

**The Knowledge Bank at The Ohio State University**

**Ohio Mining Journal**

**Title:** Bituminous Mining Boss Examination

**Issue Date:** 1891

**Citation:** Ohio Mining Journal, no. 20 (1891), 68-86.

**URI:** <http://hdl.handle.net/1811/32620>

**Appears in Collections:** [Ohio Mining Journal: Whole no. 20 \(1891\)](#)

## BITUMINOUS MINING BOSS EXAMINATION.

---

TUESDAY, DECEMBER 2ND. 1890.

---

## PRELIMINARY QUESTIONS.

- A.*—What is your full name and address?  
*B.*—Are you a citizen of the United States?  
*C.*—If a naturalized citizen, produce proof of your citizenship.  
*D.*—How many years practical experience have you had in the workings of Bituminous Mines of this State, and state which safety lamps you are mainly acquainted with?  
*E.*—State when, and where, and in what capacity you have had experience in mining?  
*F.*—Produce testimonial of character.

## SECTION I.

Give a sketch of a mine, worked on the double entry system, show position of inlet and outlet of air current, also show by arrows your mode of ventilation.

## SECTION II.

1. Explain the benefit, in rib drawing, of having room ribs of suitable and equal size? also, the injury in having some exceedingly thick, and some of them exceedingly thin?
2. We have two sumps, each 10 feet in depth, and 100 feet apart, and on the same level, the one is full of water, the other is empty. Would any water run from the full sump into the empty one, if connected by a siphon? Explain fully.
3. How can you tell, as a practical miner, when there is considerable black damp in the mine atmosphere.
4. How would you, as Mining Boss, observe in a moment, where the miners are working in an entry, that it is not sufficiently ventilated?
5. What should mainly be observed, in locating a furnace for ventilation?
6. A shaft 500 feet deep if full of water, what is the pressure per square inch, and square foot at bottom of shaft?

## SECTION III.

7. Which is the least trouble and expense, in a new well regulated shaft mine, to ventilate by furnace, or fan? Explain.

8. Would the same method of mining adapted to a 4 foot coal bed, be suitable for a six foot seam, other conditions being the same; if not, give your reasons in full as to what change should be made, and why?

9. Explain the advantage, and disadvantage, in conducting the air current over the furnace fire, or conduct it through a dummy drift, in a mine not generating explosive gases?

10. What do we understand by the friction of air in mines?

11. An air way is 9-25 by 5-30 feet. The amount of air passing per hour is 1,800,000 cubic feet. What is the velocity per minute?

## SECTION IV.

12. In crossing a swamp in a mine, that has a depression at its lowest point from 3 to 8 feet below grade line, what would be the best mode of procedure in order to get out all the coal without loss, and at the lowest cost possible, leaving a good road when done for transportation of other coal?

13. What method would you adopt to circulate a good current of air through the rooms?

14. A mine with two openings, having one traveling way on the side of the main heading, or slope, what safeguard should be made if the men were working on both sides of the main heading or slope, under those conditions?

15. State the danger which may arise from the use of steam boilers, and steam lines, in under ground workings, and how would you avoid the same?

16. Would you advise the keeping in stock of brattice cloth at the mines? If so, what kind, and under what circumstances should it be used?

17. How many miners would you work on the in by side of a line of brattice (wood or canvas) and could you keep them safe, and give them abundance of air?

## SECTION V.

18. What are the principal non-explosive gases met with in mines? How are they usually detected? Where found? Give their specific gravity, and their effects upon persons employed in the mines.

19. In case a fire should happen in a mine, what steps would you take to insure the safety of the men and extinguish the fire?

20. What are the most important duties required of the Mining Boss by the Mining Law?

21. Explain the theory of natural and other modes of ventilation of mines, and describe their effect upon the persons employed therein.

22. Show by a sketch, how you would lay a cross heading parting off a main heading? And a room parting off a cross heading.

#### SECTION VI.

23. How would you proceed to develop a field of Coal 1000 acres in extent, lying 500 feet below the surface, output to equal 1,200 tons per day, coal bed 4 feet thick, with an inclination of 1 in 300 West to East, and give a description of all necessary appliances required for such an operation?

24. What rule would guide you in order to arrive at a correct estimate of the amount of air required for the efficient ventilation of the above mine? And about what quantity of air in cubic feet per hour would be necessary?

#### SECTION VII.

25. What does the law especially require in taking air measurements in the mine?

26. If a mine was ventilated by furnace power, producing a pressure of 5 pounds per square foot, what would be the depth of the upcast shaft? The weight of a cubic foot of air at the inlet to be 0.0776, and at the outlet 0.0622 pound.

27. The temperature of the air of a mine at the inlet is 62°, and at the outlet 184°. The volume of air at inlet is 15,000 cubic feet. What would be the volume passing out at the outlet per minute?

28. With the same power in operation, how can you increase the amount of ventilation in a mine?

29. What is the theoretical pumping capacity in gallons of a direct double acting pump, having a water cylinder 14 inches in diameter, and 48 inches stroke, piston speed 75 feet per minute? Under ordinary conditions, what per centage would you deduct for the actual capacity?

#### SECTION VIII.

30. Have you had any experience in mines generating explosive gases? If so, state where, when and how you obtained this experience, and its duration.

31. What are the first and other duties of a Fire Boss in the examination of a Mine?

32. Is there any safe, practical method of detecting explosive gas in Mines, other than by the use of the safety lamp? Explain fully.

33. What parts of the mines are most liable to generate explosive gases.

34. Which, if any, of the various safety lamps would you consider safe to work with in fire damp?

35. Supposing we increase the wire of the gauze of a safety lamp three times its usual thickness, what effect (if any) would it have on the safety of a Davy lamp?

36. What safe guard should be provided for the Fire Boss, in slope and drift mines, when attending to his lawful duties in the morning?

37. What kind of miners and day hands would you prefer to employ in a gaseous mine? Give reason.

38. If a Claneys safety lamp is not air tight, will it be in a suitable condition, and how would you proceed to make it air tight if necessary?

39. Explain what kind of oil you would prefer to use in safety lamps, and the reason therefor.

Those are the questions the applicants in Pennsylvania are supposed to be able to answer—75 per cent. of them—to obtain a certificate of competency.

THE CHAIR: Do I understand that these questions are incorporated in the law, or are they merely questions that the Board has made up to submit to the applicants?

MR. QUINN: It is the Board of Examiners that prepares the list of questions.

MR. ROY: And they are changed every year?

MR. QUINN: Yes, sir; they are changed every year.

THE CHAIR: So it depends upon the Board as to the questions?

MR. QUINN: Yes, sir; but at the last two examinations the eight Boards of the Bituminous Regions met together and formulated these questions, so that the same questions will be asked, and they are held at the same time. We have eight Examining Boards in the Bituminous Regions.

SECRETARY HASELTINE : How many in the Anthracite ?

MR. QUINN : I believe seven.

SECRETARY HASELTINE : How many men in the Board ?

MR. QUINN : Three.

THE CHAIR : Does the Board sit at stated periods, or sit all the time ?

MR. QUINN : They just sit together during the time of the examinations.

THE CHAIR : At certain times in the year ?

MR. QUINN : Yes, sir ; once a year.

THE CHAIR : Are they paid for the time ?

MR. QUINN : They are paid five dollars a day.

MR. ROY : How many days ?

MR. QUINN : Well, it generally takes about twelve days to get through with the work.

THE CHAIR : How many times a year did you say ?

MR. QUINN : Once a year.

MR. ROY : In what way are the applicants examined ?

MR. QUINN : All in one room.

MR. ROY : Please examine the manner of examination ?

MR. QUINN : They are given material to write upon and given a set of these questions. They only get one section at a time and they must hand in their papers and the questions given them before they leave the room.

THE CHAIR : They answer the questions by writing on paper ?

MR. QUINN : Yes, sir ; except in the gaseous questions ; they are given an oral examination in that, for those who want a first-class certificate. There are two certificates granted, a first and second class. Those that only want a second class certificate, do not pass the examination for gas.

THE CHAIR : I was going to remark that those questions you have there, a great many of them, were in my opinion very unnecessary in this state, as, except in few parts of the state, we have but very little gas or fire damp.

MR. ROY: What is the result of the operation of the law?

MR. QUINN: It seems to me it has been satisfactory. Of course there may be a few that oppose it, but they have reasons for doing so. The mines are generally kept in better condition and the law is obeyed more than it ever was.

MR. ROY: How long has the law been in operation?

MR. QUINN: It came into effect the first of January, 1886?

MR. ROY: Has any effort been made to have it repealed?

MR. QUINN: No, sir; but week before last the Legislature passed a bill authorizing the appointment of a commission to amend the present mining law of Pennsylvania. Some of it was defective; so that they are amending it. I wish to make a few remarks regarding a few statements made by your Secretary, Mr. Haseltine, last night. He said that parties having no practical experience could obtain a certificate. Now, I don't see how any person not having practical experience in mining could answer 75 per cent. of those questions. Besides they are required to have five years practical experience before they come to an examination and the Board requires of each applicant to produce testimonials of character from the superintendents that they have worked under for five years. So I don't see how Mr. Haseltine's statement could be true.

THE CHAIR: The first necessary point is five years of practice.

MR. QUINN: Yes, sir; in the bituminous mines of Pennsylvania.

A MEMBER: Do you think it is because the Mine Bosses have passed an examination that this effect has been brought about in the mines; or is it because the mining laws have been better enforced?

MR. QUINN: I think it is because the Mine Bosses make it a point to do their work better than they did before.

A MEMBER: You do not consider that the law is enforced any better than it used to be, but it is simply on the part of the Mine Bosses?

MR. QUINN: On the part of the Mine Bosses, and they make it a point to comply with the law.

A MEMBER: Why?

MR. QUINN: Because if they comply with the law they do their work better.

A MEMBER: Not because they have to do it.

MR. QUINN: No sir; but because they take a pride in doing it, and because there is so much competition that they have to do it or get out.

MR. ROY: How do the mine owners feel towards it?

MR. QUINN: I think they are perfectly satisfied. Of course it takes the responsibility off them. If they have a certificated Mine Boss and any accident happens you can't bring anything against them.

SECRETARY HASELTINE: Then you understand that a certificated mine boss relieves the company of responsibility for accidents?

MR. QUINN: Yes sir.

SECRETARY HASELTINE: When without one they would not be relieved?

MR. QUINN: Without one they would not.

MR. ROY: They cannot run a mine without a certificated mine boss?

MR. QUINN: Well, they can, of course, if the mine is working less than nine men.

MR. ROY: But no large mine?

MR. QUINN: No large mine, no sir.

MR. ROY: Are you quite sure that an accident occurring where they have a certificated Mine Boss relieves the mine owners of all responsibility? A. Yes sir.

THE CHAIR: It ought to, in that case.

MR. ROY: What do you know in regard to the results of the law, as it affects the Mine Inspectors? that is, has it brought about any superior quality of mine inspection since that law

was put into effect. The Mine Inspectors were always required under the law of Pennsylvania to pass an examination.

MR. QUINN: Well, they have for some years back.

MR. ROY: They always have been, I remember that.

MR. QUINN: Yes, I believe so, for ten or twelve years, but previous to 1880 I believe there was only six inspectors in bituminous regions.

Q. How many are there now?

MR. QUINN: Eight.

MR. ROY: They all have separate districts?

MR. QUINN: Yes, sir; they are responsible in their own districts.

MR. ROY: Do you know how they are examined?

MR. QUINN: Yes, sir; the Governor appoints every four years two mining engineers. They must have practical experience in mining.

MR. ROY: For how long?

MR. QUINN: How long does he appoint them?

MR. ROY: No; I mean how long must a man have had practical experience as a miner to be eligible as a mine inspector?

MR. QUINN: Five years.

MR. ROY: The same as a mine boss?

MR. QUINN: Yes, sir. The board to examine inspectors is composed of two mining engineers and three miners.

MR. ROY: How many apply before the board to get certificates as mine inspectors each year?

MR. QUINN: I was present at the last examination. I think there were about forty.

MR. ROY: How many passed the examination?

MR. QUINN: There were eleven passed. They have to make 90 per cent. to get a certificate as mine inspector.

MR. ROY: Then the Governor selects from that eleven?

MR. QUINN: No, sir; he appoints the eight highest in percentage.

SECRETARY HASELTINE: Suppose they all come from one county?

MR. QUINN: It don't matter if they all come from one town. They are still appointed according to their percentage.

A MEMBER: Did that gentleman who had charge of the Dunbar mine pass that examination?

MR. QUINN: That I don't know.

MR. ROY: He must have.

MR. QUINN: He must have had a certificate of competency, or he could not have been in charge.

MR. MORRIS: Suppose that the legislature of Pennsylvania was Democratic, and Mr. Roy and I and six more, having the highest percentage are Republicans, would the legislature allow the Governor to appoint us eight Republicans?

MR. QUINN: I should think so, if the eight highest in percentage were Republicans.

THE CHAIR: The Captain is just joking. Does the Governor appoint the board?

MR. QUINN: The Governor appoints two mining engineers and the Court of Common Pleas appoints the three miners.

SECRETARY HASELTINE: What Court of Common Pleas?

MR. QUINN: It depends upon the Governor. He appoints the three judges of some of these Courts to appoint the miners.

SECRETARY HASELTINE: Suppose the Court of Common Pleas has but one judge. In every Court they have one judge. It is due to the number of Courts they have. In some counties they have, perhaps, half a dozen, while in others they have, perhaps, only one. Which of these Courts appoints?

MR. QUINN: Whichever one he notifies.

SECRETARY HASELTINE: He selects out of the State one Common Pleas judge to appoint the others.

MR. QUINN: No; he appoints three president judges in the Bituminous districts of Pennsylvania to appoint these three miners. They are never in the one county—they are scattered over the State.

MR. WILEMAN: Each judge appoints one man?

MR. QUINN: Yes, sir; each judge appoints one man.

MR. PRICE: I would like to make an inquiry. How do the judges ascertain the qualifications of these examiners?

MR. QUINN: The only qualification necessary in these miners is, that they shall have five years' practical experience in the Bituminous mines of Pennsylvania, and that they shall have been citizens of the United States not less than five years.

THE CHAIR: I suppose they are appointed with a view of examining on the practical part of the mining?

MR. QUINN: Yes, sir.

MR. PRICE: Are they not recommended by parties to the judges?

MR. QUINN: Yes; certainly. They must have recommendations before they can receive appointments.

A MEMBER: I understand the gentleman in his explanation to say that if the mine bosses and mine inspectors are certificated men that that relieves the company from responsibility for accidents and disasters. Now I don't know whether I misunderstood you or not. That is correct, is it?

MR. QUINN: Yes, sir.

A MEMBER: Then how is it that the Dunbar operators are held responsible and asked for damages on account of their disaster?

MR. QUINN: Well, I think in that case the mine boss was not acting, and that it was another party. Probably, if you will hunt it up, you will find that to be the case; that the work was not going on under orders of the mine boss, but by another party in that case.

A MEMBER: Who was responsible, the acting mine boss?

MR. QUINN: No; the acting mine boss was not. The company, I should think.

A MEMBER: Wasn't he acting under instructions of the certificated mine boss?

MR. QUINN: No, sir; he was not. I believe it was the superintendent's instructions.

THE CHAIR: I think that is so; but, if the proper man had been there, that accident would have occurred, anyhow. There is no question about that. It is one of those things that is unaccountable. No living man could have stopped that accident.

A MEMBER: I would like to ask if, since mine bosses and inspectors have been certificated men, if the operation of the mines has been more successful than previous to that time, have accidents been less in number?

MR. QUINN: I don't know whether they have increased or decreased, but it is my opinion that the methods of mining have been advanced in Pennsylvania in the last five years. Not only that, but the social condition of the miners has been advanced, from the fact that we have to-day dozens of young men attending night schools, studying and educating themselves. Some of them hold responsible positions, whereas five years ago you could have found them loafing around the corners, or worse yet, in the bar rooms.

A MEMBER: Mr. President, just one more question. Do you think that a man can acquire as good a knowledge in the schools, studying mining, as he can by practical knowledge in the mines?

MR. QUINN: I am speaking of practical miners now and studying at the same time, studying mining and attending night schools. Not only that, but plenty of them, after obtaining certificates, are not content with that, but want more and they go on educating themselves. I think that is something that is necessary and something that ought to be encouraged. It gives a miner the chance to rise and take his place among educated and intelligent men and I think the passage of this

act has been an incentive for the miners to educate themselves and I think it ought to be encouraged.

SECRETARY HASELTINE: Mr. Quinn, let me ask you what changes have been made in the mode of conducting mines in western Pennsylvania since the passage of this law, since it went into force.

MR. QUINN: Well, my experience is that the mines are better ventilated and the double entry system is carried out now.

SECRETARY HASELTINE: Wasn't it so before?

MR. QUINN: It may have been in some mines, but not in all of them.

SECRETARY HASELTINE: What mines in the Pittsburgh region were conducted on the single entry plan before this mining law went into effect that are conducted on the double entry system now?

MR. QUINN: I don't know, I have not worked in that district.

SECRETARY HASELTINE: You were not examiner in that district?

MR. QUINN: No, sir.

SECRETARY HASELTINE: Then you don't know what the practice in that district was in the matter of examinations, in their first examinations?

MR. QUINN: They have the same examination that we have.

SECRETARY HASELTINE: You don't know who they examine and who they send certificates to?

MR. QUINN: No, certainly not.

SECRETARY HASELTINE: Then you don't know whether my statement about men having certificates applying to me for work and who did not pretend to have ever worked in a coal mine, is true or not. You don't know whether any fellow slipped through like that or not?

MR. QUINN: I don't know, but how could they?

SECRETARY HASELTINE: I don't know, but I saw the certificates they presented when they applied to me for work and they did not pretend that they had ever worked in a mine and one of them, I knew that from his own actions. It don't take long around a coal mine to know whether a man has been used to being around a mine or not. I know this man had never worked in a coal mine at all.

MR. QUINN: He must have got his certificate dishonestly, for I don't think a case like that—

SECRETARY HAZELTINE: I know of two such cases.

THE CHAIR: The question is on the adoption of this resolution. Now it is very evident from the feeling here to-day and what we learn outside that the present inspecting force of Ohio are pretty generally opposed to this bill and that they will oppose it if brought up before the legislature. The question is upon the adoption of the resolution.

A MEMBER: I move we take a vote on it now.

MR. HARRY: We are not talking about this on our own account. We have not very long to serve, so it won't hurt us much. My objection to this bill is this: I have no objection to the examination of inspectors, but I do have in regard to mine bosses, for the reason that if you pass that bill and require these men to be examined for mine bosses, you cut off every avenue from all miners who have not education sufficient to answer these questions, and from ever getting charge of a mine, and keep them at the pick. Now, take anywhere from 35 to 40 or 45 years of age working in the mines. Men who were raised in the old country, a great many of them, and they have not the education, and I will say this: that some of the best mine bosses in the first district are men that can hardly keep their own time book. Then there are a great many young men in the banks trying to educate themselves for mine bosses. Now, simply because they have not a sufficient amount of education, they are going to cut them off from ever getting above the pick. Now, I don't think it is

right, just simply because a few men want to get positions that they cannot get without it. Another thing, if you have a mine and you have all the money you have invested in a coal mine, who has a better right to say who you shall employ in that mine than you have yourself. Has the State of Ohio a right to say to you whom you shall employ to run your mine? If so, then the State of Ohio sends a man around there to look after your mine and take charge of it.

MR. PRICE: There are some things about this that look to me to be right. I believe in advancement. Then, again, there are some other things about it that I don't feel in favor of. I am a man who is pretty well up in years. I have been a great deal about mines. In fact, I don't know anything else. I have worked under men who were well educated, and I have worked under men who had a very limited education. I have found in many instances where men appeared to have a good practical experience, with an education, that they were very good men, but many of them relied too much on their education and too little upon experience, going off upon new theories. But I must say here that the best men that I ever worked under, for ventilating mines and for management of men, were old practical miners that had come into the mines when they were little boys. [applause.] At first they attended doors. They measured him with a candle to see how many candles high he was. I have a man of that kind in my mind now, and that same man is mining, and he is superintending a mine to-day. He must be 70 odd years of age.

THE CHAIR: Mr. Price, let me ask one question. Would the proficiency of a man be less if he had more education?

MR. PRICE: No, I don't know that it would; I can't say that.

THE CHAIR: Could not that man, during his life of 70 years—I take it for granted now that he is a man of no education—couldn't he, during his life of seventy years, have obtained a little education if he had tried?

MR. PRICE: Well, I suppose he could; but he was one of those thorough-going men.

THE CHAIR : Now, ought he not to have done so?

MR. PRICE : He ought to, but he was working all the time. He was one of the most attentive men I ever saw. Now what I was going to say is this : Many of these old men were door-tenders and mule-drivers and miners. Now, as far as push was concerned, they didn't know anything else but work. Those men generally produced the cheapest coal, notwithstanding their entries were zigzag, they got the coal out all the same. Now, of course, in adopting this resolution, it does not matter to me, but I am inclined to believe that we are out of place when we start to recommend the legislature to make laws in reference to examining mine bosses. If our mine bosses are at a low grade, these mine inspectors ought to be posted and they ought to be men who would put them in the right place, and who would know whether they were right grade of men for mine bosses or not. Then, again, there are the operators ; they should be posted ; and if we have not the right grade of men for bosses, we should make application to the legislature to make laws so that we would have them, but I don't think it is the business of this institute.

MR. HARRY : I would like to make one statement. I don't want you to think that I am not in favor of a man getting an education. I think it is very necessary for a man to have one if he can get it. My argument is that there are too many of them that can not get it, and I don't think we ought to deprive them of a chance to get a position of that kind.

A MEMBER : Provided this becomes a law, you could not employ a miner for a boss, could you ?

THE CHAIR : I presume you could employ anyone you had a mind to if he had a certificate.

MR. PRICE : I would like to see this thing get a fair showing. I think we had better lay it on the table and bring it up at some future time and consider the subject well. I would like to amend friend Roy's motion by making a motion to lay it upon the table and take it up at some future date and discuss it well. I don't think it has had a fair discussion to-night and we ought to discuss it thoroughly.

Motion was seconded by Mr. Harry.

THE CHAIR: You have heard the amendment to Mr. Roy's motion. The amendment is to lay the resolution on the table.

MR. ROY: I don't remember having made any motion.

THE CHAIR: Who moved the adoption of that resolution?

A MEMBER: I believe I made that motion and some gentleman over here seconded it.

THE CHAIR: Gentlemen, you have heard the amendment to the motion of this gentleman to lay the resolution on the table. Are you ready for the question. (Calls of "Question.")

The question, being put by the Chair, was declared lost.

THE CHAIR: Now we come to the adoption of the resolution.

The question being put by the Chair, the resolution was declared adopted.

THE CHAIR: The next order of business is the report of the committee on officers for the ensuing year.

---

*Mr. President and Gentlemen of the Institute:*

We, your committee, would recommend for officers not heretofore elected, to serve for the ensuing year: For Vice President, Henry Price, of Jackson; for Executive Committee, Hon. Andrew Roy, Glen Roy, O; Prof. F. W. Sperr, O. S. U; Daniel J. Harry, Jackson.

MR. HARRY: I am going to make a minority report. I want the old committee to stand as it was last year. I think it is better to have a board here, so that they can consult together. I have Mr. Roy, Prof. Lord, and Prof. Sperr.

MR. PRICE: I move the minority report be adopted.

Motion seconded by Mr. Morris.

PROF. LORD: I think this is a case where there are two tickets in the field. We had better not pass on the matter by

motion but go through the excitement of a campaign. I think a new executive board will be better than an old one that is worn out.

The question coming upon the motion of Mr. Price, it was declared carried.

THE CHAIR: The Executive Committee will consist of Prof. Lord, Prof. Sperr, and Mr. Roy. The majority report has named Mr. Price, of Jackson, for Vice President.

PROF. LORD: I move that the nomination of Mr. Price, of Jackson, as Vice President, be confirmed.

Motion was seconded and carried.

SECRETARY HASELTINE: Mr. Chairman, the committee have neglected an office that they created last year, that of Recording Clerk, to which our poet was elected last year but by some oversight of this committee, that office has been omitted, I see, from the list.

MR. ROY: It is getting late and we have a very valuable paper here and I would suggest that we omit everything except that paper and let that office go.

SECRETARY HASELTINE: Mr. President, with all deference to Mr. Roy, and I trust he will not consider that I am doing this to delay him, but we have another matter before we commence the reading of the paper. We have two papers, both of them good. As you have elected me Secretary, it will be proper to talk about it now, and I won't use many words, and that is this question of our Summer meeting. I will bring it up now so that we may discuss it, and get an expression of the members and get ready for our Summer meeting and not be caught, as we were two years ago, without one, or only part of one. I have been thinking the matter over and it suggests itself to me that we should deviate from the old rule and have for a Summer meeting, a sort of excursion, not only to parts of our own state but perhaps to some adjacent states. Now, with that in view, I have been thinking of holding the Summer meeting along the line of the Toledo & Ohio Central Railroad, provided they will extend to us the courtesies which I think

they will, and meet some place, for instance at Corning, and have a day's visit to the mines and then have an excursion train take us over into their new purchase of the Kanawha & Ohio Railroad and spend a day visiting the mines along the Kanawha. I have never been there and I know others have said to me that they would like to go.

Now I bring this up for consideration because, if we conclude to do this, it will be necessary to have a guaranty to make a good, respectable excursion before we can ask the Toledo & Ohio Central people to visit their property along the Kanawha. I bring this matter up for consideration and I would like to have a little bit of expression on the subject and, if you have any other plans, would like to hear them. This is a great deal of responsibility to put upon the Secretary and Executive Board and for fear somebody kicks because we don't do the right thing, I would like to have the institute responsible for some of this.

MR. PRICE: I will say this, that there are some beautiful sights to be seen up in that valley. Not only the mines, but there are other sights to be seen on that excursion. We could reach the Kanawha Falls and also reach the Hawks Nest, and I can assure you that the whole institute would be delighted with it. Years ago I was pretty familiar up that river, but I have not been up there since '62.

A MEMBER: I am in favor of Mr. Haseltine's suggestion in regard to a meeting being held at Corning and an excursion through the Kanawha region. I would be pleased to take a trip through that region myself, and be pleased to have the members think as I do, and I think we will have a grand time, but, we will have to have notice whether you could make the arrangement satisfactory or not.

SECRETARY HASELTINE: We will try to make the arrangement.

A MEMBER: Well, I will go for one, if you can make satisfactory arrangements.

A MEMBER: Mr. Chairman, I move this matter be left in the hands of the Executive Board.

THE CHAIR: I will just say that all that the Secretary wants to know to-night was the feeling about that. Of course it will have to be left to the Executive Board anyhow. These are merely suggestions to find out the feeling as to whether the members would feel like taking that trip.

SECRETARY HASELTINE: That is all I want to know, how they feel about it.

THE CHAIR: All those that feel like going on the trip suggested by the Secretary for our summer meeting, will please rise to their feet.

SECRETARY HASELTINE: There are about 20.

THE CHAIR: Well, that will give some idea to the Executive Committee of what they can expect.

SECRETARY HASELTINE: I would like to have every member who is here resolve himself into a committee to invite such of his friends as would like to go with us.

THE CHAIR: Now, gentlemen, we have two more papers to be read. The first is, "The Difference Between Mining Coal and Iron Ore," by Mr. Schmidt, of Post Boy, O.

SECRETARY HASELTINE: Mr. Schmidt forwarded his paper to me to-day, and I have just taken it up.