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PROCEEDINGS
OF THE
FIFTEENTH ANNUAL MEETING
OF
Ohio Institute of Mining Engineers.

COLUMBUS, OHIO, January 21, 1886.

EVENING SESSION.

That the program which had been prepared for the opening session was an interesting and valuable one, as was evidenced by the large attendance. The Institute was called to order promptly by President Orton, who delivered the following address:

Gentlemen of the Institute :

It is a very great pleasure to me to welcome you here to-night, to the opening of the fifteenth annual meeting of this Institute. Another year has passed swiftly away, and its successes and its failures, its trials and its endeavors are relegated to the realms of memory and the historian's page.

To some few of the struggling thousands whom this body represents, the year has brought with it success and rejoicing. To a larger number it has brought the bitter sense of failure in the face of strenuous endeavor. But to the greatest number, it has brought neither the one or the other; it leaves us as it found us, fighting our way through life, sustaining our courage by the occasional tincture of success, curbing our otherwise riotous impulses by the occasional touch of adversity.

It leaves us as it found us, hardworking men, interested in our work, and loving our profession: a heritage worth more to us than much riches, and for which we would do ill to exchange anything that the world could offer.

The affairs of this Institute, as our faithful secretary will presently inform you, have fairly illustrated the fortunes of the average man as above depicted. It has had its reverses, and

those after diligent endeavor; and it has now its portion of success, for it is my duty to say that the secretary has brought out from a rather unpromising prospect, the most vigorous and enlivening program which has been offered to the members of this Institute for several years.

But I shall not trespass on the preserves of the honorable secretary in telling you in detail of the welfare of the Institute. He has prepared all that better than any other one could do, for no one else has the intimate knowledge of the facts.

But there is one thing which I want to call to your notice, for I fear that Mr. Haseltine may forget to do it himself, and that is, that I think that this Institute very faintly realizes what a prize they have in their secretary. To his patient endeavor, to his energy, to his tact, to his enthusiasm in our behalf, we owe most of what this Institute has accomplished in past years, and indeed the very spark of life itself has at times been kept alive only by the vigorous fanning of his official hat. All honor and all credit, then, to Robert M. Haseltine, the secretary of this Institute.

I have been at some loss in thinking over my ground for this occasion, just what I had best make the basis of my remarks. Perhaps I had best introduce them with a parable.

I well recollect, when a student at college fourteen or fifteen years ago, how a number of us played a practical joke on one of our fellows. The theater of the scene was the floor of the college debating society, and the victim of the joke was a good-natured German boy whom every one liked. He was on for a declamation and was incautious enough to let it be known beforehand that he would deliver two selections, one a very humorous one, and one a very pathetic one. We wickedly conspired together, and with such efficiency, that while the fat little fellow gave his funny declamation, and added his own brogue to the dialect of the piece, not a sound was heard and not a man was seen to relax the solemnity of his visage by a smile. Somewhat bewildered by this stony reception of his best efforts, he began rather lamely the delivery of a piece which required the pathos of a finished actor. And instead of the moist eye and respectful silence of an audience "en rapport" with his theme, he was greeted with such shouts of pent-up mirth as had never greeted the most humorous production ever delivered in those four walls.

All at once, realizing the nature of the trick we had been playing on him, he rushed headlong from the room, white with rage, and our best endeavors to make peace and to coax him back to duty again were futile for many weeks thereafter.

One year ago, I delivered to this association an address on

a subject which lay near my heart and which still retains its position there. With what skill and persuasiveness I could, I marshaled the facts and arguments which seemed to prove my point and finally, having presented the same with my earnest recommendations for action, I took my seat.

And in the discussion which instantly arose, I was amazed to find that every single remark from every speaker was directed to the pros and cons of a subject to which I had not directed attention, or to which I had devoted but the merest passing word, and moreover, which was not germane to the subject of which my discussion treated.

You may imagine my surprise. I felt, for a time at least, as if the Institute were repeating the joke of my college days on me. But I determined that I should not take such summary action as the other victim did, and I have therefore determined to once more present these facts to you and to earnestly beg that you give them careful discussion and if possible take some action on them. It is, then, to the subject of the preservation of our coal supply that I wish to direct your attention for the next few moments.

THE PRESERVATION OF OUR COAL SUPPLY.

The progress which the world has made in the last two centuries has been beyond the understanding of mankind. The advance has been so great and so varied that it requires a mind of the rarest clearness to obtain anything like a comprehensive idea—a sort of mental birdseye view—of its greatness; while to the toiling millions, a complete knowledge of even their own specialty, make it ever so narrow, is wellnigh impossible.

While we must fall back daunted by any attempt to appreciate the greatness of human achievement, we can to some extent see the causes and forces which have made this greatness possible, and from no such list could anyone exclude a recognition of the development of the stored power of the earth in our coal and other fossil fuel. A moment's thought will show any of you to what a large extent, indeed, to what a fearful extent, we of this generation depend for our daily existence on the regularity of this flow of fossilized vegetation from the bowels of the earth. It is not merely a question of convenience, or pleasure, but it is now a question of life itself in many of the closely populated centers. Not only our pleasures, and our travels, and our commerce, but our food and our warmth are in large districts possible only by the continuous coal supply.

If these facts are admitted, and, indeed, it is hard to see how

they can be disputed, then it is of most vital and direct importance, not only to us but to all, to know what this supply of power is, and to know how it is being depleted. This subject has been taken up in nearly every country where the foot of the geologist has trod. In every country but our own, this question has been made the subject of most minute inquiry; and even here, where open-handed prodigality has lasted longest, we are not without much careful work and many careful data on this subject. For our own State, the estimates made by those best able to judge, and based on the work of repeated surveys of the territory, only place the total life of our coal deposits at a period of about two hundred and fifty years, a period to which the mines of Great Britain have already been subjected.

As you all realize, the difficulty and, indeed, I may almost say the futility of such statements, comes from the constantly changing conditions which have surrounded the progress of the past. No one feels the pressure of these facts at this time, but it is so easy and so comforting to say, "Oh, well, by that time we will be making power from some totally different source."

But all the vast accumulations of scientific knowledge, if they prove anything, prove that the life-giving energies of the earth's crust are all due to one common source, which is the heat of the sun, and that while our human ingenuity has done wonders in utilizing and metamorphosing this energy into other channels, yet we have never added one atom or one unit to the sum total of this power; and that we have been drawing at a constantly increasing rate on those forms of power, which are but the accumulations of the sun's power from ages past. These are not now accumulating at the same rate as they have in the past and we are thus approaching a time when the human race will be dependent on what it can get from the heat of the sun's rays as they fall on the surface of the earth. We may find new ways to generate power, and to utilize force, but they will always in the future as in the past come back to the utilization of the sun's heat and to its stored resources.

Bearing in mind these facts, let us for a moment look into the past of the mining industry, and observe whether what has been done, has been done with a wise regard to the preservation of the supply. I can hardly undertake to speak for other districts than our own, on account of my limited experience, so what I may say on this head must be understood to apply to this State; though I am free to acknowledge that I do not think that the record of other American states is much better. What has been the record of Ohio in this matter: have we managed our resources wisely?

Have we obtained all that is possible from the territory that we have used up and abandoned? Every one here knows what answer must be made to these inquiries. The condensed vegetation of many thousand years of productive growth, has been wasted from the day when the miner broke ground till his rotten timbers have broken and his iniquitous cavern has caved in.

One of these greatest sources of waste has laid in the absence of system in winning the coal in the past. In my own experience, I have reviewed the work of at least twenty miners of the older type in this State, and I doubt if, of the territory which they have worked over, and which they have ruined for all time to come, they have, on the average, secured over sixty per cent. of the precious mineral wealth. Certainly, many individual cases could be cited where they got more than this, and also many cases exist where they got less than this quantity. And the best mining practice of twenty years ago could hardly be claimed to exceed eighty per cent. of the actual coal worked over. These awful depredations, for they were nothing less, were committed for the most part, when the work of the surveyor was rare, and the mine map was counted a luxury.

Another source has been the deliberate rejection of large proportions of the coal after it has been already mined, on technical distinctions as to its quality. A coal slightly inferior in quality has been left in the mines to the extent of millions of tons, because its ash was one or two per cent. higher than the best that the mine afforded: even the best of coal has been unblushingly left in the mine with no other excuse than that it made a good roof, and saved taking down an otherwise treacherous slate.

Once again, the slack coal, often the very best and choicest part of the vein, has been ruthlessly dumped into piles and set on fire, and the flames have cried out like the pillar of fire of the hosts of old against us who have tolerated it.

Once more, if these sources of drain and loss were all, we could perhaps learn to look at it with less active sorrow, but the worst of all has yet to be told. In the vast majority of the cases in this State, the principal veins have been worked out, and the workings allowed to cave in, thereby ruining all superincumbent strata of coal, which have been so shattered and broken that they can never be mined. The operators have recognized this fact all along, but have justified their course by the fact that no one of them could afford to mine a thin vein where his neighbor was putting only his thick vein on the market. Thus it is that over large areas, the coals that overlie the veins chiefly exploited, are ruined forever, because the competitive conditions of the present system

have forced each operator to take that which he could get the quickest and cheapest, and to reject all else as worthless which is anything less than the best.

I have only touched on these various points, on which a volume might well be written were it not such sad reading. But my claims to your time are limited.

What can be said of the mining engineering of the present day? Is it possible that all which we have seen and known to be an evil and a barbarity twenty years ago, is still going on to-day without any effort being made to correct it? Alas, it cannot be denied.

Slight signs of progress are visible in several directions. For instance, our winning of coal has improved very much in some of the main districts, though but little different in the other parts of the State. Mines are now often laid out on paper before being laid out in fact, and hence can be worked on a consecutive plan from beginning to end; and in such cases a yield of ninety per cent., or even of ninety-five per cent., is an accomplished fact. In but few of our districts is the barbarous work of our earliest coal butchers permitted, thanks to the mining laws and their enforcement.

Progress is also being made in the direction of better consumption of the coal in the home and factory. The domestic use of artificial gas fuel and the application of the same to the cruder operations of the iron mills and factories is a great step ahead. Also, there is a movement towards the grading of coals, and people who use fuel in a crude way, are beginning to find out that they can get just as good results with a fuel which is not the best that the mine produces. The introduction of finer grades of coal in the steam production is making headway. But, notwithstanding these signs of progress, much that has been mentioned as characterizing the work of twenty years ago is still true; and the practices are so firmly rooted in our commercial system, that they will never be cured, except by the direct effort of those who have the knowledge and the influence to make their position felt.

This leads us up to the question directly, as to what is the function of the State in this and other such questions of economic policy? Does it, in fulfilling its mission of freedom and personal liberty to all, necessarily confer with it the privilege of wasting riotously that which we cannot use ourselves? Has a man a moral right to cast away food willfully which he cannot eat himself, but for which his brother is hungering? Has a man a legal right to do so? If so, are the laws doing their duty?

I contend that among the varied and important uses to which

the activities of the State may properly be put, that the conservation of its natural resources is second to none. How long would we of Ohio look peaceably on, if the people of Kentucky were to take it into their heads to fill up the Ohio river and obstruct the navigation of the same? And yet this damage would be but a trifle to the spoliation of our coals, for what the hands of man have built up, they can tear down, and the damage would have a purely money value. How long would our nation look on peaceably if Canada were to begin work on some plan of irrigation by which the levels of our lakes would be lowered? And why? Cannot a man do as he likes with his own?

I contend that the right of the individual is not to unrestrained license, but to just such an amount of freedom as he can enjoy without infringing on the comforts and privileges of others, and among those others, I include the millions of posterity who shall follow us. And can any one thing for a moment that the supply of the stored power of the ages whose work is to-day turning nearly every wheel and feeding half the mouths of this broad land, is any less important to one of us than another? And does any one think that the mere ownership of the surface rights of land should enable a man to waste the mineral wealth which he did not put there, and often of which he did not know when he bought the land? Does its present plenty entail any less of an obligation to guard it for our posterity?

Competition has been quoted as the life of trade, and so it is; but its uncontrolled exercise is likely to be the death of trade and half of the human race at the same time. The competition of the clothing makers of New York has enabled us to buy a shirt ready made for less than our wives can buy the linen and thread of a similar quality from which to make its duplicate. And in every such garment is written a tale of woe which would haunt the wearer if he only heard it. The suffering womankind who have been ground by this competition into either starvation or dishonor, are an army which none of us would like to face.

Competition alone, unguarded and unguarded, is a terrible engine, which like a vise will squeeze out the life of all who come under its domain. Competition, with its hands tied by judicious laws, is one of the most necessary conditions of success and progress for mankind here or elsewhere.

The function of the State is clear to me in this matter. I would have it either condemn all mineral wealth for the public property and pay each property holder for any loss he might have sustained, for improvements he might have put on the property, for the extratction of this wealth; or else I would have the mining

and sale of coal and other minerals so hedged about with laws and followed up by such an army of inspectors that the losses of mineral would be brought down to a minimum. I would have it made so plain that he who runs may read, that the mineral wealth of this State belongs by natural right to the people of this State, and not to him who is able to pay the highest price per acre for it. And also, that it must be used only to maintain our daily needs, and those economically administered.

If this doctrine is socialism, then I am a socialist. I recognize no right by which a man or a corporation can obtain the title to a tract of land and gut it of all its most valuable parts, and then leave it like the wreck of a ship, plundered on the high seas by pirates. And not a man here can deny that this is just what is going on now, and has been going on ever since the mines of this State were opened.

And now what can be done to improve this state of affairs? From whom will such a motion come? From the legislature? They never pass a law except when they have good proof that the majority of their people demand it. Will it come from the owners of the coal lands? Those of them who stop to think of such things are not very common and their natural distrust of anything new is sufficient to shut their mouths.

Will it come from the people direct? They are mostly ignorant of the whole matter, and they are unthinking even if they knew. Among the lower classes it is the motto, "After us, the deluge," which is most popular, and they never have any reason to investigate this subject anyway, except when a coal miners' strike occasionally inconveniences them for a few days.

From whom, then, shall such a protest come, if not from this body? Who else realizes the facts as we do, and whose opinions, if not ours, would carry weight with the people? In our membership we include men prominent in every department of knowledge whose use can be required in the conduct of this campaign; we have here geologists, chemists, engineers, constructors, miners, operators, land owners, and more. If we, as a body, tell the public that their birthright is being squandered, and that they must act if they want it saved, it will have its weight.

Will they rise to action at once in a matter which upsets all the old traditions of the country and reduces the chance of individual wealth? Not likely. They will be slow to believe and slower still to act. If every one of this Institute felt just as I do, and was willing to do all he could to carry his belief to a fruitful action, we would still have before us a long campaign of the hardest work and the most thankless work as well. But it can be

done, and it must be done if this country is to endure as the monument that we are now so proudly foretelling. It can be done, but it must be done a little at a time.

The first thing which it would be possible to actually accomplish, would be to amend the mining law so that our inspector would not only be charged with the care of the safety and health of the mining population as he is now, but would also have on his hands the enforcement of the best mining that is now possible. This is not so severe a departure that we need despair of attaining it by a little campaign. And after this entering wedge, there would be found ways to inaugurate other improvements.

There is an additional reason, though it is a very small one, in comparison with the magnitude of the interests which I have just been discussing. I refer to the need of a live, active issue in this association in order to get out of it the real good which it is capable of giving. No organization can exist long without some good, strong "raison d'être", and we have at this time less of such a motive in our make-up than at any time since the opening of the Institute. We have done some very good work in the past; among other things, we have aided the cause of good mining by the establishment of a course for technical education at the State University, and we have unquestionably added something to the knowledge and pleasure of quite a large body of mining engineers, by our pleasant and social meetings and excursions. But, I think that we ought to have some higher motive than the attainment of this little object, and so far as I am aware that is the only kind of work being performed by our meetings just now. If for no other reason than to produce a strong organization, we ought to appoint a legislative committee to prepare a statement of what we regard as needed amendments to the mining law, and then we ought resolutely to push these suggestions till they are in our statute books. If the people once see that we are working for what we regard as their interests, I for one am sure that no one of us would ever have cause to regret having had a hand in putting the measure through. (Applause.)

PRESIDENT ORTON: Inasmuch as our program is very full and important for this evening, I will not ask for a discussion on the subject of my address now; but if there are any members who have anything to say along these lines, either in support of what I said, or refuting it, and wishes to make discussion, opportunity can be had by making a motion to that effect at some later time. But now we will proceed with the program.

SECRETARY HASELTINE: This is an excellent paper for discussion, but as we do not desire to prolong this session to a late hour, I move that the discussion of the president's address be deferred until to-morrow evening and given second place in the program for that session.

Motion seconded and upon vote, carried.

PRESIDENT ORTON: We will now listen to the reading of the report of our secretary-treasurer.

Report read by Mr. Haseltine.