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A history of the Midlothian coal mines

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A HISTORY OF THE MIDLOTHIAN COAL MINES

BY

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PREFACE

This thesis attempts to tell the story of the coal mining industry in the northwestern part of Chesterfield County, Virginia. The coal deposits in this area are only a part of a larger coal basin lying west of Richmond and covering several counties, but as the title suggests, this paper is confined entirely to the mines in the vicinity of Midlothian. It is a history of the mines, and no attempt has been made to deal with the technique of mining except where such remarks have been included because of their historical interest; for example, the layout of the mines and mining methods used in the early days.

In several places accounts have been quoted in their entirety. This was done because the sources from which they came are scarce and not readily available, and as our present viewpoint of coal mining is different from those of earlier days, it was felt the quotations would give a much better picture of the feeling of those days than any paraphrasing of them, or inferences drawn from them, was likely to do. In most places the word "pit" has been substituted for "mine" in order to conform to the terminology in use at the time.

Material on this coal field is very scarce as many of the records failed to survive the ravages of the Civil War. Some of the early geological survey reports contain historic as well as economic data, but in the later reports all historical data has been omitted. A few of the early travellers and persons visiting the mines left accounts that have been helpful. Early newspapers contain some material, but most of these are in the form of advertisements of land for sale and help wanted. The most valuable sources have been the more recent newspapers and the accounts in scientific journals such as the Journal of Science and Arts. Tables of production are almost nil and for this reason it has been difficult to determine the amount of coal produced. This is especially true in the early days when data is lacking altogether, and later statistics combine the production of the whole basin making it impossible to judge the amount of coal mined exclusively at Midlothian.

I am indebted to Dr. Ralph C. McDanel, professor of History at the University of Richmond, for suggesting this interesting subject and for his help which enabled me to finish the work, though of all errors of which I may be guilty he is innocent. I have also to thank the librarian of the Virginia Historical Society and to a

greater extent the able staff in the Virginia State Library for their courtesy and indispensable aid. Last, but not least, I tender my thanks to many of my friends for their interest and encouragement.

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Chapter I

The Genesis of Coal Mining at Midlothian 1725-1800

The coal mines in the vicinity of Midlothian occupy a unique place in the history of coal in the United States. These mines, and others in the Richmond Coal Basin, contain the youngest coal geologically[1] and are "the oldest worked collieries in America."[2] The mines of Midlothian, although of uncertain date, began back when Virginia was a Royal Colony of the English Crown. This region lies about ten miles west of Richmond and the pits are dispersed along the coal outcrop beginning on the south side of the James River and ending about a mile south of Midlothian Village.[3] The area, once the

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1. See Ch. VI for remarks on the geology of this region.
2. Richard Cowling Taylor, Statistics of Coal, pp. 20-21. See also, United States Geological Survey, Mineral Resources of the United States, 1913, Part II, pp. 727 and 912 and Hunt's Merchant's Magazine, LIV, 418. The first mention of coal in the territory, which now comprises the United States was made by Father Louis Hennipin, a French Missionary, who recorded in his journal in 1679 the fact that ten years previous he, in company with other explorers, had discovered the site of a "cole" mine on the Illinois River. Taylor, op. cit., p. 727.
3. See Map p. 115

scene of extensive mining operations, is now quiet; and the only visible reminder of its once busy activity are enormous craters and deep pits scattered over the district and a historical marker which carries the following inscription:

Midlothian Coal Mines

> A mile south are the Midlothian Coal Mines probably the oldest coal mines in America. Coal was first mined here before 1730 and a railway was built from the mines to James River before 1830. Operation went on continuously until 1865, and the coal used in cannon casting at the Tredegar Iron Works, Richmond, was obtained here.

This marker only begins to tell the story, and one must pursue many sources in order to understand and appreciate the history of these mines which played an important part in the early industry of this country in both peace and war.

The first reference to the discovery of coal in Virginia is to be found in the writings of Col. William Byrd who, in a report of May 11, 1701, to the Colonial Council of Virginia, describes a visit he made to the French Huguenot Settlement at Manakin Town:

> The 10th of May, last, I will Coll. Randolph, Capt. Epes, Capt. Webb &c., went up to the new settlement of ye ffrench Refugees at ye Manakin Town.... We went up to ye cole, w'ch is not above a mile and a half from their settlement on the great upper Creeke, w'ch, rising very high in great Rains, hath washed away the Banke that the cole lyes bare, otherwise it's very deep in the Earth, the land being

very high and near the surface in plenty of Slate.[4]

Lawson, a North Carolina historian, ascribes the discovery of coal at Manakin Town to a Hugenot settler. The Frenchman, while hunting, shot a fowl which fell into the river near a steep enbankment. He descended the slope to help his dog retrieve the fowl, but had difficulty in getting back to the summit. In his efforts he caught hold of a shrub and doing this dislodes it thus exposing some outcropping coal. When his discovery was made known the land was surveyed and patented by one of the gentry. William Byrd the older appears to have been the patentee, for the founder of the Byrd family in Virginia "understanding that there was a coal mine upon some land lying near Manacan town, which had not been granted to the French, took out a patent for 344 acres, including the same, which patent was dated October 20, 1704."[5]

The French Hugenots, who settled in the vicinity around 1700, probably mined or dug some of the coal for their own use before 1701. At any rate, the following year permission was granted to a French refugee to use the coal for commercial purposes, for in May 1702, one David Menestrier,

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4. R. A. Brock, "Documents, Relating to the Hugenot Emigration to Virginia," in Virginia Historical Society's Collections, New Series, V, 42-43.
5. Ibid., footnote, pp. 43-44. Quoting from Ms. Book of the Titles of the Landed Possessions of William Byrd in the Collections of the Virginia Historical Society.

a blacksmith, petitioned the council and governor for permission "to use ye Coal mines lately discovered there at [Luciana] for his forge...." The governor and Council gave their consent to Menestier to take what coal he wanted out of the mine for use in his forge according to his petition.[6]

An Englishman of foresight while visiting in the colony in 1704 or early 1705, made the prediction that the best, richest and most healthy part of the country was yet to be inhabited; for above the falls of every river, there were several advantages not then generally known, "as sea coal,[7] lately discovered near the French Settlement above the falls of James River."[8]

The country above the falls did not contain a population large enough to create a great demand for coal in the early years of the eighteenth century; and the coal mines, being somewhat on the frontier, perhaps were not known generally

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6. Executive Journal of the Council of Colonial Virginia, II, 244.
7. In England from the thirteenth century bitumenous coal was called "sea coal" due to the fact that the coal seams of the Fife and Northumberland fields outcropped on the North Sea and the waves eroding the soil and coal beds caused lumps of coal to be found along the shore. These were gathered and sold for fuel to replace wood. Another reason for the use of a qualifying word was the fact that the early use of the word coal meant wood coal or charcoal. Howard N. Eavenson, The First Century and a Quarter of American Coal Industry, p. 9.
8. "Plain & Friendly Perswasive to the Inhabitants of Virginia and Maryland, for Promoting Towns & Cohabitation," Virginia Magazine of History and Biography, IV, 257.

outside of the immediate vicinity. The lack of interest in coal in the early days may be due to the abundance of wood as indicated by the writings of Robert Beverly who wrote very encouragingly of wood, but held little hope for coal. This early historian was aware of the presence of coal in the "upper parts" of the Colony; but he did not think it likely that it would "ever be used there in anything but Forges and great Towns, if ever they happen to have any," because, as he stated, wood grew at every man's door so fast that often it had been cut down, it would "in seven years time, grow up again from seed to substantial fire wood."[9]

The exact date of the earliest commercial mining of coal in the Richmond Basin still awaits discovery and there is a difference of opinion as to the year in which it began; but it was sometime before 1750,[10] probably between 1725 and 1750. It is reported that an old historical map of Virginia is marked, "Midlothian, probably, oldest coal mines in the United States, 1730."[11]

John Brumall, a citizen of Dale Parrish,[12] who owned

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9. Robert Beverly, The History of Virginia, p. 98.
10. United States Geological Survey, Mineral Resources of the United States, 1913, Part II, p. 727.
11. F. R. Wadleigh, "The Richmond Virginia, Coal Field," in Part II of The Richmond Coal Basin: A Compilation in Three Parts, compiled by Ira T. Davis and L. S. Evans, p. 8 unpublished. I have been unable to find such a map.
12. Dale Parish was then a part of Henrico County. This parish lying south of the James River became a part of Chesterfield when that county was formed from Henrico in 1749.

land near Midlothian on the headwaters of Falling Creek, left land to his wife Sarah "at a place called the Cole Pit."[13] The use of the word "pit" would indicate that the actual extraction of coal had begun, for at that time the words mine and pit had entirely different meanings. Then the word "mine" always meant a deposit or outcropping of mineral; but when the actual taking out of coal began it was from pits, and this term was then and for many years later used in the sense we now use the word coal mine.[14] In The United States Gazatteer, published in 1795, Joseph Scott, in reference to Henrico County, Virginia stated, "A number of coal mines are in the county, and pits have been opened by many proprietors." This is a good example of the different meanings.

During the Revolutionary War coal mined in the vicinity of Richmond became a real asset to Virginia and the other colonies. In 1776, Thomas Wharton, Jr. and Owen Biddle of Philadelphia were authorized to employ persons to bring from Virginia, presumably to the Pennsylvania port, coal, for which the Virginia Committee of Safety had contracted, probably to liquidate in part

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13. Henrico County Deed Book, 1744,1748. Deed dated February 26, 1746.
14. Eavenson, op. cit., p. 10.

the Continental requisition upon Virginia.[15] The presence of mineral coal perhaps led to the erection of a cannon foundry and air furnace at Westham five miles above Richmond. The furnace is said to have used coal from the Chesterfield mines in the manufacture of shot and shells for the Continental Army.[16] In 1780, when the second British offensive in the south was well under way, citizens were forced to curtail their use of coal due to the lack of transportation as indicated by the following advertisement which appeared in the Virginia Gazette of July 5, 1780:

> Manchester, June 17, 1780. As the power exercised by some of the publick officers of impressing waggons and horses prevents working our coal mines, we hereby give notice that no person can be supplied by us with any coal at present; when we can with safety, employ waggons, and carry our coal to navigable water, we shall give notice in the publick papers.
>
> William Ronald
> Samuel DuVal

In February 1781, the Continental Congress requested Virginia to furnish "14,492 hard dollars" to pay the debts of American prisoners in New York. Thomas Jefferson,

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15. James Swank, History of the Manufacture of Iron in All Ages, p. 470.
16. Ibid., P. 205.

then governor of the Commonwealth, wrote to Benjamin Harrison, Virginia's special agent to the Congress at Philadelphia:

> Were we permitted to send produce, we could do it for less than half of what the hard dollars will cost us, & I think such articles might be selected from within, especially when that of coal is added (which Col. Matthews assures me will be done) as would do neither good to the enemy nor injury to us. Coal sells in New York at six guines the chauldron.[17]

As the Richmond Basin was the only place in Virginia where coal was mined at that time, the coal which Jefferson spoke of was to be obtained from this field. By 1781 coal of a very excellent quality was obtained both north and south of the James River from pits which were in the hands of many proprietors and worked to an extent equal to the demand."[18]

Samuel Du Val, owner of the Deep Run pits[19] in Henrico County, purchased on November 24, 1778, a tract of land in Chesterfield from William Amonet for £3000.[20] The deed, which conveyed the land, did not mention any coal deposits; but the following year on July 5, Samuel DuVal, Sr., sold to his sons William and Samuel, for £1800

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17. Paul Leicester Ford, editor, The Writings of Thomas Jefferson, II, 446-447.
18. Thomas Jefferson, Notes on the State of Virginia, p. 42.
19. Hening's Statutes at Large, XII, 222.
20. Chesterfield County, Virginia, Deed Book, No. 8, p. 256.

"Virginia money," one half of a 100 acre tract lying on Falling Creek near Midlothian, "with all Coalpits, Minerals, Mines, houses, orchards and Gardens."[21] No doubt this was a part of the land purchased from Amonet in 1778.

The year in which the Treaty of Paris was signed ending the Revolutionary War, Johann Schoepf, a doctor with the Hessian troops, made a journey through some of the states, and, while in Virginia, visited the mines near Midlothian. In writing about his travels, he had the following to say about the efforts in digging one of the pits:

> There has been discovered a bed of pitcoals 12 miles from here [Richmond], on the south side of the James River and above the falls, the occasion of discovery being the uprooting of a tree by the wind. The region is low, and it is probable that the bed was formed from the plant-earth choked up behind the falls. Four feet below the surface there is a white clay-slate. Next a blacker clay and then the coals. Trenches are dug straight down, and at 26-30 feet the bed is not yet gone through; these trenches soon filling with water, new ones are continually opened up, although this labor might be avoided. The coals, however, are not the best; all Richmond smells from them. They are sold at the river for 1 shill. Virgin. current the bushel.[22]

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21. Ibid., No. 9, p. 104.
22. Johann Schoepf, Travels in the Confederation 1783-1784, Translated from the German by Alfred Morrison, II, 67-68.

The doctor did not give the name of the pits nor the person to whom they belonged. It was perhaps the preliminary operations in the area which later became known as the Black Heath Basin. The mines in this basin began full scale operations about 1788[23] and were said to have been discovered by coal adhering to the roots of an uprooted tree.[24] But the doctor's complimentary remark about the coal makes one doubt that it was the Black Heath Mine, because most of the later reports, concerning the coal from this mine, state that it was of very good quality. Perhaps the inferior quality of the coal at this time was due to the face that it was taken from a seam in the top of the soil near the outcrop.

The year in which the American Constitution was adopted, 1789, Richmond coal was selling in Philadelphia at one shilling, six pence a bushel,[25] and American

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23. John Grammer, Jun., "An Account of the Coal Mines in the Vicinity of Richmond, Virginia," American Journal of Science and Arts, 1820, I, 126.
24. Sir Charles Lyell, "On the Structure and Probable Age of the Coal-Field of the James River, near Richmond, Virginia," Geol. Soc., London, Quarterly Journal, 1847, III, 263-264.
25. United States Bureau of the Census, Eighth Census, Manufactures of the United States in 1860, p. clxviii.

economists were becoming excited over the future possibilities of this mineral. The owners of coal mines in Chesterfield and Henrico Counties, according to Tench Coxe, a Pennsylvania economist, were enjoying a monopoly of coal used near the seacoast of the more northern states, for manufacturing purposes, and the demand was increasing rapidly.[26] The collieries on the James River gave promise of being able to supply the territory watered by the rivers of the Chesapeake, and by the bay itself, besides affording a valuable supply for seamen in the transportation of their goods to all the seaports of the United States. Coxe believed that, since the price of labor was declining and a short water communication between the mines and the shipping place was nearly completed;[27] there was no doubt that foreign coal would be rendered a losing commodity, and that it would finally be excluded from our markets.[28]

In 1790, 181,885 bushels of coal were imported into the United States;[29] but in 1791 this country exported 3,788 bushels, and the following year more than three times

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26. Tench Coxe, A View of the United States of America, p. 296.
27. This was the James River and Kanawha Canal completed in 1795.
28. Coxe, op. cit., pp. 180-181
29. Ibid., p. 422.

that amount or 13,023 bushels were exported.[30] Of the latter amount 5,220 bushels went direct from Virginia,[31] and it is highly probable that most of the coal exported came from the Richmond Basin, since it furnished almost all of the American supply.

The first Secretary of the Treasury, writing in 1790, mentioned coal mining in Virginia and declared that the expenditure of a bounty on coal of home production, and of premiums on the opening of new mines, under certain qualifications, appeared to be worthy of particular examination. If bounties and premiums appeared to be necessary, he thought a reasonable expense in this way would be justified.[32]

Thus, at the end of the eighteenth century, Midlothian's nascent coal industry was well under way. It was completely under the control of local capital and was beginning to attract national attention.

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30. Ibid., p. 405.
31. Ibid., p. 413.
32. F. W. Taussig, compiler, State Papers and Speeches on the Tariff, p. 85.

Chapter II

Period of Transportation Difficulties 1801-1825

Around the turn of the nineteenth century the owners of the coal mines at Midlothian were concerned with means of transporting coal from their pits to tidewater. For this purpose a number of Chesterfield County residents joined in forming a turnpike company, and on January 20, 1802, permission was obtained from the Assembly to construct a turnpike from the ferrylanding in the town of Manchester to Falling Creek on the Buckingham Road.[33] Construction began immediately; but, before the year ended, it was apparent to the mine owners that the directors of the company, in violation of the turnpike law, were so directing the course of the turnpike as to avoid the principal part of the Buckingham Road. Also the junction of the Westham Road with the Buckingham Road, which had been designated as a toll gate point, was being by-passed altogether. The inhabitants of Chesterfield in a petition

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33. Chesterfield County Petition, December 23, 1802.

to the Assembly, dated December 18, 1802, stated that they believed the purpose of establishing the turnpike was to facilitate the transportation of coal and also for the accommodation of travelers; but, they course which the turnpike was following would leave the principal coal mines a mile to the north of the pike. The petitioners complained that to pursue any other direction than the Buckingham Road, where it then crossed Falling Creek, would be reducing three fourths of the principal mines to little or no value, as coal wagons would be compeled to travel two miles going to and returning from Manchester before they entered the turnpike road. This, they said, would reduce the cost of wagonage from some of the mines and raise it considerably from the others; whereas, to keep the Buckingham Road the distance and wagonage would have been as it was then, "precisely the same from each coal mine."[34]

The Turnpike Company countered this petition by requesting of the Assembly the right to change the direction of the turnpike from the course designated in the charter.

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34. Chesterfield County Petition, December 17, 1802.

Then, on December 9, 1803, Martin Railey, an owner of a coal mine, presented a memorial to the Court of Chesterfield County opposing the petition of the Turnpike Company. "If the petition should pass," complained Railey, "there would be a necessity of opening a new road to meet the Turnpike through the lands of your memorialist for about seven hundred yards where the bodies of coal are generally about thirty feet thick,--that the said new road would also of necessity run over a piece of ground which has already been undermined and supported only by small wooden props, a part of which has lately fallen in--and that there is every appearance of the same being on fire."[35]

No records exist to indicate what action was taken by the Assembly, but in all probability the Turnpike Company was allowed to follow the route which it desired.

Better and cheaper means of transportation were also a matter of national importance. Albert Gallatin, Secretary of the Treasury under Jefferson, gave much thought to this subject and in a report on "Public Roads and Canals" pointed out that the James River and Kanawha Canal had been planned originally to terminate at tidewater, according to the charter, but construction had been suspended by an act of the Virginia Legislature before this had been accomplished

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35. Ibid., December 9, 1803.

He was of the opinion that the original plan, which would have put coal on board vessels at Rocketts,[36] deserved the preference. The canal, even in its somewhat incomplete state, had reduced the expense of transportation by one-third. At that time coal was "in no other part of the United States found in abundance in the vicinity of tidewater."[37]

In the early part of 1810, Nicholson, Heth & Company was in need of laborers and advertised for thirty or forty able bodied negro slaves to be hired for the balance of that year with liberal prices offered to the owners.[38] That same year tracts of coal land near Black Heath and Sallee's Pits and Wooldridge and Ellyson's Pits were offered for sale.[39]

Members of the Railey family leased to Harry Heth in May 1811, a tract of 103 acres known as "Railey's coalpits." The lease was to begin January 1, 1814, when a previous agreement to Nicholson and Heth expired, and run for five years. Rent of two cents per bushel on all coal raised was to be paid in April and October of each year. Heth was to keep a book, commonly called a "waggon book," in which he was to state the amount of coal received at his shipping

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36. Rocketts was the name of the section in Richmond which is now called Fulton Bottom.
37. "Report of the Secretary of the Treasury on the Subject of Public Roads and Canals," Tenth Congress First Session 1808. Reprinted from State Papers No. 250, p. 17.
38. Richmond Enquirer, March 2, 1810.
39. Ibid., April 20, 1810.

yard every day, and also, a book at the pits which was to indicate all coal sold there. These two books were to show the true quantity on which rent was to be demanded. He was to work from twenty-five to thirty able bodied laborers, exclusive of machine boys and mechanics and was not allowed to employ more than eighty laborers. He was at liberty to search for, and if found, work, new bodies of coal. Such timber that was necessary to carry on the business could be cut, but in all his activities he was to observe the same care and economy as if he were the sole proprietor.[40]

In 1814 and 1815 one Cornelius Buck offered to sell his interest in three valuable coal mines on the waters of Falling Creek. His interests were as follows:

> ten sixteenths of 142 acres known by the name of Buck & Cunliffe Coal-pits, bounded by Black Heth[41] Coal Mines, Thomas [Thompson] Blunt and others; three-fourths of 80 acres known as the Creek-pits, bounded by the coal mines of the Messrs. Raileys on the north, and the Stone-range coal mines on the south; and nine-twentieths of 32.5 acres known as Union Coal-pits bounded on the west by the Messrs. Raileys, on the east by the Coal-Land known by the name of the Dover Coal Pits.[42]

Summer discounts were established early in the history of the Midlothian Coal Mines, for in June 1817, the owners of the Trabue Pits advertised grate and manufacturing coal

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40. Chesterfield County Deed Book, No. 19, pp. 7-10.
41. The Black Heath Pits and Heth Pits appear to have been the same.
42. Richmond Enquirer, February 12, 1814 and February 25, 1815.

at a discount to persons prepared to receive their winter supply in the course of the summer when "fresh-raised and round coal" could be furnished. The advertisement stated that coal from these pits had been known for a long time to be "peculiarly excellent" for manufacturing purposes and had been used and approved by the Bellona Furnace, the Union Air Furnace, the Crown Factory, the Rolling & Slitting Mill, and the Nail Factory as well as many blacksmiths of Richmond. Smiths, brickmakers, and others who used small coals were to be supplied on "very accomodating terms."[43]

In 1818, when a large part of the nation was caught up in the enthusiasm of Henry Clay's "American System" of protective tariffs and internal improvements, the colliers of Midlothian made a bid to improve the navigation of the James River from Rocketts up to Colonel John Mayo's Bridge and to construct a canal on the south side of the river. Printed petitions[44] were circulated in the counties on the south side of the James. These petitions called upon the Virginia Assembly to incorporate a company that would "establish a constant, safe, and easy means of navigation on the south bank of the river from the head of the falls

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43. Ibid., June 3, 1817.
44. Chesterfield County Petition, December 23, 1818.

to tidewater." It declared that the inhabitants of Chesterfield were greatly interested in the establishment of a canal which would not only destroy an "odeous monoply," but which would bring a still greater benefit; namely, that of ensuring, at all seasons of the year, an easier and safer means of navigation than had hitherto been available. The petitioners complained that the canal on the north side was scarcely navigable by empty boats at certain seasons of the year, the locks were out of order, and navigation hazardous. The Enquirer stated that it was not uncommon "to see coal boats in tolerable tides grounded in a hundred yards or perhaps less, from the gates "of the canal which frequently made it necessary to throw out some of the coal in order to enable the boats to clear.[45]

In relation to the improvement of navigation the chairman of the Committee on Roads and Canals in the Virginia Senate submitted a list of questions, some of which had been proposed by the President of the James River Company, to some of the owners of the coal mines. The following statements were made by Harry Heth in answer to these questions: The rate of boatage never exceeded three cents

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45. Richmond Enquirer, February 28 and April 8, 1816.

per bushel; the rate of wagonage was then and had been for some time, twelve cents; the rate of cartage from the basin to the shipping yard at Rocketts had generally been two cents per bushel. One question asked whether the coal mine owners preferred having their coal at the mouth of the pits to having it placed on the margin of the river. To this Heth replied that, strange as it appeared, he had; because the obstructions in the bed of the river and along the canal would not permit his boats, at low water in the summer to bring more than 100 to 150 bushels at a load. Besides, the coal being frequently moved, not only broke into small pieces, but became dirty and defaced so as to render it not only unsightly, but what was worse "unsaleable." He was not aware of the fact that his boats passed through thirty-six locks until this fact was made known to him by the President of the James River Company. This prompted Heth to declare that it struck him "as thirty-six reasons, at least, in favor of a more easy passage." Other facts gathered from his answers were: His sales in 1812 exceeded 800,000 bushels. In the summer at low water the boats often fell short of carrying one hundred bushels; whereas his best teams carried from one hundred to one hundred and twelve bushels in good weather and others from eighty to ninty bushels. He paid a toll of six shillings three pence on his coal boats.[46]

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46. Chesterfield County Petition, December 23, 1818.

The Black Heath Mine was opened about the time of the framing and adoption of the American Consitution, perhaps, in 1788, but it is possible that the mine was worked before this date by very shallow pits.[47] As stated above this mine was said to have been discovered when fragments of coal were found adhering to the roots of a fallen tree. This led to excavations and discovery at the depth of a few yards a rich bed of bituminous coal, thirty feet thick, and of excellent quality. Its nearness to the surface enabled it to be worked with great profit, but very exaggerated notions were formed as to the real thickness of the main seam. Due allowance was not made at first for the dip of the beds through which the shafts passed.[48]

After its opening around 1788, according to John Grammer, Jr., who visited and wrote an account of this mine, it was worked to a considerable extent, but in an unskilful and thus unprofitable manner. For this reason, and experiencing much inconvenience from the near approach of the works to a part of the coal which was on fire, the mine was abandoned and the shafts filled up. Sometime in the seventeen nineties Harry Heth obtained possession of the land, imported two Scotch

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47. Cf. pages 9 and 10, above.
48. Lyell, loc. cit., p. 264

miners, and commenced working the coal again. By 1818 he had sunk three shafts in a line with each other; one was three hundred and fifty feet deep, and the others three hundred feet each. In the middle pit, which was the deepest, a Bolton and Watt steam engine pumped water from the mine. The coal, which negro miners loaded into "corves"[49] holding about two bushels, was raised by means of ropes fastened to a simple wheel and crank turned by mules. Two corves were kept alternately rising and descending in each shaft. The principal gallery followed the coal vein past the mouth of each shaft a distance of 1350 feet, and at each end it was terminated by a dyke of hard sandstone. The shafts were sunk to the lower surface of the coal and then turned westward where a horizontal gallery passed through the inclination of the vein, to the upper surface. Thus, to use the miners own terms, a "double cut" was gained. At convenient distances along the principal gallery, shorter galleries running westwardly were cut at right angles and these were again connected by passages parallel to the main gallery. Due to the softness of the coal, pickaxes were the only tools used in digging; as it broke very readily in the direction of the strata.

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49. Grammer called it a "cowe". He evidently misunderstood the word. Eavenson, in his book The First Century and a Quarter of American Coal Industry, page 10, states that the word was in common use in England and meant a box or basket containing a few hundred pounds of coal, which could be pulled from the working face to the foot of the shaft, and hoisted. The term was in use in the Midlothian Mines; references to it have been found in several accounts about the mines.

> The roofs of some of the passages are perfectly smooth, wrote the visitor of 1818, and in such, the light of the lamps, reflected from the great variety of colours in the coal presents a very brilliant sight. The gloomy blackness, however of most of the galleries, and the strange dress and appearance of the black miners, would furnish sufficient data to the conception of a poet, for a description of Pluto's kingdom.

The writer observed that a strong sulphurous acid ran down the walls of many of the galleries, and one drain was filled with a reddish-yellow gelatinous substance which he ascertained to be oxide of iron mechanically suspended in water. The fire, which some thirty years before had caused the mine to be abandoned, was still burning. The visitor was unable to learn when the fire was first observed, but thought it not impossible that the coal might have been burning a century or more. Even if this were true, perhaps only a small quantity of the coal had been consumed as the lack of a sufficient supply of oxygen must have greatly retarded the combustion. Many attempts were made to extinguish the fire by turning water into a hole leading to the part of the mine that was on fire. After every attempt the smoke would disappear for several weeks, but never for more than three months. Consequently these vain attempts were stopped, and by 1818 a disadvantage had been converted into an asset by making use of the facility afforded by the existence of this fire for ventilating the mine. This was accomplished

by opening a passage from the working part of the mine to the old deserted works. This passage could be opened or closed by means of a tight fitting door. As the old works were very near the fire the air in them became very much rarified by the heat, and a considerable portion of it was consumed as "the principal pabulum for the combustion," and a partial vacuum was produced. When the air in the new works became impure, the door was opened and a strong current rushed into the old works; its place was supplied with fresh air through the shafts. This crude and primitive method of ventilation, it was said, successfully, rid the mines of noxious gases, which had brought sudden death into the Richmond Coal Basin in 1817, when an explosion occured killing some of the workmen.[50]

In 1822, when internal improvements were still an absorbing topic of speakers and writers, a local paper[51] carried an article discussing canal improvements vs. railroads. In this article the writer contended that it would be better to build a railroad directly from the Black Heath Pits to Manchester than to construct a track about four miles long

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50. Grammer, loc. cit., pp. 125-130.
51. Richmond Commercial Compiler, May 14, 1822.

to the river and enlarge the canal from there. The writer's estimate of the hauling costs from the pits to the canal was two cents per bushel, thence by canal three and a third cents, a total of five and a third cents or one dollar and thirty three cents per ton to Richmond; by wagon directly to the dock eight cents per bushel or two dollars per ton.

The General Assembly was presented with another petition in December 1823. Most of these petitioners[52] were evidently owners of teams hauling coal from the mines around Midlothian to Manchester. They complained that the tolls charged on the turnpike were excessive, and that the road was poor and in dire need of repairs. The petition stated that about fifty coal wagons used the turnpike and that each one paid $120 annually. They asked that the old road from Falling Creek to Manchester be reopened for their use if the turnpike company would not agree to reduce their tolls to such an amount as the Assembly considered satisfactory.[53]

The main pits in operation in 1824 in the vicinity of Midlothian, according to a Chesterfield County petition dated December 15 of that year, were Black Heth, Railey, Stone Hinge, Cunliffe, Wooldridge, Maiden Head and Union.

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52. I have been able to identify some of the signers of the petition as men who owned coal mines at that time, but most of the names are unfamiliar.
53. Chesterfield County Petition, December 23, 1823.

These mines or pits produced about one million bushels of coal annually which cost nine cents per bushel to transport by wagon to the shipping yard at Manchester. The operators of these mines feared that the cost of transportation would increase instead of diminish since the price of commodities was lower at that time than they had been in years, but showed signs of increasing. Even with vigorous efforts and the exercise of every possible economy, the profits of the mine owners were exhausted by the "enormous and burthensome tax of land transportation." This caused the operators to view with deep regret the unhappy and declining prospects produced in the coal business. They felt that if the coal trade were cherished, it would prosper and undoubtedly afford a source of great wealth to citizens of Virginia and the state at large.

With the coal trade in this unhappy state the colliers again tried to get a canal on the south side of the James River. Cary, Hill, Randolph, and Mills, representing themselves and other operators, presented a memorial to the General Assembly. They requested that a law be passed to incorporate a company with power to raise adequate stock to establish a canal on the south side of the river from the coal mines to some convenient point on tidewater.

By building a canal, they hoped to reduce the cost of transportation to four cents per bushel or a total yearly transportation cost of fifty thousand dollars; thus the mine owners would be ensured a saving of forty thousand dollars. The memorialists suggested that the construction of the canal would afford the colliers of Midlothian great and important advantages. It would enable them to deliver their coal without delay from their pits directly to the shipping yard; this would produce a saving in transportation, and also preserve the quality of the coal. They would then be able to introduce their coal into other markets much cheaper and in a much better condition; and they would be able to undersell and destroy the competition of foreign coal, which at that time constituted about one half of the quantity consumed in the United States. They stated that the canal on the north side of the river did not offer any inducement for them to use that mode of transportation, because of its many disadvantages. The canal contained many locks, which caused great delay, and ended a considerable distance from the shipping point. This compeled them to keep up two yards, two officers, a double set of hands, clerks, etc., and when the coal was transported in carts from Bason Bank (the place of deposit) to the shipping point,

the expenses were increased; while the quality of the coal was so materially injured that it could not compete with other coal in northern markets.[54] As the canal building fever was beginning to subside, one is probably safe in assuming that the petition, like similar ones before, was given little consideration. At any rate, no canal was built on the south side of the James River.

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54. Chesterfield County Petition, December 15, 1824.

Chapter III

The Zenith of Operations 1826-1850

One of the chief concerns of the mine owners during the preceding decade had been the securing of better and cheaper transportation for their coal from the mines to the shipping point on the James River below Richmond. They had sought in vain to have a canal constructed on the south side of the James and to have the navigation of the river improved. They now turned their attention to another form of transportation-a railroad. James Pierce, who visited the mines in 1825, suggested that a railroad which would save $40,000 annual expense of cartage and give a fair profit to the stockholder, could be constructed from the vicinity of the coal mines to Richmond.[55] This was the same saving that Cary, Hill, Randolph, and Mills had hoped to enjoy by the construction of a canal as stated in their petition to the Assembly in December 1824.

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55. James Pierce, "Practical Remarks on the Shell Marl Region of the Eastern Parts of Virginia and Maryland, and Upon the Bituminous Coal Formation in Virginia and the Continguous Region" American Journal of Science and Arts. 1826, XI, 57.

Agitation for a railroad grew steadily, and in 1829 a company was incorporated to build a railroad from the vicinity of the mines to Manchester. Construction began in January 1830 and it was opened for use in July 1831. It was a horse-drawn, single tract line with several "turn-outs" and a branch road to the coal pits. The cost of construction was $8,000 per mile, and including wagons, horses, and other equipment the total cost was about $140,000. The road was so profitable that a ten per cent dividend was declared in the first six months.[56]

But it was not long before the colliers of Midlothian were dissatisfied with the Chesterfield Railroad, as it was called, because of the high transportation cost in comparison with water transportation. The Chesterfield Railroad, at that time, conveyed the coal from the mines to landings on the James River opposite Rocketts, a distance of twelve miles or more. The coal charge was six cents per bushel of five pecks from the mines to the landing; but in order to get the coal from the landings to the city of Richmond, it had to be carried by carts or wagons across Mayo Bridge. This entailed an additional expense of about four cents per

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56. Joseph Martin, A New and Comprehensive Gazetteer of Virginia and the District of Columbia, p. 153.

bushel. Thus, coal which sold at the landings at fourteen cents per bushel cost eighteen or nineteen cents in Richmond; a total transportation cost of about ten cents per bushel from the mines to Richmond. The cost of transportation by the James River Canal was about one and one-fourth cent per bushel plus a toll of one cent, or a total cost of three and three-fourths cents per bushel less than the charge of the Chesterfield Railroad. Because of this John Heth, Alexander Duval, and twenty-four others petitioned the Assembly, early in 1836, for the right to construct a short railroad from the vicinity of their mines to a point on the James River near Boshers Dam, about ten miles above Richmond. From this point they would ship their coal by way of the canal. The mine owners believed, according to their petition, that the lower transportation cost of the canal, even in its imperfect state, would compensate them for their trouble in using this inconvenient route.[57] It is interesting to note that the petitions did not mention the number of times the coal would have to be handled by this route, thereby "materially injuring" its quality.

The petition was granted, and the stock for the construction of the railroad "from the coal pits of the Chesterfield

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57. Richmond City Petition, January 22, 1836.

Company of Colliers, to James River, above Boshers Dam, was taken up a few minutes after the books were opened."[58] The bed for the railroad was marked and excavation began immediately.[59] It was opened in 1838,[60] and presumably most of the coal intended for the iron foundries and consumption in Richmond was carried over this railroad to the river and thence transported by the canal to the city. Most of the coal intended to be shipped out was still brought down by the Chesterfield Railroad.[61]

Near the "New Rail Road," the name by which this short line was called in newspaper accounts, a bed of iron ore was discovered in the neighborhood of Sallee's Pit by the men laying out the bed of the railroad. John Heth was the principal owner of this mine from which very fine coal had been dug, but the iron ore had escaped the observation of the miners. Much was expected of this ore and Heth prosecuted the research on it with the "utmost energy",[62] but little

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58. Richmond Enquirer, May 3, 1836.
59. Ibid., July 25, 1837.
60. Ibid., February 22, 1838.
61. Ibid., July 25, 1837.
62. Ibid.

came of it.[63] The men engaged in the construction of the railroad also discovered, at the same pit, "a large and rich bed of natural coke."[64] Natural coke has been encountered in several parts of this field.

By 1832 some of the owners of coal mines at Midlothian were finding it difficult to manage their property. Due to its long life, ownership became diverse through sales and the willing of the property to heirs. This fact was brought out by Beverly Randolph, John Heth, and Beverly Heth in the following petition asking for incorporation of their properties:

To the General Assembly of Virginia.

> The petition of Beverly Randolph, John Heth, and Beverley Heth,-humbly sheweth,-
> That your petitioners are the proprietors and tenants in common, of several parcels of land, in the county of Chesterfield, on which are valuable coal mines, now extensively worked,-of a lot of ground in the neighborhood of Manchester, on which is a coal yard, for the use of their pits,-and of some personal property consisting of slaves, mules, carriages, machinery, other articles of visible property, and of a floating capital in money, all of which property, real and personal, constitutes the capital stock with which they carry on the business of colliers;-that the said property is very valuable and is now managed with profit to the owners, and they hope with some advantage to the public, supplying a large share of the fuel to operate in our seaports, and of an export very interesting to the commerce of the state. This property could not even now when the owners are so few, be divided among them with any convenience or justice;-and as the owners multiply by descent devise and sale,

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63. Ibid., June 1, 1838.
64. Ibid., February 22, 1838.

partition will become wholly impracticable, and the difficulties of managing it to advantage they fear will be insufferable-When the owners became strangers to each other, when their interests become essentually different in amount, when men and women infants and persons residing at a distance become part owners, your petitioners seriously apprehend, that the harmony and concert indispensable to the profitable management of the property, cannot be obtained, and that the property will lose a great part of its value unless it can be placed under some government not liable to be thwarted by the discordant views, the whims, the caprices, the disabilities of the individual owners- Such a government your petitioners are persuaded, would be supplied, by a charter of incorporations, which while it would afford great facilities in the management of the property, could be attended, as they humbly hope, with no possible detriment to the public-

Your petitioners are desirous to divide their capital stock into a number of shares, and to sell a large portion thereof, to such purchasers as would be willing to unite with them, in a corporate company for the carrying on the business of colliers, on an intensive scale; convinced, that while they would thus promote their own interests, they would materially enhance the value of an important export, and do service to the commerce of the State-

Your petitioners would most respectfully suggest to the general assembly, that the coal trade of the state is not altogether unworthy of public patronage;-and that the competition which it now encounters, and that with which it is threatened in future, seem strangely to recommend the propriety of granting to the colliers every reasonable facility in the conduct of their business-

Your petitioners humbly pray that they may be permitted to divide their capital stock into a convenient number of shares, and sell a part of them, and that the stock holders be made a body politic and corporate, for carrying of the business of colliers,- with the usual powers of a corporate body:- And as in duty bound they will ever pray etc.

(Signed) Rev. Randolph
John Heth
Rev. Heth [65]

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65. Chesterfield County Petition, January 25, 1832.

The colliers of Henrico County opposed the petition saying that coal mines were objects of especial care and protection, and if the petition were granted, no doubt the legislature would have applications for similar favors from many others.[66] The petition of the Midlothian colliers received a favorable report by the Committee of Agriculture and Manufactures, but the House of Delegates rejected it. In commenting on this action, the Enquirer stated that the subject was one which was "clearly entitled to notice." The newspaper pointed out that the coal business was one of great interest to Virginia bringing in a profit of nearly half a million dollars without drawing upon any of the other states for a single article, "except a little oil." About this time, coal from the Cumberland Mountains and from Pennsylvania was threatening to come into competition with the coal of the Richmond Basin, and the paper asked why the right of incorporation should be withheld if it was found advantageous in coping with these competitors.[67]

There were seven or eight mines in operation around Midlothian in 1835, which dispensed through the community

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66. Henrico County Petition, February 11, 1832.
67. Richmond Enquirer, March 3, 1832.

about a quarter of a million dollars and employed seven or eight hundred persons.[68] Three hundred horses and mules, several steam engines, and other machinery was also used.[69] Wooldridge's mine was the deepest and the only one that had a steam engine to raise the coal and water out of the pits. The others employed mules for this work, but, no doubt, used steam engines for other purposes. The mines were worked day and night, except Sundays, at which time the water was drawn-this being necessary to keep the works below from being flooded. Mules, which were fed and stabled in the chambers of the mines, were used to draw the coal to the foot of the shafts. The mines at this time raised about two hundred tons of coal every twenty-four hours.[70]

Later the Legislature must have been more favorably disposed toward the incorporation of the coal mines; for in 1835 the Enquirer carried a letter signed "G" which stated that, besides the mines owned by individuals, the

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68. Martin, op. cit., p.152
69. Richmond Enquirer, October 13, 1835.
70. Martin, op. cit., p. 152.

Black Heath Company of colliers was carrying on extensive operations, but owing to the "derangement" of the currency and the immense expenses incurred in boring and sinking new shafts, their dividends had not been as large as might be "confidently expected."[71]

Another company, under the title of the Midlothian Coal Mining Company, was then being organized.[72] This company procurred a charter in 1835 and was organized in 1836. The land held by the company contained four hundred four and a half acres or a space nearly equal to a mile square immediately south of the Maidenhead Mines, southwest of Railey's and the StonehingePits, west of the Creek Company's mines, and adjoining all these mines. In the northeast corner of the property where the land rose, a shaft had been sunk previously and worked to a depth of five hundred feet; but faulty mining methods crushed the pillars of coal causing it to settle down. This forced the persons then leasing the property to abandon the mine

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71. Richmond Enquirer, October 13, 1835.
72. The account of the mines in the vicinity of Midlothian described in the immediately following pages is based on A. S. Wooldridge's "Geological and Statistical Notice of the Coal Mines in the Vicinity of Richmond, Virginia". American Journal of Science and Arts, October, 1842. XLIII, 1-14. Only additional references will hereafter be cited in the remainder of this chapter. Mr. Wooldridge was the President of the Midlothian Coal Mining Company. Since his paper gives the best description now in existance of conditions and the output at the various mines, it is regrettable that he was unable to secure the necessary data to make it even more complete.

in 1836 having worked only five or six acres.

The former lessees appear to have been Archibald L. Wooldridge, Gustavus V. Clarke, and Henry Clarke partners and colliers trading under the firm of A.&A. Wooldridge & Company; for on January 13, 1837, trustees were appointed to sell various properties belonging to these persons.[73] The trustees advertised the following items for sale at the pits, near Falling Creek, in Chesterfield, Viz:

> One 30 horse power Pumping and Winding Engine, with extra parts, flat ropes, tools and fixtures thereto attached;-Also, the Buildings, Railroads, Bogies, Cranes, Corves, Slate Car, etc., at the Mid-Lothian Pits.
>
> One 8-horse power winding Engine complete, and the Buildings, Railroads, etc., at the Stone Henge Pits.
>
> The following Coal Mines and Lands, Viz:
>
> An interest of one-eighth in the Pits called Buck & Cunliffe's, or Cunliffe's Old Pits, adjoining the Black Heath Pits, and containing about 145 acres. The coal from these Pits is of the best quality, lies shallow, and though extensively wrought, is believed to be capable of much further working.
>
> An interest about equal to one-tenth in the Union Pits, adjoining Mr. N. Mills' Green Hole Pits.
>
> The Laurel Pits, containing about 3 acres, also adjoining Mr. N. Mills' Green Hole Pits.
>
> An interest of three-eights in the Pits called the Road or Wooldridge's Old Pits, on the Buckingham road, adjoining Mr. N. Mills' Railey's Pits, containing(?) acres.[74]

The Midlothian Mining Company's land, which was divided into two tracts, was valued at $300,000 and was owned by

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73. Richmond Enquirer, February 1, 1838.
74. Ibid.

the heirs of William Wooldridge-namely: Dr. A. L. Wooldridge, Jane A. Elam, Charlotte Wooldridge, and A. S. Wooldridge. The capital was divided into three thousand shares of a hundred dollars each. A third of this or one thousand shares was sold to some thirty shareholders in and around Richmond, generally "of the most respectable and wealthy class." Four shafts were sunk, nearly in a line, on the run of the coal, and in the autumn of 1839 coal was reached in one of these at a depth of 722 feet. The coal in the shaft was thirty-six feet thick, and the sink below the coal was sixteen and a half feet deep making the total depth 770 feet. Thus the company was ready to begin taking out coal; but due to an explosion in March of that year in the Black Heath Mines, Mr. Wooldridge apparently found it difficult to secure laborers as indicated by the following advertisement in the Richmond Enquirer, January 9, 1840:

> Pit Hands Wanted.- In consequence of reports having been circulated of the insecurity of hirelings in the Mid-Lothian Mines, the Company deem it proper to make known, that the mines have recently been opened, and that not the slightest explosion from gas has occurred; the workings were laid out and are now progressing, under a plan furnished by Messieurs Foster and Hall, two distinguished English Colliers, sent over from England to reclaim the Pits of the Black Heath Company after the recent explosion of gas-and the present underground operations are now conducted under the management of one of

the English foremen left here by these gentlemen, and supervised by Mr. Wm. Hall, who has under his superintendence the Black Heath Company's Works at present. The skill and capacity of those gentlemen is fully evinced in their skillful reclamation of the Black Heath Mines, and their present successful working of said Pits; and their confidence in the safety of the hands in the Mid-Lothian Mines, will be seen, by reference to the annexed extract from the Plan left by Messrs. Foster and Hall for laying out and working the Mid-Lothian Mines, and from the certificate of Mr. William Hall as to the manner in which that plan is carried into effect. This publication has been deemed proper, as the company are now in want of some ten or fifteen additional able-bodied, active Pit-hands, or hire by the year, for which they will give the most liberal hire. The Company have not hitherto spared any labor or expense, deemed necessary to secure the absolute safety and comfort of the hands in their mines; nor is it disigned in future to omit anything that can add to the security of their own hands, or the hired laborers of other persons- indeed they can, with great propriety, say, as far as they have progressed, that no mines in this country exhibit stronger, if as strong, evidence of general safety. The Company will receive on hire, no hands who do not voluntarily enter their service- and they request of those having hands to hire out, to remember that they will want upon hire, successively, at intervals of every ninety days, some additional four or five hirelings during the year, or to purchase, progressively, that number of healthy, able-bodied men.

Owners of slaves at a distance from the Coal Mines would do well to give some attention to the subject. There is no place in this country where slave labor commands as much, where their general health is better, and where the treatment and contentment of slaves are surpassed. It is true that within the last few years several disastrous accidents have occurred, but from the scientific and practical skill attracted to the mines, these accidents will be of rare occurrence, it is to be hoped.

A. S. Wooldridge
President, at the mines in Chesterfield County

Apply to Messrs. R. Hill, Jr. and Co., Richmond; P. M. Tabb, do.; D. H. Branch, Esq., Petersburg.

'We are not aware that there is any other remark at present necessary, but we conclude by stating our firm conviction that if the operations be carried out under the above system, and the ventilation effected according to the plan pursued in the North of England, under the management of an experienced mining agent, the risk of accidents in this deep pit is no greater than in mines worked in this neighborhood by slopes or shallow pits.'

Frank Foster
T. Y. Hall.

November 20, 1839

Since my arrival from England, and during my superintendence of the Coal Mines of the Black Heath Company of Colliers, I have repeatedly been in the working pit of the Midlothian Coal Mining Company-the last time, the day before closing for Christmas. I take great pleasure in stating that these mines are now progressing under the plan furnished for working them, by Messrs. Foster and Hall, before their departure for England; and from the great care observed, and the strength and safety of the works, as far as they have progressed; and my entire confidence in the security of the plan adopted for the working, I feel satisfied that the pits of the Midlothian Company promises as much security to the hands employed in it, as any mines in the neighbourhood. One of the foremen sent out from the North of England to assist in reclaiming the Black Heath Company's Mines, and which are now entirely free from gas and successfully working, will have charge of the underground mining operations of the Midlothian Company.

William Hall

When the Midlothian Company reached coal in the deepest shaft the other three were temporarily suspended; one being 625 feet deep, another 300 feet, and the other 85 feet.

Digging in the latter shaft was resumed at the beginning of 1841; by September of that year it was down 350 feet, and the company expected to reach the coal by June, 1842, at a depth of 600 feet. The other two uncompleted shafts were perhaps never worked, at any rate, there were only two shafts working in 1846.[75] The shafts were eleven feet square, divided into four chambers by timber. In 1840, with only one shaft working, the company raised about three hundred thousand bushels of coal and twice that amount was expected in 1841. This was about all the demand justified during those dull years. The total capacity of the shaft was about one million bushels of coal per year, and with the aid of a second steam engine over the same shaft, the capacity could have been raised another million bushels.

As stated above, the management expected to reach the coal seam in the other shaft in 1842, from which another million bushels of coal was expected and that quantity doubled by increasing the steam power. In anticipation of this, two large steam engines were being built for use in the new shaft; one was to be used above ground, and the other in the mine to operate on the incline.

The whole of the land owned by the company was believed

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75. Richmond Whig and Public Advertiser, June 26, 1846.

to contain coal, and exploring drifts, extending north and south over a quarter of a mile, indicated great regularity in the coal seam. A drift on the southwest indicated that the seam flattened out and did not dip more than one foot in every ten.

The $100,000 in capital was spent in sinking the above mentioned shafts, in procurring the steam engines, buildings, mules and mule power machines, railroads above and below ground, some eighteen laborers, and a coal yard with fixtures. The whole effective force at the mine, including the coal yard hands, was one hundred and fifty men and boys and about twenty-five mules.

The ventilation of the mine was under the supervison of Mr. Thomas Marshall, sometimes referred to as "the Judge." He had been in the coal mining business since he was eleven years old, having served under the distinguished English mining engineer, Mr. John Buddle, in the Percy Main Mines, near Newcastle-on-Tyne, England. The ventilation was kept up by means of brattice work, aided by a furnace underground. The fresh air was taken down on one side of the shaft, coursed the whole drift, and was passed out on the opposite side of the shaft with the aid of a six-foot furnace, which consumed fifty bushels of coal every twenty-four hours. The upcast side of the shaft was boxed up so as to throw

off the foul air fifty feet above the mouth of the pit. A visitor in 1846 stated that the mine was perhaps the best ventilated in the world. The different channels, through which the air circulated before it passed out of the shaft, embraced a distance of about eight miles. It moved at the rate of one hundred feet every ten seconds or a fraction over eight minutes to the mile.[76]

The Midlothian Mining Company was somewhat of a pioneer in the extensive use of the Davy safety lamp, but their use of them was more or less experimental. Other mines around Midlothian had used these lamps for a number of years but only in testing the pits for inflammable gas. Mr. Wooldridge stated that he did not consider any mine safe that had to be worked by safety lamps. He believed that they ought to be used only in going through the mines to see that all was right before the miners went to work or to free the miners in case they became overcharged.

The mine contained iron railroads of a very simple construction. Iron bars, two inches high and a half inch wide, were inserted edge up into cross pieces of timber. The iron was inserted about an inch into the timber, no wedging was necessary, and the track could be curved very easily. Mules were used on these underground roads.

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76. Ibid.

In 1842 Professors Silliman of Yale and Hubbard of Dartmouth performed a series of experiments upon three specimens of coal from the mines of the Midlothian Company and wrote a very flattering report, but it should be remembered that they spoke before the discovery of the rich bituminous fields to the west. They found Midlothian coal well adopted to the most important purposes "in the Arts" and to the production of gas for illumination, if a well managed heat was maintained. The ashes produced were of a kind, and in such a state, as to offer no inconvenience in using it as a fuel. Their report stated that the coal was substantially the same as the best coals of both Europe and America; while it was almost identical with the Newcastle coal of England. It contained very little iron, therefore, it did not form slag or clinkers to obstruct the bars of a grate nor did it accumulate like a fungus upon the walls of a furnace. It contained little sulphur and appeared well adapted to the use of smiths, especially when a hollow fire was desired and a powerful heat was necessary for large work with a strong blast. The professors stated that a smith, after having made a comparative

trial of Midlothian and Newcastle coal, reported that the Midlothian coal did not ignite as soon as the Newcastle coal, but it gave a "surer good welding heat" and lasted nearly one quarter longer. They added that it proved to be a very desirable fuel for parlor grates, and thought it would prove an excellent fuel for locomotives and steam engines; as it produced a good flame.[77]

Henry Howe visited the Midlothian mines in 1843 and commented upon the quality of the coal. He observed that the art of coal mining had progressed rapidly in Chesterfield County, but unfortunately the trade was then depressed. He believed that no bituminous coal possessed qualities so generally adapted to all purposes, because, as he said, it had been "extensively used in the production of gas and coke, in the manufacture of iron, glass, copper, chemicals, for locomotives, steamboats and for smiths and forges." Even with all its good qualities, preference was given to English coal in the Northern cities. This was due, Howe thought, to the large quantities of inferior coal that had been shipped formerly to the northern ports from the mines on the north side of the James River, which had created strong prejudices against Virginia coal generally.[78]

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77. B. Silliman and O. P. Hubbard, "Chemical Examination of Bituminous Coal from the Pits of the Midlothian Coal Mining Company, South Side of the James River," American Journal of Science and Arts, (1842) XLII, 369-374.
78. Henry Howe, Historical Collections of Virginia, p. 231.

It seems that 1843 was a favored year for visitors to the Midlothian mines. At any rate, a number of accounts were written about them that year by visitors. The Rev. J. B. Jeter, evidently while preaching in the community, was invited to visit the "lower regions." His account of the visit in a local newspaper[79] described the layout of the mine, the laborers, methods used, and other interesting facts. While in the mine he was invited by the manager, presumably Mr. Thomas Marshall, to preach to the miners. This he did and caused the manager to remark that, while he had often heard prayer said underground, it was the first sermon he had ever heard below ground and was perhaps the first one preached under such conditions in this country.

The following mines had been worked at one time or another but discontinued or worked out by 1841, according to A. S. Wooldridge: Old Black Heath, Buck and Cunliffe, Ross and Curry, Wooldridge, Railey, Green Hole, Mills Creek, and Old Union Pits.

The mines in operation in 1841, beginning at the James River and progressing south, were Trabrue's old pits owned by Thomas M. Burfoot, but leased to Standford, Duval and Company. South of former workings, this company had sunk

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79. The Richmond Compiler, October 8, 1843.

some shallow shafts fifty to two hundred and fifty feet deep from which fifty men raised about 125,000 bushels of coal per year. The coal, taken from the seam near the outcrop, was inferior to that of most of the other mines around Midlothian, and was not suitable for anything except domestic fuel. The company was sinking a new shaft on the property, but, perhaps due to its nearness to the river, they were troubled by a great influx of water, and a small steam engine had to be set up to pump out the water while the digging was in progress. Southeast of these pits, on the land of Major Clarke, coal had been mined to a small extent some years previous.

South of the Burfoot property was Sallee's Pit, then unworked, containing a deposit of iron ore which had been discovered by the men engaged in constructing a railroad from the Black Heath Mines to the river.[80] This mine was then owned by an English company, but Colonel John Heth retained a royalty on one half of the iron ore as well as on the coal itself. About two miles southeast of the Sallee Pit were the old Buck & Cunliffe and Black Heath Basins. Both were believed to be almost exhausted in 1841.

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80. Cf. pages 32 & 33 above.

To the west of the Black Heath and Cunliffe Coal Basins were the Gowrie Pits, owned by Murchie, Mosely, and Brander, but worked under a lease by George E. Swann. This property contained two shafts, one about 160 feet deep, the other about 460 feet deep with a capacity of 8,000 bushels of coal a year and employed forty men. The coal was best suited for grates and steam engines. The coal seam in these pits was six feet thick; but as the shafts had been sunk in troubled ground, the prospects were not promising, in fact, they were not expected to be worked after 1841.

A short distance south of the Gowrie Pits were the mines formerly owned by Thompson Blunt. They were worked under a lease by Heth, and were best known as the pits of Wills, Brown and Company, from whom the lease had been purchased. Only one shaft, about 400 feet to the coal, was in operation on the property. There were at the bottom of the shaft, two inclined planes which increased the depth about 300 feet more, one worked by mules and the other by steam power. About ninety men were employed including those above and below ground. The annual coal output was 400,000 bushels taken from a seam thirty feet thick. Several explosions occurred in this mine in 1840 and preceeding years, resulting in the loss of lives and

and injuring several men. It was supposed to be safely worked in 1841, when the ventilation was under the management of a man trained in England at the mines of Newcastle. Mr. Wooldridge gave 1816 as the year in which the mine was opened, but there was a court order[81] dated September 25, 1806, which granted permission to Thompson Blunt to construct a road "from the said Blunt's shaft at work" to the Turnpike Road. Perhaps the pit to which Wooldridge referred was opened around 1816, and another one on the same property was in operation in 1806.

The most productive mine at Midlothian in 1841 was the Maidenhead Pits, discovered in 1821, and owned by the Black Heath Company of Colliers. There were several shafts on the property, varying from 150 to 700 feet in depth. In 1839, Colonel John Heth, who was originally a large shareholder, purchased this mine from the incorporated company, with all its real estate and other property. At the same time he bought the Sallee Pit, and a large adjoining tract, with the intention of combining all these various tracts so as to form a new company. With this in mind, he went to England to see if he could get English capital to invest in these mines. While there, an explosion,

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81. Chesterfield County Surveyor's Book, 1801-1811.

which killed forty persons, occurred in his mine. This forced him to return from England, and he brought with him suitable men to reclaim the mine, as well as agents sent to examine and report the value of the property. After the mine was reclaimed, he went back to England to close a sale of the whole of this property. The water was kept out of the mines in 1841; as the English company was expected to begin operations at any time. The shaft in which the explosion took place was about 700 feet deep, and another one, completed in 1840, was about 600 feet deep. The coal seam averaged 36 feet in thickness, and the two shafts were capable of producing 2,000,000 bushels of coal of good quality each year. On the property were all the buildings, engines, and other machinery necessary for large scale operations, together with a railroad leading from the pits to the James River. Explosions occurred several times in the Maidenhead Pits prior to the "great explosion" of 1839. In 1841 the ventilation of the mine was under the supervision of a "Newcastle gas-man" and was believed to be entirely safe, but this did not prove to be the case.[82]

Directly east and adjoining the Maidenhead property was the old Wooldridge Pit said to have been discovered

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82. Cf. Chapter V, below.

when coal was turned up in the ruts of the Buckingham Road by wagon wheels. Adjoining this tract was "Bailey's Pits," the property of Nicholas Mills. This mine was abandoned at the close of 1840 and had been worked for a half dozen years before this by Mills, Reid & Company. East of this mine were the old Union Pits, exhausted by 1841 having been worked not more than fifteen years after being discovered. South of these were the exhausted mines, owned by Nicholas Mills, and known as Mills's Creek Pits, which like the Union Pits, had not lasted more than twelve or fifteen years after being discovered. South of these were the old Green Hole Pits, one of the oldest mines in the vicinity, said to have been discovered by a deer jumping across the creek and throwing up coal on the snow.

Immediately south of the Green Hole Pits was the Creek Company's Mine. This property was valued and sold to an incorporated company for $96,000, late in the eighteen thirties. The one shaft in operation in 1841 was about 380 feet deep, worked with the aid of a steam engine on the ground and mules below. About seventy men were employed, and the production of coal was between 250,000 to 300,000 bushels per year during 1839 and 1840. This company owned about thirty slaves, all the necessary

machinery, mules, a sufficient outfit of houses, two coking ovens, and a branch railroad connecting their mine with the main coal railroad to Manchester.

To the south and immediately adjoining the Creek Company Mine were the Stonehenge Pits owned by the heirs of Martin Railey. They were not in operation in 1841, but old shafts on the property were numerous and varied in depth from 50 to 400 feet. The coal from these pits ignited easily and burned freely and was best suited for grates and locomotives. There were three coal seams on the property: the first from twelve to sixteen feet, the next twenty-eight inches, the next four and a half feet in thickness. Other seams were known to exist below these, but they had not been worked.

According to a statement by the President of the Midlothian Mining Company, incorporated coal companies were generally considered, by the public, as unworthy of confidence; and the area around Midlothian was regarded as a place where the worst slaves congregated and the pits as "dens of vice, crime, and cruelties." In order to free the coal mines from these imputations, Mr. Wooldridge wrote at some length on the virtues of his mines when advertising for "able bodied, healthy, and well-disposed negro men." He stated that there was no service in which

slaves were "better treated, fed, clothed, and attended in sickness," or in which they enjoyed better health. The company provided a "well conducted hospital, under the care of a careful steward and daily attended by three physicians." Medical and surgical care was provided by the payment of three dollars per year for each slave. No slaves were hired who were not willing to enter the company's service, and the president asked that none of bad character be offered, as the company was then trying to improve the moral character of its own slaves, to which end they had that year (1846) sold three disorderly men. The slaves had a church of their own and services were conducted each Sunday by white ministers. According to Mr. Wooldridge, at least one half of the slaves employed by the company were temperance men, and the use of liquors was not approved. The advertisement stated that the slaves and other workmen of the company were as "orderly, well behaved, and moral, generally, as a like number of laboring men any where to be found." The company had in their employment several free negroes, who hired themselves annually upon the same terms and conditions as the slaves and were subjected to the same discipline. Many white laborers were hired also.

The things said concerning the Midlothian Mining Company, and the treatment of slaves and hirelings, were applicable to the other dozen or more different establishments in the sector, according to Mr. Wooldridge. Together these companies could have employed from one hundred to two hundred more laborers and thereby distributed from $10,000 to $20,000, for that number of slaves, among their owners.[83]

There appeared along with the advertisement affidavits to substantiate the remarks made by the company as follows:

> We, the undersigned, being the Physicians referred to in the above advertisement, take pleasure in stating that it contains a fair statement of facts.
>
> Wm. B. Ball, M. D.
> J. Hancock, M. D.
> S. H. Royall, M. D.

> We whose names are hereto appended have for many years hired hands to the Midlothian Company, and believe the facts stated in the foregoing advertisement are true. Our transactions with the Company have always been most satisfactory. The Company's solvency and promptitude in fulfilling its engagements, we regard as unquestionable.
>
> H. Hancock, James McTyre } Chesterfield.
>
> Thomas Forsee, Jno. C. Porter } of Powhatan.
>
> Nicholas Mills, Thomas Cowles } Richmond

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83. Richmond Whig and Public Advertiser, January 2, 1846.

In June 1846, one John Smith visited the mines and wrote a description which is similar to those of Messrs. Howe and Jeter, but his comments on the labor are interesting and show some resentment against the vitupertive censorship of Northern abolitionist.

> Along all the main channels lamps are hung upon the walls to afford the necessary light to work and travel by.-The cars drawn by mules are always rapidly passing and repassing....The mules fatten while in the pits; they are the healthiest, plumpest, and best looking animals of the kind I ever saw. The operatives all look well, and seem to feel well....The laborers have each their proper duty to perform-some are employed to dig coal-some to blast rock, and others to attend upon the shafts, fill and manage the cars, etc. There are about two hundred in all-made up of Americans, English, Scotch, free blacks and slaves.- Though politically and naturally there is a difference in these operatives, yet every tub here stands on its own bottom-but when they get out of the pits they assume to each other their proper attitude. The free blacks in these pits are very respectable, and make money for themselves and children. It is a pity that a great number of the free blacks in the State will not or cannot be made to follow suit, instead of being paupers to the counties. One of these free hands tried the North but found that he could do better at home, and after wasting $150 as an experiment, begged to come back, which he finally did at the expense of the President of the Company. Many of the slaves lay up $50 per annum for work done out of the regular hours.* This should teach some of those abolition blatherskites at the North that many of their stories are too big for this region altogether. They won't go down any way. The worst slaves in the South are the men who own them.

> The President of the Company, Maj. Wooldridge, is not annoyed and harassed for a 'respectable minister' to preach the Gospel to his people... for he has three of four of them. The colored operatives have a meeting house and a church organized here. On Sabbath last three professed to have 'new hearts and new hopes,' and are soon to be 'buried in baptism.' The place is in a high degree moral and orderly and affords conclusive evidence that all we need to change the whole aspect of affairs in this State and to better our condition, is the WILL to change our WAYS.[84]

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84. Ibid., June 26, 1846.

Chapter IV

Trial, Error and Decline 1851-1940

The Black Heath Mine experienced and explosion on May 15, 1854, which killed twenty persons. This disaster was the second that had occurred in the mine since it had been taken over by the English Company. The explosion must have discouraged the English Company for late in that year they leased the mine to Joseph T. Tompkins and William L. Walker. The management remained under John Farrar, who for many years had conducted them as the agent of the English Company. The new operators expected to increase the production of the mine; and in addition to the ordinary operations, the old Black Heath Pits, formerly worked by Major Harry Heth, were to be opened.[85]

The Civil War brought about great increases in the use and demand for coal. As the price of coal was high at that time, about $10 a ton in Richmond, the owners of the mines undoubtedly expanded operations; but many of the attempts to operate in the old shafts were failures, due to their size, depths, and the inability

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85. Richmond Whig and Public Advertiser, November 28, 1854.

to provide proper ventilation.[86] No accurate figures exist as to the extent of operations before and during the Civil War as the account books were burned at the evacuation of Richmond.

The Richmond and Danville Railroad[87] kept no reports in consequence of the depreciation of currency during the war.[88] That operations were greatly expanded is evidenced by the fact that the Midlothian Mining Company had on hand in 1865 barrels of Confederate money.[89]

But by the end of the Civil War, the Richmond Coal Field had a well-founded bad reputation, arising from the circumstances that many of its collieries had had to be abandoned, from time to time, if not entirely on account of fires, caused by spontaneous combustion, to which the character of the coal in the field rendered them peculiarly liable. Because of the irregularities

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86. Meriwither Jones, "Coal Report on Richmond Coal Basin," in part I of The Richmond Coal Basin: A Compilation in Three Parts compiled by Ira P. Davis and L. S. Evans, p. 76., unpublished.
87. The old Chesterfield Railroad was abandoned when the Richmond and Danville Railroad was completed about 1850, and it was said that the coal operators subscribed $400,000 to get this railroad to change its route and locate by Midlothian. Jones, loc. cit., p. 75.
88. Oswald J. Heinrich, "The Mesozoic Formation in Virginia," American Institute of Mining Engineers, Transactions, VI, 44.
89. Jones, loc. cit., p. 77.

in this coal field the regular square pillar system, used in many English coal fields with moderate and regular dips and seams of medium thickness, could not be employed at Midlothian; if the object was to gain the greatest amount of coal. However, this was the system by which nearly all the pits in the area were formerly laid out; except in many cases no system at all was followed. By the "square pillar system," after the pits were laid out , and work commenced homewards, the pillars of coal could not bear the weight and were crushed from above; or at steep pitches and in troubled ground, where they were like wedges, they actually slipped off upon the inclined floor. Thus a great deal of the coal was lost, and dangerous, unventilated ground, subject to accumulations of gas and rubbish to stimulate spontaneous combustion, was left behind. Ultimately, the heat accululating from a constant grinding process upon the weak pillars, and not enough air being admitted to retard this process of slow combustion by cooling, some of the pits caught fire, and after vain and costly attempts to extinguish them they were sometimes abandoned. No better results were attained from the "Staffordshire system" where

openings 300 to 400 square yards in base, and 15 to 20 yards high were frequently effected. These large openings were beyond the means of support by timber, and often more coal tumbled than could be hoisted by the small shafts before the top broke down upon the remaining coal. It was impossible to clear the chambers of this dangerous rubbish, and it had to be left behind. Large breaks were formed in the top rock, often extending to the surface, which admitted sufficient air to increase the spontaneous combustion but prevented a regular system of ventilation to cool the chambers, or an air-tight damming, on the other hand, to smother combustion.[90]

These and a series of other errors, too numerous to be recorded, according to Heinrich, "but all due to ignorance, want of system, and false economy...concentrated all the worst elements imaginable to prevent the continuous prosperity of these mines. Otherwise, under good management and improved systems of mining, the superiority of the coal, the large yield per acre, and the close proximity

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90. Heinrich, "The Midlothian Colliery, Virginia," American Institute of Mining Engineers, Transactions, (1873) I, 346-348.

to home and foreign markets, ought to have placed them amongst the most prosperous and remunerative mines in the United States."[91]

The Midlothian Coal Mining Company had been highly successful and had made a great deal of money. Colonel George Wooldridge, owing to the death of his father and Nicholas Mills, was put in charge of the company near the end or immediately following the close of the Civil War. He decided to sink a shaft, later known as the Sinking Shaft, in the western part of the property and for this purpose borrowed $180,000 from a Mr. Burrows of Albion, New York. Most of the money was spent in sinking a shaft 1,027 feet deep and boring 315 feet deeper, but the operation was abandoned as it would have required digging 700 to 800 feet deeper in order to reach the coal at this point.[92] Thus in 1869 the property was about to be sold at public auction after an outlay, during the previous two years of $180,000 without any show of improvement. On the contrary the property had been allowed to go to wreck and ruin.[93]

Mr. Burrows bought in the property for his loan and put Mr. Oswald Heinrich, a scientific geological

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91. Ibid.
92. Jones, loc. cit., p. 77.
93. Heinrich, "The Midlothian Colliery, Virginia," loc. cit., p. 349.

engineer, in charge. Heinrich cleared out the Grove Shaft, which had been sunk some years before, but too far east to reach the coal. From the bottom of this shaft he drove two tunnels 530 feet long west to the coal.[94] By 1871, 2,037,961 bushels (29 bushels = 1 ton) had been raised of which 1,448,862 bushels were obtained from one shaft alone. The expenses had been large, often amounting from $1,500 to $2,000 per month for fire service alone, almost the year round; besides heavy general expenses incurred in an extensive enterprise so peculiarly situated and with a large amount of water to be kept at bay. Even after all the costs for opening the pits and repairing the property (houses, roads, and such machinery as was needed) had been paid, a profit as interest upon the capital investment in the late purchase was left, over and above all remaining expenses.[95]

Unfortunately a miscalculation caused Heinrich to be replaced by a Mr. Dobbs. The latter had not been in charge long when an explosion occurred which killed thirty-two persons. This was in February 1882, and in

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94. Jones, loc. cit., p. 77.
95. Heinrich, "The Midlothian Colliery, Virginia," loc. cit., p. 356.

the fall of 1883 the company was raising only sufficient coal to supply their engines; as they were still directing their energy towards the cleaning up of the mine.[96] A few years later Mr. Burrows had an accident which caused him to be bed ridden in his New York home until his death. "His Administrator at once commenced robbing his estate. . . .Mr. Dobbs. . .was required to make out monthly pay rolls as if the mines were working, but the men were allowed pay for every other month. The Administrator pocketed the difference."[97]

After the death of Mr. Burrows the property of the Midlothian Coal Company laid idle for some years, until in 1894 some Pennsylvania operators formed a company of sufficient capital to buy the property. They insisted that they knew more than any of their predecessors, and after paying about forty per cent of the purchase price, they spent most of the balance of their capital prospecting for coal to the east of the Grove Shaft in land which they had been advised was barren. After these vain attempts, they reopened the Grove Shaft, but by this time their capital was used up; therefore they were forced to abandon operations.[98]

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96. Heinrich, "The Midlothian Colliery, Virginia," loc. cit., p. 356.
97. "The Richmond Virginia, Coal-field," The Virginias, Vol. IV, No. 11. (1883) p. 171.
98. Jones, loc. cit., p. 78.

In 1902 a syndicate of Richmond people took hold of the property and put Mr. Merivether Jones, a Richmond engineer, in charge. The mine was pumped out and a modern double track slope constructed, but their money soon gave out,[99] and the property lay idle until about 1920, when it was taken over by the Murphy Coal Corporation.[100]

This corporation began to improve the property and installed modern equipment as follows: Two boilers of about 250 horse-power each for hoisting and pumping, high power pumps, a double tracked incline, a number of 1-ton cars, tipple of 200 feet in length, one large bin, engine and coiler houses, and an office building. These were located some 200 yards south of the old Grove Shaft which was still used for emergency purposes. Modern equipment was used underground, and during 1923 the company mined approximately 50,000 tons of coal. Before 1925 the Murphy Coal Corporation had ceased mining operations, but the mine was still pumped. At the same time all other mines at Midlothian were quiet, except where a few pits were worked for local fuel during the fall.[101]

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99. Ibid.
100. Roberts, Joseph K., "The Geology of the Virginia Triassic," Virginia Geological Survey, Bulletin 29, p.116.
101. Ibid. pp. 95-116.

About ten years were to elapse before interest was revived in the Midlothian Field, this time by a group of Northern capitalists who began prospecting operation in 1936.[102] The following year a 17 foot seam of coal was discovered in the center of Midlothian Village by well drillers on property owned by Charles Powell of Boston, Massachesetts and occupied by his sister, Miss Lulu Powell, a teacher at Midlothian School for many years.[103]

New coal mining projects, started in April, 1937, were well under way by December of that year under the direction of a group of capitalists and business men. After months of testing, and other investigation, the investors started the undertaking with large-scale production as their goal. They believed modern mining methods and ample capital would insure them against the fate of others who had attempted to produce coal from the area. The firm was composed of some of the leading capitalists of the country. These included several engineers of the Du Pont Company of Wilmington, Delaware, as well as bankers, and other business leaders of that city, and Edward B. McLean, an heir to the John R. McLean and Thomas F. Walsh estates.

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102. Richmond Times-Dispatch, May 24 and 31, 1936.
103. Ibid., July 16, 1937.

Council for the coal interests was headed by Nugent Dobbs, special prosecutor in the Department of Justice under Presidents Harding and Coolidge and first assistant Attorney General under President Hoover.[104]

At that time the operators were under the firm names of John R. McLean Coal Mining Corporation and the Great Southern Morgan Coal and Coke Mining Corporation, but these were to be combined and headed by McLean. Several thousand acres of land were leased in Chesterfield and Powhatan Counties, and the officials explored with satisfaction the chance to supply a good part of the more than 1,000,000 tons of coal used in Richmond each year. The Virginia State Corporation Commission and the Federal Securities and Exchange Commission gave the investors authority to sell securities in one of the two companies. Convinced that their success depended upon themselves rather than the field, officials of the firm paid little heed to the several companies that had unsuccessfully sunk fortunes into the Richmond Basin during the last half century. They placed much faith in the following excerpt from a letter written to them by a former chairman of the National Coal Board of Arbitration:

> The abandonment of this field appears to have been due to two causes--one, the discovery of more easily mined coal in the Pocahontas region and

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104. Ibid, December 25, 1937.

> and second, the financial support which the railroads lent to those mines more remote from markets and which involved a material revenue from freight. Not only were the railroads active in promoting the West Virginia mines, but, at the same time, they circulated reports to the effect that the Richmond Basin was worked out. Assuming a freight rate of 35 cents per ton from Richmond coal field to Tidewater, which figure should be ample, you will still have a freight advantage of over $2.00 per ton from any competitive field. To summarize, the Richmond basin has possibly high mining cost due to physical conditions, possibly 35 cents a ton above general West Virginia figures. Against this, however, there is a freight advantage of about $2.25, certainly a sufficient margin to enable the recapture of foreign markets.[105]

In March 1938, another company, the National Industrial Engineers, Inc., began stripping operations on ninety-six acres of the old Bingly tract leased from E. J. Flippo, Sr. This firm was organized by financial interests of Virginia, Washington, D. C., Cleveland, Ohio, and Erie, Pennsylvania. By October of that year they had two 50-foot draglines and a crane in operation. A coal seam thirty-two feet deep had been unearthed and drill tests showed the supply to extend downward at least forty-eight feet.[106]

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105. Ibid.
106. Ibid., October 26, 1938.

In October 1938 a third firm, made up solely of Florida interests, was added to the number of hastily organized companies already established and at work in Richmond's historic coal basin. This firm, the B.& H. Coal Company, was owned by the B. & H. Finance Company of Daytona Beach, Florida, organized by H. B. Carson and B. L. Wilder. Their operations were on a 310 acre tract bought from Mrs. J. W. Jones of Richmond and formerly known as the old Southern Coal and Iron Company property, located a mile north of Robious. This mine, as well as the mine of the National Industrial Engineers, Inc., was situated on the site of old water-filled shafts sunk with slave labor back in anti-bellum days. Timber was cleared from a part of the tract and a road was opened to the near-by highway leading to Robious. During the winter the company expected to drain the property in order that full scale stripping operations could begin. The company expected to mine by stripping until it reached virgin territory, untouched by mining efforts of past generations, and then sink as many shafts as would be necessary.[107] The plan to drain the lake covering the mouth of the old Black Heath Coal Mine was delayed by bad weather during the winter; and Mr. Carson, the president

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107. Ibid.

of the company, was forced to reduce excavation work on a drainage canal until he could fill coal orders received from the Richmond market.[108]

The swan song of these companies came in the form of a promise of relief in a threatened coal shortage in Richmond in 1939 due to cancelled orders brought about by a strike of the United Mine Workers. In April, 1939, officials of the three companies announced that they had a combined daily output of at least one hundred and thirty tons and that within a month their production would be increased to more than three hundred tons a day.[109] But sad to relate, these companies went the way of all others that have tried to operate in this field since the Civil War; and, at present, all is quiet as far as mining is concerned, except for an occasional rumor that some company might renew coal mining operations.

An anonymous writer in The Virginias stated that he believed a history of coal mining in Eastern Virginia would "be filled with horrors unsurpassed in their ghastliness in the mining annals of the world. A history of incompetency, folly, gambling, drunkenness, cruelty,

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108. Ibid., December 4, 1938.
109. Ibid., April 21, 1939.

laziness, and short-sighted avarice--of individual and isolated ability and intelligence of enterprise and heroism jumbled into one heterogenous whole."[110] In some respects this writer was correct, but it seems that he was somewhat overcritical.

Before the Civil War the coal trade at Midlothian was carried on exclusively with local capital; except when English capital was drawn into the field around 1840. It seems indubitable that large profits were realized in the heyday of the coal trade from 1830 through the Civil War. During this period more modern machinery was introduced at Midlothian, but, doubtless, the economies gained from the more modern machinery were offset by the increased cost of slave labor. The reason the field continued to be worked, with only a one-sided drop in the cost of production, was, perhaps, the high profits which were earned when the field constituted a regional monopoly--when Richmond coal was selling at wholesale in New York for twenty-five cents, or even higher the bushel.[111] In the National Foundry

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110. "The Richmond Virginia, Coal-field," The Virginias, Vol. IV, No. 11 (1883) p. 171.
111. Kathleen Bruce, Virginia Iron Manufacture in the Slave Era, p. 104.

Report of 1838 it was stated that "coal could be furnished and pay a reasonable profit to the collier at. . .twelve and a half cents (a bushel) on the south side of James River," or from $3.50 to $3.65 the ton.[112]

In 1840 it was estimated that the amount paid for labor in mining and transporting two million bushels of coal from Chesterfield, Henrico, and Goochland counties was $80,000, and that $120,000 was spent upon supplies.[113] Thus the coal trade caused a local turnover of $200,000 in cash or credit, and a certain amount of Virginian capital invested in the coal business was sure to remain at home. Nicholas Mills, who died in 1862, made a fortune mining coal at Midlothian and was one of the wealthiest men in Virginia at that time. The Midlothian Mining Company paid dividends as high as twenty per cent and the average was eighteen per cent during its existence.[114]

It is possible, also, that the coal industry attracted outside commerce; for northern sea captains coming up from

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112. Taylor, op. cit., p. 50
113. Bruce, op. cit., p. 107, quoting Hazard's United States Commercial and Statistical Register, VI, 296.
114. Jones, loc. cit., p. 74.

New Orleans often dumped their cargoes at Rocketts where they could count on a home freight of coal, in preference to entering some larger port from which they might have to sail out empty, except for ballast.[115]

In spite of the profits gained from the Richmond coal trade, it may be asked why Virginians, in the eighteenth and first half of the nineteenth centuries were ready to throw aside agriculture for the coal business. Mining at Midlothian doubtless began as an incidental industry, and, since it was extractive and primitive, probably seemed more native to a people naturally bred to the land. Then too, the industry must have been a welcome diversion for executive management and slave labor from the plantation system, especially during the nineteenth century when the system was beginning to show ominous signs of breakdown.[116]

Before the Civil War the Philadelphia gas works drew their chief supply of coal from the Richmond Basin, and up and down the coast Richmond coal compelled notice in the American coal trade.[117] This dramatic national period

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115. Taylor, op. cit., p. 45.
116. Bruce, op. cit., p. 105.
117. Taylor, op. cit., p. 45.

of Midlothian coal ended when the Richmond district ceased to control the American supply, but it had served a great purpose; and it continued to contribute capital and a natural advantage to the new manufactories springing up in Richmond.[118] In 1861 a second dramatic era in its history came when it made possible the manufacture of iron in the north-eastern section of the Confederacy and thereby "played a significant part in that collection of forces which made Virginia in 1861 industrially superior and requisite to the other Confederate states."[119]

Most of the mining operations at Midlothian since the Civil War have been carried on by outside interests. These persons have attempted to mine from the old shafts, with the exception of the strip mining operations in the late nineteen thirties. All efforts since the Civil War have met with failure. Yet Meriwither Jones, who directed mining operations at Midlothian around the turn of the century, stated that he had been unable to find any reason why new operations with proper capital, ability, and determination cannot be pursued just as well now as was done prior to 1865, but the small mines used then cannot be worked due to the improvements in mining methods.[120]

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118. See especially, Richmond Enquirer, June 2, 1846 and Daily Dispatch, January 29 and May 5, 1858.
119. Bruce, op. cit., p. 108-109.
120. Jones, loc. cit., p. 67.

Chapter V

Explosions in the Midlothan Mines

The following statement shows most of the major explosions in this area. The information was taken from Richmond newspapers of the day and is the best that can be obtained although it is probably not complete.

Date	Mine	No. of fatalities
1817	Black Heath	No details
1839-March 18	Black Heath	40
1844-June 15	Black Heath	8
1854-May 15	English Coal Pits (Black Heath)	20
1855-March 19	Midlothian Company	39
1855-November 26	Black Heath	4
1876-May 23	Midlothian Company	8
1882-February 3	Midlothian Company	32

The first mention of an explosion in the Midlothian area was in 1817 when one occurred in the Black Heath Mines.[121]

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121. Grammer, loc. cit., p. 130

No details are available. The next explosion occurred on March 18, 1839, killing forty workers. The mine was worked by the Black Heath Coal Company and was one of the richest and most extensive in the area. The shaft in which the explosion occurred was 700 feet deep and produced an average of about 2,500 bushels of coal per day.[122] This disaster took place at the time that Col. John Heth was in England endeavoring to draw English capital into the Midlothian coal field.[123]

The blast was one of a most violent nature, but its cause was never determined. The drifts and "air coasts" (air passages from chamber to chamber) were so arranged as to keep up constant ventilation, and it was the general opinion at the time that one of the doors of the "air coasts" must have been closed causing the inflammable gas to accumulate on Sunday to such an extent as to produce the explosion soon after the laborers entered the pit on Monday morning. The Davy safety lamp was regularly used in the mine, and it was usually carried forward to test the presence of the gas. The lamp used on that

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122. The Richmond Enquirer, March 23, 1839.
123. Cf. page 50 above

particular day may have been out of order, for if a slight rent had been in its wire gauze covering it would have readily ignited the gas. Other lamps were used and one of these may have been taken into a chamber or drift before it was tested with the safety lamp. Either of these causes would have involved carelessness.

John Rynard, a Scotchman and one of the superintendents with many years experience in some of the most famous of the English mines, was below when the explosion occurred. The other unfortunate superintendent was John Hancock, a native of Chesterfield County. The explosion was so powerful that it blew pieces of timber out of the shaft to a distance of a hundred yards.[124] Three men were descending the shaft in a basket at the time of the explosion and were blown up to a height of some forty or fifty feet above the top of the shaft. Two of them fell out of the basket and were killed; the third remained in it and escaped death.[125]

Another explosion occurred at 1:35 A.M. on June 15, 1844, in the Black Heath pits. There were twelve men in

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124. The Richmond Enquirer, March 23, 1839.
125. Wooldridge loc. cit., p. 2.

the mine at the time; four Englishmen and eight slaves. Jonathan Jewett, one of the Englishmen, was the only person who survived. Although this blast caused some damage to the mine, it did not long interfere with the operation of the Company.[126]

The "English Coal Pits" suffered a major explosion[127] on May 15, 1854. This was the mine formerly owned by the old Black Heath Company. The pit was 625 feet deep and explosions had occurred in it several times before. This explosion took place about 12:30 P.M. and must have happened just at the time when the miners had ceased their labors, and were eating their lunch. No reports exist as to how it originated; though the presumption was, as stated in the newspaper at that time, that some of the men thoughtlessly approached some of the old "damps", with their lamps, and the explosion was caused by the escape of gas from unknown leaks. Not ten minutes before the accident two of the miners came from below, and up to the time that they left, no gas or foul air had been discovered.

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126. The Richmond Compiler, June 15 & 17, 1844.
127. Information on this explosion taken from the Richmond Daily Dispatch, May 16 and 17, 1854.

After the explosion, Mr. Job Atkins, an experienced miner and one of the superintendents of the Midlothian Mining Company, volunteered to go down into the pit to determine the results of the explosion, and if possible rescue any of the miners who might not have been killed. Fresh air was pumped into the pit, and Mr. Atkins, with other volunteers, stepped into the basket and was lowered. They had been down only a short time; when the signal was given and the basket, containing the crushed, mangled, and lifeless body of Moses Cyrie, was drawn up. The basket was again lowered; the signal was repeated, and William Elliott was drawn up, dreadfully burned and bruised, but not dead. The third body rescued was that of Joseph Rightshaw, about fourteen years of age, whose father was killed by an explosion in the same pit in 1851. The fourth signal brought the blackened and charred corpse of Robert Crostick; who, from appearances, was just in the act of putting his hand to his mouth, when the explosion took place.

Mr. Atkins then came up and reported that there were five or six other dead bodies at the end of the shaft on the first inclined plain; and that farther down there were others, all more or less blackened, disfigured and charred by the accident.

There were twenty persons (all white) in the pit when the explosion occurred, and William Elliott was the only one found alive. The following persons were in the pit:

Moses Cyrie	John Thurman
Albert Branch	Henry Godsey
Thomas Tompkins	William Elliott
Ezekiel Dobbins	John Elliott
Robert Williams	Samuel Vest
John Jones	Joseph Shaw
Robert Crostick	Jeremiah Kane
Henry West	Thomas Brown
William Palmer	John Peacock
John Kiver	Joseph Rightshaw

The first twelve were married men and the last two were boys.

The Richmond Daily Dispatch of May 18, 1854, reported that three subscription lists were opened to raise money for the relief of the families of the men who were killed. Dr. F. W. Hancock, who was well acquainted with the unfortunate families, took charge of distributing the money among the needy families.

The first major explosion in the mines of the Midlothian Mining Company occurred on March 19, 1855, at 5 o'clock in the afternoon. According to the Daily Dispatch[128] nine white persons were killed and two injured. Thirty negroes

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128. The account of this explosion was taken from the Richmond Daily Dispatch of March 22, 1855.

were killed and eleven injured and of these injured three were not expected to live. Up to the moment of the accident, the superintendent in the pits felt perfectly satisfied that the mine was free of foul air. Mr. Job Atkins, one of the superintendents, thought them so safe that he declared that he would not have hesitated to take his family into them to live. As in most of the other explosions, the cause could not be determined; but at the time Mr. Atkins expressed the opinion that in blasting the coal an old shaft sink might have been accidentally breached from which poured a volume of gas, that became ignited and swept through the various drifts, dealing death with an unsparing hand.

The explosion caused the earth to quake for several miles around the pits. A man who was crossing the railroad about a mile from the pit stated that he felt the tracks reel under him; and another, who was on horseback declared that the concussion caused his horse to stagger and tremble. The center boards around the shafts were blown off "as if they had been paper", and at the western shaft, two large cable chains were broken "as if they had been pipe stems."

As soon as the explosion was heard, all the workmen above ground, from the Midlothian and English Pits hastened

to the scene, and prepared to descend the shaft to rescue those who might still be alive. Mr. Atkins volunteered, with some other men, to descend the eastern shaft, as soon as it was safe,[129] in order to search for any of the miners who might be alive. This was done and they succeeded in rescuing sixteen persons, more or less burned. Four white men and twelve negroes were removed and taken to houses or to the hospital where they were placed under medical care. Others were found later and the scene was described as heart rending. Some of the dead men, the flesh charred on their bones, held their shovels in their hands, others were holding to their picks and drills. Samuel Hunt, fourteen years of age, was found alive but unconscious. Those who were not dead, as soon as they heard the voices of their friends, begged earnestly not to be left and then cried loudly for a few drips of water to quench their burning thirst.

Out of the 55 persons in the mine, at the time of the explosion, only three escaped serious injury; though there can be little doubt that many of them were suffocated by the after-damp, rather than killed by the explosion. The white persons killed by the explosion itself or as

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129. It was necessary to rid the mine of the after-damp, an irrespirable gas remaining after an explosion of firedamp in mines.

a result of it were:

Thomas Dunn, an Englishman
John Evans, also an Englishman
Samuel Gouldin,[130] Gas Attendant
John Lester
Jonathan Jewett,[131] thirteen years of age
Joseph Howe, eighteen years of age
Nicholas Ham
Thomas Kenedley, fourteen years of age
William Wright

The Midlothian Mines had been looked upon as free from danger; therefore the Company had experienced no difficulty in employing as many white miners as they desired. Fortunately, the men were not allowed to make overtime, the supply of coal being greater than the demand; consequently, most of the white men had left the pits at twelve o'clock and thereby saved their lives. The accident threw a deep gloom over the neighborhood and, no doubt, drove many persons to seek other employment than mining.

Another explosion took place in the same year on November 26 in the Black Heath Mines, killing three persons

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130. It was said that Gouldin had a dream on Sunday night that weighed heavily on his mind. Before starting to work on Monday, he talked freely with his wife and instructed her how to act if he should meet with an accident that day.

131. The Daily Dispatch stated that this lad's brother was killed in the English Company explosion of May, 1854, but the accounts at that time did not list any one by the name of Jewett among those killed. There was another Jonathan Jewett in the Black Heath explosion of June 1844, but at that time he was listed as a survivor; in fact, the only one. It may be that he died later from injuries received in the accident.

and burning another so badly that he died about twelve hours later. They were John Marshall, Charles Thompson, Nicholas Luke and Joseph Benton. This explosion occurred in an old upset where a road had been made through an old working, which had been on fire some time before. Mr. Job Atkins, a former superintendent of the Midlothian Mining Company, but then employed by the English Company as superintendent in the Black Heath Mines, had left the pit at 8:15 P.M. Everything was in order, and the greatest possible precaution had been taken. Moreover he had placed two extra "gas-men" on guard, whose duty it was to see that the ventilation was kept up, and that gas did not accumulate so as to endanger the lives of the men. Thompson's safety lamp was found with the top off. It was believed that he unscrewed it, perhaps, to light his pipe.[132] It is inconceivable that the miners would neglect those precautions which had been adopted for their protection, and which, with ordinary care, would have warded off danger.

Almost twenty-one years passed before another explosion occurred; but, on Saturday afternoon, May 20, 1876, soon

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132. Richmond Whig and Public Advertiser, November 30, 1855

after 1 o'clock, a sudden deadening detonation was heard that sickened every heart and gave notice that an explosion had taken place - the full horror of which can only be realized by those who live in a coal mining district. The following account of the explosion was taken from the Richmond Enquirer of May 23, 1876.

The Grove Shaft at this time was owned by a Mr. Burrows of Albion, New York. W. G. Hoyt was the general agent, and Oswald Hendrick, a mining engineer, was in exclusive charge. The shaft was about 600 feet deep, at the bottom of which was a tunnel about six hundred feet long. At the head of this tunnel, chambers branched off north and south from which the coal was taken.

Soon after the explosion a signal to start the engine was received from the bottom of the shaft. This gave hope that the men in the mine were still alive, and as soon as a system could be inaugurated water was poured down the shaft to create a current of air for those that might be alive. As soon as it was safe, relief started down. The cage caught, however, and it had to be drawn up again; but as soon as the difficulty could be cleared away, Charles Jones and William Marshall, the latter an experienced miner from the Black Heath Mines, made an

effort to enter the pit. When almost to the bottom of the shaft they were driven back by the gas. A third attempt was then made by Mr. John Kendler, also from the Black Heath Mines, and he succeeded in reaching the bottom of the shaft where he found two men lying unconscious on the plates. These men had been saved by the water forced down to break the "after-damp." When taken from the mine they were barely breathing and Dr. Philip Hancock covered their bodies with earth in order to revive them. Other miners then joined Kendler and eight bodies were recovered from under the debris--those of Charles Holder, Thomas Cournow, John Marshall,[133] Thomas Goldin, Robert Hall (white), William Morris, Philip Elbott,[134] and Joseph Hendley (colored).

The body of Thomas Cournow, the gas attendent, was found about twenty feet from where the explosion was thought to have occurred. His bones were broken and his watch embedded in his flesh. As the watch stopped at 1:22 o'clock, it was supposed that this was the exact moment of the disaster.

Two bodies were found in the "sink" which collected the drainage from the mine, and it was thought that they

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133. John Marshall was the son of William Marshall, the Black Heath miner who was among the first to try to go down the shaft to aid in the rescue.

134. The Richmond Daily Whig of May 23, 1876 gave this name as Philip Ellett.

were drowned by the water introduced after the explosion. The two men who were found unconscious on the plates later stated that those found in the "sink" were the ones that gave the signal to start the engine. After giving the signal they took refuge in the "sink" to escape the "back-damp". Jack Walker and Edward Rose, the two men who were rescued, stated that they made an attempt to get back to their companions, but were over come by the gas.

Cournow, the gas attendent, was described as a very conscientious and careful miner and surprise was expressed that he should have taken any risks. In explanation, the theory was advanced that he went his rounds and made his marks (the danger lines) and found everything all right; but the gas came in behind him and he met it as he was returning to the gang. If this were true, he must have been carrying a common torch lamp, such as was commonly used by the miners when at work, instead of the Davy safety lamp.

It was understood that work was to have been suspended in a few days in order to introduce a new system of ventilation and this accounted for the small gang in the pit. If it had been in full operation, some seventy-five men would have been at work.

The Richmond Daily Whig of May 23, 1876, reported that on each side of the shaft many of the supports were blown to splinters, the tracks were torn up in a number of places, and huge boulders of coal and slate obstructed the passages.

Six years after the explosion of 1876 another one of far greater proportions took place in the same mine.[135] Soon after one o'clock on Friday afternoon, February 3, 1882, a thundering echo came from the Grove Shaft followed by a cloud of dust which gave warning that something appalling had happened. An alarm was soon given which brought Superintendent Dobbs and top hands to the scene. The wives and families of the miners, most of whom lived in the vicinity, were soon on the scene.

The pit had been considered "gassy" for some time, but had been ventilated by a fan, with the aid of the exhaust and smoke from the steam-boiler below ground. The air from the surface had to be driven a distance of about 3,240 feet as follows:

	Feet
Depth of shaft.....	640
Length of tunnel (through bed of granite)..	600

135. The account of this explosion was taken from the Richmond Daily Dispatch of February 4, 5, 7, and 8, 1882.

	Feet
Length of incline	2,000
Total distance from mouth of to the extremity of the incline	3,240

The men were probably about 200 feet from the extremity of the incline, or about 3,000 feet from the fan on the surface. The shaft was in two chambers; the theory was that fresh air would be down one shaft and foul air rise out of the other. The "up cast" was simply a third chamber penetrating from the surface to the tunnel, and the heat from the boiler and the work of the fan created a draft which carried off bad air. It is quite likely that after the explosion the shaft was filled with back-damp, through which fresh air could not be forced easily with the fan. As stated above, the back-damp, or "after-damp" as it is sometimes called, had to be broken with water after the explosion in 1876. There were six working levels in the mine-the first on beginning 1,250 feet from the top of the incline. In these six levels there were fifteen coaldiggers working; the remaining seventeen men were in other portions of the pit. The night shift had been relieved that morning at 6 o'clock, by the men who were in the mine at the time of the explosion. About the time the shifts changed, a machinist and his assistant went into the mine to remove an engine, but they came out

at noon. The machinist said that he saw William Marshall, the pit boss, and the "gasman" near the engine room at 10 o'clock. The assistant to the machinist was told by Marshall that he could come down the shaft in the afternoon and feel perfectly safe, but that he should observe due caution in going down the incline as there was danger of being caught by the trains which were pulled up the incline by wire cables. A nephew of Marshall was to have gone down with the assistant which seems to be proof that no fear was entertained by the management, as both were unaccustomed to the pits.

The night boss, Johnson Marshall, brother of William Marshall, upon leaving the mine that morning, reported to Superintendent Dobbs that the pit was free of gas; but that during the night some slate had tumbled on a portion of the brattice causing some damage. This had caused an accumulation of a small quantity of gas in that level, but it was removed before he left and the brattice restored. The theory of the explosion was that it resulted from another avalanche of slate, which carried away the brattice, thus cutting off the ventilation and causing an explosion of carbonic gas.

Immediately after the explosion, attempts were made to enter the mine. On the second attempt it was reported

that a large portion of the brattice in the shaft had been broken, and a considerable quantity of debris, consisting of timber, coal-boxes, water barrels, and other articles was at the bottom of the shaft. The rescue crew listened eagerly for some sound from the entombed men, but all was silent as the grave. Ventilation had been entirely cut off, and poisonous carbonic gas had rolled back in volumes to the shaft bottom. This back-damp drove the men back on this second rescue venture; the same thing happened on the third attempt, and by this time all hope was abandoned of finding the men alive. About nine o'clock that night, the brattice work was repaired sufficiently to restore some ventilation to the mine.

Snow fell to a depth of about six inches during the night, and Saturday morning broke drear and dismal over Grove Shaft. Miners from the Deep Run, Etna, Jewett, and other mines in the county came early, plodding through the snow, to render any assistance in their power towards the recovery of the bodies of the unfortunate men. A descent into the shaft, with its treacherous after-damp, was an undertaking of great personal risk. Notwithstanding this fact, there were numbrous volunteers. Repairs were carried on all during the morning, and by three o'clock in the afternoon a report was received that about forty feet of the first break-in had been repaired; but it was found that the damage to the brattice was greater than

had been anticipated, and it required considerable labor and time to reach the bottom of the shaft. Efforts were also hampered by a large influx of water.

Two members of a rescue group came near losing their lives. The party consisted of John Kendler, George Conrad, Thad, Crump, and Johnson Marshall. The latter two, Crump and Marshall, while exploring a tunnel, encountered after-damp and were overcome by it. Their companions succeeded in bringing them back to the cage, where they were hauled up to the top and revived.

The following day, Sunday, February 5, four bodies were recovered; one had been found the day before. On Monday morning the body of Isham Graves was taken out in a decomposed condition which required it to be speedily buried. At two o'clock that afternoon, the shift of which John Kendler was the foreman, consisting of ten men, went down. They had advanced down the incline a considerable distance when Kendler discovered a rapid passage of fresh air through the incline down below. He knew there was no return air course and was puzzled to know what became of the supply of fresh air. He pressed on determined to solve the mystery, and when he and two companions had gone about fifteen hundred feet from the shaft opening and a little beyond a point known to the miners as No. 15

level, they encountered a volume of smoke. The miners became terrified, for they realized the danger of a fire in a mine full of inflammable gases, especially with a constant supply of air. They turned and fled back to the shaft demoralizing their companions who were in their rear.

The cry soon spread that the pit was on fire and intense excitement ensued on the outside. Reports that several more miners had been killed by another explosion gained circulation, and people flocked to the shaft in great numbers to ascertain the truth. Fortunately, it turned out that the alarm, in its most serious phase, was false. All rescue efforts were suspended and Superintendent Dobbs promptly gave orders to close all openings in the mine, so as to prevent the admission of any air. It was hoped that this would destroy the fire. Consequently there was no need for the twenty-seven coffins that had been sent out, as the other men were slowly cremated in the lower depths of the burning mine.

The following is a list of the men lost in the mine, with their supposed ages and places of birth:

William Marshall, forty-five, of Percy Main, England.
Thomas Hall, thirty-five, Chesterfield County.
George Jewett, Jr., twenty-one, Chesterfield County.
A. A. Jewett, thirty, Chesterfield County.
James Brown, thirty-three, probably from Georgetown, D.C.

James Hall, thirty-three, Chesterfield County.
Joseph Cournow, twenty-one, Chesterfield County.
John Morris, twenty-three, Chesterfield County.
Joseph Shields, fifty, Durham, England.
Richard Cogbill, sixty-six, Chesterfield County.
Richard Morgan, forty, Chesterfield County.
Robert Binford, forty, Chesterfield County.
Samuel Cox, forty-five, Chesterfield County.
Pleasant Stewart, thirty, Chesterfield County.
Joseph Cunliffe, sixty, Chesterfield County.
Beverly Brooks, fifty, Chesterfield County.
Alexander Logan, forty, Chesterfield County.
Peter Harper, forty, Richmond, Virginia.
Major Pollard, thirty, Chesterfield County.
Solomon Taylor, forty, Chesterfield County.
Squire Bright, fifty-five, Chesterfield County.
John Green, fifty-five, Chesterfield County.
Lewis Hobbs, fifty-five, Dinwiddie County.
Daniel Hammond, thirty-two, Powhatan County.
Isham Graves, twenty-one, Chesterfield County.
Edward Ross, fifty-five, Chesterfield County.
Robert Booker, eighteen, Chesterfield County.
Thomas Summels, forty
Albert Hughes, thirty
James Mills, thirty, Chesterfield County.
Jeff. Coleman, forty-five, Chesterfield County.
Fred. Anderson, twenty-three, Chesterfield County.

Of the above persons, John Green, a negro, was in the same mine when the 1876 explosion occurred. He and Charles Holder were descending a shaft in a basket; Holder was thrown out, but Green held on to the rope and was raised to the surface. Ned Ross and Solomon Taylor were also in the explosion of 1876. Joseph Cournow was the son of Thomas Cournow, the gas-attendant killed in 1876.

As the mines at Midlothian were never worked extensively after 1881, no other major explosion occurred after that year.

Chapter VI

Geology of the Area

The coal mines in the vicinity of Midlothian are a part of a larger coal deposit lying west of Richmond near the center of Eastern Virginia, between North latitude 37° and 38°. This Richmond basin or coalfield lies near the eastern margin of the Piedmont Plateau on the north and south sides of the James River, and extends through or into the counties of Henrico, Goochland, Chesterfield and Amelia. About one-fifth of the area lies north of the James River and the remainder south of it with the largest and richest deposits in Chesterfield County. The structure of the coalfield is that of an oblong basin extending thirty-one miles north and south with a width of approximately ten miles in the south middle portion from which it tapers toward either end. Its area is approximately 150 square miles.[136]

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136. W. S. Shaler and J. B. Woodworth, "Geology of the Richmond Basin, Virginia." United States Geological Survey, Nineteenth Annual Report, 1897-1898, Part II, Passim. Rogers, W. B., "Report of the Geological Reconnaissance of the State of Virginia," A Reprint of Annual Reports and Other Papers of the Geology of the Virginias, p. 63, (herinafter referred to as Geology of the Virginias) gives the length of the field as about thirty-five miles. Wooldridge, loc. cit., p. 1 describes the field as fifty miles long and twelve miles broad.

The structure and geological age of this coal field have been a subject of much investigation owing to the anomalous character of the beds of shale and sandstone which overlie the coal. Authorities have explained the deposits as being made under somewhat different geological conditions, and the theories on the structural formation are almost as numerous as the investigations themselves; for it seems that each geologist who has had occasion to investigate and write about the area has held a different opinion.[137] The geologists, after an examination of the vegetable remains, are agreed that the Richmond coalfield is of later date than the great carboniferous system found west of the Alleghany Mountains, but to just what later system it belongs has been a subject of much debate. Many of the earlier writers were prone to place the coal material in the Oölite series; while the more modern writers are more or less agreed that it is of the Triassic period.

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137. Shaler and Woodworth, loc. cit., pp. 445-457, present in condensed form the views of various geologists who have written accounts upon this area including: Volney (1803), W. B. Rogers (1836), Lyell (1847), Taylor (1855), Dadder and Bannan (1866), Lesley, (1873), Fontaine (1879-1883), Clifford (1888), Newell (1889) and Russell (1892).

Professor W. B. Rogers made some explorations in this region during his geological surveys of the state in the eighteen thirties and eighteen forties. Aided by new and extended mining operations, many interesting organic remains chiefly of vegetable origin were brought to light. These afforded him the opportunity to accumulate important data for determining the epoch of this isolated and remarkable coal formation, and led him to declare that he felt "no hesitation in referring the coal of Eastern Virginia to a place in the Oolite system on the same general parallel with the carbonucious beds of Whitley and Brora."[138] Sir Charles Lyell was led to similar conclusions after an examination of evidence on the spot; but he entertained some doubt as to whether the strata should be referred to the Triassic or Oolite period.[139] Both Rogers and Lyell wrote before 1850. Shaler and Woodworth, who represent the more recent writers on the age of this basin, state that the coal bearing rocks with their included plants "have been in recent years held to

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138. Rogers, "On the Age of the Coal Rocks of Eastern Virginia," Geology of the Virginias, p. 646.
139. Lyell, loc. cit., p. 261.

be of Triassic Age."[140]

The area has the form of a broad basin with the coal cropping out on the eastern and western margins. Within a few miles on either side of the James River, where the coal appears to be the thickest, it varies from almost nothing to as much as thirty feet and in some places even thicker.[141]

Section at the Midlothian Pit,[142] half a mile south of Blackheath on the eastern outcrop of the coal.

	Feet	Inches
Sandstone and shale	570	0
Slate with calamites	1	6
Sandstone and shale	43	10
Sandstone with calamites	8	0
Sandstone and slaty shale	48	0
Slate and long vegetable stems	2	6
Sandstone	6	6
Slate with calamites, numerous	5	6
Sandstone	14	0
Black rock (carbonacious?)	13	0
Slate	5	0
Main coal	36	0
Sandstone, not laminated	5	0
Slate	4	0
Coal	1	0
Slate	3	0
Sandstone or grit	7	0
	773	10

Granite - depth unknown

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140. J. B. Woodworth, "The Atlantic Coast Triassic Coal Field," United States Geological Survey, Twenty-second Annual Report, 1900-1901, Part III, p. 33. See also Roberts, op. cit., p. 94.

141. Passim.

142. Lyell, loc. cit., p. 265.

Faulting east of Midlothian has formed small subordinate or detached basins almost entirely isolated from the rest of the coalfield.[143] These include the Black Heath, Cunliffe and Stonehinge Basins. In these mines the coal seems to have filled up hollows, as it were, in the floor, being accumulated in saucer-shaped basins to a thickness of forty or fifty feet, and in one place to sixty feet. The coal over the whole area rests upon a granite floor or is separated from it only by a thin layer of shale or sandstone. The coal assumes the uneven outline of the granite, and the upper surface is also affected by similar undulations, though to a lesser extent. This would indicate that the coal did not sufficiently fill up the original inequalities upon the floor to make a perfectly level surface for the deposits which succeeded.[144]

The coal strata dips westward along the eastern margin and mainly eastward on the western margin.[145] As the dip is usually at a considerable angle, vertical

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143. Woodworth, loc. cit., p. 32.
144. Rogers, "Report of the Geological Reconnaissance of the State of Virginia," Geology of the Virginias, pp. 64.65.
145. Woodworth, loc. cit., p. 33.

shafts from 400 to 800 feet are required to reach the coal at a distance of a few hundred yards inside the edge of the basin. It is only along a very narrow band of country that the coal comes up to the surface naturally, and even here it is for the most part buried under clay and gravel often thirty or forty feet thick. The coal is almost everywhere separated into two or more distinct beds; the uppermost seam being usually the thickest. It is only east of Midlothian in the detached basins that the layers appear united into one seam.[146] The deposits were never worked sufficiently to show whether the beds, in the basin proper, are continuous from mine to mine, but those engaged in digging the coal did not think so.[147]

According to Roberts, the once simple structure of the beds, after they accumulated under mesophytic swamp conditions, has been made more complex by faulting (buckling), jointing, intrusion by dikes and sheets, and erosion. The westward dip has developed frequent buckling, or what the miner calls "rolls", which generally become further apart with an increase in depth. The rolls often caused intense fracturing of the coal. Faults are common over

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146. Lyle, loc. cit., p. 264.
147. Woodworth, loc. cit., pp. 35-36.

the coal area; due not only to the settling of the Triassic sediments, but the underlying granite is involved. The stresses originated in the underlying rocks and affected whatever covered the granite.[148] The greatest number of pits have been upon the eastern border of the coal field, and it is here that the faults, or troubles as they were generally called in this area, are best seen. "Along this outcrop of the coal," according to Rogers, "there would seem to extend over a great space one or more very remarkable lines of dislocation, throwing up the coal to the west by a very heavy fracture, so as to make of the same seam a double outcrop."[149]

Vertical faults are indicated by the uncertainty of the depths at which the coal can be reached by sinking shafts at known distances from the natural outcrops or from previous workings. An example of this occurs in comparing the depth of the Creek Pits with that of the White Chimney (old Midlothian) Pit. A shaft at the Creek Mine was sunk 400 feet to the main coal seam, where the coal was followed for fifteen yards westward in the direction

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148. Roberts, op. cit., p. 98.
149. Rogers, "Report of the Geological Reconnaissance of the State of Virginia," Geology of the Virginias, p. 65.

of the dip at an angle of twenty degrees. If this dip continued uninterrupted, shafts of a much greater depth would have to be sunk west of this point; but the old Midlothian shaft was sunk 500 yards west of the Creek shaft and the same great bed of coal with the granite below it was reached at a depth of 360 feet. An upthrow of considerable extent would be required to account for the position of the coal so near the surface in the more westerly pit.[150]

The following remarks concerning the physical properties, specific gravity, and impurities of the coal are taken from an account by Joseph K. Roberts.[151] The Midlothian coal is of a bituminous variety; and, as such, it has a very black color and a brilliant luster. The coal is broken into cubical and rectangular blocks caused by joint planes developed at right angles to the bedding planes. Shale partings are more common in the thin seams of coal. In general the physical features are similar to those of the Pennsylvanian coal of southwestern Virginia. Its specific gravity is well under 2. The most recent specific

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150. Lyell, loc. cit., p. 266.
151. Roberts, op. cit., pp. 112-113.

gravity tests were made in July, 1923 from samples taken from two mines in operation at that time. The results of these tests were found to be similar to those made near the middle of the last century by W. R. Johnson, who found the general average to be 1.346.

Robert's tests of specific gravity (1923)

Location of mine	Specific gravity	Average
New opening south of Grove Shaft, one mile south of Midlothian.....	1.362	
Forbes pit, north of Midlothian.....	1.292	
		1.327

Hardness, a somewhat variable feature in any coal, is modified in the Midlothian coals by the varying amounts of shale and many other factors. The slaty portions of the coal is rather dull; but the workable portions are a bright black. Thin sections of the coal show plant tissues with fairly well preserved cells. Bits of plant stems, leaves, and roots occur in the coal and especially in the carbonacious shales which occasionally part the coal and often serve as the roof. The principal impurities are pyrite (FeS_2) and slate. The Pyrite occurrs in small masses, but it is sometimes disseminated through the coal, and is so abundent in some of the small seams

that it becomes extremely unpleasant when the coal is used in grates and stoves. Some of this pyrite can be eliminated by washing the coal. Slate encountered in the mines of the Midlothian region is thick enough to permit it to be separated by hand and is not a serious difficulty.

The magnitude and persistency of the seams of coal in the Midlothian area, some from 30 to 40 feet in thickness, "consisting of as pure a mass of bituminous coal as can perhaps be found in the world, even in the old carboniferous formations, are truly remarkable especially when we take into account its geological age."[152]

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152. Lyell, loc. cit., p. 265.

APPENDIX

Appendix

Henry Howe's account of his visit to the pits of the Midlothian Coal Mining Company is given below. His description is the most interesting and complete one in existence of this mine when it was at the peak of production and is typical of the other large mines in the area. (Taken from Howe's Historical Collections of Virginia, pp. 230-232).

> Learning that the Midlothian mines were the most extensively and as skilfully wrought as any, I paid them a visit; but my remarks as to the management and quality of the coal, will in general apply as well to the remainder. Four shafts have been sunk by this company since 1833; in two, coal has been reached, one at a depth of 625, andthe other at 775 feet. The sinking of the deepest occupied three years of labor, at a cost of about $30,000. The materials were raised by mules, and it is supposed a like depth was never before attained by horse-power in any country. These shafts, eleven feet square each, are divided by timbers into four equal chambers. At the deep shaft, two steam-engines on the surface operate in raising coal; at the other, one. The extra engine at the deep shaft draws coal up an inclined plane down in the mine, to the bottom of the shaft. This plane reachest the lowest point of the mine, about 1,000 feet or a fifth of a mile from the surface. The coal having thus been brought to the pit, the other engines raises it perpendicularly to the surface,

when the baskets containing it are placed on little cars on a small hand railway, and are pushed by the negroes a few rods to where it is emptied, screened, and shovelled into the large cars on the railroad, connecting with tidewater near Richmond, 12 miles distant. While the engine attached to the plane is drawing up coal, it is so arranged that pumps, by the same motion, are throwing out the "surface water," which, by means of grooves around the shaft, is collected in a reservoir made in the rock, 360 feet below the surface. This water is conducted about twenty feet above ground, to a cistern, from which it is used by the different engines.

Through the kindness of the president of the company, I was allowed to descend into the mines. I was first conducted to a building where I put on a coarse suit, which is perhaps worthy of description. Firstly, imagine a figure about five feet and a half in height, incased in a pair of pants of the coarsest "hard-times" cloth, coming up nearly to his shoulders, with legs as large as the wearer's body. Throw over these a coat of the same material, with a very short skirt, and over its collar place a shirt-collar of sailcloth, turned over "a la Byron," being the upper termination of a garment operating most unmercifully as a flesh-brush upon the tender skin of its wearer. Mount this interesting figure in a pair of negro shoes, crown him with a low black wool hat, stuck just on the top of his head; beneath it place a countenance sunburnt and weatherbeaten to the hue of unscraped sole-leather, relieved on each side by huge masses of long light hair, and you have a tolerable portrait of the writer as he was about making his debut, at 4 P.M., July 13th, A. D. 1843, into the deep pit of the Midlothian coal-mine, in Chesterfield county, "Ole Virginny."

My friend, guide, and self, each with a lighted lamp, sprang into a basket suspended by ropes over pulleys and frame-work, above a yawning abyss seven

seven hundred and seventy-five feet deep. The signal was given--puff! puff! went the steam-engine, and down, down, went we. I endeavored to joke to conceal my trepidation. It was stale business. Rapidly glided past the wooden sides of the shaft,--I became dizzy,--shut my eyes,--opened them and saw, far, far above, the small faint light of day at top. In one minute--it seemed five--we came to the bottom with a bump! The under-ground superintendent made his appearance, covered with coal-dust and perspiration; his jolly English face and hearty welcome augured well for our subterranean researches. Him we followed, each with a lighted lamp, through many a labyrinth, down many a ladder, and occasionally penetrating to the end of a drift, where the men were at work shovelling coal into baskets on the cars running on railroads to the mouth of the pit, or boring for blasts. We witnessed one or two. The match was put, we retreated a short distance,--then came the explosion, echoing and re-echoing among the caverns,--a momentary noise of falling coal, like a sudden shower of hail, succeeded, and then all was silence.

The drifts, or passages, are generally about sixteen feet wide, and ten feet high, with large pillars of coal intervening about sixty feet square. I can give the idea by comparing the drifts to the streets, and the pillars to the squares of a city in miniature. When the company's limits are reached, the pillars will be taken away. The generalinclination of the passages is about 30°. Frequently obstacles are met with, and one has to descend by ladders, or by steps, cut in solid rock. Doors used in ventilation were often met with, through which we crawled. Mules are employed under ground in transporting the coal on the small railways, coursing nearly all the drifts. They are in excellent condition, with fine glossy coats of hair, nearly equal well-kept race-horses, which is supposed to result from the sulphur in the coal, and the even temperature of the mines. Well-arranged stables are there built, and all requisite attention paid them. Some of the animals remain below for years, and when carried to the strong light of day, gambol like wild horses.

Partitions of thin plank, attached to timbers put up in the centre of the main drifts, are one of the principal means by which the mines are ventilated, aided by a strong furnace near the upcast shaft. Near this is a blacksmith-shop. The atmospheric air is admitted into the mines down the deepest shaft, and after coursing the entire drifts, and ascending to the rise-workings of the mines, is thence conducted to the furnace, where it is rarefied, and ascends to the surface, having in its progress become mixed with the carbureted hydrogen gas emitted from the coal. When this gas is evolved in unusual quantities greater speed is given to the air by increasing the fire. If the partitions in the drifts (known as brattice-work) should be broken, the circulation would be impeded, and the gas so strongly impregnate the air, as in its passage over the furnace to ignite, and result in destructive consequences. Or, should too much gas be thrown out of the coal when the circulation is impeded from any cause, it would explode on the application of a common lamp. In such cases, the Davy lamp is used. I heard the gas escaping from the coal make a hissing noise, and I saw it set on fire in crevices of the walls by the lamp of our conductor; and although a novice in these matters, enough was seen to convince me of the skill of Mr. Marshall, the company's under-ground superintendent, in managing the ventilation.

Some years since, when ventilation was less understood than at present, an explosion took place in a neighboring mine of the most fearful character. Of the fifty-four men in the mine, only two, who happened to be in some crevices near the mouth of the shaft, escaped with life. Nearly all the internal works of the mine were blown to atoms. Such was the force of the explosion, that a basket then descending, containing three men was blown nearly one hundred feet into the air. Two fell out, and were crushed to death, and the third remained in, and with the basket was thrown some seventy or eighty feet from the shaft, breaking both his legs and arms. He recovered, and is now living. It is believed, from the number of bodies found grouped together in the higher parts of the

mine that many survived the explosion of the inflammable gas, and were destroyed by inhaling the carbonic acid gas which succeeds it. This death is said to be very pleasant; fairy visions float around the sufferer, and he drops into the sleep of eternity like one passing into delightful dreams.

To a person unacquainted with mining, no true conception can be formed of the interior of a large and well-arranged coal-mine, unless by examination; and none but a thorough adept can give a description of its complicated arrangements. The art of coal mining has progressed rapidly in this vicinity within a few years; but, unfortunately the trade is now depressed. The Midlothian coal has a beautiful lustre, similar to the anthracite. It is believed that no bituminous coal unites qualities so generally adapted to all purposes. It has been extensively used in the production of gas and coke, in the manufacture of iron, glass, copper, chemicals, for locomotives, steamboats—and for smiths and forges it has no superior. As domestic fuel it is equal to the best English coals, and far superior to them in strength and durability. It is strange, that with all these qualities, a preference should be given at the north to English coal. This is accounted for from the fact that formerly large quantities of inferior coal were shipped to the northern ports from the north side of James River, and created strong prejudices against Virginia coal generally.

The Midlothian mines employ, in all their operations, some 150 negroes. They are well-fed, clothed, and treated, and in case of sickness are sent to a comfortable hospital, under the care of a steward, and daily attended by physicians. I could not but almost envy their well-developed muscular figures. The negroes prefer this labor to any other, enjoy many perquisites, and generally the labor of the week is performed in five days. Singular as it may seem, persons engaged in mining become exceedingly attached to it. I never knew a person more enamored with his profession than our conductor. He eloquently descanted, in a rich brogue, upon the pleasure he experienced in the mine. Was he sick, the pure air of the pit—the thermometer being about 60° throughout

the year--would restore him. Was he hot, there he could become cool. Was he cold, there become warm. Was he low-spirited, his employment would bring relief. In fine, "the pure air of the pit" was a universal panacea, the elixir of life, the infallible remedy for all human ills. If his opinion were general, farewell Saratoga, White Sulphur, and Rockaway--your glories would be eclipsed by the glories of this!

Our conductor, as he took us about, all zeal to show us every thing, and a determination that we should not depart until all was seen, would have kept us there I know not how long, had not the cry of "All's well!" resounding from cavern to cavern, echoing in the recesses and dying in the distance, proclaimed that it was 7 o'clock, the day's work finished, and time for us to ascend. Glad was I, for although I had gone through but a small portion of the drifts, yet the four miles I did travel, of such "going," was enough even for as old a pedestrian as myself. I returned as I came, entered the dressing-house, and on looking in the glass, saw a face blackened with coal-dust, which, on a due application of soap and water, I recognised as an old acquaintance. Being duly washed, combed and dressed, I leisurely wended my way to a fine old mansion on the hill, embowered in a grove of waving locusts, the abode of elegant hospitality. There, seated under the porch, with the delicious feeling a comfortable seat always inspires when one is greatly fatigued, I passed "twilight's witching hour," my senses lulled by delightful music from the adjoining parlor: anon, recovering from my revery, I listened to the amusing adventures of Col. A., from Texas, or treasured up the particulars of mining operations, and anecdotes given by Major W. The music I must not give: heavenly sounds produced by fairy fingers, are too ethereal to be materialized by the printer's imp! but I will give, in conclusion an anecdote of the Major's of a most tragical occurrence. Unually comedy, but now tragedy will be the finale, ere the curtain drops.

Some years since, a gentleman was one autumnal evening hunting in this county in the vicinity of some old coal-pits. Straying from his companions,

he accidentally slipped down the side of an abandoned pit, and caught by one arm a projecting branch on its slope. The pit was supposed to be about two hundred feet in perpendicular depth, and its bottom a pile of rocks. He heard in the distance the cries of his companions, and the yell of the hounds in the chase. He shouted for help, but no answering shout was returned, save the echo of his own voice among the recesses of the surrounding forest. Soon his companions were far away. Death awaited him--an awful death. His mind was intensely excited, and keenly alive to the terrors of his situation. He thought of his friends--of all he loved on earth! and thus to separate; oh! twas agony. Hoarsely moaned the wind through the dying leaves of autumn; coldly shone the moon and stars on high, inanimate witnesses of human frailty fast losing its hold upon this life. Nature could sustain herself no longer, he bade "farewell to earth," grew weaker and weaker, released his grasp and fell--fell about six inches! This brought him to the bottom of the pit, as you, patient reader, are at the bottom of a long letter--all about coal too.

Amount of Coal Mined and Shipped at Richmond, Virginia.[153]

Years	Tons of 2,000 pounds
1822	48,214
1823	39,255
1824	59,857
1825	59,571
1826	79,144
1827	75,643
1828	89,357
1829	83,357
1830	91,785
1831	93,143
1832	117,878
1833	142,587
1834	119,714
1835	96,428
1836	110,714
1837	100,000
1838	96,428
1839	85,714
1840	78,571
1841	71,071
1842	68,750

153. The Richmond Compiler, February 17, 1843, quoting from Pottsville Miners' Journal.

Annual Production and Shipments of Coal from Richmond Coal Basin, in Tons of 2,000 Pounds[154]

Fiscal Year Oct. 1st to Sept. 30th	Shipped by R. & D. RR		Consumed at Mine. Est. 7% of Production except where Otherwise Obtained	Total Amount Shipped	Total Amount Produced
1822 to 1842				1,925,000.00	1,925,000.00
1843			6,254.57	89,351.00	95,605.57
1844			7,543.83	107,769.00	115,312.83
1845[a]			8,805.79	125,797.00	134,602.79
1846			8,155.91	116,513.00	124,668.91
1847			8,924.79	127,497.00	136,421.79
1848			7,899.36	112,848.00	120,747.36
1849			8,753.36	125,048.00	133,801.36
1850			9,029.16	128,988.00	138,017.16
1851	17,432.40		8,940.74	127,582.40	136,523.14
1852	34,955.25		6,979.49	99,707.25	106,686.74
1853	15,620.69		6,654.97	95,070.69	101,725.66
1854	43,454.00		8,671.74	123,882.36	132,554.10
1855	35,621.95		8,241.45	117,735.55	125,977.00
1856	38,842.00		6,944.42	99,205.84	106,150.26
1857	24,274.00		7,511.98	107,314.32	114,826.30
1858	29,918.00		7,434.70	106,299.64	113,734.34
1859	30,834.00		6,956.67	99,381.04	106,337.71
1860	32,315.00		7,358.04	105,114.84	112,472.88
1861	18,353.00		6,195.13	88,501.88	94,697.01
1862	29,146.00		7,555.73	107,938.96	115,494.69
1863	42,000.00	est.[b]	7,331.52	104,736.16	112,067.68
1864	42,190.00		7,300.87	104,441.20	111,742.07
1865	42,000.00	est.[c]	4,916.89	68,812.72	73,729.61
1866	25,918.00		4,639.09	66,272.80	70,911.89
1867	19,700.10		5,286.65	85,523.54	90,810.19
1868	14,782.00		6,292.39	89,891.34	96,183.73
1869	20,433.00		7,560.23	108,003.28	115,563.51

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154. Oswald J. Heinrich, "The Mesozoic Formation in Virginia," American Institute of Mining Engineers, Transactions, 1878, VI, 44. Only those columns that have a bearing upon production at Midlothian have been reproduced here.

1870	26,734.00	5,900.87	84,298.19	90,199.06
1871	34,288.00	6,668.42	95,263.20	101,931.62
1872	29,175.00	6,278.60	89,694.36	95,972.96
1873	38,025.00	6,640.47	94,863.84	101,504.31
1874	18,690.21	5,354.75	76,496.45	81,851.20
1875	14,453.08	5,803.21	82,903.04	88,706.25
1876	16,321.64	3,812.00	53,369.64	57,181.64
1877	14,741.49	12,127.80	55,779.49	67,907.29
Total	750,217.81	250,725.59	5,396,895.02	5,647,620.61

a. Midlothian Mining Company, est. 35,700 tons, on an average from 1843, to 1852; books burned at the evacuation of Richmond.

b. 1863 Richmond and Danville Railroad, no reports kept in consequence of depreciation of currency during the Civil War.

c. 1865 Richmond and Danville Railroad, the same reason as in 1863.

Key to Map

1 and 2. Trabues Pits: first mentioned 1790; working 1815-1819; in 1835 as Burfoot's Pits worked by Stanford Duval & Co.

3. Major Clarke's Pits: first mentioned 1842.

4. Sallee's Pits: first mentioned 1790, working 1808-1815; sold by Col. John Heth to Wills, Brown & Co.; working 1835; sold to English Company in 1841.

5. Gowie Pits: first mentioned 1821; working 1839, owned by Mosely & Brander, leased by Geo. F. Swann.

6. Wills Pits: opened before 1806; operating 1816, owned by Thompson Blunt, worked by Wills, Brown & Co., later by Col. John Heth.

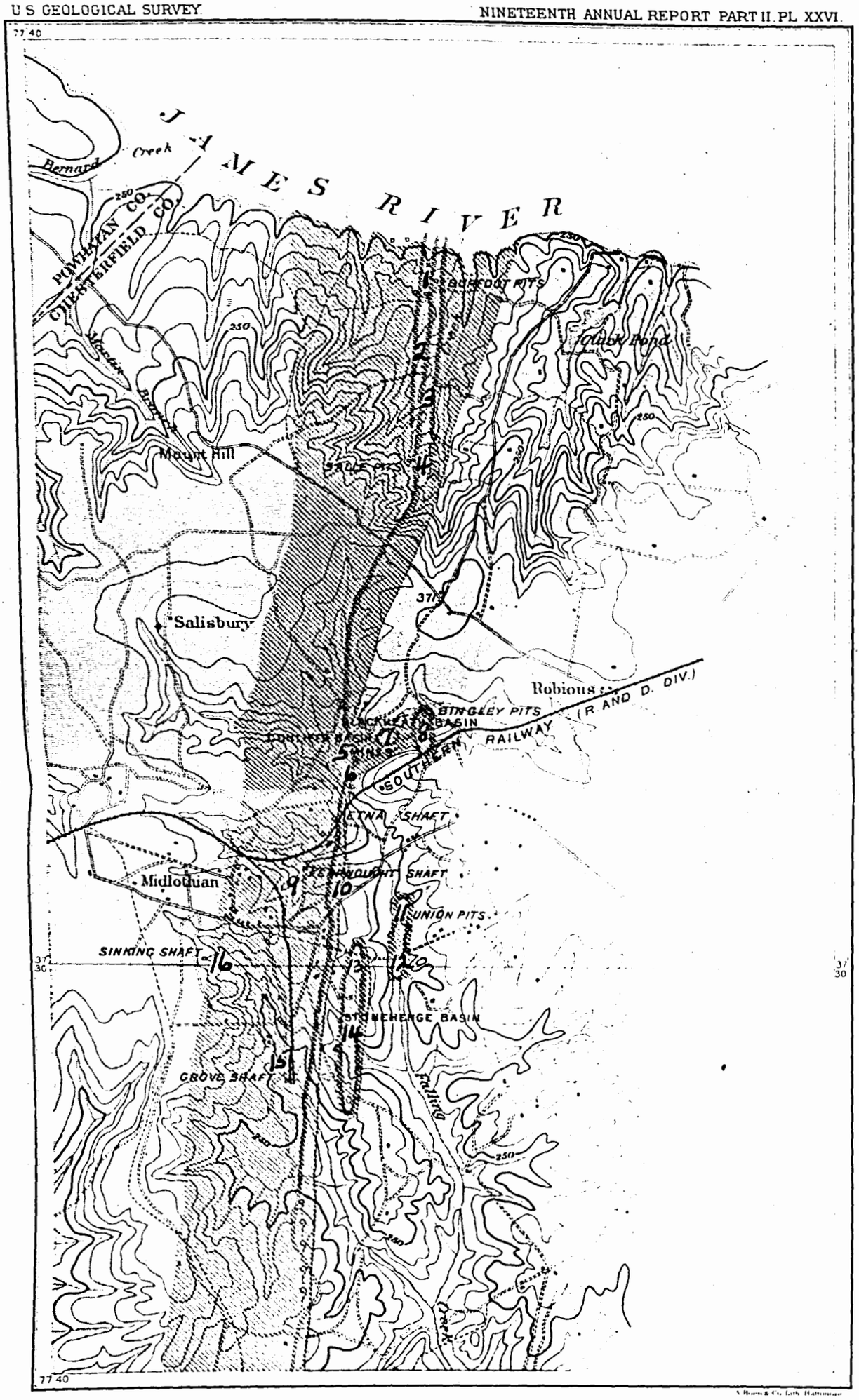
7. Buck & Cunliffe 1791; first mentioned 1790; also M'Call & Cunliffe 1791; called Cunliffe's Old Pits 1838.

8. Black Heath Pits: opened about 1788 by Heath Mining Co.; working 1810; working about 1835 by Chesterfield Mining Co.; working 1838-1840, 1842, 1854-1855.

9. Maidenhead Pits: opened about 1821 by Black Heath Co. of Colliers; later owned by Col. John Heth; sold to English Co. in 1841; worked by English Co. until 1854; leased to J.T. Tompkins

Geology of the Richmond Basin, Virginia
By Nathaniel Southgate Shaler and Jay Backus Woodworth

U S GEOLOGICAL SURVEY. NINETEENTH ANNUAL REPORT PART II. PL. XXVI.



LEGEND

Area of Newark rocks nearly horizontal at surface

Area of inclined Newark rocks

Coal outcrops as shown on old mining maps and by pits

Granite

Shafts and Coal pits

Diamond drill hole

GEOLOGY

from various sources including personal observations compiled by J B Woodworth. N S Shaler Geologist in charge

MAP OF A PORTION OF

THE MIDLOTHIAN DISTRICT

RICHMOND COAL FIELD

SURVEYED BY U S GEOLOGICAL SURVEY

Scale

0 2 MILES

Contour Interval 25 feet

and W. L. Walker in 1854.

10. Wooldridge's Pits: first mentioned 1790; working 1800; worked 1838 as Wooldridge's Old Pits. Also nearby: Railey's Pits, working 1802-1808, up to 1819; Nicholson & Heth first mentioned 1790 as owned by Nicholas Mills; both pits worked about 1837 by Mills, Reid & Co.

11. Union Pits: opendd about 1827; mentioned 1838 & 1842.

12. Green Hole Pits: first mentioned in 1790; later 1842. Also nearby: Mills Creek Pits, first mentioned 1835, owned by Nicholas Mills.

13. Creek Company's Mines: first mentioned 1835, owned by Creek Co.; mentioned 1842.

14. Stonehinge Pits: owned by Martin Railey, started 1796; stopped 1832; reopened 1846 by John J. Werth & Co.; working 1848.

15. Midlothian Pits: opened 1835 by Midlothian Coal Mining Company; worked from 1839 to 1882; worked 1894 by Pennsylvania operators; worked 1902 by a Richmond syndicate; worked 1920's by Murphy Coal Corporation.

16. Sinking Shaft; On property of the Midlothian Coal Mining Co.; dug 1868; no coal was ever taken from this shaft.

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