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## THE HANGING ROCK IRON DISTRICT.

BY J. C. H. COBB.

This district extends from Hanging Rock, for which it was named, across parts of Scioto, Lawrence, Gallia, Jackson, Vinton and Hocking counties on the north, and into Kentucky 25 or 30 miles on the south. Its breadth is about 15 miles. This is about the space occupied by the charcoal furnaces making the celebrated Hanging Rock irons. As the timber has been cut away, these furnaces cannot long survive, except a few which may run on second growth. What else can we do, is the question asked by all. To a community with but little diversity of interests when the leading one is ended, it is a calamity of serious import, and as values decline and the people emigrate, all view the situation with feelings of alarm, and none more so than the prudent laborer, who has secured a pleasant little home and can no longer get work nor sell his property. No such trials await us, if we are true to ourselves. We are architects of our own fortunes. Our destiny is in the hands of those who own the soil, if they will but use their resources and invite a little outside capital to aid in the development of our boundless hidden wealth. Urge the laborers, the foundation of all wealth, to stay with us, assuring them that no part of God's green earth can give them more business or better pay than this section will in the near future, and then set to work with a firm resolve to make our pledges good and all will be well.

Our ability to help ourselves by helping others is all the secret to be considered. What surplus can we send to others? Our manufactures, as they should be, one iron and one coal, each in turn crowd me, and which is first I cannot tell, nor will agriculture and fruit culture, if rightly worked up, fall far behind. Following close along I find clay in all its forms, Fire brick, red brick, drain tile, sewer pipe, pottery and terra cotta. The second growth of timber, posts, ties, bark, tanning, coke and lime manufacture, building stone, salt, oil and gas. We have manufactured gas out of coal dust, which is one of our most important products where coal dust is plenty, as it costs less than the pipes for the other gas, and is safe, certain and manageable. In the Raccoon Valley and at other points we have abundant evidences of natural gas when we want it, and on cultivated or acquired gas we have as good living retorts as any district in the world. Noah preached a deluge but was denounced as a gasser. Columbus proclaimed a new world ;

he, too, was long called a gasser. Morse said he would soon make lightning talk: he was ridiculed and called Morse's fool. Wonderful discoveries and stirring enterprises are called live business when once successful.

Let us consider coal, iron and manufactures, having no time for other subjects. With manufactures, I will present our exports and outline our towns and cities near and in this belt. Iron-ton, on the Ohio River, as a manufacturing city and in number of her people and doubtless in the extent and value of her exports, stands to-day at the head of the list. Her enterprising citizens, observing the decline in the charcoal iron industry, have planted the more permanent coke and stone coal furnace, and what is still better and wiser, have built other manufacturing industries to consume nearly all of her product. The signs of the times, the almost inexhaustible mineral resources in your reach, and the energy of your business men in this hive of industry, all point you out as a growing city long to be a useful factor in the development and prosperity of this district. I remember to have heard a Portsmouth business man in 1879 regret that it had not given the same attention to manufactures that Iron-ton had.

Following close after in the extent of their productions and exports come Jackson and Wellston, with many betting high on Wellston as the winning nag. Jackson, including Coalton, has been the largest shipper of coal, but the mines now opening in and around Wellston will give her the lead during this year. There are many

other thriving towns and villages, some of which are shippers of coal, particularly Zaleski, on the C., W. & B. R. R., in Vinton county.

The coal of the Hanging Rock district, considered alone, is the most important production, as it can be used for fuel at home; and for export, and it can be used in the manufacture of iron, and serves to control the price of coke. In this double capacity and as an agent in making steam its value, if not its pre-eminence, will be conceded. The great vein of the district is the limestone coal, so called from the feriferous limestone generally above it. One analysis reported by Prof. Andrews, gives water 4.65; volatile matter, 36.54; fixed carbon, 54.28; ash, 4.53, and sulphur, 1.07. Economic Geology, Vol. 5, page 1102, gives a sample of Wellston coal, which may be regarded as a standard coal as follows: Water, 8.57; volatile matter, 36.40; fixed carbon, 51.39; ash, 3.64, and sulphur, .61. Vol. 5, page 924, ten mines, Hocking Valley, give an average, moisture, 5.93; volatile matter, 36.48; fixed carbon, 52.41; ash, 5.13, and sulphur, 1.09. The sample of limestone coal reported by Prof. Andrews was probably from the middle or best bench of the limestone coal. Profs. Andrews and Hunt called this coal the equivalent of the Hocking Valley, or No. 6, Prof. S. Hunt said to the writer that he followed the Hocking Valley coal by its ear marks, two and sometimes three clay partings from hill to hill, till it disappeared under the Raccoon River hills. Prof. Newbury puts it down as No. 6 or Hocking Valley coal. The theory of the blending of the veins above with the lime-

stone coal to make up the Hocking Valley seam is exploded on paper, page 921, Vol. 5, saying the great vein and the Freeport coals appear in the same section. On pages 137 and 138, Vol. 5, by Prof. Orton, the doctrine is taught that coals do not overlap, that successive veins do not run into the center of the basin overlapping each other; in minable thickness, is conveniently added; a black streak, supposed to be the tail end of a large coal vein, is not very reliable. The clay partings in the Hocking Valley seam are so uniform and so exactly like those in the limestone coal. The middle and lower benches are as good as the best Hocking Valley, except, perhaps, in a slight increase of sulphur. There is disappearance of the limestone coal, limestone ore and flint in the Hocking Valley, and all the material of that geological period, except a blossom called Clarion coal, seldom seen; ore called Baird ore or limestone ore, and ferrous limestone. It is possible the Baird ore is an ore corresponding to and equivalent to the kidney ore of our section, and this is supported by finding Snow Fork kidneys under the great vein or true limestone coal. It is claimed that the lower series Mercer limestones are in their appropriate places; also, the upper series; and the result of this reasoning is to cause the largest coal vein of our section, with the most distinctive marks (exactly like those of the great vein), two clay partings to entirely disappear in the Hocking Valley, while the great vein with its similar partings, disappears in the Hanging Rock district, except a few local deposits, without partings or having different ones, but easily located, if the lower Hocking Valley seams and the limestone coal of our section are the same. But the Baird ore below the great vein is analyzed in three samples. See page 1110, Vol. 5, one 42.35 metallic iron, one 29 and one 15, or average of three samples, 25.45. This will not do for limestone ore; 42.35 might do, and if it is limestone ore, it has no Hocking coal above it. This limestone coal and one or two veins near to and above it, it is probable, blend together and form the great vein of the Hocking Valley. It is true, much of this is conjecture. But as we belong to the same great coal basin and to its lower measures, is it probable that the geological period of time, which formed one limestone coal, could have no work to show in the Hocking Valley, and yet we find the upper and lower strata, and that in turn the period in which the Hocking Valley coal was deposited should leave so little trace with us? Above this limestone coal two or three seams of good coal are found and probably two below it. Such, at least, is the case in Jackson county. The writer is of the opinion that our geological surveys found too many seams of coal, but no one is seriously misled but those who made them; and as they say coal veins seldom overlap, we have at last but one vein of coal, and this formed as it were in eschelon. But the limestone coal has its twin brothers above it in the same section in parts of Jackson and Vinton counties. So, also, the Jackson or Wellston shaft coal at Wellsfon is at three mines passing under the flint line and the outcrop of the limestone coal itself,

and it is now certain that both, with a thickness of three to four feet, can be brought up from the same vertical shaft. It has been established that the Jackson and Wellston veins are the same, and that they are not. The writer believes that no one has shown them on paper or in fact to be separate veins, but he does not mean to let any one catch him, for when it is proved, he means to call the Wellston coal a rider for the Jackson. I intended to speak of the probable origin and deposit of coal, and believe it to be mostly a drift, rather than that it grew where it is found, but cannot in this article.

Our iron industry in this district began at Hanging Rock in 1826. In 1874, we had 65 furnaces; over 50 of them charcoal furnaces. These manufactured the celebrated Hanging Rock irons, used for ordinance and car wheels and most excellent foundry iron. No writer has given the origin of these furnaces politically. It appears that all the charcoal furnaces were born before the Republican party, except Monroe, in 1856. These charcoal furnaces were engaged in the destruction of timber, mules and oxen. During the reign of the Republican party the stonecoal and coke furnaces were built, with Means, Kyle & Co. closing the list in 1884 at Hanging Rock, where the industry was begun 60 years ago by Sparks, Means & Fair. This speaks well for the good judgment of the pioneers or reflects upon the latest builders. Since the fall of the Republican party, the iron industry has nearly stopped killing timber, has let up on the mules and oxen and is after the ore diggers. I know of few men in the

district who have backbone enough to build more furnaces at this time. But the Hon. Harvey Wells told me that he was about to build three large blast furnaces at Wellston, and some other industries, as he anticipated another change, and he meant to have his friends of the Hanging Rock district plume their pinions for the early worm. There is much to encourage building at Wellston. Its being on so valuable and extensive a coal deposit, which will make the best of iron on raw coal, its nearness to the limestone ore and its being central on this most valuable ore deposit with the best of railroad facilities, give abundant promise of great development and prosperity in the near future.

Our charcoal pig iron production in this district will of necessity be limited. It is doubtful whether its continuance is desirable. It devastates extensive areas of the country by destruction of the timber, and has not in any considerable degree encouraged agriculture nor any general improvements, nor could it from the very nature of the case. It has left immense boundaries covered with stumps, gullies and red brush. The stone coal and coke industry is very different. It must locate at points favorable for transportation, and in the near future we shall regard pig iron as raw material in the process of manufacture into the finished product. It will locate in the business centers, or this industry favorably located for ore and coal will make business centers of cornfields or red brush. By consuming the iron where produced we gain immensely in two particulars. First, we reduce freights by

shipping the finished goods in its lightest possible form to the consumer and with the least loss of time on the capital invested. Second and by far the most important, by cutting off that horde of middle men, styled pig iron commission men, most all of whom fatten alike on producer and consumer, and when once fastened on a man by way of advances, with their charges of one to two per cent. brokerage for advancing eight and or ten per cent. interest and five per cent. for guaranteeing sales, then sell one dollar under market for cash, you might just as well exclaim with Davy Crocket's coon, "Don't fire, I'll come down!" This aggregation of wealth, necessary to do the manufacturing in this district, where both ore and coal are mined, will constantly invite more capital and multiply industries until we shall not be dependent on a single product which, in a period of depression, (no business can escape such ordeals), must say to its la-

borers, we must stop, and your means of support will be cut off. No, the laborers can turn to a hundred other thriving industries for work, and in time, every foot of the hills and valleys in this district sure of a good market, will abound with nature's choicest fruits and agricultural products; and on the farms and in the orchards and gardens will profitable work be furnished to hundreds who might otherwise be unemployed. The wealth and fertility of the Scioto Valley are at our door. If we cannot get their money to help build our industries, we can get their bread and meat for our coal, iron and other productions. Our healthful climate and hill country give our people power of mind and body, genius to discover and apply, hands to execute, mutual confidence to encourage and support, until in the near future it is apparent that hundreds of happy homes will be added to those already here.

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