 $\frac{3}{4}$ A., fee. Flt, glt.

Panther Hollow Mines * $\frac{1}{2}$, fee. Flt. Syn: Blue &
Clemens. 46A.

R. M. Allen, 42a., mineral right.

Maynard, 108A., mineral right.

6—*Blue & Nunn.*

J. W. Blue, Jr., and C. S. Nunn, of Marion, Ky. Began operations: 1899.

Properties: In Crittenden county.

Old Jim Mine, * $\frac{1}{2}$ fee. *Smt, splt, prt* and *clt*. Also hydrozincite. Micaperidotite. Syn: Blue & Nunn land 660A.; Rice land, in part.

Nine Acres Mine; * $\frac{1}{2}$ fee. *Smt, splt, glt, flt*. Syn: New Jim, Little Jim.

Tom Lanham Tract; 148A. * *Flt*. Syn: Rochester Prosp.

Ryan Land, 5-6 of 46A., fee.

Nine Acres; Hand Jig Plant for concentration of *glt* and *splt*, also *smt*.

7—*Campbell Mining Co., Inc.*

New Jersey Charter. Org.: Nov., 1904. Cap.: \$100,000.

Office: Louisville, Ky.

Officers: Directors: Wm. Miller, Pres., Louisville, Ky. V. Pres., L. A. Campbell, Louisville, Ky. Sec., C. H. Whitehouse, Marion, Ky. Treas., L. A. Campbell, Louisville, Ky. Supt., J. M. Persons, Marion, Ky.

Property:

R. M. Pogue land, fee. In Crit. co.

7a—*A. H. Cardin.*

Office: View, Ky.

Property: In Crittenden county:

A. H. Cardin land, 1,000A. Mica-peridotite.

8—*Clemens, Dr. J. N.*

Property:

3 lots * in Carrsville, Liv. co. *Flt, glt*. Leased to Wichita, Kansas, parties.

9—*Clement, F. M., of View, Ky.*

Properties: In Crittenden county.

Maj. Clement Shafts *, fee. *Splt, glt* and *flt*. Syn: Bitter Apple Mine.

F. M. Clement tract, fee, near View.

9a—*Clement, Dr. I. H.*

Office: Tolu, Ky.

Owns large number of leases and options, in Crittenden county.

10—*Clement, R. B., of View, Ky.*

Property: In Crittenden county.

G. R. Bibb * Shaft, lease. *Brt, flt* and *glt*.

11—*Cassidy & Dycus.*

S. H. Cassidy and F. B. Dycus, of Dycusburg, Ky.

Properties: In Crittenden county.

Morning Glory * Prosp. *Flt* and *glt*. Syn: Sam Perkins land.

Thos. Brasher land.

Jeffries land.

12—*Columbia Mining Co., Inc.*

Ky. Charter. Org.: June 30, 1902. Cap.: \$100,000. 1,000 shares.

Organizers: Thos. D. Jones, R. W. Bingham, J. C. Porter, Harry Watkins, and N. H. Snow.

Office: Marion, Ky.

Officers: Pres., Thos. D. Jones, Chicago, Ill. V. Pres., R. W. Bingham, Louisville, Ky. Sec.-Treas., J. C. Porter, Paris, Tenn. Supt., R. D. Drescher, Marion, Ky.

Directors: Thos. D. Jones, R. W. Bingham, J. C. Porter, N. H. Snow.

Properties: In Crittenden county. Leased from Page & Krause, of St. Louis. At present subleased by Columbia Mining Co. to Harry Watkins and R. D. Drescher, who are now operating same.

Columbia Mines Embracing

Columbia Mine * $\frac{1}{2}$ fee, *Splt, glt, elt, flt, smt*.

Watkins Shaft and Open Cut * $\frac{1}{2}$ fee. *Smt, glt, splt*.

Drescher Shaft and Open Cut * $\frac{1}{2}$ fee. *Smt, glt, splt, flt*.

Andrew Jackson Shaft. * $\frac{1}{2}$ fee. *Smt, glt, splt, flt*.

Lanham Shaft. * $\frac{1}{2}$ fee. *Splt, smt, flt*.

Mary Belle Mine. * $\frac{1}{2}$ fee. *Flt, glt*.

13—*Commodore Mining Co., Inc.*

Ky. Charter. Org.: Nov. 19, 1904. Cap.: \$200,000. 2,000 shares.

Office: Marion, Ky. Organizers: John Sheas, Wm. Miller, J. M. Persons, C. H. Whitehouse.

Officers and Directors: Pres., Wm. Miller, Louisville, Ky. V. Pres., John Sheas, Louisville, Ky. Sec. and Treas., C. H. Whitehouse, Marion, Ky. Supt., J. M. Persons, Marion, Ky.

Properties: In Crittenden county.

Commodore Mine *† 100A. fee. *Glt, splt, smt, ft, clt.*

Syn: Dave Franks Mine.

R. M. Flanary land, Blue Heirs, mineral right, Synonymous.

14—*Conway and others.*

1904. T. A. Conway and F. E. Robertson, of Marion, Ky., and A. E. Cullen, of Wheatcroft, Ky.

Property: In Crittenden county.

Bill Terry Shaft *† 31A. lease. *Flt, glt, splt.* Syn: W. P. Terry land.

14a—*Cook, Capt.*

Office: Frances, Ky.

Holds some leases and options in Crittenden county.

15—*Felix G. Cox.* Of Marion, Ky.

Property: Cox land embracing (Fee, 200 A. in Crittenden county):

Cox Shaft * *Glt, ft.*

Flanary Shaft * Mica peridotite, *ft.*

Cox Prosp. * *Flt.*

LaRue Shaft, see Morganfield Mining Co.

16—*Crider, Geo. M., and others.*

1904. Geo. M. Crider, C. J. Haury, Sr., and C. J. Haury, Jr., of Marion, Ky.

Property: In Crittenden county.

Bertha May Mine * *Flt, glt.* Syn: Marion Beard * Prosp.

17—*Crittenden County Lead, Zinc & Spar Co., Inc.*

South Dakota Charter. Org.: July, 1902. Cap.: \$10,000.

Offices: Pierre, S. D., and Marion, Ky.

Officers: Pres., Isaac Reese, Madisonville, Ky. V. Pres., A. C. Moore, Marion, Ky. Sec.-Treas.-Gen. Mgr., Jno. A. Moore, Marion, Ky.

Directors: Isaac Reese, A. C. Moore, Jno. A. Moore, Ira E. Ellis.

Property: In Crittenden county.

Thurman Shaft * fee. *Flt, splt.*

18—*Deer Creek Mining Co., Inc.*

Ky. Charter. Org.: Oct. 26, 1903. Cap.: \$10,000. Offices: Morganfield and Marion, Ky.

Officers: Pres., J. M. Crowe, Morganfield, Ky. V. Pres., Wm. Barnett, Tolu, Ky. Sec.-Treas., J. L. Harris, Morganfield. C. W. Cartwright, Gen. Mgr., Sheridan, Ky.

Directors: J. M. Crowe, J. L. Harris, C. W. Cartwright, A. D. Noe, J. A. Sutton, Wm. Barnett.

Properties: In Crittenden county.

Widow Clark Shaft. *† *Splt, smt, glt, ft, clt, Fee.*

Syn: Cartwright Shaft Deer Creek Mine.

Lacy Moore land *, fee. *Flt.*

19—*Davis & Keyes.*

1903. J. O. Keyes, of Akron, O., and Walter Davis, Lola, Ky.

Property: In Crittenden county.

Henry Watson Shaft, *, lease. *Smt, ft.* Syn: Keyes mine.

20—*Dollar & McFee.*

1904. Jce Dollar and E. M. McFee, of Marion, Ky.

Property: In Crittenden county.

E. L. Franklin Prosp. * *Flt, glt.*

21—*Dean & Wilson.*

1901. Al Dean & J. W. Wilson, of Marion, Ky.

Property: In Crittenden county.

Dean & Wilson Shaft. * Fee. *Flt.*

22—*Eagle Fluorspar Co., Inc.*

West Virginia Charter. Org.: Oct., 1898. Cap.: \$200,000, of which \$50,000 preferred and \$150,000 common.

Offices: Salem, Ky., and Wheeling, W. Va.

Officers: Pres., D. Garth Hearne, Wheeling, W. Va.

Gen. Mgr., T. H. B. Haase, Salem, Ky. Sec.-Treas., R. A. McCabe, Wheeling, W. Va.

Properties: In Livingston county:

W. A. Guill, fee. * *Clt*, *flt*, *glt* and *splt*. Syn: Aus Guill Shafts, Damfino., 100A.

Butler Heirs, fee. * *Flt*. 225A.

J. K. P. Hudson, fee. * $\frac{1}{2}$ *Flt*. Syn: Hudson Shafts. 300A.

Cullen or Evening Star Mine, fee $\frac{1}{2}$ * *Splt*, *glt*, *smt*, *flt*, *clt*. 77A.

Sills, fee and coal, 111 A.

Hodge, fee and coal, 110 A.

Evening Star Mill, Dry Concentration Plant for concentration of *splt*, *glt* and *flt*.

In Crittenden county:

W. I. Fuller, lease, 30 A.

D. C. Loveless, lease $9\frac{1}{2}$ A. * *Flt*, *glt*, *clt*. Syn: Loveless Shaft.

Jno. G. Pace, mineral right, 55 A.

A. H. Watson, mineral right, 100 A. * *Flt*.

C. R. Babb Mine, mineral right, 110 A. * *Flt*, *glt*, *splt*, *clt*. Syn: Lizzie Collins Mine.

Dan Riley, mineral right, 50 A. * *Flt*, *glt*. Syn: F. V. Hayden & Co. land.

H. G. Howard, lease, 145 A. * *Flt*.

Richard Lynn, lease, 25 A.

For S. H. Matthews, W. E. Ashbridge, and W. I. Tabor leases, see Kentucky Fluorspar Co., to whom same have been subleased.

23—*Evansville Lead, Zinc & Spar Co., Inc.*

Indiana Charter. Org.: May 9, 1902. Cap.: \$5,000.

Office: Evansville, Ind.

Officers: Pres., Louis A. Daus, Evansville, Ind. V.

Pres., J. Wm. Gleichman, Evansville. Sec.-Treas., J. H. Rohsenberger.

Directors: Louis A. Daus, J. Wm. Gleichman, J. H. Rohsenberger, O. A. Carlstedt, and Peter Emerick.

Properties:

Dug Hardin, fee. In Livingston county.

John T. Bradshaw, fee. In Livingston county.

24—*E. Young Lead, Zinc & Spar Mining Co., Inc.*

Kentucky Charter. Org.: Sept. 6, 1902. Cap.: \$30,000.

Office: Princeton, Ky.

Organizers: E. Young, J. F. Ingram, M. J. Groom, J. N. Williams, R. D. Garrett, Jno. R. Wylie, Jno. G. Orr, Wm. Marble, Shell R. Smith, A. D. Hart and C. M. Wood.

Officers: Pres., E. Young, Princeton, Ky. V. Pres., J. F. Ingram, Princeton, Ky. Sec., C. M. Wood, Princeton, Ky. Treas., Jno. R. Wylie, Princeton, Ky.

Directors: E. Young, J. F. Ingram, M. J. Groom, Jno. R. Wylie, J. G. Orr.

Property: In Caldwell county:

Wm. Coleman Prosp, *\$ 76 A. fee. *Splt*, *flt*, *glt*.

25—*Mary Franklin.*

Mary Franklin Prosp. * *Splt*, *flt*.

26—*Geo. W. Gender and others.*

Geo. W. Gender and others of Cleveland, Ohio. Address

M. E. Fohs, Marion, Ky.

Mar., 1901.

Property: In Crittenden county:

Old Glory Mines, lease. * *Flt*, *glt*. Syn: P. E. Beard

land west of road.

Norman Hoover, lease.

27—*Givens Mining Co., Inc.*

Kentucky Charter. Org.: Feb. 10, 1904. Cap.: \$100,000.

1,000 shares.

Offices: Marion and Providence, Ky.

Organizers, directors and officers: Pres., Ross Givens, Providence, Ky. V. Pres., J. Stewart Givens, Providence.

Sec.-Treas., C. L. Hinkle, Evansville, Ind. Ross Givens, Gen. Mgr., Marion, Ky. B. H. Roney, one of organizers.

Properties: In Crittenden county:

Corn Mines, *§†‡ *Flt*, manganese, nickel and cobalt, ore. Lease. Syn: Givens Mines. Cobalt Prosp.

J. Croft, lease.

?R. Jamieson Prosp., lease, * *Flt*, brt. Syn: Oronogo prosp. In Liv. co.

28—*Grassham, C. C., and others.*

1902. C. C. Grassham, Bird Clemens, J. D. Clopton & Quade, Smithland, Ky.

Property: A. J. Thompson or Mantz Spring tract. In Livingston county.

29—*Harpending, J. L., and others.*

1904. J. L. Harpending, Salem, Ky., Sam Gugenheim, Cort J. Pierce, D. C. Porter, of Marion, Ky.

Properties: In Crittenden county:

Belt-Sullenger tract, lease. * *Flt*.

Ed Flanary tract, part of, lease.

30—*Harris, W. G.*

1903. W. G. Harris, Fredonia, Ky.

Property:

?Bright Mines, lease. * *Flt*.

31—*W. L. Kennedy & Co.*

1904. Office: Lola, Ky.

Property: In Livingston county.

Warren Ferrell Prosp., lease-option, * *Flt*, brt, spl, smt, clt.

32—*Kentucky Fluorspar Co., Inc.*

Kentucky Charter. Org.: Jan. 15, 1902. Cap.: \$100,000. 1,000 shares.

Office: Marion, Ky.

Organizers: J. C. Porter, Walter C. Johnson, David B. Jones, Thomas D. Jones, and Wm. A. Jones, Nelson H.

Snow, P. S. Maxwell, H. A. Haynes, J. W. Blue, Jr., C. S. Nunn, and Harry Watkins.

Officers: Pres., C. S. Nunn, Marion, Ky. V. Pres., J. W. Blue, Jr., Marion, Ky. Gen. Mgr.-Sec.-Treas., H. A. Haynes, Marion, Ky. Supt., A. H. Reed, E. M., Marion, Ky.

Directors: P. S. Maxwell, J. W. Blue, Jr., and Nelson H. Snow.

Properties: In Crittenden county. Kentucky Mill, for *Flt*, glt and clt at Marion, Ky.

Memphis Mines Tract, fee, embracing:

Memphis Mines, *§†‡ *Flt*, glt, clt, spl. Syn: Memphis Lead Mines.

Klondyke Mines, *§†‡ *Flt*, glt, clt.

J. A. Yandell Mines, *§†‡ *Flt*, glt.

Kentucky No. 4, lease. *† *Flt*, glt, clt. Syn: P. E. Beard, east of road.

T. J. Barger, lease. * *Flt*.

Carrie Reiter Mines, lease. *† *Flt*.

Tabb Mines, lease, *§†‡ *Flt*, glt, spl, clt, brt. Embracing:

Brown and Ward Shaft, *§†‡ *Flt*, glt.

Stephenson Shaft, *†‡ *Flt*, spl, clt.

Harris Shaft, *§†‡ *Flt*, brt. Now caved.

Old Main Shaft, *§†‡ *Glt*, *Flt*, clt. Now in disuse.

Wheeler Mines, *†‡ *Flt*.

Panther Hollow Mines, lease from Blue Heirs. *†‡ *Flt*. Syn: Blue & Clemens.

Blue & Marble Mines, lease. *§†. *Flt*, spl, glt, clt.

Lease from Blue & Marble.

Brown Mines, lease. *§†‡ *Flt*, glt. Syn: Brown, Pierce & Crow.

Wm. Redd Prosp., lease. *† *Flt*. Syn: Open Cuts.

Holly Mines, fee. †*§†‡ *Flt*, glt, spl, clt. Syn: J. W.

Tilly land, 113 A.

J. B. Paris Land, fee. *† *Flt*.

M. F. Pogue, lease.

Subleased from Eagle Fluorspar Co.:

W. E. Asbridge Mines, *§†‡ *Flt*.

W. I. Tabor Mines, *§†‡ *Flt*, glt.

S. H. Matthews, *†‡ *Flt*.

Leased from Brown, S, S and Ed Ward, of Pittsburg,
Penn.:

Tom Mabry tract.

Tabb Mines, see above.

33—*Kentucky Fluorspar Mining & Manufacturing Co., Inc.*

Kentucky Charter. Org.: Jan., 1902. Cap.: \$60,000.

Office at Paducah, Ky.

Organizers: Geo. B. Gilbert, C. J. Abbott, and Lloyd
Bloomfield.

34—*Kentucky Mining Co., Inc.*

Kentucky Charter. Org.: Oct., 1902. Cap.: \$6,000.

Office: Louisville, Ky.

Organizers and Directors: H. A. J. Puls, V. P. Collins,
A. M. Hunter, Curran Pope, and A. Thurston Pope, of
Louisville, Ky.

Officers: Pres., Curran Pope, M. D. V. Pres., A. Thurs-
ton Pope. Sec.-Treas., V. P. Collins.

Properties:

Three Rutter farms: . * No mining or development as
yet done on them.

35—*LaRue, Charles.*

Properties: In Crittenden county.

Chas. LaRue, fee. * Flt, glt.

LaRue Heirs, fee. * Flt, glt, splt.

36—*LaRue, Will.*

Properties: In Crittenden county.

Lucky Star Mine, fee. * Flt, glt, splt. Syn: Will
LaRue Prosp.

Mica-Peridotite Prosp. on same tract.

37—*Lewis & Jarrard.*

E. L. Lewis, of Albany, Ind., and Mr. Jarrard, of Muncie,
Ind.

Property: Bebout Prosp. * Flt, smt ?. Syn: C. C.
Bebout lease. In Crit. co.

38—*Liberty Lead & Zinc Co., Inc.*

Kentucky Charter. Org.: Nov., 1902. Cap.: \$1,500.

Office: Louisville, Ky.

Property: Richardson lease.

Organizers, Officers and Directors: C. and A. T. Pope,
Robt. Montanus, J. M. Hunter.

39—*Likens, A., and others.*

1904. Albert Likens, O. S. Denny and others.

Office: O. S. Denny, Carrsville, Ky.

Properties: In Livingston county.

Burns Reserve, 3 acres. Fee. * Flt, splt, flt, brt.

Syn: Burns Mine, Ratcliff Shaft.

W. H. Bradshaw, 34½ acres. Fee. * Brt. Syn: Pink-
ney Burns Barite Prosp.

Property: In Crittenden county.

40—*Little, S. W., and Dr. D. T. Macer.*

1904. Office: Evansville, Ind.

Property: In Crittenden county.

E. J. Heyward Land, fee. * Flt, glt, splt, clt. Syn:
Donaky Place.

41—*Louisville-Marion Mining Co., Inc.*

Kentucky Charter. Org.: June 16, 1904. Cap.: \$50,000.
500 shares.

Office: Marion, Ky.

Officers and Directors: Pres., Wm. Miller, Louisville,
Ky. Sec.-Treas., C. H. Whitehouse, Marion, Ky. Supt.,
J. M. Persons, Marion, Ky.

Properties: In Crittenden county.

Ada Florence Mine, lease. * Flt, glt, splt. Syn:

Widow Franks Prosp.

W. B. Trumbo Mine, lease. * Flt, glt. Syn: Leander
White Open Cut Mine.

42—*Louisville Spar, Lead & Zinc Co., Inc.*

Kentucky Charter. Org.: Jan., 1904. Cap.: \$25,000.
500 shares.

Organizers: L. M. Rice, Rush C. Watkins, Ira F.
Brainard, and J. T. Rice, of Louisville.

Offices: Louisville and Marion, Ky.

Property: In Crittenden county.

Wesley Eaton Open Cut and Prosp., fee. * $\frac{1}{2}$ *Flt*, *glt*, *splt*, *smt*.

43—*Lucile Mining Co., Inc.*

Kentucky Charter: Org.: Aug. 18, 1902. Cap.: \$100,000. 1,000 shares.

Organizers: Jno. F. Harth, Jos. Harth, L. Harth, and J. R. Finley.

Office: Marion, Ky.

Officers. Directors: Pres., Jno. F. Harth, Paducah, Ky. V. Pres., Jos. Harth, Caseyville, Ky. Sec.-Treas.-Gen. Mgr., J. R. Finley, Marion, Ky.

Property: In Crittenden county, at Marion.

Lucile Mine, lease. * $\frac{1}{2}$ *Flt*, *glt*, *splt*. Syn: Bingham Shaft.

44—*McChord, H. C.*

1903. Office: Hampton, Ky.

Property: W. H. Crowley, lease. *Pyrt*.

45—*Marion Mineral Co., Inc.*

Kentucky Charter. Org.: Apr. 15, 1902. Cap.: \$100,000. 1,000 shares.

Office: Marion, Ky.

Officers: Pres., R. Emmett Cooper, Hopkinsville, Ky. V. Pres., O. L. Bass, Pensacola, Fla. Sec.-Treas., Z. Johnson Crider, Marion, Ky. Supt., R. B. Clement, View, Ky.

Directors: R. E. Cooper, O. L. Bass, Z. J. Crider, Q. A. Elliott, T. H. Cochran.

Properties: In Crittenden county.

Old Dad Mine, fee. * $\frac{1}{2}$ *Smt*, *flt*, *lmt*, *hmt*. Syn:

Pleas Miller land, Daisy Zinc Mine, Miller Heirs.

Wm. Milliken Prosp., fee. * *Flt*.

Pogue Mine, lease. * $\frac{1}{2}$ *Flt*.

This company controls and operates also some mines in Illinois.

46—*Marion Zinc Co., Inc.*

Wyoming Charter. Org.: Mar., 1902. Cap.: \$600,000.

Offices: Cheyenne, Wyo., Ft. Wayne, Ind., and Marion, Ky.

Officers: Pres., C. S. Knight, Fort Wayne, Ind. 1st V. Pres., Jno. Q. Ross, Fort Wayne. 2d V. Pres., W. R. Cheney, Redlands, Cal. Sec.-Treas., M. L. Polhamus, Fort Wayne, Ind. Gen. Mgr., C. S. Knight.

Directors: C. S. Knight, Jno. Q. Ross, M. L. Polhamus, Wm. Fleming, L. Centlivre, and G. P. Evans, of Fort Wayne, W. R. Cheney, of Redlands, and D. C. Griffith, and Dr. O. S. Rummels, of Indianapolis, Ind.

Properties: In Crittenden county:

J. N. Riley Mine, fee. * $\frac{1}{2}$ *Flt*, *glt*, *clt*, *brt*, *splt*, *smt*.

Rush Stephenson Prosp., lease. * *Flt*, *glt*.

H. Dexter Daniel, lease.

G. W. Bennett, lease.

D. J. Green, lease. *Brt*.

T. C. Campbell, lease. * *Flt*, manganese di-oxide.

R. A. LaRue, lease.

B. W. Belt Mine, lease. $\frac{1}{2}$ *Flt*, *glt*, *splt*, *pyrt*.

W. H. Adams, lease.

A. A. Davenport, fee. * *Flt*, *brt*, *splt*.

Robert Champion, fee.

W. H. Brown, lease.

John Polk, lease.

McFee Heirs, lease.

R. P. Underdown, lease. *Cl*.

L. A. Sliger, lease.

T. L. Waddell, lease. * *Flt*, *clt*.

D. B. Barger, lease. * *Flt*.

Riley Mill, for wet concentration of *flt*, *glt*, *clt*.

In Livingston county:

David Adams, lease.

Baxter & Riddle, lease.

McDowell, Mary-Mine, lease, * $\frac{1}{2}$ *Smt*, *clt*.

In Caldwell county:

J. B. Ray Shaft, lease. * $\frac{1}{2}$ *Brt*, *splt*, *clt*, *flt*.

M. B. Lowery Shaft and Cut, lease, * $\frac{1}{2}$ *Brt*, *splt*, *clt*, *flt*.

47—*Moody, F. B.*

Owens a large number of mineral rights and some tracts
in fee.

Office: Lake City, Fla.

48—*Moore, J. Handy.*

1903. Office: Charleston, Mo.

Properties: In Crittenden county.

Amanda Pickens, fee.

S. M. Heath, fee. * Flt, glt.

T. D. Belt, fee.

Newt. Bracy, fee.

49—*Morganfield Mining Co., Inc.*

? Kentucky Charter. Org.: 1904. Cap.: \$25,000.

Office: Morganfield, Ky.

Officers: Mr. Higginsderfer, Pres. J. L. Harris, Sec.-
Treas., Morganfield, Ky. Gen. Mgr. and Supt., A. D. Noe,
Morganfield, Ky.

Properties: In Crittenden county:

LaRue Shaft, lease. *§ Flt, spl, smt, clt.

Mrs. E. M. Love, lease.

50—*Mountain Lead, Zinc & Fluorspar Co., Inc.*

Kentucky Charter. Org.: Oct. 20, 1903. Cap.: \$150,000,
of which \$50,000 is treasury stock.

Office: Paducah, Ky.

Organizers and Directors: J. L. Friedman, W. D. Greer,
Wm. Marble, J. A. Rudy, E. P. Gilson, and Geo. C. Hughes,
of Paducah, Ky.

Officers: Pres., W. D. Greer, Paducah, Ky. V. Pres.,
J. A. Rudy, Paducah, Ky. Sec.-Treas., Wm. Marble, Pa-
ducah, Ky.

Property: In Crittenden county:

Part of R. W. Wilson Crittenden Springs tract, lease

18 A. mineral and 5 A. timber embracing:

Struck-it-Rich Shaft, *† Smt, glt, spl, flt, clt.

Lone Rock Shaft, * Flt.

51—*Newkirk, Abram.*

Office: Cleveland, Ohio.

Property: In Crittenden county: Newkirk Prosp., fee.

* Flt, glt. Syn: John I. Tabor land.

52—*Ogden & Curry.*

Org., 1904. Office: Evansville, Ind.

Property: Parish land, lease. *§ Flt. In Crittenden
county.

53—*Ohio Valley Mining Co., Inc.*

South Dakota Charter. Org., Nov., 1902. Cap.: \$500,000.

Office: Owensboro, Ky.

Officers: Pres., B. H. Poindexter, Owensboro, Ky. V.
Pres., J. P. Pierce, Marion, Ky. Sec., Frank Katterjohn,
Owensboro, Ky. Treas., E. W. Smith, Owensboro, Ky.

Properties: In Livingston county

Prof. Wright Shaft, lease-option. * Splt, glt, flt.

A. C. Babb, lease.

In Crittenden county:

E. F. Love, lease. Clt.

Also has property in Illinois.

54—*Paducah Lead, Zinc & Fluorspar Development Co., Inc.*

Kentucky Charter. Org.: Aug., 1902. Cap.: \$20,000.

Office: Paducah, Ky.

Organizers: Geo. C. Hughes, Geo. C. Wallace, Ed. P.
Noble, Geo. O. Hart, Ed. P. Gilson, Sol Dreyfus, and Jos.
L. Friedman, of Paducah, Ky.

Properties: 232 A. in Crittenden county.

Jake Kirk land, fee.

Linford Kirk land, fee.

Chas. E. Walker, fee.

55—*Pope, Dr. Curran, and A. Thruston Pope.*

1902. Office: Louisville, Ky., 111-113 West Chestnut St.

Properties: In Crittenden county: Press Sisco, lease.

Mica-peridotite.

Jos. Pace land, mineral right.

S. R. Grimes, mineral right *, Flt.

Watson, A. H., mineral right *, *Flt.* Adjoins A. H. Watson of Eagle F. S. Co.

T. J. Babb, mineral right *, *Splt, flt, glt.*

John Conyers, mineral right.

W. C. Tynor, mineral right.

Robt. A. LaRue, mineral right.

J. H. Barnes, mineral right.

In Livingston county:

Thos. Martin, mineral right, * *Flt.*

Foreman, lease.

Wm. S. Lowery, mineral, * *Flt.*

56—*D. C. Porter.*

1904. Office: Marion, Ky.

Property: In Crittenden county.

J. W. Moneymaker, option.

57—*Ramage Bros.*

Henry & — Ramage. Office: Salem, Ky.

Property: In Livingston county:

Ramage Prosp. * *Flt, brt.* In fee.

58—*J. G. Rochester and others.*

1903. Office: Marion, Ky.

Property:

W. W. Milliken, 5 A. fee.

?Flem Akers Shaft, lease. * *Flt.*

59—*Pogue, M. F., and others.*

1903. M. F. Pogue, W. E. Asbridge and W. F. Oliver.

Office: Francis, Ky.

Properties:

J. J. Simpkins, lease.

Crane Bros., fee.

Johnny Matthews, lease.

Parish land, lease, subleased to Ogden & Curry, see No. 52.

60—*Reed Mining Co., Inc.*

South Dakota Charter. Org.: Oct., 1902. Cap.: \$500,000.

Offices: Pierre, S. D., and Marion, Ky.

Officers: Pres., L. W. Cruce, Marion, Ky. Sec.-Treas., D. C. Roberts, Golconda, Ill. Supt., Geo. P. Roberts, Marion, Ky.

Property: Reed land: 23 A. fee and 100 A. mineral right. Pyrt, clay.

61—*Royal Lead & Spar Co., Inc.*

Kentucky Charter. Org.: July 17, 1902. Cap.: \$10,000.

Office: Paducah, Ky.

Organizers and Directors: James Owen, S. B. Hughes, Ed Wolfhawk, Jos. L. Friedman, Stanley DuBois, Wm. Eades, W. F. Paxton, Geo. Rock, J. W. Bloomfield, Geo. C. Wallace, all of Paducah, Ky.

Property: In Livingston county.

Royal Mines, fee. *\$, *Flt, glt, spl, clt.* Syn: Owens Cave Property.

Silver Mines. In 1875 was equipped with machinery and had smelter.

Officers: Pres., Ed. Wolfhawk. V. Pres., Stanley DuBois. Sec., W. F. Paxton. Treas., S. B. Hughes.

62—*Schoolfield-Spees Mining Co., Inc.*

Kentucky Charter. Org.: 1903. Cap.: \$16,000. 160 shares.

Offices: Main, Newport, Ky. Branch, 609 Crescent ave., Covington, Ky.

Officers: Pres., F. E. Schoolfield, Covington, Ky. V. Pres., John Percival. Sec.-Treas., W. R. Bollman. Supt.-Gen. Mgr., F. E. Schoolfield.

Directors: F. E. Schoolfield, John Percival, W. R. Bollman, Benj. J. Brinkman, T. Lantry.

Property: In Livingston county:

Thos. Spees Shaft *\$, *clt.* Syn: Schoolfield-Spees Mine.

63—*Senator Mining Co., Inc.*

Kentucky Charter. Org.: Sept. 15, 1902. Cap.: \$100,000. 1,000 shares.

Office: 413 Columbia Building, Louisville, Ky.

Officers: Pres., B. F. Weitzel, Louisville, Ky. Sec.,

Thos. P. Waddell, Louisville, Ky. Gen. Mgr., B. F. Weitzel, Louisville, Ky.

Property: In Caldwell county:

Senator Mine, fee. * $\frac{1}{4}$. *Flt, spl, glt, smt.* Syn:
Sheridan land, Bodard Spr.

64—*Sullenger, James.*

Office: Marion, Ky.

Property: In Crittenden county.

Blake Terry Prosp., fee. * *Flt, glt.*

65—*Sullenger, S. S.*

Office: Irma, Ky.

Property: In Crittenden county:

S. S. Sullenger Barite Prosp. * *Brt.* Fee.

Jno. Wolsey Prosp., fee. * *Smt, flt, glt, spl.*

Swansey Place, fee.

In Livingston county:

Dallas Watson Prosp. Clay.

66—*Temme Mining Co., Inc.*

Arizona Charter. Org.: 1904.

Offices: Evansville, Ind., and Tolu, Ky.

Officers: Pres., A. F. Karges, Evansville, Ind. Sec., J. C. Zutt, Evansville, Ind. V. Pres.-Treas.-Gen. Mgr., and Supt., Wm. H. Temme, Ph. D., C. and M. E., Tolu, Ky.

Directors: A. F. Karges, J. C. Zutt, Wm. H. Temme, Jno. Weber, Jno. Jordon.

Properties:

Wayman L. Dalton, *, fee.

David Jones, fee.

Jas. E. Sullenger, fee.

Alex. French, fee.

C. E. Weldon, fee.

I. H. Clement, fee.

J. A. Clark, fee.

67—*Terry, Gus, Heirs.*

Office: Markam Terry, Sheridan, Ky.

Property:

Gus Terry, 160 A., fee. * *Flt. glt.*

Gus Terry, 300 A., fee.

68—*The Crittenden Mining Co., Inc.*

Kentucky Charter. Org.: Oct. 17, 1903. Cap.: \$100,000.

Offices: Henderson and Marion, Ky.

Officers: Pres., F. Haag, Henderson, Ky. Sec.-Treas., Geo. P. Roberts, Marion, Ky.

Directors: F. Haag, J. O. Clore, Mrs. Ida Pearsons, Col. Starling.

Properties:

?Crosson Cave Prosp., lease. * $\frac{1}{4}$. *Flt, brt, clt, spl.*
Syn: Hardigan Mines.

R. E. Flanary Prosp., fee. * *Flt, brt, spl, glt.*

69—*The Farmland Mining & Investment Co., Inc.*

Org.: June, 1903. Office: Farmland, Ind. Pres., C.

E. Foster, Farmland, Ind.

Properties:

Ike Linley Prosp., lease. * *Brt, flt.* Linley land north of Salem-Lola road.

Bennett land, adjoining Stevens Tunnels, lease.

70—*The Glendale Mining Co., Inc.*

Kentucky Charter. Org.: Oct. 1, 1903. Cap.: \$12,000.

Offices: Morganfield and Marion, Ky.

Organizers: T. M. Dyer, R. L. Roberts, M. J. Clements, H. M. Walker, C. A. Briscoe, S. C. Anderson, G. L. Drury, J. M. Crowe, W. T. Drury, Ben Strange.

Officers: Pres., T. M. Dyer, Morganfield, Ky. Gen. Mgr., Henry M. Walker, Morganfield, Ky. Sec.-Treas., G. Lucien Drury, Morganfield, Ky.

Directors: G. L. Drury, T. M. Dyer, J. M. Crowe, S. C. Anderson, G. W. Cambrou.

Property: In Crittenden county: In fee.

The Glendale Prosp. * *Flt, glt, mica-peridotite.* Syn:

Harry Austen land.

71—*The Henderson Co., Inc.*

Kentucky Charter. Org.: Sept. 28, 1903. Cap.: \$70,000.

Office: Henderson, Ky.

Officers: Pres., David Clark, Clarksville, Tenn. V. Pres., Jno. Reichart, Henderson, Ky. Gen. Mgr.-Sec., Jul-

ius L. Baldauf, Henderson, Ky. Treas., Chas. Dallam, Henderson, Ky.

Directors: Julius L. Baldauf, Morris Baldauf, David Clark, Chas. E. Dallam, Edw. A. Jonas, Henry Kleymeyer, Jno. Reichert.

Properties: 325 A. in fee, in Crittenden county, Ky.

Lady Farmer Mine, *†, *Smt*, *splt*, *flt*, *clt*, *glt*. Syn: Widow Farmer.

Deboe Prosp., *†, *Smt*, *flt*, *brt*. mica-perid. Syn: Farmer Heirs.

Deboe land. Mica-peridotite.

J. E. Thomas land.

72—*The Hopkinsville Mining Co., Inc.*

Org.: 1903. Cap.: \$1,000,000.

Office: Hopkinsville, Ky.

Officers: Pres., Jouett Henry, Hopkinsville, Ky. V. Pres., J. West, Hopkinsville, Ky. Sec., L. L. Elgin, Hopkinsville, Ky. Treas., W. F. Boute, Hopkinsville, Ky.

Property: In Crittenden county:

W. H. Meyers Shafts, lease. * *Brt*, *flt*, *glt*, *splt*, *clt*.

73—*The Keystone Mineral & Mining Co., Inc.*

Kentucky Charter. Org.: Apr. 30, 1904. Cap.: \$40,000.

Office: Sturgis, Ky.

Organizers and Directors: J. D., W. W. and T. E. Hopewell, W. H. Wheeler, H. Lee Upton, T. C. and J. B. Carter.

Officers: Pres.-Treas., J. D. Hopewell, Sturgis, Ky. V. Pres., H. Lee Upton, Louisville, Ky. Sec.-Supt., T. E. Hopewell, Marion, Ky.

Property: In Crittenden county:

Keystone Shaft, fee. *††. *Flt*, *glt*. Syn: Carter land, Hopewell shaft.

74—*The Princeton Mining Co., Inc.*

Property: In Caldwell county:

Rufus Tyree Shafts. * *Flt*, *glt*.

75—*The Shady Grove Mining Co.*

Org.: Sept., 1903. Office: Salem, Ky.

Organizers and Directors: J. S. Wagoner, Fred Casner, J. B. Simpson, J. B. Elder, Jas. McConnell, Jeff McConnell, M. D., T. E. Utley, Thos. Cannon.

Officers: Pres.-Supt., J. S. Wagoner, Salem, Ky. Sec., J. B. Simpson, Salem, Ky.

Properties: In Crittenden county:

J. W. S. Damron, lease.

Mayflower Shaft, lease. Fire-sand. Syn: Jim Croft land.

In Livingston county:

Bill Bailly Prosp. * *Brt*, *flt*. Syn: Ike Linley on south of road. Lease.

?J. R. Mooreland Prosp., lease.

76—*The Sumner Marble Co., Inc.*

Org.: 1903. Offices: 402 Beckman Bldg., Cleveland, Ohio, and Crider, Ky.

Officers: Pres., A. J. Rogers, Cleveland, Ohio. Sec.-Treas., C. F. Shulz, Cleveland, Ohio. Gen. Mgr., — Metcalf, Cleveland, O. Eng., J. M. Irvine, Crider, Ky.

Properties:

Marble Mines, lease. †*†† *Flt*, *glt*, *splt*, *smt*, *clt*.

Other leases.

Marble Mill, a wet concentration plant for *flt*, *glt*, *clt*.

77—*The Union Central Mining Co., Inc.*

South Dakota Charter. Org.: May 27, 1901. Cap.: \$500,000.

Office: 29 Euclid Ave., Room 8, Cleveland, Ohio.

Officers: Pres., W. D. Hills, Cleveland, O. V. Pres., A. E. Fowler, Cleveland, O. Sec.-Treas., H. M. Fiske, Cleveland, O. Gen. Mgr., Cornelius Newkirk, Cleveland, O.

Properties: In Caldwell county:

Joe Stone, lease. * *Flt*, *glt*.

Dodds Shaft, lease. *†. *Flt*, *glt*.

Tabor, lease.

78—Trabue, I. H.

Office: Punta Gorda, Fla.

Owns numerous mineral rights in Livingston county.

79—Watkins, Harry.

1897. Office: Marion, Ky.

Properties:

Ebbie Hodge Prosp., 100 tract, fee. * Flt.

McMican Prosp., lease. * Flt.

With J. M. Persons and Wm. Miller also has:

E. B. Franklin, lease.

80—Western Clay & Mining Co., Inc.

Org.: 1904. Office: Kewanee, Ill.

Officers: Pres., A. M. Hewlett, Kewanee, Ill. Sec., C. I. Pierce, St. David, Ill.

Properties: In Crittenden county:

J. D. Foley, fee.

J. L. Franklin, fee.

C. R. Stevens Tunnels, lease. †*§† Fire sand. Syn:

Stevens Fireclay Mines.

T. L. Babb, option.

In Livingston county:

M. Bramfield, mineral right.

W. F. Norton, Jr., mineral right.

J. F. Wayrick, mineral right.

W. T. Threlkeld, mineral right.

R. H. McGuire, mineral right.

T. J. Ward, mineral right.

Mrs. M. C. Hayward, mineral right, two tracts.

Geo. W. Cooper, mineral right, two tracts.

Chas. Smith, mineral right, two tracts.

H. W. Woods Mine, fee. *§. Flt, glt, spl.

R. H. Woods prosp., fee. * Flt.

S. Tesdale prosp., fee. * Flt.

C. B. Davis, and D. A. Dunn, fee.

Mrs. Dicy A. Deboe, fee.

81—Wheatcroft Mineral Co., Inc.

South Dakota Charter. Org.: ?Dec., 1903. Cap.: \$100,000. 100,000 shares.

Office: Wheatcroft, Ky.

Organizers and Directors: I. H. Wheatcroft, A. E. Cullen, E. Curry, B. H. Curry, T. A. Conway, E. C. Ruff.

Officers: Pres., Irving H. Wheatcroft, Wheatcroft, Ky. V. Pres., T. A. Conway, Marion, Ky. Sec., Edwin C. Ruff, Wheatcroft, Ky. Treas., A. E. Cullen, Wheatcroft.

Property: In Crittenden county.

Wheatcroft Shaft, fee. *† Flt, glt. Syn: P. S. Maxwell land.

This property has just been leased by the company to A. J. Taussig, representing St. Louis parties. Mr. Taussig address is: A. J. Taussig, E. M., care of Lanyon Zinc Co., St. Louis, Mo.

82—Wilson, R. W.

Office: Marion, Ky.

Property: In Crittenden county:

R. W. Wilson land, fee, 600 A. Syn: Crittenden Sulphur Springs land, embraces:

Wilson Copper Shaft. * Flt, spl, malachite, chalcopryrite, smt.

Mayes & Wilson Shafts, * Flt.

Tract leased to Mountain Lead, Zinc & Fluorspar Co. See No. 50.

**LIST OF COMPANIES, ETC., WHICH FORMERLY OPERATED IN
THE WESTERN KENTUCKY MINING DISTRICT.**

Below is presented a list of the companies or private parties who formerly operated in the Western Kentucky Mining District, but who have either been absorbed by new ones, reorganized or ceased to exist. The numbers refer to the companies as numbered in list of companies now operating in district, which hold the properties formerly held by these. Date they began operations approximate, in part.

- Archer, W. G., and J. G. Delker, 1904. No. 2a.
Beck & Davis. David Beck and Walter Davis, 1875. No. 32, 80.
Big Five Mining Co., 1904. No. 64.
Brown, S. S., and Ed. Ward, 1890. No. 32.
Bush, W. P. D. & Co., 1865-6.
Casey, N. W. & Co., 1865-6.
Crittenden Land & Min. Co., 1890. No. 13.
Cleveland Mining & Reduction Co., Inc., 1901. No. 26.
Columbia Silver Mining Co., 1866. No. 12.
Cincinnati Lead & Spar Mining Co., about 1882. No. 12.
Cook, Judge T. E., 1903. No. 79.
Chicago Mining Co., 1901. No. 43.
Cooley, S. W., 1895. No. 32.
Drake Barnes & Co., 1899. No. 1, 2, 76.
Fredonia Mining & Smelting Co., 1902. No. 30.
Glass, Henry, 1866. No. 12.
Givens, J. W., Drygoods Co., 1902. No. 27.
Halliday & Green, about 1870. No. 12.
Harth Bros. & Finley, 1902. No. 43.
Hewlett, A. M., & M. L., Dr. Callahan and — Waller, about 1870. No. 61, 80.
Jackson, Andrew, 1835. No. 12.
Kentucky Lead & Fluorspar Co., Inc., 1897. No. 32.
Kentucky Fluorspar Co., Inc., of Tenn., 1898. No. 32.
Kevil, D. B., and others, 1901. No. 72.
Langenbach & Morton, 1900. No. 2.
Lowery, W. S., 1896. No. 22, 54, 55, 38, 34.

- Marble, S., & Son, 1875. No. 76.
Marion Fluorspar Co., 1899. No. 72.
Marion Zinc Co. of Ky., 1902. No. 46.
Memphis Lead Mining Co., 1875. No. 32.
Maxwell, P. S., and others, 1892. No. 13.
Page & Krausse, 1877. No. 12.
Pittsburg Mining & Reduction Co., Inc., 1900. No. 0.
Pittsburg Fluorspar Mining & Manufacturing Co., 1903. No. 0.
Porter & Hudson, 1896. No. 32.
Republic Mining Co., Inc., 1900. No. 25, 36, 42.
Roberts, D. C., 1903. No. 36, 42.
Safford, A. B., & Co., 1865-6.
Samples and others, 1903. No. 0.
St. Louis Mining Co. Operated Eberly land, 1900.
Southern Mining & Promotion Co., 1902. No. 31, 46.
The Carrsville Mining & Milling Co., Inc., 1903. No. 39.
The Commercial Mining & Smelting Co., 1902. No. 32.
The Dycusburg Lead Mining Co., 1880. No. 32.
The Fluorspar Co., Inc., 1898. No. 32.
The Buckeye Mining Co., Inc., 1901. Operated Madrid land. * Flt, glt, lmt, hmt.
The Mineral Point Zinc Co., Inc., 1903. No. 32.
The National Lead, Zinc & Fluorspar Co., Inc. No. 76.
The Globe Spar Co.
The Livingston County Land and Mining Co. No. 80.
The Ohio Zinc Co., Inc., 1902.
The Seacoast Mineral Co., Inc., Operated dry mill at Paducah for ore separation; discontinued.
The Winifred Mining Co., Inc., 1903. No. 7a.
Tolu Mining Co., 1901.
Wagoner, Jos. W., 1897. No. 32, 46, 0.
Walton Spar Mining Co., about 1883. Jos. Walton. No. 32.
Western Kentucky Mining Co., 1899. No. 12.
Wilson Mining Co., Inc., 1903. No. 82.

VI

WAGE SCALES.

Following are the wage scales in force in the organized districts of the State:

COAL CREEK-JELICO SCALE, 1903-04.

Knoxville, Tenn., Sept. 26, 1903.

The operators and miners of District No. 19, United Mine Workers of America, represented in the joint convention at Knoxville, Tenn., hereby adopt as their agreement for the ensuing year ending August 31, 1904, the following:

MINING.

Section 1. Resolved, That the price for pick and machine mining shall be advanced $7\frac{1}{2}$ per cent. on contracts based on scales made in 1902, except as provided for in section '21, marked "Special," and with the further exception that the machine scale for the Straight Creek mines shall only be changed from $6\frac{1}{2}$ cents to $7\frac{1}{2}$ cents for cutters, and from 5 to 6 cents for hostlers. The price for loading to remain as at present.

The loaders at the Pineville Coal Co.'s mine shall receive $\frac{1}{2}$ cent advance, and the cutters and hostlers at same mine shall receive $7\frac{1}{2}$ per cent. advance.

IMPURITIES.

Any miner loading an unusual amount of dirt, slate, sulphur or other impurities with his coal shall be laid off one day for each offense. The company's representatives will on all such occasions show such unusual amount. Any miner laid

off for three days during any one month shall then be subject to discharge, provided, however, that no dirt, slate, sulphur or other impurities shall be included in the measurements to determine the height of coal.

YARDAGE.

Sec. 2. Resolved, That there shall be no change in the price of yardage and room turning in pick mines except the bringing up of odd cents to even five or ten cents; thus, 97 cents shall be changed to \$1.00; \$3.21 shall be \$3.25; \$3.69 shall be \$3.70 and so on.

There shall be no change in machine yardage prices.

TIMBERING.

Sec. 3. Resolved, That present conditions continue at all mines.

TRACKS.

Sec. 4. Resolved, That in addition to the iron tracks now being used, the dip places where the men have to push the cars shall be provided with iron rails.

CARS.

Sec. 5. Resolved, That all cars are to be handled the same as last year, but it is understood that this clause shall not be construed to have miners handle cars where it has been customary for the company to handle them heretofore.

Sec. 6. Rent, house, fuel and pick sharpening at each mine shall remain without change during the life of this contract.

DAY LABOR.

Sec. 7. There shall be a uniform day wage scale, which shall be the present Coal Creek-Jellico day wage scale with seven and one-half per cent. added as follows:

Inside driver, one mule, 20 4-10 cents per hour.
 Drivers, two mules, 22 cents per hour.
 Drivers, three mules, 23 1-10 cents per hour.
 Drivers, four mules, 24 1-10 cents per hour.
 Head track layer, 28 $\frac{3}{4}$ cents per hour.
 Assistant track layer, 20 4-10 cents per hour.
 Trappers, 7 $\frac{1}{4}$ cents per hour.
 Timberman, 25 8-10 cents per hour.
 Timberman helper, 20 4-10 cents per hour.
 Inside pumper and water bailer, 20 4-10 cents per hour.
 Outside pumper and water bailer, 19 1-10 cents per hour.
 Muckers or inside labor, 19 1-10 cents per hour.
 Coupler man inside, 18 cents per hour.
 Coupler man outside, 14 1-3 cents per hour.
 Coupler boy inside, 9 3-10 cents per hour.
 Coupler boy outside, 7 2-10 cents per hour.
 Tip house men, 19 1-10 cents per hour.
 Outside driver, 10 cents per day less than inside.
 Boy driver under 16 years of age, 35 cents per day less than regular prices.
 Drum man, 21 $\frac{1}{2}$ cents per hour.
 Knuckle man, 19 1-10 cents per hour.
 Knuckle boy, 14 1-3 cents per hour.
 Furnace man (digging his own coal), 21 $\frac{1}{2}$ cents per hour.
 Furnace man and watchman, 15 6-10 cents per hour.
 Outside labor, including slate dumpers, 14 1-3 cents per hour.
 Blacksmith, 25 1-10 cents per hour.
 Pick sharpener, 21 $\frac{1}{2}$ cents per hour.

HOURS.

Sec. 8. Nine hours shall constitute a day's work, for all classes of labor for which a scale of wages is made in this contract. A nine-hour day means nine hours' work in the mines at the usual working place for all classes of day labor and miners. This shall be exclusive of the time required in reaching the working place and departing from same at night.

Regarding drivers: They shall take their mules to and from the stables, and the time in so doing shall not include

any part of the day's work. It is distinctly understood that the time of starting each day depends on the arrival of railroad cars providing the run begins in two hours from the regular starting time. Pay to begin with work and work to stop at the regular quitting time.

PAY DAY.

Sec. 9. Payment of wages shall be made semi-monthly, beginning with October. The pay day being on or before the last day of each month for the work performed during the first half of the month, and on or before the 15th of the succeeding month for work performed during the last half of the month; but it is understood that statements shall be made only once for each month. The semi-monthly pay being the last in each month to be paid in even dollars.

Any employee desiring to leave the employment of the company shall receive his money at once, or not later than five days after his notice is given.

CUT.

Sec. 10. That all employees whose wages are regulated by this scale shall be cut for dues and assessments through the office out of their first five days' work performed in each month, the same to be paid to the proper person or persons authorized to receive the same. The dues and assessments not to exceed \$1 per month, without the special written order of each employee. Initiation fees are hereby guaranteed to be uniform throughout district No. 19, and that the payment of same shall be pro-rated through 60 days if necessary.

TURN.

Sec. 11. A square turn shall be kept all over the mine in rooms and narrow work under ordinary conditions. Miners absenting themselves from their working places for three consecutive days without first obtaining the consent of the superintendent or bank boss, shall forfeit their working places, except in cases of sickness of themselves or any member of their

family, and except also, representatives of the organization engaged in work of the organization in which case they must notify the superintendent or bank boss. Work shall not stop at any mine on any day other than on general holidays and on April 1st without previous agreement with the management of such mine.

MASS MEETING.

Sec. 12. No mass meeting shall be held during working hours on or off the company's premises when the mine is running, and any one calling such a meeting shall be subject to discharge. No committee shall visit any employe at his working place except with the bank boss to settle a grievance or to secure information concerning a grievance, after having explained to the bank boss the nature of said grievance, in case it will not be convenient for the bank boss to go with them that day.

COMMITTEES.

Sec. 13. No man shall be appointed a member of any mine committee who has not been employed at said mine for four months or more, next preceding his appointment, except in new mines that have not been in operation six months or more. The duties of the mine committee shall be confined to the adjustment of disputes between the company and its employes working in and around the mine, provided the company and said employes have failed to agree. Under no circumstances will the operators recognize or treat with a mine committee or the representatives of the U. M. W. of A. during a suspension of work contrary to this agreement.

Sec. 14. That neither the race, creed nor color of any man shall be a bar to his employment either above or below ground at any mine in this district which is a party to this agreement.

ARBITRATION.

Sec. 15. If any differences arise between the operator and the miner, or between the operator and any of the employes of the mine, a settlement shall be arrived at without stopping

work. If the parties immediately affected can not reach an agreement between themselves the question shall be referred without delay to the local committee and the company's officials. If they fail to effect a settlement, it shall be referred to the officials of District 19, U. M. W. of A. and the officials of said company. If they fail to adjust the grievance, it shall be referred to a board of arbitration, composed of one person from each side, with power to select an umpire. Their decision shall be final and binding on all parties to this agreement and those they represent. Arbitrators shall be appointed within three days after the case is submitted to arbitration and they shall proceed within five days to hear and determine the case. In the event the arbitrators being unable to select an umpire within thirty days after their appointment, each party to this agreement shall have the right to proceed as though this section had not been agreed upon. The operator and his superintendent and mine manager shall be respected in the management of the mine and the direction of the working force. All day men shall perform whatever kind of day labor the management may direct them to perform from time to time. The right to hire must also include the right to discharge, and it is not the purpose of this agreement to abridge the rights of the employer in either of these respects. If, however, any employe shall be suspended or discharged by the company and it is claimed that an injustice has been done him, an investigation shall be conducted as herein provided, and if it is determined that an injustice has been done, the operator agrees to reinstate said employe and pay him full compensation for the time he has been suspended and out of employment, provided, if no decision has been reached within five days, the case shall be considered closed in so far as compensation is concerned, for the time he has been idle. The compensation for said five days for a day laborer shall be at the rate of wages at which he was employed for the hours worked by the miner during the days of his suspension. If a miner, then the average rate of wages earned by him during the month preceding the one in which he was suspended.

DEATHS.

Sec. 16. Except in case of fatal accidents the mines shall in no case be thrown idle because of any death or funeral, but in case of the death of any employe of the company or member of his family, any individual employe may at his option absent himself from work to attend such funeral, but not otherwise.

CONSTRUCTION WORK.

Sec. 17. That the erection of tippie, houses, buildings, development to the coal, installation of machinery, construction of railroad side tracks necessary for the completion of the plants for operation, all being in the nature of temporary employment in construction and development work, are to be excluded from the jurisdiction of this wage scale.

LIMITATIONS.

Sec. 18. This contract is not to be modified, amended or set aside by either party nor in any way because of any rules of the U. M. W. of A. now in force or which may hereafter be adopted, nor is this contract to be set aside nor changed in any particular by either party nor by reason of any provision of the national, State or local constitution of the U. M. W. of A. This agreement therefore constitutes the only agreement between the miners and operators of the Nineteenth district represented in this convention, and there shall be no demand made locally that conflicts with this agreement which would increase cost of production, except when any change of conditions arise that did not exist at the date this agreement went into effect. In which case, the differences shall be fixed by mutual agreement or by arbitration, but nothing in this clause shall prevent any mine from continuing in force the bank rules now in operation not inconsistent with this contract.

SPECIAL.

Sec. 19. The scale of wages at Paint Rock, New Cumberland, Indian Head, Paris Coal Co. and Hughes Jellico mines as well as the machine scale at all mines south of the Jellico

district, shall be referred to a special board of arbitration to be composed of two persons selected by the operators and two by district No. 19, U. M. W. of A., who shall make a personal investigation of the grievances complained of and adjustments required, and shall make an award in accordance with their finding. If they fail to agree, they shall have power to select an umpire whose decision shall be final. The appointment of said umpire to be according to the limitation fixed in section 15.

Convention adjourned to meet at Knoxville, Tenn., on the second Tuesday in August, 1904.

On behalf of the operators:

HYWEL DAVIES,
M. S. BARKER,
JAMES R. WOOLDRIDGE.

On behalf of the miners:

W. B. WILSON,
JOE VEASEY,
T. J. SMITH.

Approved:

E. J. DAVIS,
Chairman Joint Convention.
J. S. McCracken,
Secretary Joint Convention.

CENTRAL KENTUCKY DISTRICT AGREEMENT.

Louisville, Ky., March 31, 1905.

The members of the Western Kentucky Coal Operators' Association and their employees, members of District No. 23, United Mine Workers of America, hereby adopt as the agreement for the year ending March 31, 1906, the following:

PICK MINING.

Section 1. The price for pick mining for the year ending March 31, 1906, shall be $78\frac{3}{4}$ cents per ton over the district standard screen (12 feet long, 5 feet wide, $1\frac{1}{2}$ inch space between bars, $\frac{5}{8}$ inch face). It is distinctly understood that when any company uses a shaker screen that screens more than a standard screen, they shall weigh the coal before it passes over said shaker screen. It is agreed that the ratio of lump coal to mine run over $1\frac{1}{2}$ inch district standard screen shall be based on 62 per cent. going into the weigh box, and this per cent. shall regulate the ratio of lump and run of mine coal whenever any change is made in the price of mining. The mine run price shall be 48 8-10 cents per ton, the equivalent of 62 per cent. of $78\frac{3}{4}$ cents per ton, the price of lump coal. It is understood that coal shall be mined two and a half feet under ordinary conditions, and the solid may be shot not more than an equal amount. In exceptional cases miners shall mine coal as much as possible.

It is understood that the above prices apply to all veins that have been recognized as No. 9, or its equivalent.

Sec. 2. The price of yardage in entries shall be $\$1.19\frac{3}{4}$ per yard, but when the entry exceeds ten feet and is not more than twelve feet, the price shall be $89\frac{1}{4}$ cents per yard, and no yardage shall be paid in excess of twelve feet. All break-throughs shall be paid for at entry prices. Should the bank boss and the man driving an entry agree that it is wet, then the miner shall receive 29 6-10 cents per yard extra.

Sec. 3. The price of turning rooms shall be $\$3.57$ per room.

MACHINE MINING.

Sec. 4. The price for drilling, shooting, loading and timbering after chain and punch machines shall be one-half the price of pick mining. The companies using the chain machine shall pay such additional price per ton for bradding the coal, handling the machine cuttings and taking up the bottom as can be agreed upon by the mines affected, or have it done by the day.

Sec. 5. Chain machine runners and helpers shall be paid at the rate of $\$4.46\frac{1}{2}$ per twenty-seven cuts, under ordinary conditions, divided $\$2.36\frac{1}{2}$ to the runner and $\$2.10$ to the helper, and when they work by the day, the runner shall receive 29 6-10 cents per hour, and the helper $26\frac{3}{4}$ cents per hour. It is understood that fourteen square feet shall constitute a cut for the five-foot and the six-foot machines.

There shall be no limit to the number of cuts made by machine runner and helper for a day's work.

Punch machine runners shall receive 29 6-10 cents per hour, and helpers shall receive 22 4-10 cents per hour, when they work by the hour; $11\frac{1}{4}$ cents per ton of screen coal to the cutter, $6\frac{3}{4}$ cents per ton of screen coal to the helper, when they work by the ton, or 1 19-100 cents per square foot to the cutter, and 71-100 cents to the helper.

Sec. 6. Yardage for chain machines shall be 59 9-10 cents per yard for three runs, to be divided as follows: 42 cents to the loader, $9\frac{1}{2}$ cents to the cutter, 8 4-10 cents to the helper, and it shall be 44 6-10 cents for four runs divided in the same proportion.

Yardage for punch machines shall be 59 9-10 cents, divided as follows: $31\frac{1}{2}$ cents to the loader, 16 8-10 to the cutter, and 11 6-10 cents to the helper, when the entry does not exceed ten feet, and when the entry exceeds ten feet, but does not exceed twelve feet, the price shall be 44 6-10 cents, divided in the same proportion.

No yardage shall be paid by either machine company when the work is done by the day, nor when entries are more than four runs wide.

Sec. 7. Turning rooms in machine mines shall be paid by the yard, as per Section 6, divided between loaders, helpers and cutters, when not working by the day.

Sec. 8. Where a man or a man and a boy are loading after a machine and not claiming more than a turn and a half, they shall be entitled to two or three rooms where practicable.

Sec. 9. The companies shall lay all roads and timber all bad places not caused by the miner's own negligence.

Sec. 10. A square turn shall be kept all over the mines in rooms and narrow work under ordinary conditions, but when the operator considers it necessary for the extra or special development of his mine to push forward the entries, he may do so, whether the rest of the mine is working or not, this work to be distributed among the men who are competent entry drivers. Half turn to boys between fourteen and sixteen years of age.

Sec. 11. Miners absent from their working places for three consecutive days, unless through sickness, in which case they must notify the bank boss, or by first having obtained the consent of the superintendent or bank boss, shall forfeit their working places; and men who do not work regularly, and who attempt to take advantage of this section shall be subject to discharge. Any day man absenting himself from work one day without previously obtaining permission to do so from the superintendent or bank boss, or who has no valid or reasonable excuse for absenting himself without permission, shall forfeit his position or working place.

Sec. 12. Any miner loading an unusual amount of slate, sulphur or other impurities shall be fined fifty cents for the first offense, seventy-five cents for the second offense, and shall be subject to discharge for the third offense in any one month. The weighmaster and checkweighman shall be the judges of such unusual amounts, and the fines, when collected, shall be paid to the district office, and in no case shall be remitted.

Sec. 13. The checkweighman shall have a number to run his account, and shall be allowed to cut each miner for his own wages, and for all dues and assessments of the U. M. W. of A., provided that in the case of dues and assessments each employe shall give a written order authorizing the employer to make such cuts. The checkweighman must, not later than the third day of each month, turn into the company's office an account showing the amount of dues and assessments to be stopped from each man for the previous month, so that on the following pay day the company may remit the amount of dues and assessments as

per said statement belonging to the District, to the District Treasurer, and the amount belonging to the Local, as per said statement to the Local Financial Secretary. Similar cuts for day men shall be collected on the same conditions through the office. Men voluntarily leaving the employment of a company when owing that company shall not be entitled to their clearance cards until they have made an arrangement with the company for the future payment of their debts by giving them a sixty-day note for the amount of the debt with authority to notify the company for whom they are going to work that they desire their wages cut \$4.00 per month until the note is paid in full, and the checkweighman or secretaries of local unions shall not issue clearance cards until they have ascertained from the company whether or not the man applying for a card is in debt, and until the aforesaid note has been given.

Sec. 14. No mass meeting shall be held during working hours, on or off the company's premises, when the mine is running, and any one calling a meeting shall be subject to discharge.

No committee shall visit any employe at his working place, except in company with the bank boss, to settle a grievance; and any employe caught out of his working place during working hours, except for satisfactory reasons, is liable to have his turn stopped, at the option of the bank boss.

Sec. 15. All labor shall be paid for by the hour, or quarters of hours, and eight hours shall constitute a day's labor, so far as mine laborers and miners are concerned; but the eight hours shall not affect the engineers, firemen, pumpers, outside teamsters, night-watchmen, blacksmiths, special repair work, or such men as are now paid by the month.

An eight-hour day means eight hours' work in the mines at usual working places for all classes of day labor and miners, and any miner late, without reasonable excuse, shall forfeit his turn for the day. This shall be exclusive of the time required in reaching working places and departing from same at night.

Drivers shall take their mules to and from the stable, and the time in so doing shall not include any part of the day's work, their work beginning when they reach the change at which they receive the empty cars; but in no case shall a driver's time be docked while he is waiting for such cars at point named.

It is distinctly understood that the time of starting the run each day depends on the arrival of railroad cars, and that the eight hours shall be counted from the time of starting, provided the run begins within two hours from the regular starting time.

Miners and day men shall respond promptly to the starting time, and no shooting shall be done until nine hours after starting the run, or before the usual hour, without the permission of the bank boss, who shall furthermore direct how the shooting is to be done, and no man can be allowed to shoot out of turn, subject to the penalties of Section 18 as hereinafter provided.

The following scale of wages shall be paid for inside work:

	PER DAY.
Tracklayers	\$2 10
Tracklayers' helpers	1 91
Trappers	65
Bottom cagers	1 91
Drivers gathering with one mule	1 91
Drivers gathering with two mules	2 08
Drivers gathering with more than two mules on entries ..	2 08
Riders	1 91
Water haulers	1 91
Timbermen	2 10
Pipemen	2 02
All other inside day labor	1 91
The minimum outside scale of wages for work about the mine shall be	1 52

In the event of an operator electing, or having elected to pay for any class of labor a higher wage than the scale set forth in this agreement, he shall at any time have the right to reduce the same to the scale price; but it is distinctly understood that he is under no obligation to pay any wage other than fixed by this agreement.

The color line shall not be a bar to employment either above or below ground at any mine in this district, which is a part to this agreement.

In emergencies and in the absence of any regular employe,

the right of the operator to employ men not members of the U. M. W. of A., for outside labor regulated by this agreement, shall not be questioned; the men so employed as temporary laborers shall not work more than three days at any one time, without becoming members of the U. M. W. of A.

The initiation fee for admission to and qualification for membership in this district of the U. M. W. of A. shall not be in excess of \$10.00 for outside men. Said initiation fee may be paid in installments of \$2.50 per pay day.

The local conditions existing at each mine in respect to the rate of wages paid to men when taken from one kind of employment to another to fill temporary vacancies shall not be disturbed.

There shall be no boys employed as drivers, except on straight track, and said drivers shall receive 25 cents per day less than the district scale.

Sec. 16. The price of blacksmithing at pick mines shall be 1 34-100 cents per \$1.00 earned by each miner, and at machine mines blacksmithing shall be 67-100 cents per \$1.00 earned by each miner.

Sec. 17. All employes affected by this agreement shall be paid on the second Saturday of each month for the labor performed during the latter half of the preceding calendar month, and on the fourth Saturday of each month for the labor performed during the first half of the current month. This second payment as provided above shall be in the nature of a cash advance in even dollars.

Sec. 18. Employes are liable to be discharged for:

- (a) Disorderly conduct.
- (b) Gambling and shooting on the company's premises.
- (c) Taking coal, tools, timber, etc., without permission.
- (d) Firing before the run stops without permission of the bank boss
- (e) Committing a nuisance in entries, airways, or necks of rooms.

Sec. 19. In the event of an instantaneous death by accident in or around the mine, the miners and underground employes shall have the privilege of discontinuing work for the remainder of that day, but work, at the option of the operator, shall be resumed the day following and continue thereafter. In case the

operator decides to operate the mine on the day of the funeral of the deceased, individual employes may, at their option, absent themselves from work for the purpose of attending such funeral, but not otherwise. And, in event the operator shall elect to operate the mine on the day of such funeral, then from the proceeds of such day's operation, each person employed at the mine at which the deceased member was employed shall contribute fifty cents and the operator \$25.00 for the benefit of the family of the deceased, or his legal representative, to be collected through the office of the company. Except in the case of fatal accidents as above, the mine shall, in no case, be thrown idle because of any death or funeral, but in the case of the death of any employe of the company or member of his family, any individual miner may, at his option, absent himself from work for the sake of attending such funeral, but not otherwise.

Sec. 20. Married men shall at all times form the majority of all committees.

Sec. 21. In all conferences, the employes of each mine, or especially the mine affected, shall be represented by not less than three employes of such mine, and the voting power shall be vested in such employes; but this does not preclude the presence of any official of the labor organization.

Sec. 22. It is agreed that if any difference arises between the operator and the miners at any mine, a settlement shall be arrived without stopping work. If the parties immediately affected cannot reach an agreement between themselves, the question shall be referred, without delay, to a Board of Arbitration consisting of two members, one to be the Commissioner, or a similarly designated official, selected by the operators, or his appointee, the other the President of District No. 23, United Mine Workers of America, or his appointee. In the event of these two being unable to reach a decision, they shall select a third member, and the decision of said Board of Arbitration shall be final and binding on all parties to this agreement and those they represent. But under no circumstances shall work stop before the decision of the Board of Arbitration is received, and such stoppage of work, before the decision of said Board of Arbitration is received, shall be sufficient cause to discharge the Mine Committee and the party or parties caus-

ing the dispute unless the committee show they have used due diligence to keep the men at work.

Sec. 23. The operator and his superintendent and mine manager shall be respected in the management of the mines and the direction of the working force. All day men shall perform whatever kind of day labor the management may direct them to perform from time to time, and at any time should a day man be absent from work on the failure of the mine boss to secure the necessary man or men, it shall then become the duty of the Bank Committee to do all in their power to provide the necessary man or men to do the work. The right to hire must also include the right to discharge, and it is not purpose of this agreement to abridge the rights of the employer in either of these respects. If, however, any employe shall be suspended or discharged by the company, and it is claimed that an injustice has been done him, an investigation shall be conducted, as provided in Section 22, and if it is determined that an injustice has been done, the operator agrees to reinstate said employe and pay him full compensation for the time he has been suspended and out of employment, provided if no decision shall be reached within five days the case shall be considered closed, in so far as compensation is concerned.

In all such cases the other employes must continue to work, pending an investigation and adjustment until a final decision is reached.

Sec. 24. The erection of head frames, tipples, houses, buildings, scales, machinery, railroad switches, etc., necessary for the completion of a plant to hoist coal, all being in the nature of construction work, are to be excluded from the jurisdiction of the U. M. W. of A. Extensive repairs to, or rebuilding the same class of work, shall also be included in the same exception. The employes therein to be excluded as above when on such work only.

Sec. 25. This agreement constitutes the only agreement between the miners and the operator in this district, and there shall be no demands made locally that conflict with this agreement. Local conditions at any mine not covered by this agreement shall be adjusted locally subject to Section 22.

This contract goes into effect April 1, 1905, and continues in force until March 31, 1906.

IN WITNESS THEREOF we have hereunto subscribed our names, this, the 24th day of March, 1905.

District No. 23, U. M. W. Western Ky. Coal Operators' Association, by

C. W. WELLS,
President.

I. P. BARNARD,
President.

W. E. HICKS,
Vice-President.

FRED P. WRIGHT
Vice-President.

T. L. LEWIS,
Natl. Vice-Pres.

D. STEWART MILLER
Com. and Secy.

W. J. CAMPBELL, M. N. E. B.

VII

ACCIDENTS FOR 1903.

For the calendar year 1903 a total of 108 noteworthy accidents were reported, of which 27 were fatal. Of the non-fatal accidents, 39 were serious.

A summary of the fatalities has been given in Chapter III "General Condition of the Mines." Following is a descriptive list of the fatal accidents.

DESCRIPTIVE LIST OF FATALITIES, 1903.

Bell County.—Black Raven Coal Co.: Neal Peck, miner; 35 years. Killed by fall of slate, April 3d. Single.

Bell County.—Excelsior Coal Mining Co.: John Lane, mines; 24 years. Killed in October by fall of slate at face of entry, which he was driving. Left widow; no children.

Boyd County.—Ashland Iron & Mining Co.'s Rush No. 6 mine: Wm. Fain, mine boss, and John Pack and George Breckley, roadmen, were killed by fall of slate, on March 7th. Report says fall occurred on air-course side of main entry, near the mouth of Helwig No. 1 entry, and was due to a slip in the slate, the detection of which was prevented by the thick top-coal left for roof. Fain left wife and six children. Pack left wife and five children. Breckley left wife and two children.

Boyd County.—Ashland Iron & Mining Co.'s No. 8 mine, leased by John Wurts: W. H. Addington, miner; 23 years. Killed by fall of slate and "nigger-head," February 5th. Report is: "His place was inspected about an hour and a half before the accident by Polk Lambert, bank boss, who told him to set props under the slate, which he did not do." Left a wife.

Christian County.—Empire Coal & Mining Co.: Buren Jackson, colored, miner; 20 years. Killed June 30th, by slate. "Was

taking coal down to load, when piece of slate on top of coal slipped out, killing him. Part of the slate was kind of horse-back, or pocket." Unavoidable accident, according to coroner's jury.

2.—Richard Stoner, colored, hostler. Killed November 12th by fall of slate. Report is: "Was hostling after machine. Had made four cuts in room, when piece of slate fell at face of room, knocking him over on machine, breaking his leg and two ribs. Died from effects in thirty minutes. Room propped in 10 feet of face. Top good. From eye-witness it was partly his fault. Being told the piece of slate was loose, and to get from under it, said would set his jack first." Slate was 7 feet long, 2½ feet wide and 2½ inches thick.

Hopkins County.—Reinecke Coal Mining Co.: Rivers Trammell, coal loader; 18 years. Trammell, with Charles Halson (loader) and Wm. Hamilton (driver), was going into No. 6 room on 14th West entry with two empty cars—Hamilton in front car and others in second car. "When passing the mouth of the 4th room the driver must have failed to slew cars properly, and the first car went into 4th room, while the mule and second car kept the straight track. This threw the first car off the track, and it struck a prop, causing slate to fall," killing Trammell and bruising the others. Occurred September 8th.

Hopkins County.—Carbondale Coal & Coke Co.: Robert Moore, 22 or 23 years; left wife. Verdict of coroner's jury: "We the jury find the dead body now before us that of Robert Moore, come to his death by an accident, we know not how, but was found under a loaded bank car." Accident happened outside of mine, August 18th.

Hopkins County.—St. Bernard Mining Co.'s Hecla mine: Wm. Faulkner, miner. Returned on a hanging blast. Died from injuries in three days. March 6th.

Knox County.—North Jellico Coal Co.'s Bertha mine: Millard Hutton and William Hutton, killed by fall of slate in room, July 14th. Millard Hutton's skull was crushed, and William's neck was broken. Piece of slate that fell measured 11 feet by 10 feet, and was 8 inches thick at last row of props where it broke off, tapering to about 2 inches before reaching the coal face. Report says: "The men had neglected propping,

although their attention had been called to it. Last row of props which had been placed was 15 feet from face of coal."

2.—Same company's Wilton mine: J. T. Boston, killed by fall of slate in room, December 4th. Was helper to Tom Storms, machine runner. Report says "accident was caused by Storms ordering propman to knock out a post which was in the way of setting the machine before others were placed to hold the slate." Boston was a widower. Left one child.

Laurel County.—Pittsburg Coal Co.: Stewart Baxter, killed by premature blast in a room November 5th. Was tamping a shot, and it is supposed the tamping bar struck fire from a sulphur (pyrite) band.

Laurel County.—Standard Coal Co.: Wiley Hayes, machine hostler; 29 years. Killed by fall of coal, March 20th. Left two children.

Lee County.—L. C. Norman & Son: Douglas Horn, driver; 22 years. Killed by fall of slate, November 7th. Left wife.

Ohio County.—Deaneville Coal Co.'s Aetna mine: Wm. Dunn, miner, killed while firing shot. Bit off wrong end of squib and shot went off before he could get away. Accident March 11th. Dunn died from injuries March 20th. Left wife.

Rockcastle County.—Big Hill Coal Co.: Jonathan D. Abney, miner's assistant; 27 years. Killed by fall of slate in room, December 30th. Left wife and two children.

Webster County.—Providence Coal Co.: Charles McNary, colored, miner; 28 years. Returned on hanging shot, lamp went out and he was unable to get out of way when shot fired; was caught in fall of coal and died from injuries in a few hours. Left wife and child. October 21st.

2.—Same company: Green Turner, colored, shooter and loader; 60 years. Was preparing cartridge. When pouring powder from keg a spark from his lamp, which was in his cap on his head, fell and ignited the powder. Died in twenty-four hours from effects of explosion. Left wife and eight children. November 9th.

Webster County.—Sebree Coal Co.: Thos. J. McLamore, miner. Killed by falling down shaft, January 22d. Walked into the shaft, falling 175 feet. Instant death. Left wife and nine children. In connection with this accident, the query

occurs, why should this have occurred? Why was the shaft-opening not guarded by safety-gate?

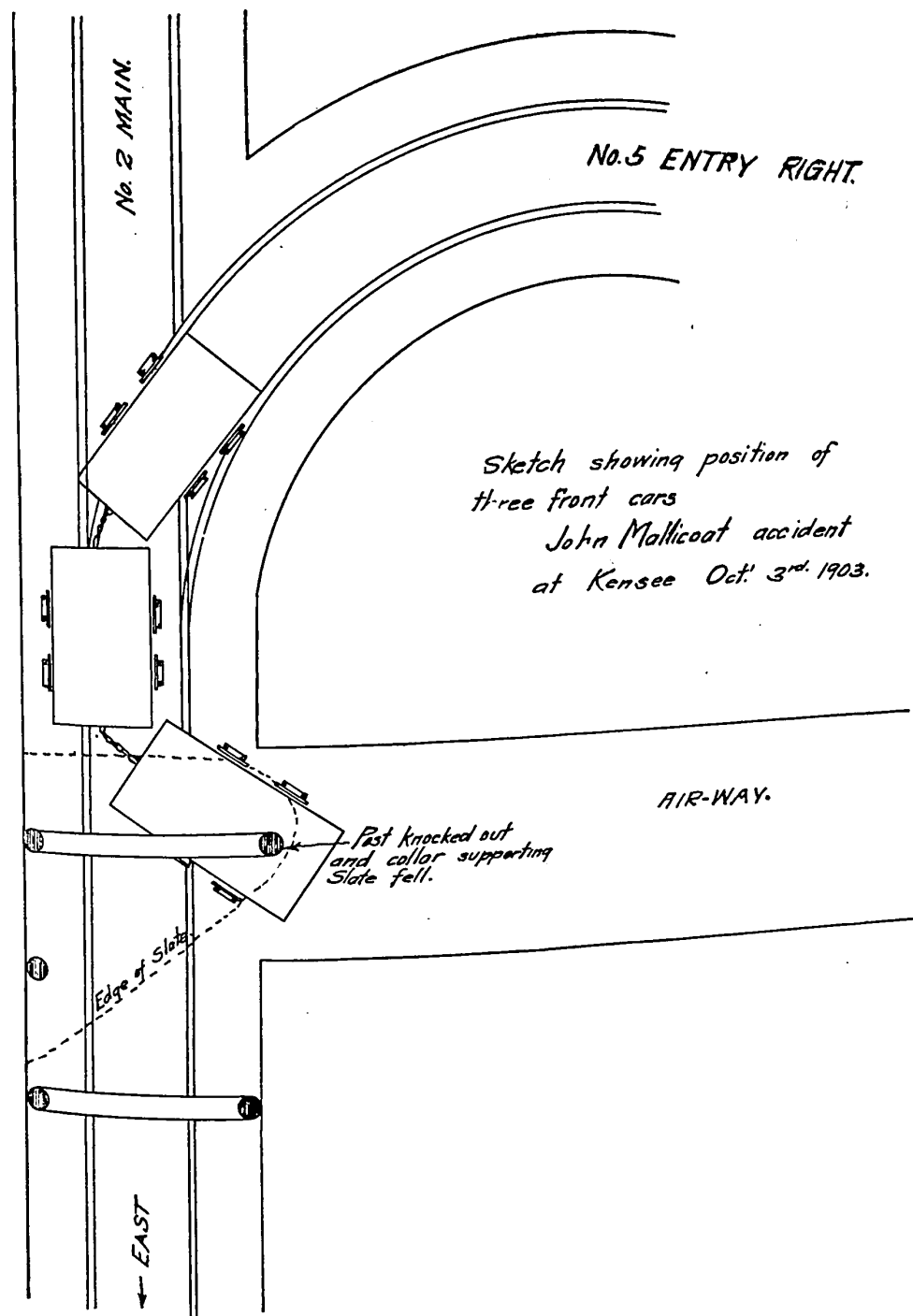
Whitley County.—Main Jellico Mountain Coal Co.'s Kensee mine: John Mallicoat, driver, killed October 30th. Report made, signed by John Burns, Superintendent, and C. M. Teasley, Geo. Warren, and M. Selba, Bank Committee, is as follows: "John Mallicoat, age 24, single, driver, single mule with seven loads, was coming out of No. 5 Right Cross Entry entry, in No. 2 Main entry. Taking condition and position of cars, he must have been going at a lively speed, because the front car on which he sat jumped the track as it struck the rail of the Main entry and traveled 7 feet off the track, knocking out a set of round timbers at the mouth of the adjoining air-way, which brought down a fall of slate in one triangular piece—10 feet 5 inches by 7 feet 8 inches by 11 feet 9½ inches thick—which caught deceased on top of his car, killing him instantly. The Main entry at the point of the accident, and east of same, is timbered for a short distance. The first set is at the mouth of said air-way; 4 feet 3 inches going east was a single post on right side as shown in accompanying sketch. The next set of double timbers is 4 feet 3 inches east of said post."

A note appended by Mr. Hywel Davies, Vice-President, is as follows: "Our last fatal accident was in August, 1894. Our production of coal during these nine years has exceeded 700,000 tons, and it is with sincere regret we find it necessary to report this break in our record."

Whitley County.—Procter Coal Co.: Aaron Thomas, 17 years, and Jason Smith, 15 years. Report is: "These boys went to sleep, while on duty, in an overcast above gasoline pump and died from fumes from the gasoline. Occurred in April."

2.—Same Company: H. B. Neely, miner at Grinstead mine; 32 years. Killed by fall of "horse-back" at face of room, November 16th. Left wife.

Whitley County.—West Jellico Coal Co.: George Stephens, killed by fall of slate, in face of room, July 29th. Single. (No particulars given.)



NON-FATAL ACCIDENTS FOR 1903.

For the calendar year 1903, omitting the slighter injuries, such as bruises, mashed fingers, etc., 81 noteworthy non-fatal accidents were reported, of which 75 occurred underground. Following is a summary of the accidents:

Summary for 1903.

CAUSES.	Serious		Not Serious		Total
	In	Out	In	Out	
Fall of top	11	.....	10	.....	21
Full of coal	4	.....	4	.....	8
Cars	12	.....	6	1	19
Motor . . . . .	.....	.....	1	.....	1
Riding trip . . . . .	.....	.....	1	1	2
Mining machine	1	.....	1	.....	2
Returned on shot . . . . .	.....	.....	1	.....	1
Premature blast . . . . .	.....	.....	4	.....	4
Burnt by gas . . . . .	.....	.....	2	.....	2
Shot ignited powder smoke . . . . .	.....	.....	1	.....	1
In shaft	1	.....	1	.....	2
On incline . . . . .	.....	.....	.....	1	1
Boiler . . . . .	.....	1	.....	.....	1
Miscellaneous	8	1	6	1	16
Totals	37	2	38	4	81

DESCRIPTIVE LIST FOR 1903.

In the following lists descriptions are based on statements made by the company reporting, unless otherwise indicated.

Bell County.

Bennett's Fork Coal & Coke Co.—W. C. Turner, a driver, was injured in the back, in September. Cause not stated. Off duty "less than a month."

Black Raven Coal Co.—J. Engel, machine runner. Finger cut off by jack falling on same, March 26th.

Pineville Coal Co.—Henry Gibbs, water bailer; 23 years. Was sitting on top of water box while hauling and was caught between box and brattice that was across entry. Back sprained, but not seriously. January 5th.

2.—W. C. Barton, machine runner; middle finger mashed up to first joint by machine, March 12th.

3.—Wm. Moore, day laborer, injured by car; was moving dirt with car. While braking with a stick on wheel on down grade, he let stick get away from him. Stick fell under wheel, derailing the car and throwing him. End of car caught his foot against cross-ties, cutting some flesh from heel. June 25th.

4.—James Elam, trapper; 15 years. Car jumped track, struck post and knocked him down, breaking small bone of leg. Off duty about six weeks. December 18th.

Sagamore Coal Co.—Joe Noah, not an employe; 14 years. With other lads, was playing see-saw with one of the planks used as cover to air-shaft. Plank becoming displaced, went down the shaft, throwing the boy forward and into the shaft. Fell to bottom, 45 feet, breaking both legs and an arm. Occurred Sunday, July 12th.

Stony Fork Coal Co.—John Wilbur; 43 years. While setting timber did not support same. Timber fell and broke one of his legs.

Boyd County.

Ashland Iron & Mining Co.'s No. 8 mine, John Wurts, Lessee.—William Turner, miner; 47 years. Face cut and back hurt by fall of slate, August 13th. Not serious.

2.—Sam McHenry, miner; 32 years. Ankle sprained by fall of slate. Lost three weeks. December 7th.

Breathitt County.

Kentucky Union Co.—William New, miner; 38 years. Arm crushed by fall of slate, necessitating amputation, May 7th. With two others was engaged in driving No. 1 Main entry. The evening previous to accident they fired a top shot (brushing), which sprang some slate at point of the hole. After clearing away the slate thrown by shot, they began loading coal, when piece of slate fell and injured New.

Carter County.

Ashland Iron & Mining Co.'s Bailey No. 1 mine.—Lum Crank, day laborer; 28 years. With two others was pushing car of slate up grade, when it came back on them, catching Crank's arm against rib and car and breaking his wrist. July 15th.

Christian County.

Empire Coal & Mining Co.—Mitchell Lynch, colored; 22 years. Injured by fall of slate June 30th. Not serious. (See description of fatal accident to Buren Jackson.)

Hancock County.

Auburn Ash Coal Co.—Jesse Kincaid, water hauler; 25 years. Head caught between water-box and roof. Three ribs broken. December 4th.

M. H. Enright, Falcon mine.—Edgar Enright; 29 years. Hip dislocated by fall in the mine. In May.

Hopkins County.

Crabtree Coal Mining Co.—Wm. Johnson, colored, miner; 35 years. Got in car in trip to be let down into mine before safety-rope was put on. Link broke, car ran down; he got scared, jumped from car, and leg was so badly crushed below knee that amputation was necessary. September 14th.

Nortonville Coal Co.—Walter Jackson, loader; 27 years. Badly, but not dangerously, bruised neck, right side, hip, right leg and stomach, by fall of slate. October 3d.

Oak Hill Coal Co.—Clarence Webb had first finger of right hand mashed off by being caught between cars that jammed together in stopping near tipple. Lost thirty-five days. In June.

Reinecke Coal Mining Co.—July Johnson, driver; 22 years. Right leg broken by fall of slate. January 22d.

2.—Hart Barker, loader; 25 years. Right hand mashed by fall of loose coal, necessitating amputation of two middle fingers. April 28th.

3.—Edward Tompkins trapper; 16 years. Struck in head by switch stand and skull fractured. Recovered. June 8th.

4.—Charles Halson and Wm. Hamilton, injured in accident in which Rivers Trammel was killed. (See fatal accidents.) Not serious. September 8th.

5.—James Logan, loader; 25 years. Head cut and bruised by fall of loose coal. Lost five days. December 11th.

St. Bernard Mining Co.'s Diamond mine.—Robert Covington, not employed by company, but by his brother to help load coal. Attempted to jump on moving trip at tipple. Missed footing, fell and car ran over foot, necessitating amputation. In September.

St. Bernard Mining Co.'s No. 11 mine.—Jno. Crabtree loader. Pelvis and back badly bruised by fall of roof. In January.

2.—Dave Willsby, machine runner. Right leg badly cut by fall of coal, due to "slip." Lost twenty-three days. September 25th.

3.—Ben Offutt, driver. Cleaning gob from under loaded car; mule started and hand badly crushed. October 19th.

4.—Wm. Hill, machine man. Fibula fractured by fall of piece roof. October 28th.

St. Bernard Mining Co.'s No. 9 mine.—Joe Egloff, rope rider. Head struck timber, dragged him off alongside train. Badly bruised. April 1st.

2.—John Amffer, machine man. Pick caught and machine ran back. Jammed hand against rib. April 15th.

3.—John Williams colored; hostler. Lump of coal fell from face and broke both bones of left leg. August 13th.

4.—Claude Long, driver. Car jumped track; foot caught between bumpers; badly bruised.

Victoria Coal Co.—Mose Jackson; hit by coal falling from top of shaft and arm hurt. In January.

2.—Robert Jenkins, driver. Squeezed between car and rib. Disabled ten or fifteen days. In January.

3.—Roy McCormack, coupler; 16 years. Leg mashed between cars. Off two weeks. In March.

4 and 5.—Geo. Martin, colored, and Fat Oats, colored; hands mashed by cars. In April.

6.—Henry Bowen, colored. Back injured by fall of slate. Off two or three weeks. In December.

Knox County.

Artemus Jellico Coal Co.—Sam Jones, miner; 40 years. Jumped from wrecking cars on incline and dislocated shoulder. November 19th. Report says, "notice forbidding riding on the incline was posted, and Sam Jones' attention was called to the notice as he was getting in the cars."

East Jellico Coal Co.—Sam Stamper; 30 years old. Had left arm broken by fall of slate, May 25th. Off about eight weeks.

North Jellico Coal Co.'s Wilton mine.—G. M. Taylor, gin-hand; 35 years. Foot bruised by fall of slate, March 2d. Off duty two weeks.

2.—J. G. Alsop, loader; 35 years. Cut over eye and hips injured by fall of draw slate. April 10th. Not serious.

3.—N. B. Mays, gin-hand; 26 years. Trip of cars broke loose from motor and he was squeezed between car and barrel on Main entry, hurting his hips. April 17th. Not serious.

4.—Wm. Bengly, loader; 24 years. Was pushing loaded car from room; struck trip on entry, starting same. While trying to stop the trip he lost his light. Meantime the car he pushed started again, ran upon him, and he was caught between said car and trip and femur fractured. June 30th.

5.—Sol. Cummins, loader; 45 years. Two ribs and two vertebrae broken by fall of slate. Recovered. August 17th.

6.—J. D. Britton, loader; 32 years. Back "broken" and lower extremities paralyzed by fall of slate. November 12th.

7.—Tom Storms, machine runner. Four ribs broken by fall of slate. December 4th. See account of death of J. T. Boston.

North Jellico Coal Co.'s Bertha mine.—Manfred Shaffner was riding a trip. A car was derailed and he jumped, fell with one of his fingers on the rail and it was cut off. February 11th.

Laurel County.

Pittsburg Coal Co.—Wm. Patterson was hurt in the premature blast which killed Stewart Baxter (which see), November 5th. Fully recovered.

Pitman Coal Co.—Mart Birley, a cager, was caught between cage and side of shaft and his leg broken. February 20th.

Star Coal Co.—Wm. Pointer was hurt about head and face and body by shot he was making in entry. Lighted squib too far back and failed to get away in time. Recovered fully. September 3d.

Lee County.

McGuire Coal Co.—John Birch, engineer. Leg broken and legs scalded by explosion of boiler (outside). March 13th.

Morgan County.

Bigstaff Cannel Coal Co.—Wm. Austin had hip sprained by fall of slate, July 14th.

McLean County.

Green River Coal Co.—Wm. Penrod, cager; 28 years. Leg broken by being caught between a car he was guiding down a slight grade and a standing car. August 8th.

Muhlenberg County.

Crescent Coal Co.—An unnamed miner's thigh was broken by fall of slate. July 3d.

2.—R. A. Turner, motorman; 26 years. Foot badly cut by derailment of motor, due to latter striking lump of coal. September 30th.

W. G. Duncan Coal Co.'s Luzerne mine.—Report made in January is: "One man had his leg and one rib broken, but

have not the details in the office." Request for details later failed to elicit a reply.

Black Diamond Coal Co.—Tim Gregory, driver; 23 years. Bone in foot broken while trying to pull an empty on to the track. December 7th.

Central Coal & Iron Co.'s Central mine.—At shooting time (4 p. m.) powder smoke ignited in room 24 on 16th North entry and burned hands and ears of ——— Bratcher at room-neck 23. August 4th.

2.—James Tyke, a miner, had his leg broken by fall of slate. Was examining roof with his pick at point four feet from face of his room. Fall caused by a slip in form of a V. In August.

Ohio County.

Deanefield Coal Co.—Wm. Skeater was injured by premature blast at time Wm. Dunn was killed (see account). Fully recovered. March 11th.

Green River Mining, Manufacturing & Transportation Co.—J. K. Shacklett, miner; 44 years. Foot crushed (not seriously) by fall of coal while undercutting. May 3d.

Fordsville Block Coal Co.—Manuel Brooks, split knee cap with hatchet. Laid off three weeks. (Outside?) In October.

McHenry Coal Co.'s McHenry mine.—Marion Faught stuck pick in his left eye, destroying sight. November 16th.

Taylor Coal Co.—Guy Austin, miner; 16 years. Leg broken by cars running together in mine. Off two months. February 13th.

Williams Coal Co.—E. W. Rowe, loader; 28 years. Returned on hanging shot. An eye and a leg temporarily injured. October 19th.

Pulaski County.

Nixon Coal Co.'s Cogar mine.—Wesley Boyd, miner; 37 years. Left foot mashed by fall from a "horse-back" in neck of his room just after shot was fired. Went back too soon after firing shot and because of smoke did not notice that the slate was loose. July 22d.

Indian Head Coal Co.—Wm. Bowling, miner; 45 years. Severely bruised about hips and legs by fall of coal. Worked too far under top coal. May 29th.

Union County.

Ben C. Davidson & Sons.—Charles Childress, a miner. Leg broken by fall of piece of top coal he was wedging down. November 19th.

Ohio Valley Coal & Mining Co.—Andrew Gipner (50 years), and Nick Dempsey (30 years); both miners, slightly burned by gas in new work on 6th Level. May 4th.

U. S. Gas Coal & Coke Co.—G. Mattingly, miner; 19 years. Burned by premature blast due to spark caused by iron tamping bar. In November.

Webster County.

Sebree Coal Co.—Lincoln Snoden had a finger severed by being caught between prop and bank car, when latter jumped track. July 31st.

Whitley County.

Louisville Property Co.—J. P. Fortune, mine boss; 36 years. Caught by wire rope [on incline?] and knee severely hurt. Off about thirty days. April 29th.

2.—Wm. Durham, trapper; 15 years. Run over by loaded mine car, bruising hip and breaking an arm. September 10th.

Procter Coal Co.—Mack Chambers, miner; 45 years. Back seriously injured ("broken") by fall of slate. April 22d.

2.—Zale Rains, driver; 13 years. Leg broken. Trip of cars off track. When he got cars on, and called to mule to start he failed to get off track in time, and was struck by front car. May 22d.

Stearns Coal Co.—John Monroe, pusher; 35 years. Wrist broken. August 19th.

2.—Will Benjy, night foreman; 22 years. Left leg broken by being caught between empty bank car and motor which he was running. November 3d.

Watts Creek Jellico Coal Co.—John Morgan, miner; 35 years. Accidentally hit in head by pick in the hands of his butt. Lost a week. In November.

West Jellico Coal Co.—Cal Newport was injured by fall of slate in his room, July 9th.

Webster County.

The following account of suffocation of two persons by carbon dioxide in an abandoned shaft, on September 5th, is here recorded for general information, although the deaths did not occur in connection with any mining operations. The statement was kindly furnished by Mr. Percy D. Berry, treasurer of the Providence Coal Co.:

"In the northwest part of town is a local mine formerly operated by Mr. Frank Marlin, but which was abandoned last April. About 150 yards from the main shaft is an air-shaft about 22 feet deep. The main shaft was in water above the top of the coal. This mine contained a very heavy percentage of gas, evidently carbon dioxide. James Hunter, about 11 years of age, went down this air-shaft, which had a ladder, for the purpose of getting cool, and was overcome with the gas and died at the bottom. Bud Holtsclaw went down to rescue him and was himself overcome, dying in the same manner. A miner's lamp would extinguish at a depth from the top of shaft of between 4 and 5 feet. There was a pile of gob at the bottom and the bodies rolled off into the water under the ledge of the coal. They were finally recovered by means of grab-hooks and pulled out with ropes, after having been in the shaft about three hours, from 1:00 until 4:00 o'clock p. m."

VIII

ACCIDENTS IN 1904.

For the calendar year 1904 a total of 98 noteworthy accidents were reported, of which 20 were fatal, 14 of the fatalities having occurred underground. Of the non-fatal casualties 63 were serious, and 54 of them occurred underground.

A summary of the fatal accidents has been given in Chapter III. Following is a descriptive list of them:

DESCRIPTIVE LIST OF FATALITIES, 1904.

Bell County.—Excelsior Coal Mining Co.: Allie Langton, driver; about 16 years. Was instantly killed by fall of slate, February 9th.

Boyd County.—Princess Land & Mining Co.: Arkill Dobson, miner; 28 years. Killed by fall of slate. Left wife. July 20th.

Carter County.—Ashland Iron & Mining Co.: Joseph Cordell, miner; 39 years. Killed by fall of top coal and slate. Left wife and nine children. May 6th.

Hancock County.—Auburn Ash Coal Co.: Jno. Blackford, miner; 26 years. Killed by fall of coal. Left wife and one child. February 12th.

Hopkins County.—St. Bernard Mining Co.'s No. 11 mine: M. B. Cansler, shooter, in charge of drillers. After firing five holes in room, returned to fire the sixth and was instantly killed by fall of roof that was loosened by previous shots. Married.

Hopkins County.—Carbondale Coal & Coke Co.: Chas. Sisk died from blood poison due to getting small scratch on leg. Got scratch November 8th; died November 24th. Had been badly diseased. Was driver; 23 years. Is understood that the scratch was received outside. It may be that this is not properly to be classed as a "mine accident."

Knox County.—North Jellico Coal Co.'s Bertha mine: H. H. Messer, machine runner. Killed by fall of slate, February 1st. "Had been warned that the top was not safe where he was working, but disregarded the warning." Wife and seven children.

Laurel County.—Pitman Coal Co.: Fred Niclaus; 30 years; Killed by fall of slate, December 8th. Wife and four children.

Muhlenberg County.—Central Coal & Iron Co.'s Central mine: Jasper Tett, colored; 16 years. Duty was coupling and flagging on the 15th South Cross entry. Was taking a driver's place and went to the face for loaded car on his own responsibility. Returning, fell off and was run over by the car. He died from injuries June 9th.

2.—Same company and mine: E. A. Foster, Superintendent. While endeavoring (September 27th) to lower a pole which he had been using to hoist stack on a new boiler, he fell from roof of the boiler-house, carrying with him a long, heavy stick of timber which came down endwise and struck him on the forehead. Died from injury September 28th. Mr. Foster had been engaged in mining in Kentucky, either as foreman or as superintendent, for many years, his earlier work being in Pulaski county. He was an industrious man.

Muhlenberg County.—Morgan Coal Co. (Gish mine): L. Jarvis, a miner, went into another miner's room. Shot went off on him. Was suffocated by the powder smoke. November 21st.

Ohio County.—McHenry Coal Co.'s Echols mine: D. Carson, colored, machine runner; 35 years. Fell from machine which was being moved from one room to another, and was mashed in chest, January 18th. Died February 10th.

Webster County.—Sebree Coal & Mining Co.: Will Woodford, miner; 45 years. Returned on hanging shot. Wife and two children. January 11th.

Whitley County.—Mt. Morgan Coal Co.: Howard Davidson, trapper; 17 years. Was riding the dinkey (outside), was knocked off cars and run over. Killed instantly. August 26th.

Whitley County.—Stearns Coal Co.: John Merritt, Sam Merritt, Oscar Evans, Wm. Evans, and Henry Campbell were killed in an explosion, apparently due to a windy shot. Two of the men were killed inside the mine, and three of them out-

side. The explosion occurred April 20th. An investigation was made by the Assistant Inspector on the following day. The mine is dry and dusty in the section where the shot was fired. Firing was done with fuse. There were only two men (the Merritts) in the mine at the time of the explosion. The others were sitting on a log about 8 or 10 feet from the drift mouth, close to the side of the track. Following is the report of the Assistant Inspector, together with statements made to the Assistant by miners, and a map showing the location of the room when the fatal shot was fired:

Stearns, Whitley Co., Ky.,
April 23, 1904.

Prof. C. J. Norwood,
Chief Inspector of Mines,
Lexington, Ky.

Dear Sir:—On Wednesday evening, the 20th instant, at about 5:10 o'clock, there was an explosion in the No. 5 mine of the Stearns Coal Co., at Stearns, in Whitley county. As a result of this explosion five (5) persons lost their lives. Following is a list of those killed and their ages. They were all colored and unmarried:

Sam Merritt, 40 years of age.

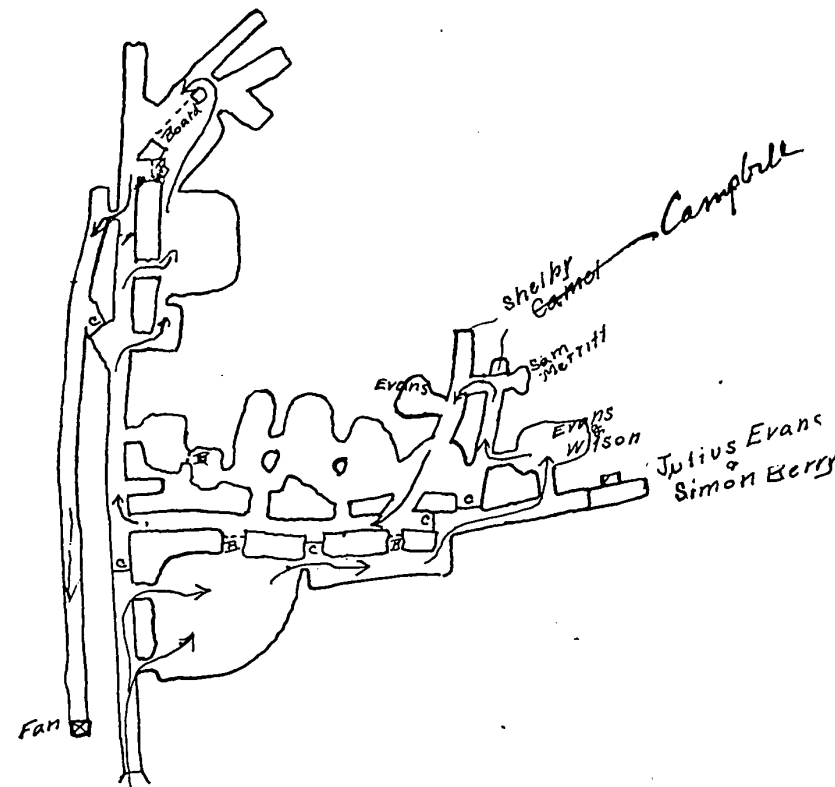
John Merritt, 35 years of age.

Oscar Evans, 18 years of age.

Will Evans, 16 years of age.

Henry Campbell, 17 years of age.

I arrived here on Thursday evening, and made an investigation on the following day (Friday). I found that Sam Merritt and Henry Campbell were killed instantly; that Oscar Evans and Will Evans lived until nearly midnight Wednesday, and John Merritt lived until noon Friday, the 22d. In the room that was worked by Sam Merritt and his brother, John Merritt (and where the explosion occurred), I found that the coal was being shot on the solid, and that they had fired four (4) shots. One hole 5 feet and 3 inches deep was near the right hand rib and broke the coal loose. Then toward the middle of the room face was a small hole about 2 feet, drilled toward this deep hole, evidently for the purpose of helping to break the coal at the point of the deep hole. About 18



Parrish
Creek

Sketch Showing Location of Accident at Stearn's Mine, in April, 1904.

inches under this small hole there was another small or short hole about 2 feet. Then toward the left hand rib there was a deep hole (nearly 6 feet) that was a blown-out shot, as it did not break the coal anywhere near it. There is no doubt in my mind but that this shot caused the explosion by igniting the coal dust. In a conversation with John Merritt before his death, he said that his brother, Sam Merritt, fired two of the shots and he (John Merritt) fired two, and that Sam lighted his shots first and started out in front of John. Sam Merritt was instantly killed and was found near the mouth of the 1st Right entry, and John Merritt made his way out of the mine, though being very badly burned and bruised. It is very evident that the explosion gathered force as it made its way to the outside, and this accounts for John Merritt not being killed instantly, as Sam Merritt was almost to the Main entry. Still further evidence that this is true is this: Oscar Evans, his brother, Will Evans, and Henry Campbell had come out of the mine some time before, and were seated on a log about 8 or 10 feet from the drift mouth. Will Evans and Henry Campbell were blown into the creek, a distance of about 150 feet, and Henry Campbell was instantly killed, or, being very badly injured, drowned before assistance reached him. Oscar Evans was blown a distance of 100 feet against a ledge of rock. The trees across the creek, 400 feet from the mouth of mine, were blackened and charred. The room in which the Merritts worked is turned off the 2d Left, and this 2d Left is the air-course following the 1st Left. This room (the Merritt room) was only driven in 28 feet deep, and was 20 feet and 8 inches wide. After I had made an investigation of the accident I had the curtains put back as near like they were before the explosion as possible, and examined the ventilation. I measured 9,022 cubic feet of air going into air-course following 1st Right; and going from 1st Right to 1st Left, I measured 4,482 cubic feet; and passing by the Merritt room, I measured 2,655 cubic feet. There were only 11 persons employed in the mine at the time of explosion, and only this number in the mine for some time prior to this time. I enclose you statement of Julius Evans (father of Oscar Evans and Will Evans), and Simon Berry (colored), who were working the 1st Right heading; of A. B. Wilson (colored), who worked in the room next to Mer-

ritt's room, and of Shelby Campbell (father of Henry Campbell), who was driving the 2d Left heading. Their statements were taken by me for the purpose of learning of the condition of the mine with regard to ventilation. The mine is ventilated by a four-foot fan, of a capacity of 30,000 cubic feet of air per minute, and manufactured by Rumsey & Sikemier, St. Louis, Mo.

Very respectfully,

A. G. SPILLMAN,
Assistant Inspector of Mines.

April 22, 1904.

Simon Berry's statement:

Simon Berry states that he is 39 years of age; that he is employed by the Stearns Coal Co. in their No. 5 mine, and works in the head of the 1st Right heading with Julius Evans, the father of Oscar Evans and Willie Evans; that he went out of the mine on the evening of the 20th, the date of the explosion, about 4:30 and had gotten home. He further states that he has been employed in the aforesaid entry since the 4th of March. He states that the ventilation has always been very good, except sometimes the face of the entry gets ahead of the air, that is more than 60 feet. He further states that on the day of the explosion that the ventilation was very good in the forenoon, but after shots fired at noon, the air was heavy for about an hour, then it cleared up.

his
SIMON x BERRY.
mark

Attest: L. E. BRYANT.

Statement of A. B. Wilson:

A. B. Wilson states that he is 35 years of age; that he is employed in the No. 5 mine of the Stearns Coal Co. in a room adjoining the room where the explosion occurred; that he fired one six-foot hole a few minutes before 5 p. m., and had gone out of the mine and had gotten nearly to tippie when explosion occurred. He further states that the ventilation was always very good in the forenoon, but in the afternoon the air is rather heavy for about an hour and then it clears up, but

April 22, 1904.

that he doesn't remember whether fan was running when he came out.

A. B. WILSON.

April 22, 1904.

Statement of Shelby Campbell:

Shelby Campbell states that he is the father of Henry Campbell, who was killed at the mouth of the No. 5 mine of the Stearns Coal Co., on Wednesday evening about 5 o'clock. That Henry Campbell was 17 years of age and unmarried. He further states that he worked in the 1st Left off First Right in the heading. He further states that Henry Campbell fired two (2) shots in the 1st Left off 1st Right heading, about 4:30, and he had gone to the store when the explosion occurred. He states that John Merritt came to him before shot-firing time and asked him to lend him four quarts of powder; that he (John Merritt) had three holes to load and did not have quite enough powder to load them. He states that he told his boy, Henry Campbell, if he had the powder to spare to let John Merritt have it. He further states that ventilation was very good indeed where he worked. He states positively that the fan was running when he came out of the mine.

his
SHELBY x CAMPBELL.
mark

Attest: L. E. BRYANT.

April 22, 1904.

Julius Evans' statement:

He says that he is the father of Oscar Evans and Willie Evans, who were killed at the mouth of No. 5 mine of the Stearns Coal Co. on April 20th. That Oscar Evans was 18 years of age and unmarried; that Willie Evans was 16 years of age and unmarried. He further states that he worked in the heading of the 1st Right entry with Simon Berry; that he had been in the mine on the 20th instant and that he fired two (2) shots in the 1st Right heading between 4 and 5 p. m., and had gotten to the tip-house on his way home when the explosion occurred. He further states that the ventilation was very good when the fan was running, but sometimes the men would neglect to start the fan. The fan is operated by

electricity, and it was left for the miners to start the fan. He says he does not remember if the fan was running when he came out.

JULIUS EVANS.

Whitley County.—Stearns Coal Co.: Jas. Carter was killed by an explosion caused by two blown-out shots on December 2d. He was probably overcome by the smoke. The explosion was investigated by the Assistant Inspector. Following is his report, together with statements obtained from miners:

Prof. C. J. Norwood.

Chief Inspector of Mines,
Lexington, Ky.

Dear Sir:—On Friday, December 2d, Jas. Carter, white, aged 20 years, was killed; Henry Tayler, white, aged 30 years, had his leg broken above the knee, and his right hand broken, and Roscoe Barker, colored, aged 18 years, was wounded on the head causing concussion of the brain.

The accident was the result of an explosion caused by two blown-out shots in the head of the 1st Right entry of the North Main mine of the Stearns Co., at Stearns, Whitley county, Ky. According to your instructions, on December 7th I made an investigation. I found the face of the 1st Right entry 125 feet from the last break-through. There were two holes fired in the head of the entry, the center hole having 21½ feet of powder and the side hole having 22 inches of powder. Both of these shots blew out and failed to pull the coal. At the time that these shots were fired at the head of the entry there were three heavy shots fired in the room neck just 23 feet from the face of the entry. The entry was 9 feet wide and on account of the entry being 125 feet ahead of the air the smoke was so great from these five shots that I am satisfied that the trouble was caused by not having the air within 60 feet or less of the face of entry as required by law. Sam Gilpen had taken the contract and Jas. Carter, the man that was killed, was working for him. Henry Taylor and Roscoe Barker were working for the company. I was informed by Gilpen, the contractor, that there was one keg and a half of powder in the five holes. Barker was unconscious the day I made the examination and I could not get any satisfaction from him. Taylor does not

remember where he was hurt or what hurt him, and I was informed by Mr. Jackson, the Superintendent, that when they got to him there was a heavy prop across his leg.

Very respectfully,

A. G. SPILLMAN,
Assistant Inspector of Mines.

December 7, 1904.

Statement of Sam Gilpen:

I have since the first of September, 1904, had the contract for putting the coal on the cars in the 1st Right entry where the explosion occurred. On December 2d, the date of the explosion, I drilled three holes in the room neck about 23 feet from the face of the entry. One of these holes was six feet deep and one five feet deep. Jim Carter drilled two holes in the heading. One of these holes was 7 feet and the other 6 feet deep. One hole was a center hole, and the other was drilled next to the right hand rib. The center hole had 21½ feet of powder and the side hole had 22 inches of powder. James Carter, the man who was killed, was instructed to fire the two holes in the heading and Joe Wallace was instructed to fire the three holes in the room neck. I do not know where Carter was when the accident occurred, as I was at home.

(Signed) SAM GILPEN.

December 7, 1904.

Statement of Wm. R. Trusty:

I was working in the second room from the face of the 1st Right entry. I was outside when the shots were fired, but went back as far as the working room of the 1st Right entry, but was overcome by the smoke and could not get any farther. Had to be carried out by other parties. I believe it would have been impossible for me to have gone any farther and lived.

(Signed) WM. R. TRUSTY

December 7, 1904.

Statement of Edward Scully:

I was working in the second room from the face of the 1st right entry. Had started out and had gotten to the first room on the 1st Right from the mouth of entry when the explosion

occurred. Jim Carter was right behind me when the shots went off. In the excitement Carter, Dutton and myself went back toward the head of the 1st Right entry, thinking we were going outside. After I had gone some distance I realized that I had gone far enough to get out if I had been going in the right direction. I then found the trolley wire and taking hold of it I followed it to the outside. When I realized I was going wrong I was lost from Carter and did not know where he was.

(Signed) EDWARD SCULLY.

NON-FATAL ACCIDENTS FOR 1904.

Omitting the slighter injuries, there were 78 noteworthy non-fatal accidents reported for the calendar year 1904, of which 67 occurred underground. Following is a summary of the accidents.

CAUSES.	Serious		Not Serious		Total
	In	Out	In	Out	
Fall of top	17	.....	6	.....	23
Fall of coal	4	.....	1	.....	5
Cars	11	.....	1	.....	12
Motor	2	1	.....	.....	3
Riding trip	3	.....	.....	.....	3
Caging	1	.....	.....	.....	1
Mining machine	1	.....	.....	.....	1
Returned on shot	1	.....	.....	.....	1
Caught by shot . . . . .	.....	.....	1	.....	1
Blown-out shots, ignited smoke, etc. .	2	.....	.....	.....	2
Burnt by gas	4	.....	.....	.....	4
Powder explosion	2	.....	.....	.....	2
Miscellaneous	6	8	4	2	20
Totals	54	9	13	2	78

DESCRIPTIVE LISTS FOR 1904.

In the following descriptive lists, statements are based on reports made by the companies unless otherwise indicated.

Bell County.

Black Raven Coal Co.—Newton Bledsoe, machine hostler; 48 years. Struck by slate while hostling. Spine fractured, lower limbs paralyzed. July 28th.

2.—Fred Brock, machine runner. Foot crushed by runaway car on down grade. April 1st.

Excelsior Coal Mining Co.—Andy Barton, trapper; about 15½ years. Scalp wound by fall of slate at time Allie Langton was killed (see account), February 9th. Off about one month.

2.—Thomas Tuttle, rope catcher at top of incline; 26 years. Nose broken by falling of brake lever on drum. May 14th.

Sagamore Coal Co.—Joe Miller, miner; 37 years. Leg broken by slate fall. December 28th.

Breathitt County.

Kentucky Union Co.—Sam Thomas had three ribs broken by being crushed between bank car and rib. November 18th.

Carter County.

Ashland Iron & Mining Co.'s No. 10 mine.—Jerry Bell, colored, laborer; 70 years. Was standing in a break-through. As air locomotive passed, fell against an empty car, was dragged under and leg broken and jaw injured. April 19th.

Strait Creek Coal Co.—Fred Hall; 16 years. Was riding to tippie (going home from mine) on train of loaded cars. When engine and train reach siding at which bank cars are switched for dumping into railroad cars, Hall jumped from front car, reaching ground about center of track, immediately in front of cars, before the train had quite ceased to move. Slipped and fell with one leg extended across track and leg was broken by car passing over it. February 20th.

Ashland Iron & Mining Co.'s Bailey No. 1 mine.—Chas. Petry, driver; 22 years. Bone broken in foot. Caught between car bumpers. Off three weeks. January 26th.

Christian County.

Empire Coal & Mining Co.—Jake Dillon, loader. While loading a shot of coal a piece of slate, about 100 pounds, fell on his shoulders. In easing the slate down he careened in same way and broke right leg above the knee. The slate did not hit the leg nor did it injure his shoulders. May 12th.

Hancock County.

Fenley Coal Co. (Auburn Ash mine).—Frank Dowell, colored; 32 years. Injured in body by fall of top. Not serious. Off one week. November 16th.

Henderson County.

Pittsburg Coal Co. (Baskett mine).—A miner (name not given) was bruised by being caught by shot. No details given. October 15th.

J. L. Nicholson & Co. (Henderson mine).—John Caldwell miner; 50 years. After firing one shot, returned to fire another, when piece of slate fell, breaking his leg. "The mine boss just one hour prior to accident had ordered him to set up more props, which he neglected to do." In May.

Hopkins County.

Carbondale Coal & Coke Co.—W. H. Henderson was caught by fall of coal while cutting rib after doing his mining. "Pretty well bruised, but no bones broken." About July 18th.

2.—Tom Keser, fell from wagon (outside) and collar bone broken. In May.

3.—E. E. Parker was running grade to tippie. Car derailed; caught foot and crushed it, but not seriously. In June.

4.—Allen Davis, driver; 17 or 18 years. Fingers mashed by car jumping track in mine, necessitating amputation of part of middle finger. November 28th.

Nortonville Coal Co.—Leslie Wright, driver; 18 years. Accidentally fell in front of machine truck. Wrist broken. January 4th.

2.—Louis Brooks, foreman mine No. 2; 28 years. Was

standing on track (outside). Loaded rock car slipped pin, ran back down grade, struck coal car and latter struck Brooks, breaking thigh bone. April 26th.

Oak Hill Coal Co.—Sherly Mabrey; an adult. Fell off while riding car approaching incline. Caught by hand on rail. Car passed over hand, breaking three bones and mashing hand open across palm. October 3d.

2.—James Dillingham; an adult. Ankle and wrist broken and spine dislocated by fall of slate. In September.

3.—George Dillingham; an adult. Ankle sprained by slate fall. Lost two weeks. In September.

4.—Thomas Jones; an adult. Placed a skid under machine while latter was in motion. Machine teeth engaged skid and threw it back, breaking right leg of Jones. May 26th.

Reinecke Coal Mining Co.—James Bowles, driver; 21 years. Caught between car and rib, and collar bone broken. January 28th.

2.—William Johnson, colored, laborer; 32 years. Foot caught in switch point; empty car ran over it, breaking several bones. February 27th.

3.—Reuben Coleman, driver; 21 years. Left arm broken by being caught between loaded car and prop. June 7th.

4.—Eugene Garrett, loader; 45 years. Left leg broken by fall of slate. June 21st.

5.—William Penick, assistant cager; 18 years. First finger of left hand broken by being caught between loaded car and cage. December 15th.

St. Bernard Mining Co.'s Arnold mine.—Geo. Russell, colored, machine hostler. Coal fell from face, while machine was cutting in a room, and broke great toe of right foot. February 23d.

St. Bernard Mining Co.'s No. 9 mine.—Chas. Suggs, machine hostler. Caught under coal. Left leg broken. October 11th.

Victoria Coal Co.—Buster Merritt, colored; 30 years. Right leg broken by fall of slate on an entry while working to extinguish a fire in the mine. In March.

2.—Richard Raulston, colored. Burnt about head by gas ignited in an old room. May 3d.

Johnson County.

Whitehouse Cannel Coal Co.—Dennis Welch, weighman's assistant. Left tibia broken and knee bruised by being caught by a derailing car. February 16th.

2.—Ed. Bowling, engineer and fireman. A buggy got away on incline. When it came on end of tippie, a piece of broken wheel, flying in the air, hit Bowling's left leg, breaking small bone above the ankle. December 26th.

Knox County.

East Jellico Coal Co.—James Slusher; 34 years. Caught between loaded car and entry rib and rolled. Severely bruised. Off about two months. July 31st.

North Jellico Coal Co.'s Bertha mine.—Ambrose Engle, machine helper. Back painfully, but not seriously, injured by fall of slate while he was shoveling slack. February 17th.

2.—J. B. Warfield, loader. Caught between car he had loaded and a passing trip; right foot broken and ankle lacerated. Accident was caused by another loader pushing a car from inside the room neck, which struck Warfield's car standing on the parting and swung the end of it around, catching him as above stated. August 4th.

3.—Geo. Booze, loader. Badly injured about head and shoulders by falling piece of draw slate. With others, was loading some coal on a day when mine was idle. Had made a shot which left the piece of slate hanging. September 1st.

4.—Reese Dixon, loader. Injured around hips and back by fall of slate. Injuries pronounced serious, but not dangerous. October 28th.

5.—W. E. Anderson, loader. Hips injured and ribs broken by fall of slate. November 17th.

6.—John Edwards, loader. Hip dislocated and back bruised by fall of slate. November 30th.

North Jellico Coal Co.'s Wilton mine.—Robert Martin, gin-hand; 28 years. Contused wounds in chest and left side by slate fall. Complete recovery. February 12th.

2.—Andrew McCoy, machine runner; 29 years. Collar bone broken by slate fall. Complete recovery. February 12th.

3.—Joseph Sulfridge, machine runner. Foot severely bruised by machine falling on it, due to overturning of box he was using as support for his jack. Disabled about twenty days. November 10th.

4.—Moe Lowe, loader. Foot severely bruised and partial fracture of ankle by fall of slate while he was sitting on a tool box in entry. November 10th.

5.—Evan Lowe, while helping to put up a cross-piece in entry, had foot bruised and ligaments of ankle severely strained by falling of an upright. December 10th.

Laurel County.

Altamont Coal Co.—Jack Hodge had leg broken by fall of top coal. In December.

Pittsburg Coal Co.—C. J. Johnson, miner; 24 years. Badly bruised by fall of slate. Confined to bed ten days. Fully recovered. November 5th.

Morgan County.

Biggstaff Cannel Coal Co.—Alexander Higgins, miner. Right leg broken by fall of top. March 10th.

2 and 3.—Marion and Holt Davis, miners; 21 and 19 years. Badly burnt by powder explosion. Fully recovered. August 16th.

Muhlenberg County.

Dovey Coal Co.—Frank Deveroux and Frank Griffy were burnt by ignition of powder smoke. July 12th. Following is report of Assistant Inspector concerning the accident:

Lexington, Ky., July 19, 1904.

Prof. C. J. Norwood,

Chief Inspector of Mines.

Dear Sir:—On the 12th instant Frank Deveroux and Frank Griffy were burned in the Dovey mine by the ignition of powder smoke. According to your instructions, I investigated this accident on the 15th instant. Will Griggs, who works in room No. 4 on the 4th North entry, fired two shots. One hole was 4 feet deep and contained 2 feet of powder. The other hole was 6

feet deep and contained 3 feet of powder. The tamping blew out of the 6-foot hole and ignited the powder smoke. Deveroux and Griggy were working in room 2 on the 4th North entry and had fired two shots previous to Grigg's shots, and had started out, going with the air. They had reached the curtain on the switch between the 3d North and 4th North entries, when the explosion occurred. Griggs, after lighting his shots, walked out to the entry and up into the neck of room No. 5 and thus escaped. The face of room No. 4 was 68 feet from the entry on the day I examined the mine. On Wednesday, the day after the explosion, Griggs worked seven hours in this room, and on Thursday he worked four and a quarter hours. So it is evident that the face of the room was more than 60 feet ahead of the air at the time of the explosion, as I was informed by Mr. Jones, the mine foreman, that at the time of the accident there was no break-through between Griggs' room and the room where the men were working that were burned, but there was a small hole about 15 inches in size between the rooms. The break-through was started at 50 feet from the entry, and was completed the day I made the examination.

Very respectfully,

A. G. SPILLMAN,

Assistant Inspector of Mines.

Black Diamond Coal & Mining Co.—Andrew Spencer, miner; Enos Rigsby, track-layer, and J. T. Bridges, foreman, were burnt by gas. "Had fire on East Side. Cause, party failed to go back to shot. Was closed off for a few weeks, and the above parties went in to open up, and, instead of coming away when work was done, Spencer went up into it with naked lamp instead of using safety provided. All with families and idle for two months." October 10th.

Crescent Coal Co.—John Roark, brattice and general utility man; 36 years. Thigh bone broken at hip joint, legs bruised, face considerably crushed, and nose broken by fall of slate. Roark was pulling props and had been warned only a few minutes previous by a fellow-workman not to attempt to take the one he was after, as the slate was loose. July 8th.

Morgan Coal Co. (Gish mine).—E. B. Doss, driver. Small bone broken at wrist by arm being caught between car and roof. November 17th.

Ohio County.

Fordsville Block Coal Co.—Nathaniel Brooks, mine foreman; 50 years. Collar bone broken and otherwise injured by fall of coal. Was helping son cut down a standing shot. February 26th.

McHenry Coal Co.'s McHenry mine.—J. V. James, machine helper. When leaving mine after his work was done, jumped in between two loaded cars for the purpose of riding. While attempting to prevent a lump of coal from falling from the car on which he was riding, James raised himself up, coming in contact with the roof, which resulted in his being forced up on top of the car, crushing him between the coal on the car and the roof.

McHenry Coal Co.'s Render mine.—Other Brown, driver; 19 years. Leg injured by being caught between cars, but not seriously. Off about twelve days. April 6th.

Taylor Coal Co.—A boy (name not given) had leg broken "by careless handling of coal car." In July.

Rockcastle County.

Big Hill Coal Co.—Arthur Adams, weighman; 23 years. Was standing near balustrade of tippie deck. Was swept off by wire tail rope line. Broken shoulder and dislocated ankle. August 20th.

Webster County.

Providence Coal Co.—Alfred Williams, bit carrier; 14 years. Leg fractured just above ankle. Was riding on top of second car in a trip of eight loads. As trip was passing a trap door, the door bounded from the rib into trip, derailing first two cars. February 1st.

2.—Hub Clements, electric chain machine helper; 24 years. Was on machine tightening jacks, and stepped off too close to machine, which was in motion. Chain caught left foot and cut it so badly that amputation was necessary. October 10th.

Whitley County.

Emlyn Jellico Coal Co.—John White, miner; 55 years. Leg broken by loose rock. June 3d.

Hoffman & Berry.—George Lukrank, miner; 40 years. While attempting to board a trip to ride out of mine was caught between car and entry rib and mashed through lower portion of chest. Off about a month. February 22d.

2.—Mat Walters, driver; 23 years. Fell in front of moving loaded car while attempting to get off of it. Left thigh and right collar bone broken. June 13th.

Main Jellico Mt. Coal Co.'s Blue Gem mine.—Sol Hubbard; 32 years. Was driving to the outside, hauling slate. When near the outside his foot, which was hanging over front of car, caught and threw him. He caught spreader stick with his hands and was dragged 32 feet to a curve rail (outside), where his toe caught again, it is supposed, and his leg was broken below the knee.

Main Jellico Mt. Coal Co.'s Kensee mine.—On July 16th the following accidents occurred in the old mines: Vance Ragsdale, 26 years, mashed by slate; Tom Yett, 45 years, bolt of car forced into his leg; Henry Foster, youth, slightly scratched by small piece of slate. Caused by wreck of trip of four empties, due to fact that two men were sitting on end gate of car, which overbalanced the front end. Following is a statement signed by the company, the bank committee and the mine foreman:

"The driver was going in with four cars for the first trip in the morning, and carried several miners in each car. About fifty or sixty feet from the mouth of the Malicoat entry the car was derailed, knocking out a set of double timbers, which let fall a piece of slate 6 feet long and 4 feet wide at the widest part, and 6 3/4 inches thick on an average, which caught Vance Ragsdale, pinning him to the car. Tom Yett's leg was caught by the lagging of the timbers and forced a bolt of the car in his leg. The remaining three cars kept the track. The entry was 7 1/2 feet wide in the coal, and 6 feet 8 inches in the slate. The double timbers were set 7 1/2 feet apart." Signed: "Main Jellico Mountain Coal Co., by J. L. Goins, C. W. Cazzell, Dick Collins (his mark), Mine Committee; H. McGonegal, Mine Foreman. Witness, W. V. Mullan."

Jellico Coal Mining Co.—Howard Jenkins, motorman; 32 years. Set screw became loose on his brake lever, causing him to lose control of motor. He jumped off motor just as it

collided with empty cars. The latter, when struck by motor, were thrown on top of Jenkins, lacerating his legs below the knees. No bones were broken, but failing to restore circulation in right foot, gangrene set in, and right leg had to be amputated above the knee. July 25th.

Mt. Morgan Coal Co.—Mat Adkins, miner; 28 years. Considerably mashed by slate fall, but no bones broken. Recovered. July 6th.

Stearns Coal Co.—I. W. Berry, surveyor; 24 years. Lost thumb. Buzz-saw. March 7th.

2.—Sarino Ciciolla, loader; 21 years. Back, right leg and foot injured by slate fall. March 19th.

3.—Modesto Mazzini, laborer; 17 years. Compound fracture of left thumb. Cause not stated. June 18th.

4.—A. S. Beazley, motorman; 42 years. While passing under bridge, foot that was on motor draw-bar slipped. Went to raise up, when body was caught between motor and bridge. Result, fifth rib and clavicle on left side fractured; lower end of right ear torn; general contusion of chest.

5.—Elijah Taylor, miner; 65 years. Shoulders bruised, back strained, spine injured and probable internal injuries by fall of slate. October 28th.

6 to 11.—In the explosion of December 2d, which resulted in death of James Carter (see account of fatalities), several persons were injured. Ed Scully, laborer, 18 years, was burnt above right ankle and sustained contusion of both knees; not serious. Jno. Baker, miner, 33 years; suffered contusion of right foot and of back; not serious. Roscoe Barker, laborer, 18 years; triangular laceration of scalp 10 inches long, and concussion of the brain. Charles Dutton, miner, 65 years; face burned, lungs injured by smoke and gas; not serious. H. F. Taylor, miner, 28 years; laceration above left eye, back of head, contused hip, contused right leg above ankle, and left thigh and some bones of right hand broken. Ed Wilson, miner, 43 years; eyes injured by dust, left shoulder and right leg contused; not serious.

12.—Ed Scully, trip rider; 18 years. Little finger torn and contused and nail torn off while coupling cars. December 16th.

West Jellico Coal Co.—Calvin Stephens, miner; 25 years. Returned on lighted dynamite shot. Left eye knocked out. In April.

IX

NOTES ON THE MINES.

NORTHEASTERN DISTRICT.

The following counties producing commercial coal lie within this district: Boyd, Breathitt, Carter, Johnson, Lawrence, Lee, Morgan, and Pike:

	1903.	1904.
Output of bituminous coal, in tons	745,478	551,608
Output of cannel coal, in tons	60,965	63,027
Total tons shipped from mines	732,806	564,727
Production of coke, in tons	22,323	17,980
Employees for 1904		1,785
Average number of days worked in 1904		178

Boyd County.

CLINTON NO. 8 MINE.

Head Office, Ashland.

Transportation, C. & O. Railroad.
Operated by John Wurts, Lessee under Ashland Iron & Mining Co.

The condition of this mine has varied from poor to good; in the main it has been fairly good.

P. O., Rush.

GEO. L. HULL MINE.

Transportation, C. & O. Railroad.
Operated by Geo. L. Hull.
When last visited, May 30, 1904, this mine was idle. It was noticed, however, that the furnace stack was in bad con-

dition and that drainage on the Main entry was bad. Proper attention to details of ventilation has not been observed at this mine.

NORTON BRANCH MINE.

P. O., Rush.

Transportation, C. & O. Railroad.
Operated by Norton Branch Coal Co. Dr. J. D. Mutters, President; G. W. McNeal, Secretary and Treasurer.

The coal worked is the Coalton seam (No. 7) averaging about 4 feet in thickness. Ventilation is by furnace.

When last inspected, May 27, 1904, only six persons were employed underground, and they were drawing stumps. Ventilation was fair.

PRINCESS.

Mine P. O., Princess. Head Office, Ashland.

Transportation by the C. & O. Railroad.
Operated by the Princess Land & Mining Co. Henry Heywood, President; Calvin H. Hill, Treasurer; J. H. Drake, Secretary.

Three inspections of this mine were made in 1903, but it was possible to make only one in 1904. When inspected May 30, 1904, the air-current was not traveling the working places as it should, and the furnace was in bad condition.

RUSH NO. 6 AND NO. 11 MINES.

Head Office, Ashland.

Owned by the Ashland Iron & Mining Co. Robert Peebles, President and General Manager; F. B. Moore, Secretary and Treasurer; Samuel Seaton, Superintendent of Mines.

No. 6 mine.—Operations at this mine ceased in 1903, the mine being about exhausted. When last inspected in that year, in August, all conditions were satisfactory.

No. 11 mine.—When visited in May, 1904, only four persons were working underground. The mine was about exhausted.

ASHLAND I. & M. No. 12 MINE.

Head Office, Ashland.

Transportation, C. & O. Railroad.

Operated by John Wurts, Lessee under Ashland Iron & Mining Co.

This mine has been found in a satisfactory condition at all times.

Breathitt County.

FROZEN CREEK CANNEL MINE.

Mine P. O., Boxer.

Transportation by the Lexington & Eastern Railway.

The mine, which was opened in 1903, with Robert Birch as manager, was idle practically all of 1903. Only 312 tons of coal were produced in 1904. The mine was idle upon each occasion a visit was made to it.

JACKSON MINE.

Mine P. O., Jackson.

Head Office, Jackson.

Transportation, Lexington & Eastern Railway.

Operated by the Kentucky Union Co. Arthur Cary, President; A. S. Henry, Vice-president and General Manager; George Copeland, Secretary and Treasurer.

The last inspection of this mine in 1903 was on August 26th. The mine was idle, but it could be seen that the faces of entries 1, 2, and 3 were ahead of the air. It was possible to make only one inspection in 1904, i. e., on May 6th. Then the mine was in good condition in all respects.

Carter County.

BOGHEAD MINE.

Mine P. O., Grayson.

Head Office, Riverton.

Transportation, E. Ky. Railway to C. & O. Railroad.

Operated by Kentucky Cannel Co. Sturgis G. Bates, Treasurer; John Wurts, Superintendent.

When last inspected in 1903, i. e., on December 3d, the mine was in good condition. There was sufficient ventilation, although natural means were depended upon; doubtless this was due to the condition of the weather.

The mine ran only 124 days in 1904. When visited in May it was idle and had been for some time. It was not possible to return to it later in the year.

BAILEY MINES.

Mine Office, Rush.

Head Office, Ashland.

Transportation by the C. & O. Railroad.

Operated by the Ashland Iron & Mining Co. (See Rush No. 6.) Mine foreman, James Mayberry.

Bailey No. 1.—Three inspections were made in 1903, but it was possible to make only one in 1904. The last inspection made in 1903, i. e., on December 7th, showed that ventilation was poor in consequence of defective curtains. When inspected May 27, 1904, ventilation, timbering, and drainage were quite satisfactory. The mine was operated only ninety-six days in 1904.

Bailey No. 2.—When last inspected in 1903, on August 21st, the mine was in good condition. The mine was not in operation in 1904.

LOST CREEK MINE.

Mine Office, Willard.

Head Office, Riverton.

Transportation, E. Ky. Railway to C. & O. Railroad.

Operated by Mine Department of Eastern Kentucky Railway. Nathaniel Thayer, President, Boston; S. G. Bates, Vice-president, Riverton; John Wurts, Superintendent at mine.

The mine was inspected three times in 1903, but it was not possible to visit it more than once in 1904. The last inspection in 1903 was made December 3d, and the ventilation was not entirely satisfactory because the current did not reach all the working faces. When visited June 6, 1904, the mine was idle, but the indications were that with a fan in the furnace the ventilation would have been found satisfactory. The mine ran only 138 ten-hour days in 1904.

MEADOW BRANCH MINE.

Mine P. O., Rush. Head Office, Mt. Sterling.

Transportation, C. & O. Railroad.

Operated by Adkins Coal Co. J. F. Vansant, President; James W. Groves, Secretary and Treasurer; G. H. Strother, Superintendent.

The mine was inspected three times in 1903. The last inspection, on December 4th, showed improvement since the preceding inspection (August 21st), but still the ventilation was not satisfactory—largely due, it was believed, to insufficient furnace power. It was possible to make only one visit in 1904, which was on May 28th. Ventilation and drainage were both bad, the chief cause of defective ventilation being that the return air-way was in places almost closed with gob.

RUSH No. 10 MINE.

Main Office, Rush. Head Office, Ashland.

Transportation, C. & O. Railroad.

Operated by the Ashland Iron & Mining Co. (See Rush No. 6.)

The prevailing condition of this mine has been satisfactory. When inspected on May 26, 1904, it was noticed that the Morris entry and Big B entry were dry and dusty, and it was recommended that they be kept sprinkled.

This mine is equipped with coal-cutting machines, but no coal was mined by machine in 1904, according to the report received from the company.

STRAIT CREEK COAL CO.

Mine Office, Denton. Head Office, Mt. Sterling.

Transportation, C. & O. Railway.

Operated by the Strait Creek Coal Co. M. M. Cassidy, President; W. T. Tibbs, Secretary; Kenton Prichard, Superintendent.

The mine was inspected three times in 1903, but it was not possible to visit it more than once in 1904. The prevailing condition of this mine with respect both to drainage and to ven-

tilation has not been of a high order. At every visit there has been cause for complaint on some score. Whether this is due to inefficiency on the part of those responsible for the mine or to some other cause, one may not undertake to say. When visited in May, 1904, the mine was idle, in consequence of disagreement over the wage scale.

In August, 1903, a 19-ton Porter locomotive was added to the equipment.

Johnson County.

GREASY CREEK MINE.

Mine Office, Eliza. Head Office, 60 Waldo Place, Chicago, Ill.

Transportation, Big Sandy Division of C. & O., Railroad.

Operated by Sandy River Coal Co. F. A. Stacy, President; J. P. Dieter, Secretary and Treasurer; Watson, Superintendent.

Comparatively little was done at this mine during 1904. When visited in May it had been idle since April 1st, and it was again idle later in the year. As shown by inspections in 1903, the tendency was to keep the mine in fairly good condition.

WHITEHOUSE MINES.

Mine Office, Myrtle. Head Office, Louise.

Transportation, Big Sandy Division of C. & O. Railroad.

Operated by Whitehouse Cannel Coal Co. Dr. Harry A. Wood, President; Col. Jay H. Northup, General Superintendent and Treasurer; F. D. Wallace, Secretary.

When visited in May, 1904, the mines had been idle two months, and they were again idle later in the year. The mines worked only 159 days (of ten hours) during the year. As shown by inspections made in 1903, the tendency was to slight the ventilation. Neither was there sufficient regard paid to drainage and timbering.

Lawrence County.

PEACH ORCHARD MINES.

Mine Office, Peach Orchard. Head Office, Canton, O.

Transportation, Big Sandy Division C. & O. Railroad.

Operated by Peach Orchard Coal Co. John C. Welty, President; H. P. Scott, Secretary.

The Annie Mine.—When last inspected in 1903, i. e., on August 18th, the mine was on pillars and stumps, and the condition was as good as could be expected under such circumstances. Only one inspection could be made in 1904, on May 31st. At that date twelve persons were employed inside. No fire was kept in the furnace, hence there was no regular ventilation and no effort was made to provide any.

Elizabeth No. 2 mine.—When last inspected in 1903—on October 19th—drainage was bad and there was not sufficient air entering the mine. On May 31, 1904, sufficient air was entering, but it was not well conducted. Drainage was again bad.

TORCHLIGHT MINES.

Mine Office, Torchlight. Head Office, Louisa.

Transportation, Big Sandy Division C. & O. Railroad.

Operated by Torchlight Coal Co. W. H. Rowe, Jr., President; R. F. Vincent, Vice-president; Col. Jay H. Northup, General Superintendent and Treasurer; J. M. Wallace, Superintendent.

When last inspected in 1903—August 18th—the ventilation was very defective. Doors and stoppings were in poor condition, and air-ways were clogged by debris. When inspected June 1, 1904, all conditions were satisfactory.

Lee County.

CONTRARY CREEK MINE.

Mine Office, Beattyville.

Transportation, Louisville & Atlantic Railway, and by connection with the Lexington & Eastern.

Operated by the Contrary Creek Coal Co.

An air-shaft was sunk and a furnace was built in 1903. When the last inspection of 1903 was made (August 29th), ventilation and timbering were good. Drainage was bad on the Main entry. When inspected on May 3, 1904, all conditions were satisfactory.

MCGUIRE MINE.

Mine Office, Beattyville.

The mine was, upon the whole, maintained in good condition in 1903. In August, 1903, a new mine had been opened about 1,000 feet north of the old Avent, and was in excellent condition. When visited in May, 1904, the mine had been idle since April 1st and it so remained for two or three months. The mine ran only 181 days (of ten hours) during the year.

RICHARDSON MINE.

P. O., Beattyville.

Transportation, Louisville & Atlantic Railroad, and also by connection with the Lexington & Eastern Railroad.

Operated by the Richardson Coal Co. J. C. Richardson, President; G. W. Gourley, Vice-president.

This mine is the old Gourley & Pryse mine, re-opened, re-modeled and provided with improved equipment. Shipments began July 1, 1904. It was impossible to visit the mine at such times as would offer fair opportunity for inspection. The mine ran ninety-six days (of ten hours) during the year.

WHITE ASH (OR NORMAN) MINE.

P. O. Beattyville.

Transportation, Louisville & Atlantic Railroad, and also by connection with the Lexington & Eastern Railroad.

Until the latter part of 1904 the mine was operated by L. C. Norman & Sons, with Major Norman as President and Attila Norman as Manager of the mine. Upon the death of Major Norman, Mr. J. C. Richardson became President, and the company is now known as the Norman Coal Co.

The management of the underground conditions has not been good. Too little attention has been paid to maintaining good drainage, and to having sufficient props set in rooms. The ventilation, also, has not, as a rule, been satisfactory. Only one inspection could be made in 1904—on May 3d. On that date barely enough air to meet legal requirements was entering the mine, and that was not well distributed.

Morgan County.

BIGGSTAFF (CANEX CANNEL) MINE.

Mine Office, Biggstaff. Head Office, Mt. Sterling.

Transportation, Ohio & Kentucky and Lexington & Eastern railways.

Operated by Biggstaff Cannel Coal Co. J. M. Biggstaff, President; M. O. Cockrill, Treasurer; C. M. Keyser, Secretary.

As a whole, this mine has been maintained in a satisfactory condition.

KENTUCKY BLOCK CANNEL MINES.

P. O. Cannel City. Head Office, No. 1 Broadway,
New York, N. Y.

Transportation, Ohio & Kentucky and Lexington & Eastern railways.

Operated by the Kentucky Block Cannel Coal Co. W. De L. Walbridge, President, New York City; M. L. Conley, Superintendent.

The mines now worked are known as No. 4, No. 6, and Brushy.

Two inspections were made in 1903, but only one could be made in 1904. Except that the ventilating current was not in all instances conducted to within 60 feet of the faces, the mines have been maintained in fairly good condition.

The following improvements have been made at the mine since the last report: A 22-inch by 24-inch Compound Norwalk Compressor was installed in December, 1904. The coal-cutting machines consist of twenty Harrison and six Ingersoll-Sergeant punchers. The Brushy mine has been laid with 30-

pound rail. A new haulway and a furnace have been constructed in No. 1 mine. During 1904 forty dwellings for miners were built; and in January, 1905, a brick power-house, 40 feet by 70 feet, was completed.

MOUNTAIN CANNEL MINE.

Mine Office, Cannel City.

Transportation, Ohio & Kentucky and Lexington & Eastern railways.

Was operated by the Mountain Cannel Coal Co.

This mine, employing seven to eight persons underground, ran only twenty days in 1904. When inspected on May 4th it was in poor condition. There was no furnace, only a fire built on the floor, and little ventilation was obtained.

Pike County.

BORDERLAND MINES.

Mine P. O., Borderland, W. Va. Tel. Office, Nolan, W. Va.

Transportation, Norfolk & Western Railroad, the coal from the mines being carried from the mine and across Tug River to the tippie at the railroad by aerial ropeway.

Operated by the Borderland Coal Co. E. L. Stone, President; E. B. Fishburn, Secretary and Treasurer; L. E. Armistead, Manager.

The existence of this mine, which produced 8,715 tons of coal in 1904, was not known until too late to make an inspection of it.

VULCAN MINE.

Mine P. O., Vulcan, W. Va. Tel. Office, Delorme, W. Va.

Transportation, Norfolk & Western Railroad, the coal being carried from mine over Tug River, to the tippie at railroad by aerial tramway.

Operated by the Vulcan Coal Co. W. C. Stephenson, President; A. Stone, Vice-president; A. D. Rice, Secretary, Treasurer and Manager.

The existence of this mine, which produced 38,015 tons of coal in 1904, was not known until too late to make an inspection of it.

SOUTHEASTERN DISTRICT.

The following counties producing commercial coal lie within this district: Bell, Knox, Laurel, Pulaski, Rockcastle, and Whitley:

	1903.	1904.
Output of bituminous coal, in tons	2,135,135	2,425,852
Output of cannel coal, in tons	11,891	5,373
Total tons shipped from the mines	2,004,551	2,348,152
Production of coke, in tons	49,696	5,229
Emploves for 1904		5,783
Average number of days worked in 1904		184

Bell County.

BENNETT'S FORK.

Mine Office, Middlesboro.

Head Office, Middlesboro.

Transportation, C. V. Branch of L. & N. Railroad.

Operated by the Winona Coal & Coke Co., which in 1904 succeeded the Bennett's Fork Coal Co. (composed of W. M. and J. F. Ausmus), which had been in a receiver's hands. Officers; J. L. Manning, President; Geo. L. Washburn, Vice-president; W. E. Cabell, Secretary and Treasurer; Burk H. Keeney, General Manager; F. E. Hess, General Agent.

The trade name of this company's coal is "Winona Coal," for steam, gas, and domestic purposes. Selling agents, Manning Exchange, Middlesboro, Ky.

Prior to the time this mine passed into the hands of the Winona Coal & Coke Co., the average condition of this mine was far from satisfactory. More recently there are marks of improvement, but there is still much to be desired. Sufficient care is not taken to see that each and every working place receives its due share of the ventilating current.

BLACK BEAR MINE.

Mine P. O., Fourmile.

Head Office, Cincinnati, O.

Transportation, L. & N. Railroad.

Operated by Black Bear Coal Co. L. A. Ault (Cincinnati, O.), President; W. H. Field, (Cincinnati, O.), Secretary and Treasurer; A. H. Melcon (London, Ky.), Manager and Superintendent.

This mine which made its first shipment of coal November 21, 1903, was not well provided with arrangements for ventilation. Too little attention was paid to keeping curtains that were in room necks in good condition, hence the ventilating current would "lose out" and not keep sufficiently close to the faces. Some improvement has been made in that respect.

The mine is high on the ridge on the right fork of Fourmile Creek, and the coal is brought to the tipple by an incline.

BLACK RAVEN.

Mine Office, Fourmile.

Head Office, Chicago, Ill.

Transportation, L. & N. Railroad.

Operated by the Black Raven Coal Co. M. Goldsmith, President, 63 Washington street, Chicago; S. Goldsmith, Secretary and Treasurer, Chicago; B. Tartarian, Manager, Fourmile.

As a rule, this mine was found in a satisfactory condition. This was especially true in 1903. In 1904, while generally in good condition, the ventilation would at times be allowed to fall below the proper standard—due to rear break-throughs being left open too long, or to driving an entry too far in advance of the air.

In October, 1903, the company installed a 10-ton Jeffrey locomotive.

EXCELSIOR MINE.

Mine P. O., Excelsior.

Head Office, Excelsior.

Transportation, L. & N. Railroad. Telegraph, freight, and express office, Middlesboro.

Operated by Excelsior Coal Mining Co., Harvey Ingles, General Manager and Treasurer.

At no time was this mine found in satisfactory condition as regards ventilation or drainage.

HIGHLAND RIM MINES.

Office, Fourmile.

Transportation, L. & N. Railroad.

Operated by the Highland Rim Mining Co., which is a consolidation, in effect from November 1, 1904, of the Fourmile and Durell companies.

Durell mine.—Up to November 1, 1904, was operated by the Durell Coal Co., the officers of which were: H. L. Durell, President, Harriman, Tenn.; B. C. Watkins, General Manager, and J. D. Cain, Superintendent, Fourmile. Commenced operations in October, 1903.

When last inspected in 1903 the mine was in excellent condition in all respects. As the excavations were extended in 1904, however, ventilation was not so well maintained care not being taken to see that the volume of air supplied was at all times sufficient and that it traveled all working places within proper distance of the working places.

Fourmile mines.—Up to November 1, 1904, were operated by the Fourmile Coal & Coke Co., the officers of which were: B. P. Huff, President, Roanoke, Va.; C. S. Nelson, Secretary and Treasurer, Norton, Va.; J. J. Body, General Manager, Fourmile. Commenced operations in October, 1903.

The mines consist of two drift banks, one of them being in what is known as the "Little Seam," a solid coal which runs from 36 inches to 41 inches in thickness—having an average of about 36 inches—and the other in what is known as the "Six-Foot," or "Moss Coal," which occurs 105 to 110 feet above the former. The "Six-Foot Seam" is cut up by several clay partings. In its greatest thickness as a bed it runs from 65 to 74 inches, in that thickness carrying from 52 to 55 inches of coal, in six benches. The thickest benches are 22½ to 23 inches, 15 to 16 inches, and 8 inches thick, respectively. The principal mining has been done in the "Six-Foot" bed.

While a sufficient volume of air has been maintained at these mines, it has not always been distributed properly.

LUKE & DRUMMOND MINE. (POPLAR LICK.)

Mine P. O., Logmont.

Transportation, L. & N. Railroad. Mine is on the Stony Fork Branch of the Middlesborough Belt Railroad, now owned by the L. & N.

Operated by the Luke & Drummond Coal Co. George Luke, President; Hugh Drummond, General Manager.

This mine has generally been maintained in a satisfactory condition.

PINEVILLE MINES.

Mine P. O., Wallsend.

Head Office, Wallsend.

Transportation, L. & N. Railroad.

Operated in 1903 by the Pineville Coal Co. Chas. E. Hall, President. Now operated by its successor, the Wallsend Coal & Coke Co.

Included in the plant of this company, added in 1903, are three 4-ton Goodman electric motors and two Jeffrey electric chain-breast cutters—the latter making an undercut of 6 feet.

No. 1 mine.—Much difficulty was experienced in having this mine brought to a satisfactory condition as regards ventilation. A connection between the Main Cross and an entry from daylight (the Dozier) was required and had not been completed at the end of the year. One of the deficiencies in the management of the ventilation was insufficient attention to keeping check-curtains in repair.

No. 2 mine.—While running, this mine was kept in a fairly good condition. The management was subject to criticism, however, on account of not keeping check-curtains systematically in good condition.

No. 3 mine.—An ample volume of air was supplied this mine, but because of poor curtains the ventilation was seldom found to be satisfactory.

SAGAMORE MINE

Head Office, Middlesboro.

Mine P. O., Logmont.

Transportation, L. & N. Railroad.

Operated by the Sagamore Coal Co. A. M. Chamberlain, General Manager.

This mine was opened in 1903, and in the main has been kept in fairly good condition.

STONY FORK MINE.

Mine P. O., ———. Head Office, Middlesboro.

Transportation, L. & N. Railroad.

Operated by Stony Fork Coal Co. John Ralston, President; H. M. Ralston, Vice-president; Chas. E. Ralston, Secretary and Treasurer.

Although the workings on the 1st Right and 1st Left entries were ventilated by separate shafts, the furnace power of neither was sufficient. Notice was given to provide adequate means for securing ventilation.

STRAIGHT CREEK MINES.

Mine Office, Straight Creek. Head Office, Louisville.

Transportation, L. & N. Railroad.

Operated by National Coal & Iron Co. Theodore Harris, President; M. S. Barker, Vice-president and General Manager; S. H. Stone, Secretary and Treasurer.

No. 1 mine.—The condition of this mine varied, but usually was found in good condition. The last inspection, December 12, 1904, showed it to be in quite satisfactory condition.

No. 2 mine.—Drainage and timbering of this mine have been good, but the ventilation has been deficient. When inspected in April, 1904, while there was sufficient air entering the mine, it was not kept close enough to some of the working faces. When last inspected, December 12, 1904, the volume of air entering was not sufficient for the 100 persons underground. It seemed that this was due to the mine having outgrown the capacity of the fan, rendering it necessary either to have a fan of greater capacity or to reduce the mine friction by shortening the travel of the current.

ARTEMUS JELICO MINES.

P. O., Artemus.

Transportation, L. & N. Railroad.

Operated by the Artemus Jellico Coal Co. G. Huettel, President; T. J. Baker, Vice-president; M. V. Wells, Secretary.

This mine has not, as a rule, been kept in good condition as regards ventilation. Too little care was taken to see that the current reached all working faces.

KNOX COUNTY.

BASTIN KNOX GEM MINE.

Main Office, Barbourville.

Transportation, L. & N. Railroad.

Operated by Bastin Coal Co.

Due regard for ventilation was not observed at this mine. Although provided with a furnace, at times the mine would be worked without having a fire in the former. Moreover, what current did enter the mine was not properly distributed.

BERTHA MINES.

P. O., Bertha. Head Office, 415 W. Jefferson St., Louisville, Ky.

Transportation, L. & N. Railroad.

Operated by the North Jellico Co. J. B. Speed, President; F. M. Sackett, Vice-president; W. A. Jones, Secretary and Treasurer; C. S. Nield, General Manager.

With respect to timbering and drainage these mines have been kept in good condition; but the ventilative conditions have varied—sometimes good, and at others defective. Whenever defective the cause for complaint has been failure to see that the ventilating current properly reached all working faces. The No. 4 mine when inspected May 11, 1904 was found in good condition in all respects; but when examined September 30th the air was not being conducted so as to properly ventilate all working places. When the No. 5 mine was inspected May 11, 1904, the ventilation was not good; but when inspected September 30th it was satisfactory.

GRAY'S MINE.

Mine Office, Gray.

Transportation, L. & N. Railroad.

Operated by North Point Jellico Coal Co. Mrs. Sarah M. Gray, Proprietor.

Inspected thrice in 1903 and twice in 1904. When last inspected in 1903, i. e., November 11th, the ventilation was poor. It was necessary, in order to improve it, to change the intake, to repair the furnace, and to enlarge the air-shaft. When examined May 12, 1904, the ventilation was more defective than before, due to the fact that there were now two intakes working against each other, and that the furnace was still in bad condition. There was too much mud and water on the roads. When inspected October 1, 1904, all conditions were satisfactory.

EAST JELICO MINE.

Mine Office, Coalport.

Transportation, L. & N. Railroad.

Operated by East Jellico Coal Co. S. Taylor Sheaffer, President and General Manager; R. G. Yingling, Vice-president; I. M. Shannon, Treasurer; John F. Brown, Secretary; Geo. M. Shoemaker, Superintendent.

The average condition of this mine has not been satisfactory. There has been deterioration in management of ventilation during the last eighteen months—the cause of complaint being that due care was not taken to send the air so as to properly ventilate every working place. The ventilation on the right side has usually been fairly good, but that in the left has been defective. Drainage at times has been bad.

HUGHES JELICO MINE.

Mines at Ely.

Head Office, Flatlick.

Transportation, L. & N. Railroad.

Operated by Hughes Jellico Coal Co. W. R. Hughes, Proprietor.

As a rule, this mine has been kept in good condition.

ROSS JELICO MINES.

Mine Office, Gray.

Transportation, L. & N. Railroad.

Operated by Ross Jellico Coal Co. N. A. Ross, President; J. M. Ross, Vice-president and Secretary.

As a rule, this mine has been found, as a whole, in fairly good condition. It was inspected thrice in 1903 and twice in 1904. When inspected in June and in November, 1903, there was cause for complaint because of bad curtains. In May, 1904, all conditions were satisfactory. In October, 1904, the ventilation and drainage on the Rider entry were poor, but elsewhere the condition of the mine was good.

WILTON MINE.

P. O., Wilton.

Head Office, 415 W. Jefferson St.
Louisville, Ky.

Transportation, L. & N. Railroad.

Operated by the North Jellico Coal Co. See Bertha Mine.

Inspected three times in 1903 and twice in 1904. Deterioration has marked the ventilative condition of the mine since June, 1903, up to which and at which time it was excellent. When inspected October 20, 1903, the air did not properly reach all working faces because of poor curtains. On May 10, 1904, there was again cause for complaint in that the current was not sent so as to reach all working places. On September 29, 1904, ventilation was satisfactory on the left side of the bank, but it was defective on the left.

Laurel County.

ALTAMONT FLAT TOP MINE.

Mine Office, Altamont.

Transportation, L. & N. Railroad.

Operated by the Altamont Coal Co.

The underground management of this mine, as regards ventilation and drainage, has been distinctly bad.

CURVIN MINE.

Mine Office, Viva.

Transportation, L. & N. Railroad.

Operated by G. W. Curvin.

Inspected three times in 1903. When visited in 1904 the mine was idle. When first inspected in 1903 (January) nat-

ural means were depended on for ventilation. Subsequently, in compliance with instructions, a furnace was built and the mine was supplied with plenty of air, but it was not well conducted.

MANCHESTER MINE.

Mine Office, Altamont.

Transportation, L. & N. Railroad.

For a part of the year, the mine was operated by the Manchester Coal Co.; subsequently, it has been operated by the New Diamond Coal Co. (See New Diamond Mine.)

The ventilation of this mine has, as a whole, been fairly good. The volume of air supplied has been ample, such causes for complaint as were noted from time to time being found in failure to properly conduct the air in portions of the bank. Attention to drainage has not been so good.

NEW DIAMOND MINE.

Mine Office, Altamont.

Transportation, L. & N. Railroad.

Operated by New Diamond Coal Co. R. M. Jackson, President; Wm. H. Kinnaird, Vice-president.

The ventilation of this mine has not been maintained in a satisfactory manner. Sufficient attention has not been paid to sending the current so that it will travel within the legal distance of all working faces. When inspected May 16, 1904, the air-way leading from the fan was clogged by falls of slate.

NEW LAUREL MINE

Mine and Head Office, Pittsburgh.

Transportation, L. & N. Railroad.

Operated by New Laurel Coal Co. Geo. Givens, President; J. W. Bastin, Secretary and General Manager.

It was possible to make only one inspection of this mine in 1904. On May 17th it was examined. Except that the face of one entry had been carried too far ahead of the air, ventilation was good. Drainage was very bad.

PITMAN COAL CO.

Mine Office, Pittsburgh.

Transportation, L. & N. Railroad.

Operated by Pitman Coal Co. W. A. Pugh, President; J. L. Caldwell, Secretary and Treasury.

Inspected thrice in 1903. It was impossible to give it more than one inspection in 1904. The ventilation of the mine has not, as a rule, been satisfactory, due to failure of the current to travel all the working places within the legal distance of the faces; and this has been chiefly due to poor curtains and stoppings.

PITTSBURG MINES.

Mine Office, Pittsburgh.

Transportation, L. & N. Railroad.

Operated by Pittsburg Coal Co. R. C. Ford, President; R. M. Jackson, General Manager; C. W. Wood, Secretary.

As a rule, the ventilation of this mine, as a whole, has been good. Drainage has been bad.

STANDARD MINE.

P. O., Viva.

Transportation, L. & N. Railroad.

Operated by the Standard Coal Co. S. J. Thompson, President; C. H. Moses, Secretary; J. M. Thompson, General Manager.

It was impossible to inspect the mine more than once in 1904. In 1903 three inspections were made. On each occasion it was examined in 1903 both ventilation and drainage were distinctly bad. An effort was made to indict this company in 1903 for failure to comply with the law. The matter was placed in the hands of the County Attorney, Mr. Walker Moren, but so far as could be learned, no indictment was secured. An inquiry from this office, addressed to Mr. Moren, failed to elicit a reply. When examined May 18, 1904, all conditions were satisfactory.

NEW STAR MINE.

Mine Office, East Bernstadt.

Transportation, L. & N. Railroad.

Operated by Star Coal Co.

It was impossible to inspect the mine more than once in 1904. Three inspections were made in 1903. As a rule, good ventilation was not maintained. When inspected May 17, 1904, it appeared that the furnace did not have sufficient power to adequately ventilate the mine, and the company was so advised. Drainage has been bad.

Pulaski County.

ALPINE MINE.

Mine Office, Alpine.

Main Office, Chattanooga, Tenn.

Transportation, Cincinnati Southern Railway.

Operated by Alpine Coal Co. J. T. Hill, General Manager and Treasurer.

The condition of this mine has varied, but since the installation of a 10-foot fan in the early part of 1903 the ventilation usually has been fairly good. Drainage usually has been defective, but since the sinking of a pumping shaft at the head of the Main entry, in the spring of 1904, this has been improved. The timbering of the mine has also been improved.

BARREN FORK MINES.

Mine Office, Barren Fork.

Main Office, Lexington.

Transportation, Cincinnati Southern Railway.

Operated by Eagle Coal Co. J. T. Slade, President and General Manager; Jas Todd, Secretary; J. F. Jaeger, Treasurer; W. L. Carter, Superintendent.

As a rule, the ventilation and timbering of this mine have been found good—though as to the former complaints have been necessary at times on account of failure to distribute the air well. Defective drainage has been the principal cause of complaint.

COGAR CREEK MINE.

P. O., Flatrock.

Transportation, Cincinnati Southern Railway.

Until March 1, 1904, the mine was operated by the Nixon Coal Co., on which date Peters & Souleyret took charge as successors.

This mine has not been kept in good condition, due in part, possibly, to the fact that it has frequently been idle—it worked only 147 days (of ten hours) in 1904—but principally to neglect. Curtains have not been kept in good condition, and gob has been allowed to accumulate in breakthroughs that should have been fully open; hence the current would not travel to faces of working places as it should.

INDIAN HEAD MINE.

Mine Office, Parker's Lake. R. R. Station, Cumberland Falls.

Transportation, Cincinnati Southern Railway.

Operated by Indian Head Coal Co. C. T. Cory, President; H. L. Cory, General Manager; S. E. Rich, Secretary and Treasurer.

The condition of this mine has varied from poor to very poor. On only one occasion, i. e., on November 18, 1903, was the mine found in fairly good condition, and even then the ventilation was not what it should have been, because of two open rear breakthroughs. On June 6, 1904, both ventilation and drainage were very defective. The mine was idle from September 1, 1904, to January 9, 1905.

NEW CUMBERLAND MINE.

Mine Office, McGuffey.

Main Office, Harriman, Tenn.

Transportation, Cincinnati Southern Railway.

Operated by New Cumberland Coal Co. Jesse L. Rogers, President; J. W. Staples, Manager; A. C. Terry, Secretary and Treasurer. Railroad Station, Flatrock.

The mine has not been maintained in good condition with respect to ventilation and drainage; though on June 6, 1904, the ventilation was tolerably good. One of the reasons for poor ventilation was failure to repair the furnace.

Rockcastle County.

BIG HILL MINES.

P. O., Johnetta.

Transportation, L. & N. Railroad.

Operated by the Big Hill Coal Co. J. H. Jones, President, Pittsburg, Pa.; G. M. Malone, Vice-president, Pittsburg, Pa.; J. Stone Walker, Treasurer, Richmond, Ky.; J. A. Sullivan, Secretary, Richmond, Ky.; J. E. Stewart, General Manager, at the mines.

This is a well-equipped mine, opened in 1903. It was impossible to give it more than one inspection, which was made May 23d. At that time, while there was plenty of air traveling the entries, the rooms were without proper ventilation because of failure to hang check curtains to send the air into them.

NEW PINE HILL MINE.

P. O., Pine Hill.

Transportation, L. & N. Railroad.

Operated by the New Pine Hill Co. Dr. A. Gatliff, President, Williamsburg; Alex. Frost, Vice-president, Bertha; A. J. Sullivan, General Manager and Secretary, Williamsburg; F. E. Gilbert, Superintendent, Bertha; Joseph Frost, Foreman at mine.

This was a new mine November 14, 1903. When inspected at that time all conditions were good. Only one inspection could be made in 1904, which was on May 24th. At that time all conditions were satisfactory.

Whitley County.

BURK HOLLOW MINE.

Mine Office, Jellico, Tenn.

Transportation, Southern Railway.

Operated by Burk Hollow Coal Co.

This mine was not known to be in Kentucky until late in 1904. It was inspected September 26th. Sufficient air was

entering the bank, but the current did not serve all the working places as fully as it should have done. The furnace power was not deemed adequate for the mine. No other causes for complaint were noted.

DAVISSON MINE.

P. O., Pleasant View.

Transportation, L. & N. Railroad.

Operated by F. P. and R. C. Davisson, under the firm name of Davisson Bros.

The output of the mine is taken by the Pleasant View Jellico Coal Co., the bank being so situated that the coal is run from it, in bank cars, direct to the latter company's tipple.

This mine has been worked in a small way (an average of seven persons underground), and in a poor fashion. On no occasion was it found in a satisfactory condition.

DOWLAIS MINES.

Mine Office, Jellico, Tenn.

Head Office, Knoxville, Tenn.

Transportation, L. & N. Railroad and Southern Railway.

Operated by East Tennessee Coal Co. E. J. Davis, President and Treasurer; W. E. Davis, General Manager; F. C. Richmond, Secretary.

No. 1 mine.—As a rule, the mine, as a whole, has been found in fairly good condition. At times ventilation in certain rooms has been found defective because of poor curtains in the room necks; again, as on September 9, 1904, the date of last inspection, the current, while ample in volume, did not fully serve every working place as it should have done.

No. 2 mine.—During 1903 no cause for complaint was found at the time of any of the inspections. For 1904 the record is not so good. On April 8th there was not a current in the bank of sufficient velocity to be measured by instrument. This was chiefly due to the fact that three rooms which had broken in from No. 1 mine had not been bratticed off. When last inspected, September 23d, there was no fire in the furnace, although the mine was running, hence, of course, there was

practically no ventilation. The face of 1st Right entry was 120 feet ahead of the air, and many of the break-throughs between rooms that should have been fully open had gob piled in them. Drainage was bad on parts of the Main and 1st Right entries.

DOWLAI BLUE GEM MINE.

P. O., Jellico, Tenn.

Transportation, L. & N. and Southern Railway.

Operated by the Dowlais Blue Gem Coal Co. W. E. Davis, President; D. W. Jones, Vice-president and General Manager; C. E. Moore, Secretary-Treasurer.

The mine was opened for shipments in 1904. When inspected April 8th it was idle, but it was evident from general arrangements that with a fire in the furnace ventilation would have been all right. When inspected last, September 23d, the ventilating current did not fully serve all the working places. A stack was needed for the ventilating furnace.

EMLYN MINE.

P. O., Emlyn.

Head Office, Williamsburg.

Transportation, L. & N. Railroad.

Operated by the Emlyn Jellico Coal Co. C. H. Keeton, President; A. T. Siler, Vice-president; J. H. Hill, Secretary-Treasurer; J. C. Hoskins, Superintendent.

The underground management of this mine with respect to ventilation and drainage has been very poor. On no occasion was the mine found in good condition.

FRENCH MINES.

P. O., Halsey.

General Office, 504 Prince St.,
Knoxville, Tenn.

Transportation, L. & N. Railroad.

Operated by the French Coal Co. F. D. French, President; F. H. Andes, Vice-president; O. L. White, Secretary; Frank Frow, Superintendent.

When inspected September 27, 1904, this was a new mine. Ventilation was obtained by furnace, but the stack of the latter was not high enough. Ventilation on 1st Left entry was insufficient.

HALSEY MINES.

Mine Office, Halsey.

Telegraph Office, Jellico, Tenn.

Transportation, L. & N. and Southern Railway.

Operated by Louisville Property Co. T. Cairns, General Agent; J. W. Stillwell, Superintendent; J. R. Justice, Engineer.

Vanderpool mine.—The mine, as a rule, has usually been found in good condition.

Birdeye mine.—On each occasion it was inspected in 1903 and in 1904 this mine was found in satisfactory condition.

HOFFMAN & BERRY MINE.

Mines at Hoffman Station.

Postoffice, Williamsburg.

Transportation, L. & N. Railroad.

Operated by C. G. Hoffman and F. K. Berry.

The mine is equipped with six G. G. G. and one P. G. Harrison coal-cutting machines, which are served by a Norwalk Compressor (22 by 24) of 15-machine capacity. As a whole, the mine has been kept in fairly good condition.

IMPERIAL JELICO MINE.

P. O., Rockhold.

Telegraph Office, Williamsburg.

Transportation, L. & N. Railroad.

Operated by the Imperial Jellico Coal Co. J. W. Siler, President; J. L. Williams, General Manager; John Morgan, Secretary and Treasurer.

This mine was opened for shipments in 1904. Only one inspection could be made, which was on April 13th. Then the furnace power was deemed insufficient to adequately ventilate the mine.

JELICO BLUE GEM SPLIT MINE (COCKILL).

P. O., Williamsburg.

Transportation, L. & N. Railroad.

This mine was known as the Cockill Blue Gem mine, and was operated by the Cockill Coal Co. until about September 1st, when it was sold to Mr. H. W. Smith and operated by

the Smith Jellico Coal Co. The latter sold to Messrs. Stanford & Caddell February 29, 1904, and since then it has been operated by the Pocono Coal Co.

This mine was never found in good condition, but on account of the mine being idle much of the time—it worked only 100 days (of ten hours) in 1904—since 1903, and of the changes made in ownership, little could be accomplished to bring about a betterment.

JELICO MG. CO. MINE (SAXTON).

P. O., Saxton.

Transportation, L. & N. Railroad.

Operated by Jellico Mining Co. M. L. George, President and General Manager; A. L. Foster, Secretary-Treasurer.

The mine was newly opened in 1904. Only one inspection could be given it. On April 15th natural means were depended on for ventilation.

MOORE JELICO MINE.

P. O., Jellico, Tenn.

Transportation, L. & H. and Southern Railway.

Operated by the Moore Jellico Coal Co. W. L. Moore, President; G. C. Moore, Secretary and Treasurer.

This mine was opened in 1904. When inspected September 27th, the ventilation and drainage were defective. The company was directed to provide a fan or furnace of sufficient power to properly ventilate the mines.

MOUNTAIN ASH MINES.

Mine Office, Mountain Ash. Telegraph Office, Jellico, Tenn.

Transportation, L. & N. Railroad.

Operated by Jellico Coal Mining Co. Arthur Groves, President; E. J. Davis, Vice-president; Howell J. Davis, Secretary and Treasurer; W. T. Lewis, Manager.

The mine has been equipped with the following, the installation being completed and in operation January 1, 1904: Two 6-ton Jeffrey motors; one 170 h. p. McEwen engine; one 100 k.

w. Jeffrey generator; one h. p. motor for fan; one 150 h. p. Berger Bros. tubular boiler. The motor makes trips from the Main lyeway to the knuckle, hauling thirty-five to seventy cars per trip.

MT. MORGAN MINE.

Mine Office, Williamsburg.

Transportation, L. & N. Railroad.

Operated by Mt. Morgan Coal Co. J. P. Mahan, President; T. B. Mahan, Vice-president; S. E. Mahan, Secretary and Treasurer.

In the summer of 1903 the mine was equipped with the following: One Norwalk compressor (20 by 22); five G. G. G. and one P. G. Harrison coal-cutting machines; two Atlas tubular boilers, 75 h. p. each. As a whole, the mine has been maintained in fairly good condition. On December 9, 1904, however, too much air was wasting from the fan, thus cutting down the ventilation. It was deemed necessary to move the fan closer to the workings.

PINE KNOT MINE.

Mine Office, Strunk.

Express Office, Pine Knot.

Transportation, Cincinnati Southern Railway.

Operated by Pine Knot Coal Co.

The conditions of the mine has varied much, at times satisfactory and others not—usually not.

PLEASANT VIEW MINE.

P. O., Pleasant View.

Transportation, L. & N. Railroad.

Operated by the Pleasant View Jellico Coal Co. A. J. Brown, President and General Manager; Sam Booth, Superintendent.

The ventilation of this mine has not been maintained at a satisfactory standard. Other conditions fairly good.

PROCTER, GRINSTEAD, AND KLONDYKE MINES.

Mine Office, Red Ash.

Head Office, Williamsburg.

Transportation, L. & N. Railroad and Southern Railway.

Operated by Procter Coal Co. H. F. Finley, President and General Manager; F. W. Finley, Secretary and Treasurer; Philip Francis, Superintendent.

Procter mine.—A 10-foot fan was installed at this mine in February, 1903. On no occasion was the ventilation of the mine found quite satisfactory, either in 1903 or in 1904. Plenty of air entered the bank, but, while portions of the mine would be well ventilated, others would not. There was cause for complaint on account of defective drainage in some part of the mine on every visit. The last inspection was made September 24, 1904.

Grinstead mine.—The remarks made concerning the Procter, in the main, also apply to this mine, as regards both ventilation and drainage. Last inspection was made on September 24, 1905.

Klondyke mine.—In 1903 the drainage and ventilation were not found satisfactory on any visit. When inspected on April 11th and on September 24, 1904, the mine was on stumps; only eight persons were engaged underground in April, and only nine in September. The conditions in 1904 were as good as could be expected under the circumstances.

THE STEARNS MINES.

P. O. Stearns.

Transportation, Cincinnati Southern Railway.

Operated by the Stearns Coal Co. J. S. Stearns, Chairman; W. T. Culver, Secretary; R. L. Stearns, Treasurer; J. E. Butler, General Superintendent; L. E. Bryant, Consulting Engineer; James Berryman, Superintendent.

In 1903 the mine equipment included the following: Three 5-ton Jeffrey motors; six Jeffrey 16 A. mining machines; three Rumsey & Sikemeier direct-connected fans; one 250 h. p. McCuen engine; one 250-volt Jeffrey generator; one 150 h. p. boiler.

No. 5 and the North Main openings were inspected twice in 1904. The No. 3 mine was inspected once, being idle when the mines were visited the second time.

No. 3 mine.—When inspected April 22d it was in good condition.

No. 5 mine.—When inspected April 22d, the face of 1st Right entry was too far ahead of the air. Otherwise the mine was in good condition. When inspected December 5th, there were several open break-throughs between the Main entry and its air-course, hence the current did not reach within 60 feet of the face as required; otherwise conditions were fairly good.

North Main mine.—On neither occasion when the mine was inspected in 1904 was the ventilation quite satisfactory, the ground of complaint being that the current was not conducted so as to reach within 60 feet of all faces.

WATTS CREEK MINE.

P. O., Wofford.

Telegraph Office, Williamsburg.

Transportation, L. & N. Railroad.

Operated by the Watts Creek Jellico Coal Co. Isaac F. March, President and General Manager, Jasper, Ala.; M. L. Ritter, Secretary-Treasurer, Cordova, Ala.; Wm. Criscillis, Foreman.

When last inspected in 1903, i. e., on October 16th, the mine had been shut down for six weeks, while the incline was changed and a new tippie was built. The ventilation was quite unsatisfactory. A new furnace was needed. When inspected April 4, 1904, an abundance of air was entering the bank, but because of poor stoppings there were many leaks and the air did not reach all the working faces. Another inspection could not be made during the year.

WEST JELICO MINE.

Mine P. O., Strunk.

General Office, Williamsburg.
Express Office, Pine Knot.

Transportation, Cincinnati Southern Railway.

Operated by the West Jellico Coal Co. W. E. DeLaney, President; R. F. McKeen, Vice-president; C. H. Keeton, Secretary-Treasurer; Sharp & Siler, Attorneys; J. C. Walker, Manager.

Three inspections were made in 1903. Only one could be

made in 1904. During the larger part of 1903 ventilation and drainage were both bad, but when inspected November 11, 1903, the ventilation was excellent and the drainage was much improved. When inspected June 4, 1904, the mine, as a whole, was all right.

WESTERN DISTRICT.

The following counties producing commercial coal in 1904 lie within this district: Butler, Christian, Daviess, Hancock, Henderson, Hopkins, McLean, Muhlenberg, Ohio, Union, Webster.

Output of bituminous coal in tons	4,244,782	4,121,564
Total tons shipped from the mines	3,876,793	3,755,043
Production of coke in tons	47,580	39,513
Employees for 1904		6,338
Average number of days worked in 1904		174

Butler County.

ABERDEEN MINE.

Mine Office, Aberdeen.

Transportation, Green river.

Owned by the Aberdeen Coal & Mining Co.

For the last two years the mine has been run in a rather desultory fashion. Provisions for ventilating the mine have not been good. But little prop timber is used, reliance being placed on the strong sandstone roof, except where clay shale comes between the coal and sandstone.

WEST ABERDEEN MINE.

Mine P. O., Flener.

Transportation, Green river.

This was formerly operated by the West Aberdeen Coal Co., then by B. Baker, Lessee; and now by Flener & Barber.

The mine has been run irregularly, and at certain times

when inspections would have been made it was learned that the bank was idle. An inspection made August 10, 1904, showed the ventilation to be defective. Although fifteen persons were in bank, natural means were depended on for ventilation.

Christian County.

EMPIRE MINE.

Mine Office, Empire.

Head Office, Nashville, Tenn.

Transportation, L. & N. Railroad.

Operated by the Empire Coal & Mining Co. J. D. Anderson, President; H. W. Buttorff, Vice-president; C. H. Dezellos, Secretary; W. T. Rutland, Treasurer and General Manager.

This mine was inspected twice in 1903 and twice in 1904. For some time the management of this mine has been marked by a lack of proper attention to the details of ventilation. Sufficient care has not been taken to send the air so as to reach all working faces. When last inspected, November 21, 1904, the fan seemed inadequate to supply sufficient air to the mine under the then conditions as to the length of travel of the current and the condition of the air-ways. Drainage and timbering have usually been found satisfactory.

Crittenden County.

BELL MINES.

Mine P. O., Sturgis.

General Office, St. Louis, Mo.

Transportation via Tradewater river to the Ohio river. May also be obtained by building a short branch from the Illinois Central Railroad.

Owned by the Bell Coal & Mining Co. W. W. Smith, President, Sturgis, Ky.; Thos. J. Scott, Vice-president, St. Louis, Mo.; C. H. Wilson, Secretary and Treasurer, Sturgis, Ky.

In 1903 a new slope mine was opened to the "Bell" coal in

addition to renovating and cleaning out the workings of one of the old "Bell" mines, and but little more than that was done. Not more than 1,500 tons of coal were produced in 1903 and only 291 tons in 1904, due to the fact that, as explained to the writer, rather than work under "union" agreement, the management shut the mines down. The tonnage reported for 1904 may really have been made in 1903 and stocked, since the mines were shut down about December 1, 1903, and the writer has no knowledge of their being operated at all in 1904. Mr. J. T. Gifford was manager during 1903.

Daviess County.

DEANE MINE.

Mine P. O., Owensboro.

Transportation (from Owensboro), L. & N. Railroad and Louisville, Henderson & St. Louis Railroad.

Operated by Allen Deane.

Inspected twice in 1903 and twice in 1904. When inspected July 20, 1903, about the only cause for complaint was the absence of safety-gates at the shaft and of hoods for the cages. Subsequently this was remedied. The mine was found in a satisfactory condition upon each visit in 1904, except that in places room pillars were too thin.

LOUIS HOBACK.

P. O., Owensboro.

Transportation (from Owensboro) by the L., H. & St. L. and by the L. & N. railroad.

Operated by Louis Hoback, who took charge in 1903. The mine is operated on a small scale. For two of the summer months very little indeed is done, since the mine is run chiefly for the Owensboro market. During the winter months as many as fourteen persons are employed underground. Natural means have been depended upon for ventilation. Notice to provide artificial means, as required by the law, was given.

OVERSTREET & RUDY MINE.

Mine P. O., Owensboro.

Transportation (from Owensboro), L. & N. Railroad and Louisville, Henderson & St. Louis Railroad.

Operated by Overstreet & Rudy.

The average condition of this mine as to ventilation has not been good. At times work has been carried on without even lighting the fire in the furnace. When inspected in February, 1904, neither safety-gates at the shaft nor covers on the cages had been provided.

Hancock County.

AUBURN ASH MINES.

Mine P. O., Martendale.

Transportation, the Louisville, Henderson & St. Louis Railroad.

Operated by the Fenley Coal Co., under lease from the Auburn Ash Coal Co. The latter company operated the mines until September 1, 1904, when the lessees took charge.

Inspected three times in 1903 and in 1904. The prevailing condition of the mine has been quite satisfactory.

Henderson County.

BASKETT MINE.

Mine Office, Baskett.

Transportation, Louisville, Henderson & St. Louis Railroad.

Operated by Pittsburgh Coal Co. Alexander Blair, General Superintendent; Mrs. T. C. Blair, Manager and Buyer.

Inspected twice in 1903 and twice in 1904. The condition of the mine as to ventilation has varied, usually being fairly good. At times cause for complaint has been found in failure to get the air to all the working faces, because of leaks. On the last inspection, July 26, 1904, the air was found to be well conducted to the faces everywhere, except on the 1st Left.

CORYDON MINE.

Mine Office, Corydon.

Transportation, Illinois Central Railroad, O. V. Division.
Operated by Corydon Coal Co. W. H. Lloyd, President.

This mine has not been maintained in a satisfactory condition. Neither ventilation nor drainage have been satisfactory, but the chief cause of complaint has been on account of the failure to keep the water sufficiently well pumped out. On both occasions on which the mine was inspected in 1904, there was so much water on two of the entries that their faces could not be reached by the Inspector.

HENDERSON MINE.

P. O., Henderson.

Transportation, Louisville, Henderson & St. Louis Railroad and L. & N. Railroad.

Operated by J. L. Nicholson & Co., Lessees from the Henderson Mining & Manufacturing Co., which operated the mine until 1904. Mr. J. L. Nicholson is Manager and M. E. Keeler is Superintendent.

This mine has not been maintained in a good condition as regards either ventilation or drainage. In 1903 causes of complaint were the failure to renew cage guides, which had become worn and too narrow to afford any reasonable assurance that the catches would engage them in case of accident; that good drainage was not maintained, and that the air, although entering in sufficient volume, was not well conducted. In 1904 it was necessary to complain of the drainage, of the unsafe width the Main entry was being driven, and of the fact that pillars between rooms and pillars were left too thin. It was also necessary to notify the company to put a new brake on the hoisting drum.

MAGNOLIA MINE.

Mine P. O., Corydon.

Transportation, Illinois Central Railroad.
Operated by the Magnolia Coal & Mining Co. O. T. Koonce, President; Owen Koonce, Secretary and Manager.

This is a new mine, a shaft, which was opened in 1903 and began producing in 1904. The shaft is 190 feet to the coal, which is about 64 inches thick. The mine was inspected twice, and on each occasion it was found in good condition in all respects.

PEOPLE'S MINE.

Mine Office, Henderson.

Transportation, L. & N. Railroad.

Operated by People's Mining Co. J. E. Hosback, President; Frank Rhinehart, Secretary-Treasurer; George Fulner, Superintendent.

Inspected three times in 1903 and twice in 1904. In addition a visit was made in 1904 and the mine found idle. The prevailing condition of the mine since March, 1903, has been satisfactory. In July, 1903, it was necessary to require new cage guides, the old ones having worn too narrow.

RANKIN (SPOTTSVILLE) MINE.

Mine P. O., Spottsville. Head Office, Evansville, Ind.

Transportation, Green river and Louisville, Henderson & St. Louis R. R.

Operated by Green River Coal Co. R. C. Arnold, President.

Inspected three times in 1903, and twice in 1904. In the main, the mine has been maintained in fairly good condition since December 10, 1903. Prior to that date it was necessary to require that an air-shaft be sunk. In July, 1904, it was noted that there was a tendency to fail to send the ventilating current well enough up so as to reach all working faces.

SMITH MILLS MINE.

P. O., Smith Mills.

Operated by the Smith Mills Coal & Mining Co. G. W. Powell, President; W. W. Cooper, Superintendent. Directors are: Dr. J. M. Cooper, Dr. O. G. Jones, Dr. J. W. Cooper, G. W. Powell, W. W. Cooper.

This mine has been maintained in good condition since July

18, 1903. In view of the presence of fire-damp in the mine, the importance of maintaining perfect ventilation has been emphasized in notice to the company.

ZION MINE.

Mine Office, Zion.

Operated by W. Hayes & Son.

This mine has been maintained in good condition since July, 1903. Prior to that date—when inspected March 5th—the hoisting rig was in a dangerous condition, and the ventilation was defective. There was no hood on the cage; there were no safety-catches, and the cage guides were warped, crooked, and too small. In July, 1903, the company had procured a new cage and had installed a 10-foot ventilating fan, and since that date no cause for complaint has been found.

Hopkins County.

CARBONDALE MINE.

Mine Office, Hamby Station.

Transportation, Illinois Central Railroad.

Operated by Carbondale Coal & Coke Co. Brack Owens, President; Samuel McElfatrick, Secretary; Edw. Garrett, Treasurer; Mine Superintendent, John Palmer.

The mine now operated is a new one, opened in 1903, 1,200 feet north of the old one. It is ventilated by furnace. The mine has been maintained in good condition.

CRABTREE MINE.

Mine Office, Hsley.

Telegraph Office, Dawson.

Transportation, Illinois Central Railroad.

Operated by Crabtree Coal Mining Co. A. Howell, President; Edward Hsley, Vice-president; R. M. Salmon, Secretary and Treasurer.

Inspected twice in 1903 and three times in 1904. On March 7th the mine was in good condition except on the 7th and 8th

East entries, where there was practically no ventilation. On July 8th the ventilation of the mine was quite unsatisfactory. It appeared that the mine had outgrown the power of the ventilating furnace. The company installed a 16-foot fan, December 1st, and on December 28th the mine was in excellent condition in all respects.

DANIEL BOONE MINE.

P. O., Daniel Boone.

Transportation, Illinois Central Railroad.

Operated in 1904 by the Buffalo Creek Coal Mining Co. Sterling Pierson, President and Treasurer; T. R. Troendle, Vice-president and General Manager; A. S. Buchanan, Secretary; Richard Palmer, Superintendent. Since the preparation of this report was undertaken, the name of the company has been changed to the Daniel Boone Coal Co., with the following officers: W. C. Knight, President; W. T. Knight, Vice-president; H. D. Minor, Secretary; L. D. Whitaker, General Manager and Treasurer.

Usually found in good condition, but at the time of the second and last inspection in 1904 the air, although entering the mine in ample volume, did not properly reach every working face because of the poor condition of curtains. Other conditions satisfactory.

KINGTON & WOLF.

Mine Office, Morton's Gap.

Transportation, L. & N. Railroad.

Operated by Kington & Wolf.

This mine became subject to State supervision in 1904. It has not been maintained in good condition as regards ventilation. The air volume sent into bank has been too small for the number of persons underground, and it has not been well coursed. At the time of last inspection, November 17th, the attention of the company was directed to the fact that furnace and air-shaft were too small, and the air-shaft stack too low.

MONARCH (No 9) MINE.

Mine and Head Office, Madisonville.

Transportation, L. & N. Railroad.

Operated by Victoria Coal Co. James R. Rash, President; G. W. Rash, Secretary; Geo. C. Atkinson, Treasurer; W. F. Anderson, Superintendent.

Inspected thrice in 1903 and twice in 1904. The condition of the mine as to ventilation has usually been good except on the 9th, 10th and 11th West entries. Cause for complaint on the score of defective ventilation was found on the 9th and 10th West in July, and on the 10th and 11th West in December, 1903. On June 25th, 1904, all conditions were satisfactory. On November 21, 1904, ventilation on the 1st North East was defective, conditions elsewhere being satisfactory.

NORTONVILLE MINES.

P. O., Nortonville.

Transportation, the Illinois Central Railroad and the L. & N. Railroad.

Operated by the Nortonville Coal Co. Frank M. Fisher, President, Paducah; John B. Trice, Vice-president, Hopkinsville; John T. Edmunds, Secretary and Ira L. Smith, Treasurer, Hopkinsville; Walter S. Elgin, General Manager, Nortonville.

There are two mines, known as No. 1 and No. 2. The first, which was opened in 1902, began shipping in 1903. The second was opened in 1904.

No. 1 mine.—At first this mine, a shaft, was ventilated by exhaust steam, but subsequently a fan was installed. Inspected twice in 1903 and thrice in 1904. As a rule, this mine has been found in good condition. In June, 1904, the mine was not working. The shaft was being sunk to reach a coal below the one that had been worked. When visited November 11th the only work in progress was driving entry (four men).

No. 2 mine.—The first coal from this mine, a slope, was loaded in June, 1904. A 10-foot fan is used for ventilating. The coal is raised from bottom of the slope by a Jeffrey car-haul. When inspected November 18th, the mine was in good condition.

OAK HILL MINE.

Mine Office, Chesley.

Telegraph Office, Nortonville.

Transportation, L. & N. Railroad.

Operated by Oak Hill Coal Co. Jabez H. Trathen, President and Treasurer; John H. Trathen, Superintendent; Mrs. Cordelia Hall, Secretary.

Inspected three times in 1903 and in 1904. Prior to December, 1904, the condition of the mine was never found to be satisfactory, and vigorous measures were required to bring it into good condition. The last inspection made in 1903, i. e., on December 16th, showed that the air did not reach the working places. On June 24, 1904, an inspection showed that there was not enough air entering the bank, and that the furnace was incapable of properly ventilating the mine. On November 16, 1904, no improvement in the ventilation was noted, and the company was notified that prosecution in the courts would be urged unless directions to make improvements were at once complied with. By December a 10-foot fan driven by a 10-h. p. Browning motor, had been installed, and when the mine was inspected in December the ventilation was found to be excellent, and drainage and timbering satisfactory.

REINECKE (EUREKA) MINE.

Mine and Head Office, Madisonville.

Transportation, L. & N. Railroad.

Operated by Reinecke Coal Mining Co. C. Reinecke, President; I. Bailey, Secretary and Manager.

During the last two years the ventilation of this mine has not been maintained as well as formerly. An ample volume of air has been sent into the mine, but in parts of the mine it has not been sufficiently well distributed. When inspected June 28, 1904, there was practically no current going to the 15th East entry from the 14th. The doors on the 14th East leaked, permitting air to escape to the return. An inspection made November 19, 1904, showed that sufficient air was not supplied the 6th West entry, and care was not taken to keep rear break-throughs closed on the 10th and 14th East entries.

ROSE CREEK MINE.

P. O., Nebo.

Transportation, L. & N. Railroad.

Operated by the Rose Creek Coal & Mining Co. James West, President and Business Manager, Hopkinsville, Ky.; Wm. McMurray, Vice-president, Springfield, Tenn.; B. J. Matthews, Secretary, Hopkinsville, Ky.; H. H. Holeman, Treasurer, Madisonville, Ky.; W. D. Coil, General Manager and Superintendent of Mines, Nebo.

This mine was opened in 1904 and began shipping in the latter part of the year. It was not possible to inspect it during that year.

ST. BERNARD MINING CO.'S MINES.

Head Office, Earlington.

Operated by St. Bernard Mining Co. John B. Atkinson, President; Geo. C. Atkinson, Secretary and Treasurer.

Arnold mine.—Mine office, Earlington. Transportation, L. & N. Railroad. The prevailing condition of the mine has been good. Inspected twice in 1904.

Barnsley mine.—Mine office, Barnsley. Transportation, L. & N. Railroad. Two inspections were made in 1904. On each occasion the mine was found in a quite satisfactory condition.

Diamond mine.—Mine office, Morton's Gap. Transportation, L. & N. Railroad. This mine has been maintained in excellent condition in all respects.

Earlington No. 9 mine.—Mine office, Earlington. Transportation, L. & N. Railroad. Inspected thrice in 1903 and twice in 1904. When inspected February 16 and July 9, 1903, the ventilation was defective, the air not being sufficiently well ventilated. On the third occasion, December 15th, all conditions were good except in Africa entry, where the air volume was 4,000 feet short. In 1904 the mine was found in satisfactory condition on each inspection.

Earlington No. 11 mine.—Mine office, Earlington. Transportation, L. & N. Railroad. Inspected twice in 1903 and in 1904. The mine was, in general, in good condition on each occasion.

Hecla mine.—Mine office, Earlington. Transportation, L. & N. Railroad. When last inspected, November 12, 1904, the mine was found in satisfactory condition in all respects. When the preceding inspection was made, June 23d, there was cause for complaint because of failure to maintain check-curtains at a few places.

St. Charles mines.—Mine office, St. Charles. Transportation, Illinois Central Railroad. The management of the ventilation had deteriorated in 1904 from what it was in 1903. In the latter year no cause for complaint was noted. When inspected March 2d and again on July 7, 1904, there was not sufficient air entering. The company was notified that a furnace at the 9th West shaft would improve the ventilation. Except as regards ventilation, the condition of the mine has been good.

McLean County.

FIELD (MEMPHIS) MINE.

Mine Office, Island.

Transportation, L. & N. Railroad.

Operated by Memphis Coal Co. R. D. Rose, President; James Halstead, General Manager.

Inspected thrice in 1903. Only one inspection could be made in 1904. In May and July of the year 1903 ventilation and timbering were defective, but on December 18th all conditions were found satisfactory. On August 17, 1904, the ventilation was found quite insufficient. Sufficient air was not entering the working portion of the bank, due to losses from the Main direct to the furnace; and the current did not properly reach all working faces. Drainage throughout the mine was bad.

GREEN RIVER (ISLAND) MINE.

Mine Office, Island.

Transportation, L. & N. Railroad.

Operated by Green River Coal Co. John W. Love, President; E. S. Randle, Secretary and Manager.

Three inspections were made in 1903, but only one could be made in 1904. During 1903 the ventilation, as a rule, was fairly good, with exceptions as to places here and there where the current did not travel close enough to faces. When the mine was inspected August 18, 1904, the ventilation had deteriorated—though an ample quantity of air was sent into the mine; and it was noted that in a number of rooms the propping was inadequate.

Muhlenberg County.

BEVIER MINE.

Mine Office, Cleaton.

Transportation, L. & N. Railroad.

Operated by Bevier Coal Co. J. W. Bastin, President; R. S. Lytle, Secretary; Geo. Givens, General Manager.

Three inspections were made in 1903, but only two could be made in 1904. On each inspection in 1903 there was cause for complaint on account of the air not being sent within legal distance of all faces, and on account of props not being kept close enough to working faces. When inspected on March 22 and August 23, 1904, all conditions were found satisfactory.

BLACK DIAMOND MINE.

P. O., Drakesboro.

Transportation, L. & N. Railroad.

Operated by the Black Diamond Coal & Mining Co. Jas. T. Pierce, President, Manager and Treasurer; W. W. Bridges, Vice-president and Secretary; T. A. Isaac, Purchasing Agent.

Two inspections were made in 1903 and four in 1904, in addition to which a special visit was made. The ventilation of the mine has not been at all satisfactory, especially since July, 1904. Other causes for complaint have been insufficient timbering, at times, in some of the rooms, and unsatisfactory condition of the shaft timbering and head frame.

Following are details of notices 784 and 797 served on the company by the Assistant Inspector:

FROM NOTICE 784, AUGUST 5, 1904.

East Side.

"First South Entry (9 persons).—With eighty-five persons employed underground, we should have 8,500 to 9,000 cubic feet of air traveling the working places on this entry,* but in the last break-through between the entry and blind I could only measure 1,990 cubic feet. The brattices between the entry and blind are rotten and leaky.

"Third South (12 persons).—Here, as in the preceding entry, we should have found 8,500 to 9,000 cubic feet of air, as this is where the total current should be found passing, but I could not find a current of sufficient strength to enable me to get a measurement.

"Main Entry (8 persons).—There was practically no ventilation here. There is fire-damp in the old rooms on this entry, from 7 to 18 inclusive. You must at once place fire boards at the mouths of these old rooms.

"Second East off 3d North (2 persons).—I measured 4,000 cubic feet of air here, but this is not up to the legal requirements. We should have found 8,500 to 9,000 cubic feet.

"Third East off 3d North (4 persons).—There was practically no ventilation here; not enough, in fact, to turn the anemometer. There is fire damp in the rooms on this entry. A check curtain must be hung between rooms 4 and 5.

"Third North.—There was practically no ventilation here. There is some slate on the Main, just before reaching 1st South, that is dangerous. It must be taken down at once. The brattices on the Main all leak, and the air does not reach the diggers, but escapes through old rooms to the return.

"First South (10 persons).—There must be a check curtain in this entry between rooms 7 and 8, and the break-throughs in the pillar between these rooms bratticed up to the one nearest the faces, in order that the ventilating current will travel within 60 feet or less of the faces as required by law.

"Third West off 1st South (6 persons).—I could only meas-

*Since ventilation is by a single current, and the total current must travel this course.

ure 2,722 cubic feet of air passing here, but we should have found 8,500 to 9,000 cubic feet.

"Second West off 1st South (3 persons).—I could not find a current of air here strong enough to turn the anemometer, yet we should have found the total current passing here.

"You can not ventilate your mine properly with your present arrangement. Your mine is in a dangerous condition and you must begin at once to sink an air-shaft on the 1st South entry on the East Side. You must double-shift the 1st South entry until you reach the location of your air-shaft. I have discussed this matter with your Mr. Bridges, the Superintendent, and also your mine foreman, Mr. Hendrie, and they understand where the shaft is to be sunk. When the shaft is completed, you should make it an intake and split the air—ventilating the East Side with one split and the West Side with the other. I want to impress upon you that the shaft is very important indeed, and most respectfully inform you that it must be completed at the earliest possible moment."

The company claimed that there were topographic and other difficulties in the way of sinking a shaft at the place indicated by the Assistant Inspector, and it sought to meet the requirements for ventilation in another way. In his report of an inspection made September 15th, the Assistant Inspector says: "There was some little improvement in the mine with regard to ventilation since my preceding inspection, which was made August 5th, but the ventilation is still very defective." Following are the details of the notice served after the inspection of September 15th:

FROM NOTICE 797, SEPTEMBER 15TH.

East Side.

"First South (12 persons).—There are 70 to 80 persons in the mine, and we should have found 7,800 to 8,000 cubic feet of air passing here, as this is where the total current should be found, but I could only measure 3,039 cubic feet. Some of the brattices on this entry have been repaired, but not all of them. This matter must be attended to at once.

"First East off 1st South (1 person).—The face of this entry is about 10 feet too far ahead of the air. There is a con-

siderable amount of fire-damp in the head of the blind following this entry. I would respectfully suggest that you drive your break-throughs closer than 60 feet where you have fire-damp to contend with. I could not get a measurement of the air here.

"Going from the 1st South to the 3d South, I measured 13,382 cubic feet of air, but in the last break-through between the 3d South and blind this had dwindled down to 3,025 cubic feet. Only a few of the brattices have been repaired on this entry.

"First West Off 3d South.—The curtain on the mouth of this entry is torn and of little value. There should be a brattice on the 3d South blind above the 1st West entry, so the ventilating current will flow through the rooms on this 1st West entry.

"Main Entry.—I noticed that a few of the old stoppings on this entry had been removed, and board brattices put in their stead, but several of these old stoppings have never been touched. I would suggest brick brattices for this Main entry.

"Third East off 3d North (3 persons).—There was practically no ventilation here. Not enough to enable me to get a measurement.

West Side.

"First South (12 persons).—We should have found 7,800 to 8,000 cubic feet of air traveling the working places on this entry, but I was only able to measure 2,191 cubic feet. The check curtain between rooms 8 and 9 is torn and of little value. Props too far from faces of rooms on this entry. The face of room No. 13 is 28½ feet from last props. The brattices on this entry all leak.

"Second West (6 persons).—Here, as in the preceding entry, we should have found the total current, but I could only measure 3,360 cubic feet.

"Your hoisting shaft needs timbering. In fact, it should be ripped out and cased up, and the slope (the man-way) must be cleaned up and re-timbered. There are some broken cross-timbers on both sides of your hoisting shaft near the bottom that must be replaced by new timbers."

Subsequent to service of the foregoing, the following com-

munications were received from the Superintendent of the company, Mr. W. W. Bridges:

No. 1. Addressed to Chief Inspector. Dated September 20, 1904:

"Dear Sir: Mr. Spillman has been here twice of late and found the ventilation not as it should be, and by his report you will see what he asked that we do. We have been unable to develop the entry in order to make connection for another air-shaft; have therefore set about to remedy the matter and get the air in good shape, and in such quantity that will meet his approval. With Mr. Hendrie's assistance, we have arranged to drive from the West Side of the mines to the East Side, and handle the air in a different manner to what we have had; as before the Main East was often blocked by opening doors to allow motor to pass, and the air having to pass all over the old works on North Side of mine made the air bad. Now the work that we are at will give us a change, from best estimate we can make, within 30 to 45 days, and will give the full requirement, we are sure. The air will then return to the Main East entry all the way and not pass through the old works at all. Am having drawing made, and will be able to show you better on that, but Mr. Spillman can take our last map in the meantime and be able to explain the points we will change. We are taking every point into consideration and will carry a strong current to every working place."

Just before the above letter was received, an affidavit was prepared to submit to the Commonwealth's attorney for the purpose of securing an indictment of the company for failure to comply with directions to place its mine in lawful condition. In consideration of statements and assurances contained in the letter, it was determined to defer action.

No. 2. Addressed to Assistant. Dated September 24, 1904:

"Dear Sir: Your report of inspection dated the 15th September to hand and carefully noted. I am pleased to report up to this date the following items that have been carried out as per your request:

"EAST SIDE.—*First South:* All brattices have been put in good condition. *First East off 1st South:* O. K. now. All X have been closed, up to parting; curtain there; new X open

near face and good current passing. Will comply with request to make X closer. *First West off 3d South:* New curtain put in and brattice partly put in to-day will finish first of week cross the blind at point requested. *Main Entry:* Have made arrangement with bricklayer to begin on brick work Monday night. *Third East off 3d North:* New curtain and brattice placed as suggested and good current of air at face.

"WEST SIDE.—*First South* (your report reads 3d South—Error): New curtain placed at or between 8 and 9 rooms, and prop question complied with, and as soon as we get X made will get the other curtain up between rooms 17 and 18 to hold air to faces of rooms on this entry; this is not set out in report, but you thought it would be better and will do so if find it is needed when X is through. *Second West off 1st South:* Have not gotten to this entry as yet. Find it all right except the trouble with the curtains and they have been looked after and air all right down there, all brattices being new and in good shape.

"SLOPE AND TIMBERING AT BOTTOM OF SHAFT.—We have about all the timbers made for bottom of shaft, and on account of going to renew and enlarge shaft next spring, will put it in good shape for the winter, and also the air-shaft. Mr. Hendrie has promised map as soon as possible, showing plan for air. Within 30 to 45 days we hope to make you feel much better over conditions here. The men tell me they have better air now than they have had for many months."

No. 3. Addressed to Chief Inspector. Dated October 3, 1904:

"Dear Sir: You will please find enclosed sketch showing new route for the new air-course, and when completed we are sure will show every foot of air we are required for our men. We are making several changes for the betterment of the air, and our men state that we have better air now than we have had for many months, and still making it better."

The sketch submitted showed a plan which, if carefully carried out, would render it quite feasible to sufficiently ventilate the mine for some time without sinking an additional shaft, and the writer regarded it with much hope.

On the 1st of November the Assistant Inspector was sent to ascertain what progress had been made in driving the "new

air-course." His report to the Chief Inspector, dated December 1, 1904, is as follows:

"Dear Sir: On November 4th I made an inspection of the Pierce mine at Drakesboro and found the conditions in the mine no better than they were upon my preceding inspection, which was made September 15th. I have before me a letter from Mr. W. W. Bridges, the superintendent of the Pierce mine, addressed to you, dated September 20th, in which he says that they have arranged to drive from the West to the East Side of the mine, and handle the air in a different manner.* This connection was not made on the day of inspection, November 4th, although he says in this letter that it would be made in 30 or 45 days. He further says he can better the ventilation this way because the air will not have to travel through the old works to the fan. Yet on November 4th, the day I inspected the mine, he had changed the air so the intake air traveled through the old works before it reached the men, which was a great deal worse for the miners than it was when it (the air) returned through the old works. Attention was called to the unsafe condition of the cages and the shaft, and instructions given to clean out the man-way (or slope) and re-timber some, but none of these instructions had been complied with."

This report of the Assistant Inspector read in connection with the letters of Superintendent Bridges, dated September 20th and 24th presented a puzzling case. The writer, therefore, visited the mine December 5th in order to go over the matter with the superintendent in person. It appeared that an error had been made in estimating the distance necessary to drive in order to make a new connection (the "new air-course") between the West Side 1st South and the South entries—which would give connection with the East Side 1st South via old East and West entry—and that an error had also been made as to the distance that had been driven. The company was given ten days in which to complete the connection. The latter was completed on the night of December 17th. The plan submitted to the writer contemplates meeting the 3d West of East Side with an entry from the 1st South of West Side, driven through the solid, thus making a good connection be-

*See letter given herein.—C. J. N.

between East and West Sides, and making the hoisting shaft the upcast; a shaft to be sunk on the 1st South (East Side), or at a better point as may be developed later on. This is an entirely feasible plan and was approved. The writer was advised that the company had already planned to completely overhaul its shaft and hoisting rig in the spring, and that obvious difficulties were in the way of undertaking such work during the winter season, but that all necessary repairs for temporary purposes would be made at once. With such understanding, further proceedings in regard to shaft, etc., were held in abeyance.

CENTRAL MINE

Mine Office, Central City. Head Office, Louisville.
Transportation, Illinois Central Railroad and Louisville & Nashville Railroad.

Operated by Central Coal & Iron Co. T. C. duPont, President; S. Coleman, Secretary; Wm. D. McElhinney, Treasurer.

Inspected thrice in 1903 and twice in 1904. As a whole, the mine has been maintained in good condition, few instances for complaint being noted.

CRESCENT MINE

P. O., Bevier.

Transportation, L. & N. Railroad.
Operated by the Crescent Coal Co. W. R. Cole, President; F. P. Wright, Secretary and Superintendent of Mines.

The ventilation of this mine has not been satisfactory. On no occasion when inspected, either in 1903 or in 1904, was it found up to the requirements. The principal cause of complaint has been failure to send the current so as to properly ventilate all working places. On two occasions, July 30, 1903, and March 21, 1904, sufficient air was not entering the mine. On the latter date the inlet and outlet for the ventilating current were both choked and were too small. On August 4, 1904, plenty of air was entering, but the distribution to working places was defective. Prior to August 4, 1904, cause for complaint was also found in the failure to set props close enough to faces of rooms; but on that date timbering and drainage were both satisfactory.

A new tippie was built in 1903.

DOVEY MINE.

Mine Office, Mercer.

Head Office, Central City.

Transportation, Illinois Central Railroad.

Operated by Dovey Coal Co. Hywel Davies, President; J. C. Brooks, Secretary. During nearly the whole of 1904 the mine was operated under the control of other officials.

Inspected twice in 1903 and in 1904. No cause for complaint on account of ventilation and drainage has been found, but it was necessary on two occasions to notify the company that not enough timbering was being done in the rooms; that fore-set props were not being kept close enough to room faces; that rooms were being driven too wide, and that pillars were too thin. On July 15, 1904, the date of last inspection, ventilation, drainage and timbering (as the latter was then being done) were satisfactory.

DRAKESBORO MINE.

P. O., Drakesboro.

Transportation, L. & N. Railroad.

Operated by the Drakesboro Coal, Coke & Mining Co. H. Morton, President; A. A. Riddleberger, Vice-president; W. M. Mason, Secretary; Horace Mason, General Manager; S. A. Brashear, Assistant Manager and Purchasing Agent.

This mine, a shaft 82 feet in depth, was opened for shipments in 1904. When first inspected, March 23d, natural means were depended on for ventilation, and the latter was bad. When last inspected, August 6th, artificial means had been provided and ventilation was good. A brake on the drum and safety-gates at the shaft were required.

GISH MINE.

Office, Central City.

Transportation, Illinois Central Railway.

This mine was opened by S. J. Gish and was operated by him during the earlier part of 1904. Subsequently it passed into the hands of the Morgan Coal Co.

This mine, as a whole, has been maintained in good condition as regards all requirements. Failure to have fore-set props close enough to faces was noted in some rooms when the mine was last inspected, August 3, 1904.

W. G. DUNCAN COAL CO. MINES.

Mine and Head Office, Luzerne.

Transportation, Illinois Central Railroad.

Operated by the W. G. Duncan Coal Co. W. G. Duncan, President; C. W. Taylor, Vice-president and Treasurer; A. W. Duncan, Secretary; O. C. Roll, Superintendent.

Luzerne mine.—The principal additions to plant and improvements were made in 1903. The following statement covering that year was furnished by Mr. W. G. Duncan:

"We have put in one additional boiler 72 inches by 18 feet, built by the Atlas Engine Works, Indianapolis, Ind. One additional electric chain mining machine, built by the Goodman Mfg. Co. One 10-ton, 220-volt, 3,500-pound drawbar-pull electric locomotive, built by the Jeffrey Mfg. Co. We have put down on our Main entry, 40-pound steel instead of 25-pound, and installed one 8-foot Sullivan fan. This fan was installed about the middle of September, 1903. We have increased the length of our loading mine track 1,200 feet so that we can now take care of 47 loaded railroad cars, and increased the length of our track above the tippie 500 feet so that we can now take care of 32 empty railroad cars. Our capacity at Luzerne is not surpassed by any mine on the Louisville Division of the I. C. Railroad; in fact, we stand first, having produced more tons of coal in eight hours than any mines on the Louisville Division of this road. During the year we have erected 15 new dwelling houses."

Prior to the installation of the fan noted above the ventilation was defective, the furnace hitherto depended on being inadequate for the task required. Since the installation of the fan the ventilation has been good and the mine maintained in satisfactory condition in all respects. The last inspection was made August 2, 1904.

Graham mine.—Shipments from this mine began November 24, 1903. Mr. W. G. Duncan furnished the following statement concerning the equipment of the mine, April 9, 1904:

"At this mine we have 4,000 acres of No. 9 coal. It is located at Mile Post No. 139 on the I. C. Railroad. We have built two miles of railroad in order to get out into the center of our 4,000-acre tract. We broke dirt at this mine on the 4th day of July, 1903. We have pushed the work rapidly and began shipping coal from this mine on the 24th day of November, 1903. We are equipping this mine with the Jeffrey chain electric mining machine, and have bought eight to be shipped as we require them. We have one McEwen engine, 19-inch cylinder, 18-inch stroke, 238-h. p. We have one Jeffrey multipolar generator, 250 volts, over compound 10 per cent. 150 k. w., with all of the most modern station equipment for the same. We have bought and will install, as soon as possible, one 10-ton, 220-volt, 3,500-pound drawbar-pull, Jeffrey electric locomotive; two 72 inches by 18 feet boilers, made by the Atlas Engine Works, at Indianapolis, Ind. In the spring of 1904 we will open up what will be known as the Skibo Mine on the east side of the valley, and we are constructing now one of the most modern and latest improved tipples that is in the entire Southern country; putting in two automatic Mitchell self-dumps; two standard stationary screens, with curved chutes, so that one weigh-box will answer for both screens—one of the most improved shaking screens on the market so as to make any grade of coal desired. Two endless chain-hauls to hoist the coal from the bottom of the slope on the east side and the mouth of the mines on the west side into the weigh-house. All this to be driven with a 12x20 engine. The hoisting and screen apparatus made by the Jeffrey Mfg. Co., Columbus, Ohio, and the engine made by the Atlas Engine Works of Indianapolis, Ind. We are putting in one of Fairbanks, Morse & Co.'s latest improved, 42-foot railroad track-scales. We have built 52 dwelling houses."

The mine was inspected March 8 and August 2, 1904. On each occasion all conditions were satisfactory.

HILLSIDE MINE.

Mine Office, Mercer.

Head Office, Greenville.

Transportation, Illinois Central Railroad.

Operated by Hillside Coal Co. J. W. Lam, Secretary and Treasurer; William Eads, Superintendent.

The condition of this mine as regards ventilation has varied, but upon the whole it has been good. When last inspected, August 1, 1904, the ventilating current did not reach working places on the 3d South and 6th North. Elsewhere all conditions were good.

OAKLAND MINE.

Mine Office, Mercer.

Main Office, Greenville.

Transportation, Illinois Central Railroad.

Operated by Oakland Coal Co. J. W. Lam, Secretary and Treasurer; William Eads, Superintendent.

Although all conditions were good when last inspected, August 1, 1904, the condition of this mine prior to that date was on no occasion found to be satisfactory. On May 19, 1903, the ventilation was very defective. The air was allowed to scatter through old workings and become foul before reaching the men, and the current did not properly reach the working places. On August 1, 1903, while improvement had been made in confining the current to a better course, the air did not reach all working places, because of poor curtains. On March 18, 1904, ventilation, drainage and timbering were good, but one of the cages was in bad order. As stated above, on August 1, 1904, all conditions had been made good.

POWDERLY MINE.

Mine Office, Powderly.

Transportation, Illinois Central Railroad.

Operated by the Central Coal & Iron Co., under lease, until September 1, 1904, when it passed into the hands of the Greenville Coal Co.

The last inspection of this mine was made August 1, 1904. Up to and including that date, and since May, 1903, the mine was maintained in good condition.

Ohio County.

AETNA COLLIERY.

Mine Office, Aetnaville. Telegraph Office, Deaneville.

Transportation, Owensboro Division of I. C. Railroad.

Operated by Deaneville Coal Co. W. R. Williams, Secretary and Treasurer.

The mine (a shaft) has not been maintained in good condition. Ventilation has been found, as a rule, especially defective. On March 15, 1904, proceedings against the company were instituted. The matter was placed in the hands of the then acting county attorney of Ohio county, to whom the names of witnesses were given, with request that suit be brought to enjoin the company from working more than five persons underground until the mine should be brought into lawful condition. The Assistant Inspector also appeared before the grand jury and the matter was laid before that body. It is understood that the company was indicted, but that injunction suit was not brought.

It is gathered from a letter received from the Commonwealth's attorney that the reason the injunction suit was not brought was because Mr. Deane, President of the company, stated "he expected to close the mine at once and have necessary repairs and improvements put in." If the mine was shut down for such purpose at all, it was for a very short time, and it has not yet been put in proper condition.

ECHOLS MINE.

Mine Office, Echols.

Transportation, Illinois Central Railroad,

Operated by McHenry Coal Co. See McHenry Mine.

Inspected three times in 1903 and twice in 1904. Since April, 1903, the mine has been maintained in satisfactory condition.

JAMESTOWN MINE.

Mine Office, Coffman.

Main Office, Bowling Green.

Transportation, Green river.

Operated by Green River Mining, Manufacturing & Transportation Co.

The No. 2 mine, the one which has been working most of the time covered by this report, has not been maintained in good condition. Ventilation has, as a rule, been found defective. When the place was visited August 19, 1904, No. 2 mine was almost done, and a new mine, to be known as No. 3, was being opened.

JOHNSON MINE.

Mine and Head Office, Fordsville.

Transportation, Owensboro Division of I. C. Railroad and by L. H. & St. L. Railroad.

Operated by Fordsville Block Coal Co. W. S. Gaines, President; C. E. Ford, Vice-president; Ike C. Adair, Secretary and Treasurer.

Not much was done at this mine during 1904. It worked only 108 days (of ten hours), producing 7,089 tons of coal. When last inspected, August 12, 1904, only ten persons were employed underground. All conditions were satisfactory.

MCHENRY MINE

Mine Office, McHenry.

Transportation, Illinois Central Railroad.

Operated by McHenry Coal Co. T. C. duPont, President; W. D. McElhinny, Vice-president and Treasurer; Spalding Coleman, Secretary.

During 1903 and the first quarter of 1904 the ventilation of this mine was very defective, due chiefly to the fact that a new air-shaft was required, and the company was not notified. In July, 1903, the company commenced sinking the shaft, but proceeded so slowly that it was still incomplete when the mine was inspected March 4, 1904.

RENDER MINE.

Mine Office, Render.

Main Office, Louisville.

Transportation, Illinois Central Railroad.

Operated by Central Coal & Iron Co. T. C. duPont, President; W. D. McElhinny, Vice-president and Treasurer; Spalding Coleman, Secretary.

The mine has been maintained in a satisfactory condition. Ventilation is obtained by means of a 15-foot fan.

TAYLOR MINE.

P. O., Taylor Mines.

Head Office, 415 W. Jefferson St.,
Louisville, Ky.

Transportation, Illinois Central Railroad.

Operated by the Taylor Coal Company of Kentucky. J. B. Speed, President; I. P. Barnard, Superintendent; W. A. Jones, Secretary and Treasurer.

No. 1 mine.—Up to August 13, 1904, inspections had shown the mine, upon the whole, to be in good condition in all respects. On that date the ventilation was defective, due apparently to lack of furnace power, and the company was so notified.

No. 2 mine.—This mine, as a rule, has been found in good condition. When last inspected, August 13, 1904, a check curtain was required at one point; otherwise, the mine was in good condition.

WILLIAMS MINE.

P. O., McHenry.

Head Office, Louisville, Ky.

Transportation, Illinois Central Railroad.

Operated by the Williams Coal Co. I. P. Barnard, President; W. A. Jones, Secretary and Treasurer.

As a rule, this mine has been found in good condition. When last inspected, August 15, 1904, two check curtains were needed; otherwise, there was no cause for complaint.

The following statement of equipment and improvements made in 1903 has kindly been furnished by the company:

"During the year 1903 we replaced the old tip-house and slope with an entirely new three-track tip-house and a hoisting plant, sinking a shaft about 45 feet deep to the coal, making a connection with an entry driven parallel to the old slope. The hoisting engine is a 12x12 vertical manufactured by the Otis Elevator Co., at Chicago, Ill. The engine is so placed that the pull is vertical, using four sheave wheels in the overhead rigging to lead respectively to the two compartments of the shaft. This engine will hoist about four cars a minute, taking into account the dumping of the cars and putting them on the cages when all is going smooth. The shaft was sunk 12 feet 6 inches by 8 feet in the clear, being cribbed solid with 4x10 white oak timber. The engine is equipped with automatic cut-off and is controlled by the operating engineer on the dumping floor of the tip-house, he standing between the two dumps, which allows him to take off the checks from the cars. The screen equipment manufactured by the Eagle Iron Works, at Terre Haute, Ind., is a stationary rig.

"The shaft was sunk, due to unavoidable conditions on the dip of the coal, which gives us sufficient grade to allow us to drop our load to the shaft without any trouble. To handle our empties so as to get them into position for motor trips of from 30 to 40 cars each, we installed an endless-chain rigging, manufactured by the Jeffrey Mfg. Co., at Columbus, Ohio, which received the empties after they are knocked off of the stage by placing the loaded car on the cage. This chain elevates the empty about 7 feet up a grade of 33 1-3 per cent. Then the car is given its freedom and runs by gravity to its place in the motor trip. This chain travels at the rate of 60 feet per minute and has buggies on it every 7 1/2 feet. This chain is operated by a small steam engine belt connected to the gears which operate the sprocket wheels carrying the chains. As the motor trip is made up on the same side of the shaft as the load is taken on, the empties go through a spring switch and a bumper before reaching the chain. When we get the interior workings of the mine enlarged sufficiently, we anticipate no trouble in handling 1,200 tons per day of eight hours."

Union County.

AMERICAN MINE.

Mine P. O., Uniontown.

Main Office, 802-804 Stevenson Bldg, Indianapolis, Ind.

Transportation, Illinois Central Railroad, and may be by Ohio river.

Until August 6, 1903, the mine was operated by the American Coal & Iron Co. Since that date it has been owned and operated by the National Coal & Oil Co. Dr. O. W. Brownback, President; Dr. Samuel Harrell, 1st Vice-president; Thos. Dehority, 2d Vice-president; Robert L. Mcouat, Treasurer; Chas. H. Baker, Secretary; D. E. Caulton, Superintendent. (The company's oil interests are in Indiana.)

This mine was inspected twice in 1903 and in 1904. On each occasion it was in good condition in all respects.

DAVIS COLLIERY.

Mine P. O., Davis.

Head Office, Marion.

Transportation, Illinois Central Railroad.

Operated by the Crittenden Coal & Coke Co. C. S. Nunn, President; J. W. Blue, Jr., Secretary-Treasurer; H. H. Sayre, General Manager.

This was a new mine in February, 1904. It is ventilated by furnace, but when inspected July 13th the furnace did not seem to have sufficient power. There was then not a sufficient current traversing the mine to turn the anemometer, and the volume passing through the furnace amounted to only 3,584 cubic feet.

DEKOVEN No. 9 MINE.

Mine and Head Office, DeKoven.

Transportation, O. V. Division of Illinois Central Railroad, and Ohio river.

Operated by Ohio Valley Coal & Mining Co. S. S. Brown, President; S. P. Sturgis, Secretary; John Whitehead, Superintendent.

Inspections made in 1903 found the ventilation defective, even the volume of air entering the mine on September 18th being insufficient. Following said inspection, however, a 10-foot fan was installed, and when the mine was inspected February 27, 1904, the ventilation was excellent. When inspected July 14, 1904, the ventilation, as a whole, was good, the only cause for complaint being the absence of check curtains needed at two places to send the air into certain rooms.

CUMBERLAND MINE.

Mine Office, Sturgis.

Main Office, 45-47 Wall St., New York City.

Transportation, O. V. Division of I. C. Railroad, and Ohio river.

Operated by United States Gas Coal & Coke Co. Thomas Nevins, President; Charles Bucher, Superintendent. This company is successor to the Paducah Coal & Mining Co.

Inspections in 1903 found the ventilation of the mine, as a whole, good. Only two inspections could be made in 1904. On February 29th the ventilation was good. When visited in July the mine was closed for thirty days.

MORGANFIELD MINE.

P. O., Morganfield.

Transportation, Illinois Central Railroad.

Operated by the Morganfield Coal & Mining Co. W. Lloyd, President; T. A. Cartwright, Vice-president.

Only two inspections could be made in 1904. When inspected February 27th the ventilation was good except on the 1st. South entry, where a check curtain was needed to direct the air into the rooms. No timbering was being done in consequence, and attention was called to the risk taken in consequence. When inspected on July 7th the ventilation, drainage, etc., were good.

SULLIVAN MINE.

Mine Office, Sullivan.

Transportation, O. V. Division of I. C. Railroad.

Operated by Marion Coal Co. W. J. Deboe, President; Carl Henderson, Vice-president; Jas. W. Lamb, Secretary and Treasurer.

Through a misunderstanding and oversight, this mine has not been inspected. During 1904 only a small number of men were employed, the output amounting to only 877 tons.

TRADEWATER MINE.

Mine Office, Sturgis.

Transportation, O. V. Division of I. C. Railroad.

Operated by Tradewater Coal Co. Jacob L. Frankel, President; W. F. McMurry, Superintendent.

As a rule, this mine has been kept in good condition. When last inspected, however, i. e., on July 13, 1904, the ventilating current was not satisfactorily conducted—it did not reach some of the working faces.

UNIONTOWN (DAVIDSON) MINE.

Mine and Head Office, Uniontown.

Transportation, O. V. Division of I. C. Railroad.

Operated by B. C. Davidson & Sons. B. C. Davidson, President; H. T. Davidson, Secretary and Treasurer.

This mine has been maintained in good condition.

Webster County.

BLACKWELL MINE.

P. O., Clay.

Transportation, L. & N. Railroad.

Operated by the Thos. Blackwell Coal & Mining Co. W. C. Blackwell, President.

Loaded first coal August 8, 1904. The mine was inspected November 23d. Ventilation, drainage, and timbering were

satisfactory. The pillar left between Main and air-course was too thin. Ventilation is obtained by a 12-foot fan.

FORSYTHE MINE.

Mine Office, Providence.

Transportation, L. & N. Railroad.

Operated by R. L. Forsythe.

Until the summer of 1904 natural means were depended upon to ventilate this mine, and the ventilation was very defective, despite repeated notice to provide adequate artificial means. The firm escaped indictment for failure to comply with the law through oversight on the part of the writer. An inspection made November 23, 1904, showed the mine to be in satisfactory condition.

PROVIDENCE MINES.

P. O., Providence.

Transportation, L. & N. Railroad.

Operated by the Providence Coal Co. W. A. Nisbet, President; W. J. Nisbet, Secretary and General Manager; Percy D. Berry, Treasurer and General Sales Agent.

The Slope mine.—The condition of this mine in 1903 was not up to the standard as regards ventilation. While an abundance of air entered the mine, it was not well conducted. The timbering, also, was unsatisfactory. When inspected June 30, 1904, the ventilation and drainage were good, but timbering was not satisfactory. When inspected last, on November 22, 1904, all conditions were good.

The Shaft mine.—Inspected twice in 1903 and in 1904. When inspected March 2, 1903, there were no safety-catches on cages, and the latter were old and dangerous. When last inspected, November 22, 1904, ventilation, drainage and timbering were all right.

SEBREE MINE.

Mine and Head Office, Sebree.

Transportation, L. & N. Railroad.

Operated by Sebree Coal & Mining Co. J. B. Ramsey, President; J. R. Ramsey, Vice-president; C. H. Ramsey, Secretary and Treasurer.

This has been a badly-managed mine underground as regards ventilation. The mine was inspected three times in 1903 and twice in 1904. On none of the occasions was the ventilation good, and this was due in part to persistent violation of the law in regard to closing rear break-throughs. The writer has reluctantly concluded that it will be necessary to resort to indictment to compel compliance with the law.

SHAMROCK MINE.

Mine Office, Providence.

Head Office, Earlington.

Transportation, L. & N. Railroad.

Formerly operated by the Shamrock Coal Co. The property passed into the hands of the St. Bernard Mining Co. in 1903. Officers are: John B. Atkinson, President; Geo. C. Atkinson, Secretary and Treasurer.

During 1903 the mine was maintained in good condition. When visited in July, 1904, it was idle; indeed, it was idle nearly all the year, the number of days it was worked being only 68.

WHEATCROFT MINES.

Mine and Head Office, Wheatcroft.

Transportation, by W. K. R. R. to Illinois Central Railroad.

Operated by Wheatcroft Coal & Mining Co. Irving H. Wheatcroft, President.

The condition of these mines has been very unsatisfactory. The following correspondence covers the most recent phase of the question:

Lexington, Ky., Feb. 11, 1905.

Mr. I. H. Wheatcroft, President,
Wheatcroft Coal & Mining Co.,
Wheatcroft, Ky.

Dear Sir: The Assistant Inspector of Mines, whom I sent to Western Kentucky to settle some matters in regard to your mine has returned and made a report to me in regard to the matter. Your company has so persistently failed to comply with instructions to put your mines in lawful conditions that I had instructed Mr. Spillman to place the matter in the hands of the Commonwealth's Attorney, with request that proper action be taken. Mr. Spillman informs me, however, that upon visiting your place and having a conference with you he held up the matter from the courts in consideration of certain promises you unreservedly made to him. In brief, said promises are that you will put in a second fan; that you will double the brattices (especially between the Main and air-courses); that you will put good curtains where he has specified, and place the mine in a thoroughly safe and wholesome condition. I have approved the action of the Assistant, but respectfully assure you that if these things promised are not done without delay the matter will be pushed in the courts without further discussion.

Very respectfully,

C. J. NORWOOD,
Chief Inspector of Mines.

Wheatcroft, Ky., February 15, 1905.

C. J. Norwood, Esq.,
Chief Inspector of Mines,
Lexington, Ky.

Dear Sir: Replying to your esteemed communication of the 11th, we beg to advise you that we are more than anxious to maintain our mine at all times in such condition that it will not only pass your inspection, but be in every respect a model mine. The difficulties with which we have had to contend this winter, including a bad cave-in, from the surface of the ground, and another almost as bad, where we had worked our coal from under the rock roof, and which almost

drowned out our mine on two or three occasions, . . . has prevented my getting the mine in such good condition as I had wished to do. In regard to the instructions given us by Mr. Spillman on his last two visits, I beg to assure you that I have made a conscientious effort to have such work done as he required, and at the present moment it is the unanimous opinion of all my miners with whom I have talked on the subject that the air in the mine is better, and the general conditions of the mine better, than they have been during the past two years. I have men working, doubling the brattices and putting up good curtains and new trap-doors, since Mr. Spillman was last here, and whatever specific instructions Mr. Spillman gave on his last visit are being fully complied with. In regard to the mine being put in a safe and wholesome condition, I think any experienced mining engineer, or any miner, would say that our mine is in as *safe* a condition at the present moment as any mine in this part of the State. In this respect I would beg to call your attention to that fact that during the three years in which this mine has been opened up, we have never so much as had an accident of any description, or a man hurt in any manner, inside the mine, since it has been in existence; which record, we believe, can be equalled by very few mines in this State. The sole trouble we have had at any time in our mine has been with the circulation of the air, and that matter is the one we are working on to remedy. In regard to purchasing a second fan to install somewhere in the center of the mine, I asked Mr. Spillman if he thought this would be a good idea or was necessary, and he informed me that, although a second fan would undoubtedly help materially in circulating air, that our present fan is very ample (especially while we are operating the mine with so few men) if the brattices and curtains were put in such condition as to properly circulate the air, and we are doing in every way we know how. . . . Assuring you of our earnest desire to comply fully with your views in regard to the circulation of the air and other matters pertaining to the mine, I beg to remain,

Yours sincerely,
WHEATCROFT COAL & MINING Co.,
By Irving H. Wheatcroft, President.

Lexington, Ky., February 18, 1905.

Mr. I. H. Wheatcroft, President,
Wheatcroft Coal & Mining Co.,
Wheatcroft, Ky.

Dear Sir:—I have just read your letter to Mr. Norwood, the Chief Inspector, and note what you say in regard to the capacity of your present fan, which was discussed by you and me. I said that your present fan was amply sufficient for your mine if properly placed, but with the small air-way you have leading from your fan to the shaft it is impossible for your fan to properly ventilate your mine. Hence I said a second fan would be necessary if you let your present fan remain as it is. If you intend to let the present fan remain where it is it will be necessary for you to install a second fan. Otherwise, you will never be able to properly ventilate your mine as required by law, no matter what kind of brattices and curtains you use.

Respectfully,

A. G. SPILLMAN,
Assistant Inspector of Mines.

X

LAWS RELATING TO MINING, ETC.

THE MINING LAW.

AN ACT to provide for and regulate the ventilation of coal mines in this State and for the better protection of miners, enacted by the General Assembly of 1891-93, and amended at the sessions of 1894 and 1898.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. [First two sentences of Act of 1891-'93 repealed by section 3 of Act of 1898, and the following substituted therefor: That the Board of Trustees of the State College be, and they are, hereby authorized to establish a course of study in said College to be known and designated as the "Course of Mining Engineering," in which shall be taught all the branches of science relating thereto, and said Board of Trustees shall, after the expiration of the terms of service of the present Inspector and assistants respectively, select, as other professors are selected, a suitable and competent person for Dean of the same, with the necessary staff of assistants, and said Dean shall by reason of said selection be the Inspector of Mines with all the powers and privileges now conferred upon said Inspector by law. It shall be his duty to determine, by chemical analysis, or otherwise, the kind and quantity of the mineral products of the State of Kentucky as may be sent to him for inspection or analysis, and give written opinions thereon, but these latter duties shall not be allowed to interfere with his duties as Inspector, relative to the safe condition of the coal mines of the State. He shall take the required oath and give the same bond as now required by said officer. He and his assistants shall hold office on identically the same conditions with other professors in said College, and shall be subject to removal as they are.—From sec. 3, chap.

55, Acts of 1898.] Said Inspector shall have a practical knowledge of chemistry, geology and mineralogy, and shall also possess a practical knowledge of the different systems of working and ventilating coal mines, and of the nature and properties of the noxious and poisonous gases of the mines, especially fire-damp, and he shall also have a practical knowledge of mining and engineering; and said Inspector shall, before he enters upon the discharge of his official duties, be sworn to discharge them faithfully and impartially, which oath shall be subscribed on his commission and certified by the officer administering it and his commission so indorsed shall be filed with the Secretary of State in his office; and said Inspector shall give bond in the penal sum of five thousand dollars, with surety, to be approved by the Governor, for the faithful discharge of his official duties.

§ 2. Said Inspector shall give his entire time and attention to the discharge of the duties of his office, and it shall be a part of his duty to visit and inspect, as often as may be necessary, all the coal mines in actual operation in Kentucky and to see that the provisions of this act are complied with by the owners, agents and superintendents of all the mines in this State.

§ 3. Said Inspector shall have power to visit and inspect any mine to which this act applies. He shall examine into the condition of such mine with respect to ventilation, drainage, timbering and general security; and if, upon inspection, he finds that such ventilation, drainage or timbering as the health or safety of the persons employed in the mine would require has not been provided, or should he find the mine insecure in any part, or should he find that sufficient means of ingress and egress have not been provided, said Inspector shall at once notify the agent, superintendent or owner of the mine as to the unsafe or unwholesome condition of such mine, and require him to put the mine in a safe and wholesome condition, and such mine shall forthwith be rendered safe and healthful. For a failure to comply with the directions of the Inspector to render such mine safe, and to provide such ventilation as is sought to be secured by this law, and to provide safe and suitable means of ingress and egress within twenty days from the date of inspection, the agent or superintendent and owner

shall be liable to a fine of fifty dollars per day for every day that such mine shall be suffered to remain in such unsafe or unhealthful condition after the expiration of the twenty days above provided in which the required improvements should be made, which fine may be collected by indictment by the grand jury of the county in which such mine is situate; but in cases in which the Inspector is satisfied, from personal investigation, that, even if due diligence is observed, the required improvements can not be completed within the thirty (20) days above provided, he shall have authority to extend the time for not more than twenty days longer; but when the time is thus extended, the agent, superintendent or owner who is delinquent after the expiration of the additional time, shall be subject to indictment and fine as above provided; and as a cumulative remedy in case of failure of any owner, agent or superintendent to conform to the provisions of this law, after notice from the Inspector, within the time provided by this section, any circuit court, or the judge in vacation, may, on application of the Inspector, by civil action, in the name of the State, enjoin or restrain, by writ of injunction, the said owner or agent or superintendent from working or operating such mine with more than five persons until it is made to conform with the provisions of this law. But before such writ of injunction shall issue, the owner, agent or superintendent shall have at least three days' notice of such contemplated action, and shall have the right to appear before such court, or the judge in vacation to whom the application is made, who shall hear the same on affidavits and such other testimony as may be offered in support, as well as in opposition thereto. It shall be the duty of the Commonwealth's Attorney of the district, and of the County Attorney of the county in which the mine lies, to prepare and prosecute proceedings upon said application. [This section is in accordance with amendment approved March 3, 1894.]

§ 4. The Inspector of Mines shall be provided with all necessary stationery, to be supplied by or through the State Librarian as other offices are supplied; and he shall keep a record of all the inspections made by him and shall furnish a certified copy of his report of the inspection of any mine inspected by him to the Commonwealth's attorney of the district

in which the mine is situated, on application therefor, which copy shall be admissible in evidence in any court in this Commonwealth, and shall be *prima facie* evidence of the truth of recitals therein contained. [As amended by Act of 1898.]

§ 5. Such Inspector while in office shall not act as agent, or as a manager or mining engineer for, or be interested in operating any mine, and he shall annually, on or before the tenth day of February, make report to the Governor of his proceedings for and during the calendar year ending on thirty-first day of December, and of the condition and operation of the coal mines in this State, enumerating all accidents which shall have occurred in or about the same, and giving such other information as he may deem useful, and making such suggestions as he may deem important as to further legislation on the subject of mining. The Inspector shall also report the number of persons employed in and about the mines, and the amount of coal mined; and, for the purpose of enabling him to make such report as is required by this section, the owner, lessee, agent, or superintendent of every mine to which this law applies is hereby required to give, each month, accurate information, on blanks to be furnished by the Inspector, as to all accidents occurring in or about the mines, the number of persons employed, and the amount of coal mined during the preceding month; and the owner, lessee or superintendent refusing or failing to furnish the Inspector such information for sixty days after application therefor has been received, shall be liable to a fine of fifty dollars, to be recovered in the county in which the mine concerning which such information is refused is situated. The Inspector is authorized to extend his observations, so as to be prepared to report on the mining possibilities and mineral resources of the counties to which he is called in the prosecution of his duties as Inspector. One thousand copies of the Inspector's annual report shall be printed for general distribution.

§ 6. The Inspector shall receive an annual salary of eighteen hundred dollars, payable monthly, and shall likewise be allowed and paid his necessary traveling expenses when absent from his office on business connected with his department; and he shall keep on file in his office maps and plans of all coal mines in operation in this State, which maps, plans, and

all the books, records and apparatus of his office he shall carefully keep and turn over the same, with all official correspondence pertaining to his office, to his successor; and upon application of the owner, agent, lessee or superintendent therefor, he shall make out a duplicate of any map on file in his office of any mine owned or operated by the owner, agent, lessee or superintendent making such application, for the making of which duplicate a fee of five dollars must be paid, and which fee shall, within thirty days after its reception, be paid into the State Treasury by the Inspector receiving it.

§ 7. There shall be provided for said Inspector all instruments and chemical tests necessary for the discharge of his duties under this law, which shall be paid for on the order of the Inspector, and which shall belong to the State.

§ 8. The owner, agent, lessee or superintendent of every coal mine in this State, to which this law applies, shall annually, within sixty (60) days after the first day of January, make or cause to be made, an accurate map or plan of the workings of such mine, on a scale of not more than one hundred feet to the inch, showing the area mined and the form of the excavations up to the said first day of January, together with the location and connection with such excavations of the lines of all adjoining lands, and the name or names of each owner or owners so far as known, marked on each tract; a true copy of which map the said owner, agent, lessee or superintendent shall deposit with the Inspector of Mines within seventy days after said first day of January, and another copy of which shall be kept at the office of such mine. But, after the making of and filing with said Inspector of the first map of the mine, as required herein, the owner, agent, lessee or superintendent, shall only be required to annually make and file with said Inspector, within the times herein specified, such additional map and statement as may be necessary to truly show the progress of the workings and the amount of excavation of said mine from the date of the preceding map or survey up to the first day of January as provided herein. The Inspector shall annually, on or before the first day of January, give warning notice that said map is required; and upon the refusal or failure of the agent, owner, lessee or superintendent receiving such notice, to make, or cause to be made, such map

within the sixty (60) days, and deposit the same with the Inspector within the seventy (70) days, specified herein, said owner, agent, lessee or superintendent shall be liable to a fine of five dollars (\$5) a day for each day elapsing until said map is made, said fine to be recovered in the county in which the mine to be mapped is situated. The correctness of each map provided for by this section shall be certified to by the person making such map; and the Inspector may reject any map as incomplete, the accuracy of which is not so attested.

§ 9. It shall not be lawful for the owner, agent or superintendent of any coal mine, worked by a shaft, slope or drift, wherein fifteen thousand square yards have been excavated, to employ more than ten persons to work therein, or to permit more than ten persons to work in such mine, unless there are to every seam of coal worked in each mine at least two separate outlets, separated by natural strata of not less than one hundred feet in breadth, by which shafts or outlets distinct means of ingress and egress are always available to the persons employed in such mines; but it shall not be necessary for the two outlets to belong to the same mine; and every shaft opened after the passage of this act shall have two such separate outlets after fifteen thousand square yards shall have been excavated; and to all other mines, whether slopes or drifts, two such openings or outlets shall be provided within twelve months after the passage of this law, provided fifteen thousand square yards have been excavated at or before the passage of this law, or if not, then within twelve months after that extent has been excavated. In case any coal mine has but one shaft, slope or drift for the ingress or egress of the men working therein, and the owner thereof does not own suitable ground for another opening, such owner may select appropriate associate adjacent surface ground for that purpose, and have the same condemned, and appropriate the same by proceedings in the county court of the county where the mine is situated, similar to proceedings now allowed by law for securing a private passway.

§ 10. The owner, agent or lessee of every coal mine, whether slope, shaft or drift to which this act applies, shall provide and maintain for every such mine an amount of ventilation of not less than one hundred cubic feet of air per min-

ute per person employed in such mine, which shall be circulated and distributed throughout the mine in such manner as to dilute, render harmless, and expel the poisonous and noxious gases from each and every working place in the mine, and no working place shall be driven more than sixty feet in advance of a break-through or air-way; and all break-throughs or air-ways, except those last made near the working face of the mine, shall be closed up and made air-tight by brattice, trap doors, or otherwise, so that the currents of air in circulation in the mine may sweep to the interior of the excavations where the persons employed in the mines are at work; and all mines governed by this statute shall be provided with artificial means for producing ventilation, such as suction or forcing fans, exhaust steam, furnaces, or other contrivances of such like capacity and power as to produce and maintain an abundant supply of air. All mines generating fire-damp shall be kept free from standing gas, and every working place shall be carefully examined every morning with a safety lamp, by a competent person or persons, before any of the workmen are allowed to enter the mine. And at every mine operated by a shaft there shall be provided an approved safety-catch, and a sufficient cover overhead, on all cages used for lowering and hoisting persons, and at the top of every shaft a safety-gate shall be provided, and an adequate brake shall be attached to every drum or machine used in lowering or raising persons in all shafts and slopes.

§ 11. Any person employed in any mine governed by this statute who intentionally or willfully neglects or refuses to securely prop the roof of any working place under his control, or neglects or refuses to obey any order given by the superintendent of the mine in relation to the security of that part of the bank where he is at work, and whoever knowingly and willfully does any act endangering the lives or health of the persons employed in a mine or the security of the mine or machinery, shall be liable to a fine of not less than ten dollars nor more than fifty dollars, to be recovered in the county in which the mine is situate.

§ 12. Coal mines in which not more than five persons are employed at one time shall be exempt from the provisions of this law.

§ 13. On account of the emergency hereby declared to exist, in that it is necessary for the employes in mines to receive the protection of the provisions of this law in timely season, this law shall be in force from its approval by the Governor.

Approved February 15, 1893.

CURATOR OF GEOLOGICAL DEPARTMENT.

EXTRACT from Resolution 61 of General Assembly of 1891-92-93, as amended in Chapter 78 of Acts of General Assembly of 1894.

1. That the Inspector of Mines, in addition to his duties as such Inspector, shall be Curator of the Cabinet and other property of the Geological Survey or Department, and all the records, documents, collections, instruments, apparatus, books, maps and other property of the Survey are hereby confided to his care and keeping; and, as such Curator, he is hereby required to attend to all correspondence and respond to all requests concerning the mineral resources of the State that come to him in his said capacity; to attend to the distribution of all published maps and reports in his hands intended for distribution, and to perform all the duties usually devolving upon such Curator, so far as is applicable in this case; and he shall, whenever the General Assembly shall direct and provide therefor, cause to be printed under his supervision, any or all of the unpublished reports of the Geological Survey that may be in his custody. He shall be allowed and paid fifty dollars per month as compensation for his services as such Curator, and shall give bond for the faithful performance of his duties as such Curator, with surety to be approved by the Governor.

ASSISTANT INSPECTOR.

AN ACT to increase the efficiency of the Inspector of Mines, and more fully provide for the protection of the lives and health of persons employed in the coal mines of this State, enacted by the General Assembly of 1891-92-93. Approved December 3, 1892, and June 9, 1893.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. Every mine subject to the provisions of the act providing for the inspection of the coal mines, shall be inspected not less than three times each year, the inspection to be, as nearly as possible, not more than four months apart, and as many more times as the facilities of the office will permit.

2. [First sentence of Act of 1893 repealed and an Assistant Inspector, to render effective section 1 above, provided for by section 3 of Act of 1898. See section 1 relating to Inspector of Mines, Acts of 1891-3. 1894 and 1898, preceding.] Said Assistant Inspector shall have a practical knowledge of the different systems of working and ventilating coal mines, and of the nature and properties of the noxious and poisonous gases of mines, especially of fire-damp, and he shall also have a practical knowledge of mining. Said Assistant Inspector shall before entering upon the discharge of his official duties be sworn to discharge them faithfully and impartially, which oath shall be subscribed on his commission and certified by the officer administering it, and his commission so indorsed, shall be filed with the Secretary of State in his office, and said Assistant Inspector shall give bond in the penal sum of two thousand dollars, with surety, to be approved by the Governor, for the faithful discharge of his official duties.

3. Said Assistant Inspector shall give his entire time and attention to the duties of his office, which shall consist of aiding, under the direction of the Inspector of Mines, in carrying out the provisions of this and all other acts relating to the inspection of coal mines.

4. Such Assistant Inspector, while in office, shall not act as agent or as a manager or mining engineer for, or be interested in operating any coal mine in this State. He shall re-

ceive an annual salary of \$1,200 (twelve hundred dollars), payable monthly, and shall likewise be allowed and paid his necessary traveling expenses when absent from his office on business connected with his department. He shall have his office with the Inspector of Mines, and shall keep a record of all inspections made by him, and make a monthly report of the same to the Inspector of Mines for said Inspector's use when preparing his annual report. [As amended by Act of 1898.]

5. [As amended and approved June 9, 1893.] For the reason that the number of mines in this State, subject to the law requiring inspection is now so great that it is impossible for one person charged with the duties of Inspector of Mines to give all of them the immediate, detailed and frequent attention they require, and, in addition, discharge the other duties of his office, an emergency is hereby declared to exist, and this act shall be in force from its approval by the Governor; but the term of said Assistant Inspector of Mines provided for herein, and his salary, shall begin only with the date of his appointment.

(Act went into effect June 9, 1893.)

TO PROVIDE FOR A CHECK-WEIGHMAN.

CHAPTER 1251 of Acts of General Assembly of 1885-86.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. That when a majority of the miners engaged in digging or mining coal at any coal mine in this State, at which as many as twenty men are employed, request the owner or owners, or operator or operators, of any of said mines to allow said miners to employ, at their own expense, a person to inspect the scales at said mine, and see that all the coal digged and mined by said miners is properly weighed and accounted for, and do and perform such other duties as will insure that said coal is properly weighed and correctly accounted for, said owner or owners, or operator or operators, shall permit such person to be employed by said miners making the request: Provided, The person so employed has the reputation of being an honest, trustworthy, discreet and upright

man. The appointment, under the provisions of this act of each inspector and assistant weigher, shall be approved by the judge of the county court of the county wherein the same is made.

§ 2. The person appointed and employed by miners to perform the duties set forth in the first section of this act shall, at all times, have free access to the scales at the mines, and the said person so employed by the miners shall not be hindered or prevented from a proper performance of his duties by the person who weighs coal for the operator or operators of any mines, nor any of the agents or employes of said operator or operators. Said person employed by the miners shall in no way prevent the weighman or other employes of said operator or operators from performing their duties in a proper manner.

§ 3. Any person violating any of the provisions of this act shall be fined not less than ten nor more than fifty dollars, and each day on which any of the provisions of this act is violated shall constitute a separate offense.

§ 4. This act shall take effect and be in force from and after its passage.

Approved May 18, 1886.

[By oversight this law was omitted from the Kentucky Statutes compiled by Barbour & Carroll, 1894.]

ROADS FROM MINES.

SECTION 815, Kentucky Statutes, 1894.

§ 815. Any person engaged in operating a mine or stone quarry within three miles of any navigable stream or railroad may, for the purpose of transporting material to and from such stream or railroad, and such mine or quarry, construct and operate a line of railroad from such mine or quarry, to the most convenient and accessible point on such stream or road, and may, under the general laws, condemn such land as may be necessary, not exceeding fifty feet in width for each track necessarily constructed, and not exceeding two acres of land at such railroad or stream for the purpose of necessary build-

ings. The owner or operator of such roads shall be, so far as they are applicable, governed and controlled by the laws relating to other railroads, and shall have the same rights and privileges granted to corporations owning and operating lines of railroad.

WAGES—PAYMENT IN MONEY—STATUTORY REQUIREMENT—CONSTRUCTION.

KENTUCKY STATUTES, Chapter 36, Section 1350—Wage-earners—Penalty for Not Paying in Money.

That any corporation or person or persons having the ownership or control of any factory, mine or workshop in this Commonwealth, who shall violate the provisions of sec. 244 of the Constitution, reading as follows: "All wage-earners in this State employed in factories, mines, workshops, or by corporations shall be paid for their labor in lawful money," shall be guilty of a misdemeanor, and, on trial and conviction, had in any court of competent jurisdiction, shall be fined not exceeding five hundred dollars for each violation thereof.

KENTUCKY STATUTES, Chapter 36, Section 1386—Notes of Incorporated Banks Only to be Circulated.

It shall not be lawful to make, offer to pay, or to pass or offer to pass any note, bill, order or other thing passing by delivery, as a circulating medium, in lieu of or as the representative of money, unless it be the note or bill, of not less than five dollars, of some banking institution legally incorporated in the United States, or currency of the United States. If a note, bill, order or other such thing, be of the denomination of less than five dollars, it shall be presumed to have been made, paid or passed, or offered in violation of this section unless the contrary be shown.

CONSTRUCTION.

Case in Point.—The Avert Beattyville Coal Co., Lee county, was convicted of not paying its wage-earners in lawful money, and appealed. Reversed.

In Brief.—A mining company paid its employees once each month in lawful money for the past month's labor, and at any time during the month, upon their application, issued checks to them, payable in merchandise at the company's store. The amount of checks so issued to each man was deducted from his wages on every pay-day and he was paid the balance in cash, but no money was paid for outstanding checks. Held—That such arrangement was not in violation of Constitution, section 244, and Statutes of Kentucky, section 1350, providing that wage-earners shall be paid for their labor in lawful money. (Opinion delivered by Judge Hazelrigg, December 1, 1894. Published in full in Report for 1894.)

CHAPTER 15, SESSION 1898.

AN ACT concerning employees and servants in mining work or industry in this Commonwealth.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. That all persons, associations, companies and corporations employing the services of ten or more persons in any mining work or mining industry in this Commonwealth, shall on or before the sixteenth day of each month pay for the month previous such servant or employe on his or their order in lawful money of the United States the full amount of wages due such servant or employe rendering such services. But if such person, corporation or company, after using due diligence, is unable to make said payment as above required he or it shall within fifteen days thereafter make out a payroll and statement of amount due each employe and also a due bill for said sum bearing interest from said sixteenth day of the month, and deliver same to each of said employes.

§ 2. It shall be unlawful for any person or persons, association, company, or corporation employing others, as described in section one, either directly or indirectly, to coerce or require any such servant or employe to deal with or purchase any article of food, clothing or merchandise of any kind whatever, from any person, association, corporation or company, or at any place or store whatever. And it shall be unlawful for any such employers as described in the first section to exclude from work or to punish or blacklist any of said employes for failure to deal with any other or to purchase any article of food, clothing or merchandise whatever from any other or at any place or store whatever.

§ 3. Any person or persons, company or corporation described in the first section that shall violate any of the provisions of this act shall be guilty of a misdemeanor and on conviction shall be fined not less than fifty dollars nor more than one hundred dollars for each offense, and the doing or failure to do any act or thing required by this act shall constitute a separate offense.

Received by the Governor, March 2, 1898.

Became a law at the expiration of ten days without the Governor's approval.

CHILD LABOR LAW.**CHAPTER 16, Acts of General Assembly of 1902.**

AN ACT to make it unlawful to employ a child less than fourteen years of age in work-shops, mines, mills or factories in this Commonwealth and fixing a penalty.

Be it enacted by the General Assembly of the Commonwealth of Kentucky: § 1. That it shall be unlawful for a proprietor, foreman, owner or other person to employ any child less than fourteen years of age in any workshop, factory or mine, in this State; that unless said proprietor, foreman or owner shall know the age of the child, it shall be his or their duty to require the parent or guardian to furnish a sworn statement of its age, and any swearing falsely to such by the parent or

guardian shall be perjury and punishable as such. Provided: That if the parent or guardian and the County Judge of any county may consent in writing for such employment, then in that event such employment may be made, subject to the approval of the County Attorney of said county, in the event of any complaint, and if he thinks, after investigation of such complaint that it is against the best interests or moral welfare of such infant child, he may so notify said employe, and then this act applies as if no consent was given.

§ 2. That any proprietor, foreman or owner employing a child less than fourteen years of age in conflict with the provisions of this Act except where such proprietor, foreman or owner has been furnished with a sworn statement of guardian or parent that the child is more than fourteen years of age, shall be guilty of a misdemeanor, and upon conviction, shall be fined not less than twenty-five dollars and not more than two hundred and fifty dollars.

§ 3. That the grand jury shall have inquisitional powers to investigate violations of this Act, and that judges of the circuit courts of the State shall specially charge the grand jury at the beginning of each term of the court to investigate violations of this act.

§ 4. That this Act shall take effect ninety days after the adjournment of this General Assembly.

GERALD T. FINN,
Speaker of the House of Representatives.

NEWTON W. UTLEY,
President *pro tem* of the Senate.

Approved March 12, 1902: J. C. W. BECKHAM,
By the Governor: Governor.

C. B. HILL, Secretary of State.