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Minutes of the Summer Meeting, held at Cambridge, Ohio, on August 7, 8 and 9, 1889.

The Institute met at Hammond's Opera House at 8 o'clock, P. M., on August 7th, and was called to order by the President W. J. Hester. The Hon. Thos. B. Bancroft being absent the Hon. Robert M. Haseltine was elected Secretary and Treasurer pro tem. After Pres. Hester had stated the aims and objects of the Institute, he introduced Mr. F. L. Rosemond of Cambridge, who welcomed the Institute to the city in a neat and well chosen address, to which the Hon. R. M. Haseltine, Chief Inspector of Mines, responded on behalf of the members of the Institute. Both gentlemen were enthusiastically received by the audience which by this time had increased to fully 300, a large portion being ladies.

Prof. Edward Orton, State Geologist of Ohio, was next introduced and read an able and exhaustive paper on the "Stored Power of the World."

The learned Professor on his introduction received a flattering ovation and was listened to with marked attention throughout. At the close of his paper the audience showed their appreciation in a very decided manner. The Institute then adjourned until the next morning when it was decided to visit the ore fields at Post Boy.

THURSDAY MORNING, August 8th.

The members and a number of citizens boarded a train on the C. & M. R. R. which was kindly provided by Gen. A. T. Wykoff, the General Manager, and were taken to the Black Band Ore Fields at Post Boy in Tuscarawas County. The party consisted of Prof. Orton, R. M. Haseltine, W. J. Hester, W. H. Jennings, Wm. M. Schlesinger, H. E. Goodman of the Sperry Electric Mining Machine Co. of Chicago, Wm. Quinn, T. L. Watkins, T. F. Smith, J. M. Amos and others. After a run of about twenty miles the party alighted at Post Boy, where they
were met by Gen. A. J. Warner, who escorted them to a train which he had in waiting on the tram road leading to his mines. The first visit was made to the Booth Hill mine which is a drift opening with the ore lying in swamps similar to the Briar Hill or Sharon coal and varies in thickness from one and one-half feet at the margins to six and seven feet in the swamps. The ore on being brought out is first dumped in long piles where it is roasted, there being sufficient bituminous matter adhering to it to remove all the impurities, losing usually from 37 to 50 per cent. of foreign matter as extracted by this process. After examining the mine and the mode of preparing and handling the ore the party walked across the hill to the Gibbons Hill mine where about 3,000 tons of ore was stacked, some ready for market, while in another place it was going through the roasting process, and still another large pile was being prepared for firing. The ore here is similar in its deposit to that at Booth Hill, but the members most skilled in metallurgy thought this the richer ore of the two. The members then visited a third hill called Coats Hill where the ore was being mined around the outcrop by stripping. The party were here treated to a rare sight. Fully one half an acre of ore was laid bare, showing the waves in the floor, the slants and laps in the seam and the formation of the slates (or wide awake as it is called in some places) that overlay it, also the thin marginal edge of the No. 7 coal vein of Ohio's Geological scale which is here capped by the ore vein. The ore vein was but partially developed at this point and until all that can be profitably mined by stripping has been exhausted no effort will be made to drift for it.

This vein of ore when analyzed shows from 27 to 33 per cent. of metallic iron in its raw state. The members after viewing and discussing the various points of interest retraced their steps to the railroad where a train was in waiting and after an hour's ride the excursionists arrived at Cambridge as warm, dusty and hungry a party as ever walked the streets of the city. It was nearly 3 o'clock when they assembled at the Opera House and the afternoon being so far spent it was deemed advisable to hold no afternoon session, but to convene in the evening at 7 o'clock and hear what papers might be presented before Prof. N. W. Lord, who was aided by W. M. Schlesinger, began their
stereopticon exhibition which had been arranged to be the chief feature of the evening's entertainment.

**THURSDAY EVENING.**

The meeting was called to order by the President at 7:30; the Opera House being well filled with the people of Cambridge and a great number of ladies gracing the occasion by their presence. After the house had been called to order Capt. J. L. Morris of Coshocton was introduced and read a paper on the "Advantages of the Short Course in Mining at the Ohio State University at Columbus." This paper was given marked attention and contained many good suggestions to the young men engaged in our mines. Prof. N. W. Lord who has charge of this short course in mining at the University followed with a short talk on the object of its establishment and its advantages to the young men of limited opportunities. Mr. W. M. Schlesinger, an expert electrician, then read an exhaustive and comprehensive paper on electricity in mining, frequently referring to a table carefully prepared by him showing the effective force of different horse power motors at various distances from the power house. Mr. Schlesinger's paper contained much valuable information and was enthusiastically received and the members feel under great obligations to him for the clear and concise manner in which it was written. Prof. N. W. Lord then entertained the audience with a stereopticon exhibition of scenes in and about the mines of Ohio, using about 100 plates. A marked feature of the entertainment was a number of views of Mr. Schlesinger's electric mining machinery in active operation which he explained as they were thrown on the curtain. At the close of this exhibition the meeting adjourned to meet at the C. & M. R. R. depot in the morning for the purpose of a trip to the coal and oil fields to which they had been invited by the citizens committee. At the close of the evening meeting the members were given an exhibition by the Natural Gas Company of their system of street lighting. A row of stand pipes ranging in height from 40 to 80 feet were lighted and the long flames of burning gas lit the main street for over a mile in length and it was a sight long to be remembered by those who were unfamiliar with this new fuel.
The party consisting of Professors Edward Orton, N. W. Lord, Messrs. R. M. Haseltine, William Quinn, S. C. Hayt, General A. J. Warner, T. H. Parkins, J. W. Hill, E. C. Downard, D. E. Evans, T. L. Watkins, T. F. Smith, J. C. Wilson, J. K. Turner, W. J. Hester, H. E. Goodman, W. H. Jennings, John Kidd, W. B. Hanlon, J. F. Wilson, A. T. Wykoff, W. H. Davis, W. A. Smith and N. M. Scott boarded the excursion train of the C. & M. R. R. at 8 o'clock for a trip to the coal mines and the first halt was made at the Ohio Coal Company's mine, two miles south of Cambridge, of which company Gen. Warner is President. He took the party in charge and escorted them through the shutes and engine house. The mine is equipped with a tail rope haulage system. After looking over the shutes where an Upson carrier is used to ease the coal into the gondola, the party entered a train of bank cars and went into the mine as far as the rope haulage extends which is 2,800 feet. Here they alighted and examined the coal which was found to be 6½ feet in thickness with several small partings in it from 1½ to 2 inches in thickness and usually about 18 inches from the bottom. After a halt of an hour at this mine the members resumed their trip. The next stop was made at the Pioneer Coal Company's mine owned by Col. Barrett, S. Granger and O. S. Jacobs. This mine is opened by a slope ½ pitch and the coal lies forty feet below the surface. The members were greatly interested with the plan of dumping which was a novel one. The car is drawn up with the end gate down the slope and at the top of the slope it runs on a carriage which is self-dumping, discharging the coal over a back shute. The manner of weighing and screening is after the Pittsburgh plan, one man doing all. Up to the present time 200 tons a day has been their capacity. The step here was for but a few minutes as none seemed anxious to go inside the mine. Mr. W. H. Davis who had kindly shown the party around then joined the excursion which next halted at the Anderson & Cope mine, located one-half mile south of the Pioneer and was of especial interest to the members. It is a shaft opening about 35 feet deep and the coal is from 5½ to 6 feet in thickness.
The dumping arrangements were the best that had been seen, an exhibition being given of seven cars dumped in five minutes. The nut coal and slack is separated by means of an elevator passing over wire cloth screens which are so arranged that the product of the mine can be loaded in any way that is desired, putting either the nut or pea in separate cars or either or both in one at a moments notice. The hoisting engine runs continuously, the cages are hoisted and lowered by the dump-man by means of a lever attached to a shifting pulley, a belt connection is used. The party then descended the shaft and examined the hauling engine which is located at the bottom of the shaft which draws coal from a point 5,400 ft. distant. The main entry is said to be straight, the roof in it has been shot down giving it a uniform grade over which they draw thirty cars at a trip, a speed of twenty miles an hour having been attained at times. After witnessing this haulage plant, the party went through the air way to the slope or second opening which is worthy of especial mention. The traveling way to and up this slope is paved with plank nearly to the mouth at the side of the railroad. This is one of the finest manways in the State, in fact the whole arrangement of the mine as far as seen was one that the owners might well be proud of. After all had seen all they could in this limited time the party boarded the train and sped to the Wheeling & Lake Erie Coal Company's mine, commonly known as the Trial Run. This is also a shaft 65 ft. deep and is the only one equipped with mining machines in Guernsey County. The model engine room was first visited where an elegant air compressing engine was at work. The hoisting apparatus was operated by a pair of double engines with 18x36 inch cylinders; the engine working on the first motion. Everything in the engine room was remarkably clean and even the engines looked as if they had never been used. The visitors expressed themselves as being highly pleased. On leaving the engines a portion of the party descended the shaft where they were taken to see the Harrison Mining machine at work. This was a novelty to many of those who accompanied the Institute. On their return to the surface they witnessed their new dumping arrangement which is what is known as the wheel dump. The car turning entirely over discharging itself at once. The small coal here is
separated by the aid of elevators similar to the Anderson. The Institute is under many obligations to Mr. George Harrison, the superintendent, for his many kindnesses in showing them around. On returning to the train it was found the day was too far spent and many desired to return home on the early trains, so the trip to the oil field was abandoned and the party returned feeling they had spent a very profitable day. Before arriving at Cambridge, Hon. R. M. Haseltine called the party to order and introduced Prof. Orton, who offered the following resolutions which were heartily approved by all.

RESOLUTIONS.

1. Resolved, That the cordial thanks of the Institute are hereby rendered to the citizens of Cambridge for the kind reception which they have extended to the mining engineers. They have not only given us a hearty welcome to their beautiful and favored town, but they have supplied us with a commodious hall for our deliberations, and have even gone farther, they have filled this hall with intelligent and appreciative audiences on the occasion of our evening sessions, thus doing much to render our meeting encouraging and successful.

2. Resolved, That the Institute expresses its great obligation to Gen. A. T. Wykoff, President of the C. & M. R. R., and to the other officials of the road for the two profitable and delightful excursions to the mining centers of the district which have been furnished to our members. We shall hold this liberal policy in grateful remembrance.

3. Resolved, That in Gen. A. J. Warner we recognize a pioneer in the development of the mineral wealth of the Cambridge field and we count ourselves peculiarly favored in enjoying his company and guidance in our excursions.

4. Resolved, That to our esteemed associate, Wm. J. Hester, Esq., President of the Institute, we give the assurance of our high appreciation of the arduous and unwearied service which he has performed in making and carrying out the excellent provisions for the comfort, pleasure and success of the summer session of 1889.

The Summer Meeting of the Ohio Institute of Mining Engineers adjourned with those who were fortunate enough to be present feeling well repaid for their visit to the hills of Guernsey County.